



FACTORY FIVE
R A C I N G



'35 Hot Rod Truck
Assembly Manual

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General Information

Foreword

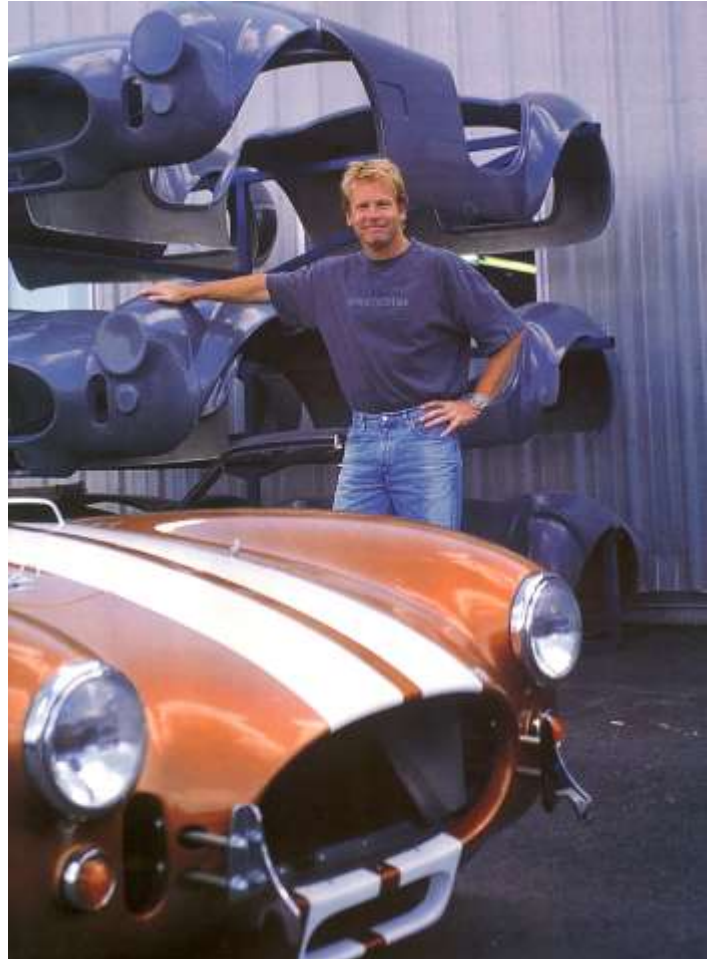
If you are reading this, you are embarking on a mission to build your own car, or at least considering doing so. I wanted to share with you some of my experiences and lessons learned while working with literally thousands of people who have completed this undertaking with us. The lessons learned here are important and will hopefully help with your decisions as well as with the project and the completed car.

First of all, the idea of building your own car is NOT for everyone. It is a serious endeavor that should be undertaken with care and consideration. The desire to build your own custom car goes way back. It is part of our uniquely American car-centric culture, and those who build their own cars are at the very center of this. Since the earliest days of Hot Rodding, literally tens of thousands of people have built their own cars. Even more have done restorations and major customizations to existing cars. As fun as this project is, a person should be candid about their abilities turning a wrench. This is not a place for novices. That is even truer in racing, where danger and risk are part of the very definition of always trying to go faster. The late Carroll Smith wrote something I really loved that speaks to this point.

“There is no magic! The one basic truth of successful racecar preparation bears repeating. There is no magic. There is only logic, common sense, forethought, vast amounts of hard work, and a fanatic dedication to the task at hand”.

Carroll Smith - “Prepare to Win”

I can't think of anything more appropriate to say about the right way to approach the serious work of building your own car. Carroll passed away but his accomplishments behind the Ford Lemans victories and his contributions to the Motorsports community continues in his writings that are all at the top of my list of recommended readings for the car builder or racer.



After being honest about the skills, responsibility, and dedication required to build a car, I feel the need to talk about the PROCESS of building a car in an equally candid manner.

The process of building a car is a lot like the process of having kids. As a matter of fact, it's absolutely the best analogy I can find (apologies in advance to all of you without kids, try and bear with me). Both things are easy to get started. With a car project you order a manual, talk to car guys, get all excited over glossy photos and perhaps order a kit from us. With the whole pregnancy thing, well for most folks that's even easier to get started...

When my wife was pregnant with our first daughter, I was sure we would never have any more children. From the swollen ankles to the morning sickness, to the delivery room scene from the movie "Alien", the whole process was difficult, and while she didn't complain too much thru the nine months, it was obviously hard work. Another thing, she wouldn't have been the best salesman for others considering getting started on the baby thing.

When it comes to the car project, once the kit arrives and the process begins it is much the same as pregnancy. Frankly the degree to which a person breezes thru the project or languishes is commonly a factor of skill, but still, building a car for anyone is a tough job and there are inevitably issues. How many times have you gotten the wrong part at NAPA, gotten home to realize the alternator has a six ribbed pulley not five...? You will meet challenges building this car and you will be frustrated at times. Thankfully there are internet discussion forums where you can vent your frustrations and complain about the idiots who designed this kit. We smile when reading these posts because we know that while the pregnant woman complains, the mother loves her children in an unreasonable and perhaps even undeserved way!

All the way thru the process, as you build your car, the seasoned guys at Factory Five in tech support will help you. The larger community of Factory Five customers will also be there for you, as the one thing that really sets us above the crowd of other companies is the size, competence and enthusiasm of our customer community.

When the baby arrives and when your car is done, there will still be more work. With babies, it's up all night, diapers, and strange maternity contraptions that men don't speak of in the light of day... With the car it will be other challenges. Registration and licensing can be frustrating and laws vary from state to state. A wrench dropped from 25 feet away will inexplicably shoot sideways into any freshly painted surface and my favorite was my own engineers who felt the need to test out how long an 8.8" rear diff can run on a track without gear oil (answer, about three laps before deciding to stop moving).

There will be highs and there will be lows, but in the end, there are few parents who don't treasure their children more than life itself, and there are few Factory Five owners whose lives remain unchanged by the experience and the artwork they have crafted.

It's one of the greatest experiences in the world to raise children. It's also one of the most rewarding things I know to build your own car. Even today at car shows, open houses, and events wherever Factory Five cars are found, I smile to hear the inevitable first words every guy says to me... "Let me show you what I've done".

The cars that we build are more than cars. They are a reflection of us. The badge of honor that comes with having built your own car is a special one indeed. You will join a community of others who have

earned their own... and THAT is the story of Factory Five Racing and that is what awaits you in this process.

David Smith
President

Safety Notice

Warning!

Assembly of a Factory Five vehicle kit should ONLY be performed by persons experienced, trained, and familiar with custom vehicle work including, but not limited to, brakes, wheels/tires, engines/running gear, steering systems, suspension systems, automotive restoration, competitive driving, and all aspects of custom vehicle work. **Failure to safely assemble a Factory Five Racing vehicle parts kit can result in serious injury or death.**

Advice of Factory Five Technical Support does not guarantee proper installation. YOU, or the person who does the assembly must be qualified to do this. It is not possible for Factory Five to foresee or understand all potential issues that may arise during your build while we offer advice and assistance over the phone, via email, or even in person.

Do not assume anything. Like all vehicle work, improperly assembled vehicle parts can cause serious injury or death.

Purchaser expressly ASSUMES THE RISK of all personal, property, and economic injury, damage, or loss, either direct or indirect, arising from the use, misuse, or failure to determine the appropriate use of any Factory Five product.

Factory Five vehicles are part of a category of vehicles that include custom builds such as hot rods, Cobra replicas, and other high-performance vehicles. They are capable of extreme performance and should be operated safely, and only by skilled drivers. Do not loan your Factory Five to a friend!

Building your own car and racing are dangerous endeavors, and the buyer expressly assumes the risk of all personal, property, or economic injury resulting from the use of said products.

Ford and Chevrolet, GM and Cobra are registered trademarks.
Factory Five Racing, Inc. is not connected to the holders of these marks.

Safety Tips

- Read the manual. It is at least a good guide and place to start.
- Don't take short cuts.
- Before starting work, make sure you have the proper tools, the required parts, and sufficient space for the job. If you damage any parts, it will probably be because they were either not stored properly or, the wrong tool was used to install them.
- Don't work when you're too tired or upset. The truck you will be building is capable of supercar levels of performance, and your life depends on the quality of your workmanship.
- Never work under a raised car unless it is well supported by stands intended for that purpose. Never work under a car supported by a jack.
- Always observe good safety practices such as the use of eye protection, protective clothing, and gloves.
- Keep the battery disconnected whenever you work on fuel or electrical systems and always keep a fire extinguisher handy.
- Don't allow children in the work area.
- Partially assembled cars attract a crowd. Keep garage doors closed or mark off work areas.
- Make sure that all electrical equipment is grounded. If working alone, have someone check on you periodically.
- When using an engine hoist, make sure that the working load rating is correct for the weight.
- Work in a well-ventilated and well-lighted area.
- Use portable safety lights for under-carriage work. Never use an exposed bulb type light.
- Be mindful of the environment. Avoid spills of solvents or engine fluids. If a spill occurs, clean up immediately and dispose of it in hazardous waste containers
- Never let a friend or someone else drive your car.
- Always wear your harnesses.
- Clean your build area after each assembly is completed. This will speed your build process as it ensures that you know where your tools are and prevents tripping injuries.

It is impossible to anticipate all of the possible hazards. Care and Common Sense will prevent most accidents.

How to use This Book

This Assembly manual is intended to help you build your Factory Five Kit. This book will not explain such things as engine or transmission building. A secondary purpose of this book is to use it as reference for owners that want to do maintenance work on their cars or for those that purchase finished cars, to understand their cars better.

This manual was written with the average weekend mechanic in mind. It is best to follow the manual step by step but if there is a part missing from the kit move to the next section and come back to it later when the part is available. If the instructions are followed then the resulting car should be a great handling sports car.

Some of the pictures show the Factory Five Hot Rod, the 35 Truck shares part of the frame and many parts with this kit.

What You Need

Engine:



Ford - Small block Ford 289/302/351 or Coyote modular engine.

GM – Small Block Chevy or LS engine

Transmission and shifter:



T5, Tremec TKO, AOD, or Tremec T56.



If using an automatic transmission, we recommend a torque converter stall speed of **3500 RPM** due to the weight of the finished car

Rear End and brakes:



Ford 2005-2014 Mustang V8 8.8" rear end and brakes. A 2011-14 V6 rear axle may also be used but the input flange must be swapped to the 5R3Z-4851-A flange.

Paint: Most customers will farm out the body and paint work to a professional body shop.

Fuel pump: External carbureted or fuel injected inline or in-tank pump.



Fuel pump: External carbureted or fuel injected inline or in-tank pump.



Battery: We recommend the Odyssey PC925 dry cell or similar sized battery.



Wheels and Tires: See the Appendix for wheel/tire specifications.

Optional part Instructions

Part instructions for all Factory Five parts and options can be found online at:

www.factoryfiveparts.com/instructions/

Tools and Supplies List

The following lists detail the tools and supplies that are needed to build your kit. The “helpful” items are not crucial to the assembly but make life easier. CRAFTSMAN®, Home Depot HUSKY® and Snap-On® tools are all guaranteed for life and we’ve found them to be reliable tools.

Tools

Storage Shelves for kit and running gear parts

- _____ Body storage area (can be outside)
- _____ SAE and metric socket set, a 52-piece set is a good choice
- _____ Deep sockets for some common sizes are helpful.
- _____ SAE Combination wrench set ($\frac{3}{8}$ "- $\frac{15}{16}$ ")
- _____ Metric combination wrench set (7mm – 24mm)
- _____ A set of standard and Phillips head screwdrivers
- _____ Standard and Metric Hex key sets
- _____ Long nose pliers, 4.5"
- _____ Snap ring pliers
- _____ Tin Snips
- _____ Drill (cordless with clutch)
- _____ Drill bits ($\frac{3}{32}$ "- $\frac{1}{2}$ " standard drill bits)
- _____ Caulk gun (Good Quality one)
- _____ Dead Blow hammer
- _____ Razor knife
- _____ Wire stripper/crimping tool
- _____ Bench top vise
- _____ 6" C-Clamps
- _____ Tape measure or straight edge ruler/T-square
- _____ Hydraulic floor jack
- _____ Engine hoist
- _____ 6' $\frac{5}{16}$ " chain (to lift engine)
- _____ 4 Jack stands
- _____ $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ " Fuel/brake line bender (hand held)
- _____ Torque wrench (Click style, $\frac{3}{8}$ " or $\frac{1}{2}$ " drive)
- _____ Eye protection
- _____ Bucket



Helpful

- _____ #6 hex driver attachment for cordless drill
- _____ Adapter for cordless to use $\frac{1}{4}$ " socket driver or $\frac{3}{8}$ " Impact wrench
- _____ Flare nut wrenches ($\frac{3}{8}$ " & $\frac{7}{16}$ ")
- _____ Flat file and round file
- _____ Ratchet wrenches

Required Supplies

- _____ Silicone Door and window sealant, GE Silicone II or equivalent – 4 tubes
- _____ Coolant
- _____ Engine oil
- _____ Gear oil
- _____ Transmission Fluid
- _____ Brake fluid, DOT 3

Blue Loctite/Threadlocker – 0.20oz (6ml)

Chassis grease with grease gun and grease fitting coupler

Oil filter

Battery

Spark plugs

Black permanent marker

Duct tape

Masking tape

Electrical tape

Bodywork supplies

Rags

Gojo® pumice hand cleaner

Acetone

Aluminum polish/cleaner

3M Marine 5200 Adhesive/Sealant – (4) 10oz. tubes

3M Super 77 spray adhesive – 1 large can

3M General Trim Adhesive (for headliner) – 1 large can



Stick with name brand products like Eastwood®, 3M®, and Duplicolor®. The Eastwood brand coatings are great. Sherwin Williams, PPG and Dupont brand paints are excellent.

Chapter 1 – Kit disassembly

Unpacking Your 35 Truck Kit

- 👉 Please note that your boxes are numbered, when you read your packing list you will see that next to each assembly there is a number circled. This is the box number that the assembly was packaged into.
- 👉 After everything is safely in your garage, open each box and do a physical inventory of all the parts.
- 👉 Call and report any potentially missing parts within 45 days of receiving your order.
- 👉 Do one box at a time and replace all the contents before going on to the next box.



Kit Parts Prep

There are a number of parts in the kit that are packed as bare metal. This is done to allow you to paint, powder coat, or chrome the parts as you desire. It makes the build a lot smoother if you coat these parts ahead of time so you do not have to wait for them when doing the assembly. These parts are:

33218	DRIVER SIDE FRONT UPPER CONTROL ARM	1.00	ea.
33222	PASSENGER SIDE FRONT UPPER CONTROL ARM	1.00	ea.
33380	HOT ROD BUSHING SLEEVE ASSEMBLY	4.00	ea.
33377	HOT ROD FRONT TUBULAR LOWER CONTROL ARM, DRIVER	1.00	ea.
33378	HOT ROD FRONT TUBULAR LOWER CONTROL ARM, PASS	1.00	ea.
33093	TRANSMISSION MOUNT PLATE	1.00	ea.
34634	DOOR HINGE NUT PLATE	4.00	ea.
34431	UPPER HINGE T, LEFT	1.00	ea.

34432	UPPER HINGE T, RIGHT	1.00	ea.
34431	BOTTOM HINGE T LEFT	1.00	ea.
33432	BOTTOM HINGE T RIGHT	1.00	ea.
34600	LEFT FRONT DOOR FRAME	1.00	ea.
34598	RIGHT FRONT DOOR FRAME	2.00	ea.
34601	LEFT REAR DOOR FRAME	2.00	ea.
34599	RIGHT REAR DOOR FRAME	1.00	ea.
34638	DOOR HANDLE BACKING PLATE, LEFT	1.00	ea.
34639	DOOR HANDLE BACKING PLATE, RIGHT	1.00	ea.
34646	E-BRAKE FIXED GEAR	1.00	ea.
15168	E-BRAKE HANDLE TO RATCHET MOUNT	2.00	ea.
15169	E-BRAKE RATCHET TOOTH	1.00	ea.
15170	E-BRAKE MOUNTING BRACKET	2.00	ea.

REMOVAL OF THE BODY



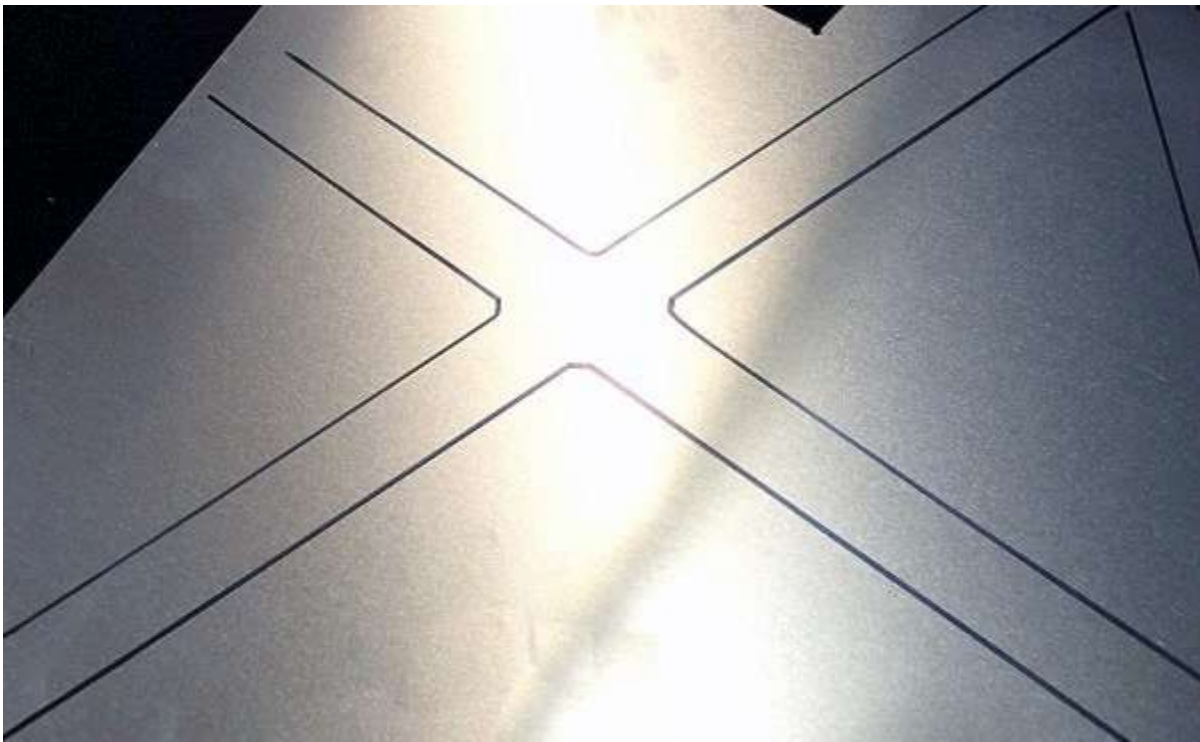
Remove the tape holding the doors in place and store them for later.

Two people can remove the body from the chassis. One person on either side located where the door openings are (if you have a third person, position them at the front. Removing the body should be done very carefully. Once the body is removed, it is fine to store it directly on the ground.

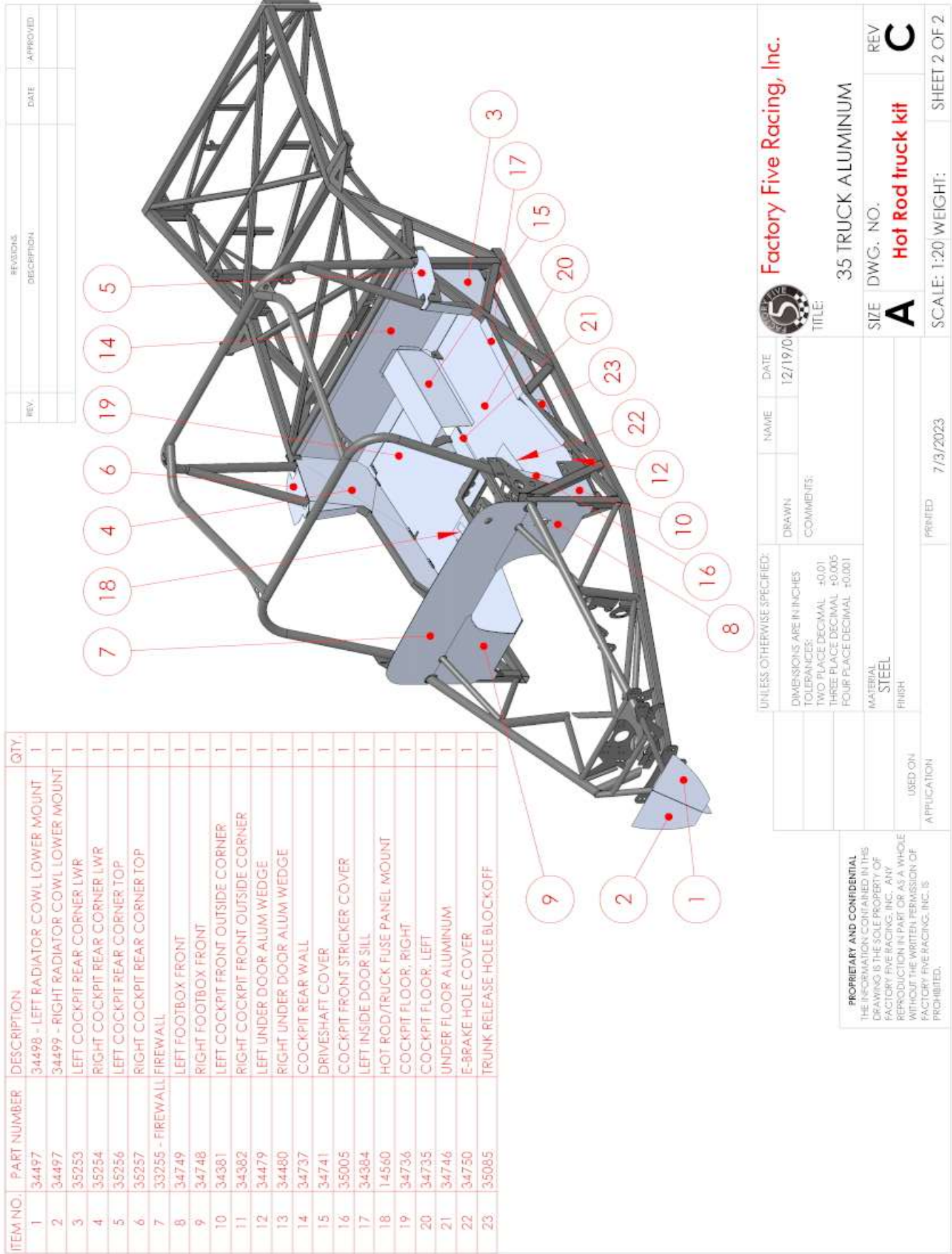
ALUMINUM REMOVAL AND PREPARATION



Before removing the aluminum from the chassis, mark each panel and take pictures of how the panels fit together (i.e. which is on top). To get straight and evenly spaced rivets, trace the underside of the aluminum panel around the frame members with a black permanent marker.



Remove any screws holding the panel to the frame and remove the aluminum panels. Keep the #6 screws to help with aluminum positioning during build-up.



Rivet Spacing Tool

1 Packaged Aluminum



In most cases we use a 3" rivet spacing when mounting aluminum panels to the chassis and a 2" spacing when mounting panel to panel. The rivet spacing tool has this hole spacing marked. The distance from the edge of the tool to the holes is correct to center the rivets on the $\frac{3}{4}$ " tubes.

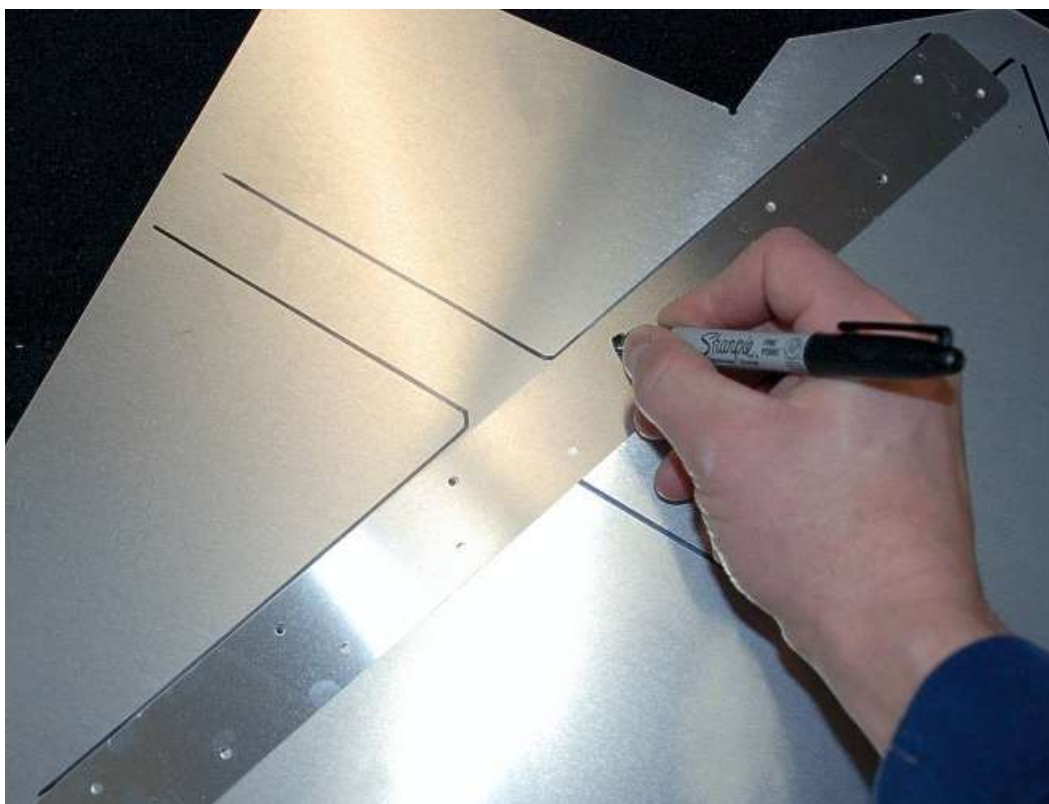


Use the $\frac{1}{8}$ " rivets for all of the aluminum panels unless otherwise directed.

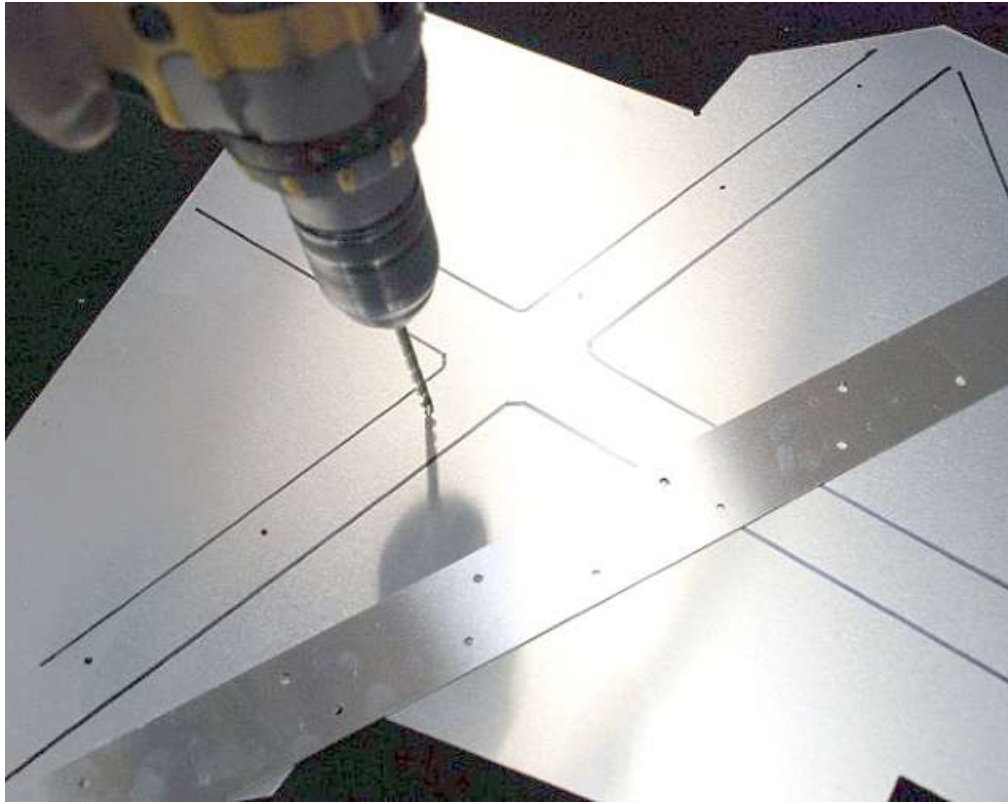


Use an $\frac{1}{8}$ " drill bit for the $\frac{1}{8}$ " rivets, $\frac{3}{16}$ " Drill Bit for the $\frac{3}{16}$ " rivets.

Align the edge of the tool with the marker line made around the tubes and mark the rivet holes with a marker.



Drill the marks with the correct drill bit size for the location.







Use Acetone to remove permanent marker as well as any ink that is on the aluminum.

Chapter 2 - Chassis Build Up

Front Suspension

LOWER CONTROL ARM ASSEMBLY

-  3/8", 3/4" wrench, chassis grease, vise or plastic hammer, ratchet, 3/4" socket
-  Front lower control arm components.
-  The bushing sleeve for the rear (attached to the linkage adjuster) will get assembled differently depending on the frame suspension holes used.
-  The suspension has two sets of holes. The top set is for a lower ride height (4-4.5") while the bottom set is for a higher ride height (5.5").

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	33377 - HOT ROD FRONT TUBULAR LOWER CONTROL ARM DRIVER	FRNT LWR CONTROL ARM, LEFT	1
2	33380 - HOT ROD BUSHING SLEEVE ASSEMBLY	HOT ROD BUSHING SLEEVE ASSEMBLY	2
3	3-4 Clevis	RIGHT HAND THREAD 3/4"-16 CLEVIS	1
4	3-4 Clevis	LEFT HAND THREAD 3/4"-16 CLEVIS	1
5	Rod Eye		1
6	33467	11.00" ADJUSTABLE TUBE	1
7	13129		1
8	33388 - LINKAGE ADJUSTER	LINKAGE ADJUSTER	1
9	HJNUT 0.7500-16-D-N	NUT, JAM, ZINC, 3/4"-16 THREAD	3
10	33709	1/2"-20 x 1.5" BOLT	2
11	33710	1/2"-20 x 2" BOLT	1
12	12218	1/2"-20 LOCK NUT	3
13	13166	NUT, JAM, ZINC, 3/4"-16 LEFT HAND THREAD	1

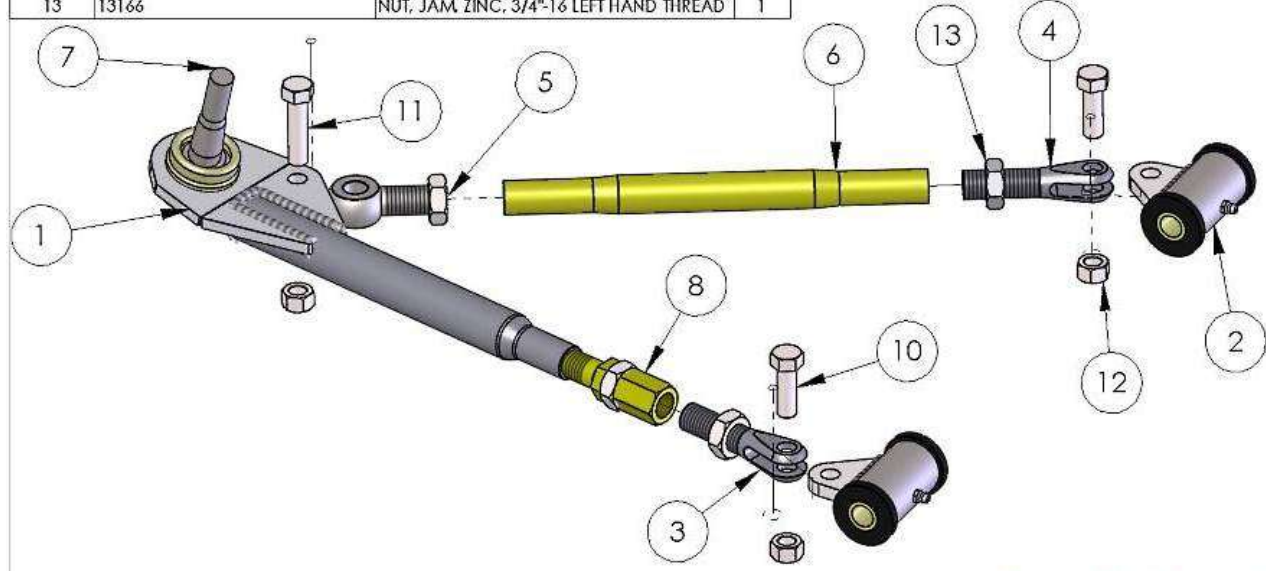
REV. A INITIAL RELEASE 8/1/08

REVISIONS

DESCRIPTION

DATE

APPROVED



UNLESS OTHERWISE SPECIFIED:		NAME	DATE
HOT ROD	DIMENSIONS ARE IN INCHES	JS	7/10/08
35 TRUCK	TOLERANCES:		
	TWO PLACE DECIMAL ±0.01		
	THREE PLACE DECIMAL ±0.005		
	FOUR PLACE DECIMAL ±0.001		
	MATERIAL		
	FINISH		
USED ON			
APPLICATION	PRINTED 2/8/2019		

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Factory Five Racing, Inc.

TITLE: LEFT SIDE FRNT LWR CONTROL ARM

SIZE DWG. NO. REV

A 33376 A

SCALE: 1:4 WEIGHT: SHEET 1 OF 1

Upper/stock frame hole location rear bushing sleeve orientation.

Thread the jam nuts onto all of the clevises, rod eyes and the linkage adjuster.

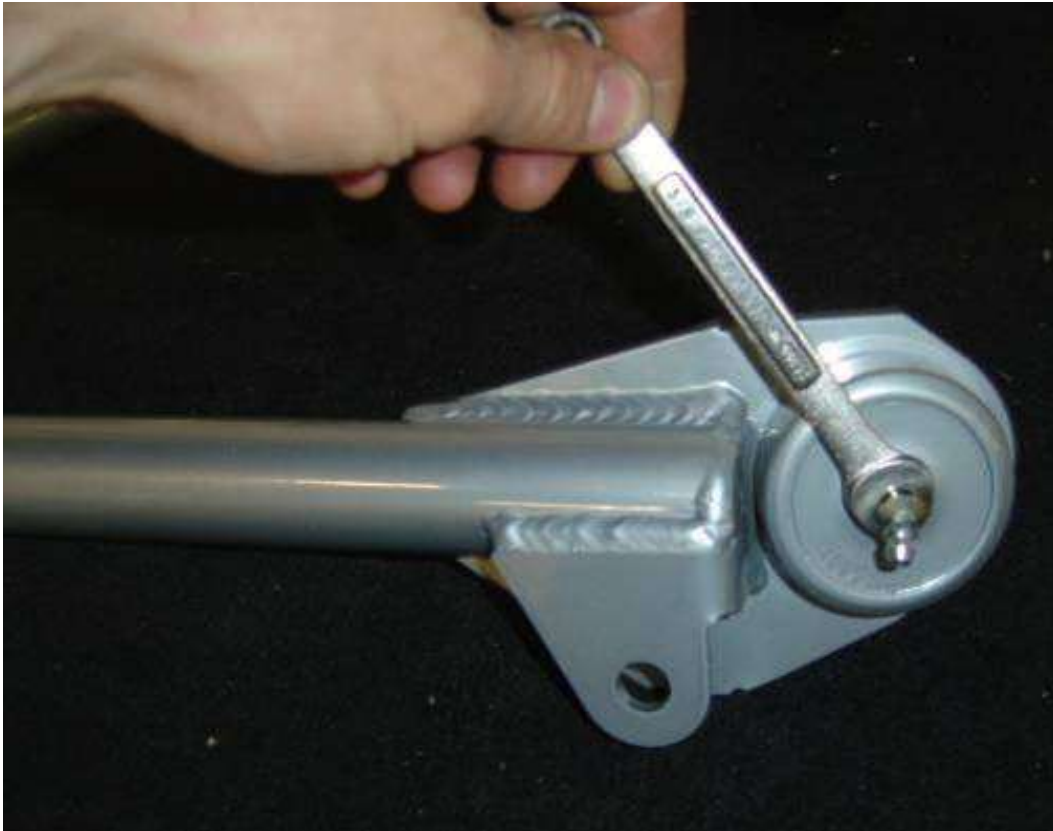
Mark the Rod eyes and clevises 5/8" from the end of the threads.



Assemble the front leg of the lower control arms as shown screwing the threads in to the marks on the threads made earlier. Note, the clevis (left) is left hand thread.



Place the dust boot over the lower control arm ball joint.



Install the grease fitting in the lower control arm ball joint.



Thread the adjuster into lower control arm



Screw the Clevis into the adjuster in the lower control arm.



Insert a rod eye into the front of the lower front control arm with the jam nut in place.



Apply grease to front lower collar sleeve.



Install sleeve in front lower collar.

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/1/08	



LOWER SUSPENSION HOLES



UPPER SUSPENSION HOLES

LEFT SIDE SHOWN

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DRAWN		JS	7/10/08
COMMENTS:			
DIMENSIONS ARE IN INCHES			
TOLERANCES:			
TWO PLACE DECIMAL		±0.01	
THREE PLACE DECIMAL		±0.005	
FOUR PLACE DECIMAL		±0.001	
MATERIAL			
FINISH			
USED ON			
APPLICATION			
PRINTED		7/15/2019	
SCALE: 1:5		WEIGHT:	
SHEET 2 OF 2			

FACTORY FIVE RACING, Inc.

5

LEFT SIDE FRNT LWR CONTROL ARM

SIZE DWG. NO. REV

A 33376 - HOT ROD FROM ALO

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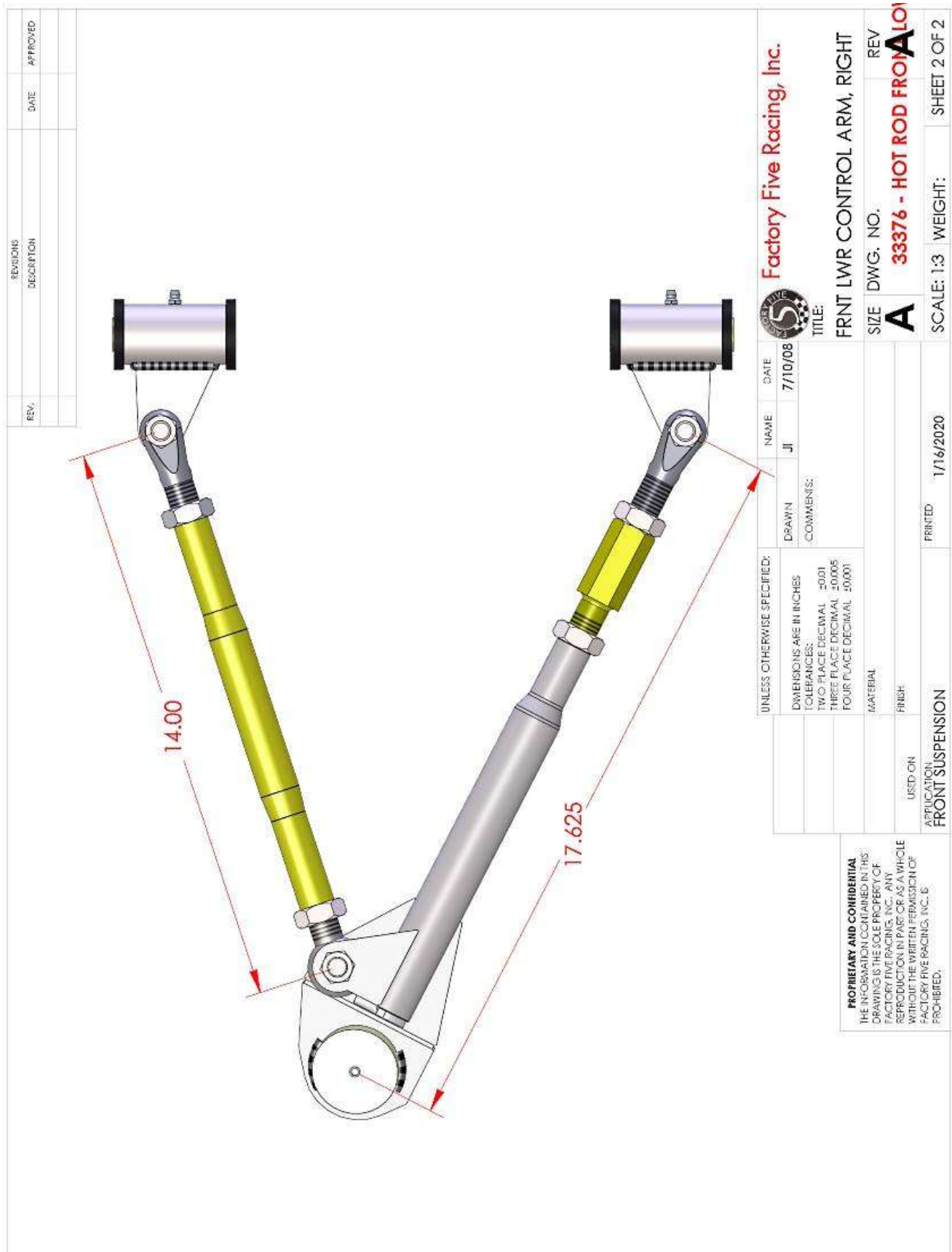
👉 The bushing sleeve for the rear (attached to the linkage adjuster) will get assembled differently depending on the frame suspension holes used. Note the direction of the bushing sleeve tab.



Install collar onto adjuster clevis. If running the lower suspension holes, run the rear bolt from the bottom up as well as turning the bushing sleeve.



Attach the rod end to the lower control arm.



Use the diagram above to roughly set the caster and camber alignment on the front suspension until a real alignment can be put on the truck.

UPPER CONTROL ARM ASSEMBLY

- ⌘ 5/16" wrench, chassis grease, vise or plastic hammer, External snap ring pliers.
- 🛠 Front upper control arm assembly.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	33218 - DRIVER SIDE FRONT UPPER CONTROL ARM	LEFT SIDE FRNT UPPER CONTROL ARM	1
2	13137	POLYURETHANE BUSHING	4
3	12257	PIVOT SLEEVE	2
4	35153	FRONT UPPER BALLJOINT	1
5	12228	GREASE FITTING	2

REV.	REVISIONS DESCRIPTION	DATE	APPROVED

1

2

3

4

5

Factory Five Racing, Inc.

5

TITLE: LFT FRONT UPPER CONTRL ARM

SIZE DWG. NO. **A 33218** REV **B**

SCALE: 1:4 WEIGHT: SHEET 1 OF 2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

TWO PLACE DECIMAL ±0.01

THREE PLACE DECIMAL ±0.005

FOUR PLACE DECIMAL ±0.001

MATERIAL

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PRINTED 12/14/2022

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Put thread locker on the upper balljoint threads.



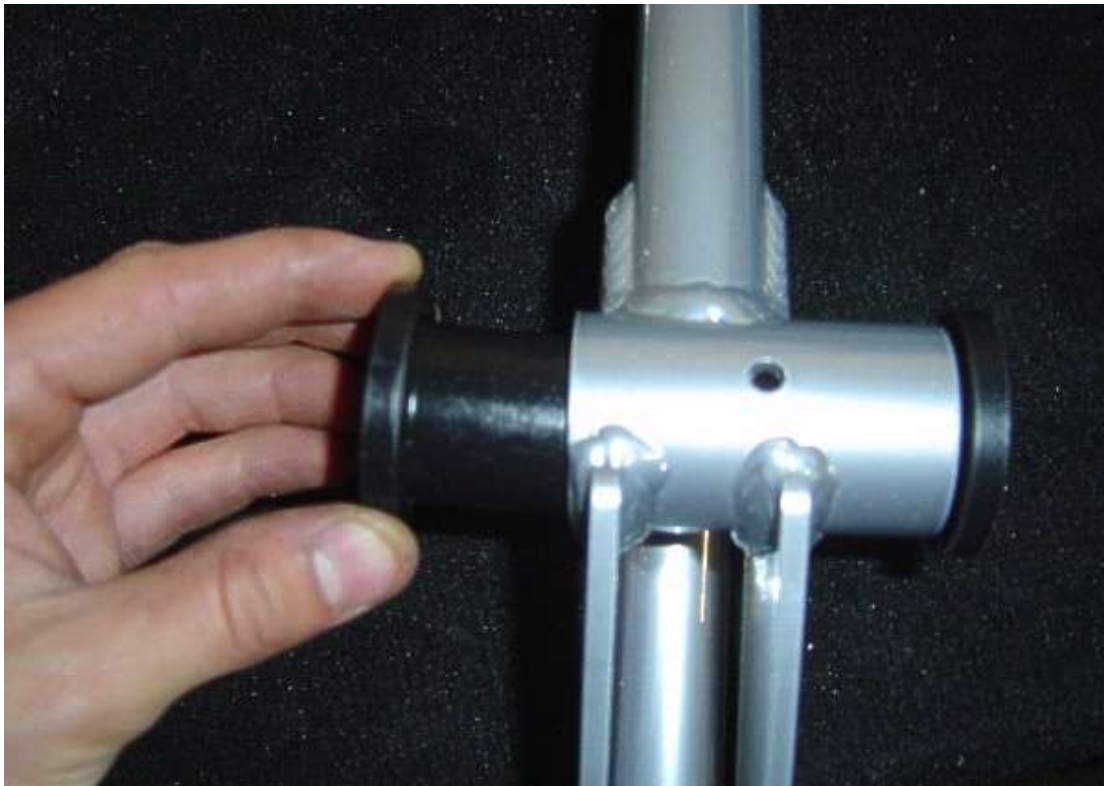
From the bottom side screw the balljoint up into the balljoint mount.



Use snap ring pliers to install the snap ring into the groove on top of the balljoint.



Install silicone dust boot packed in the kit, on the front upper control arm ball joint.



Insert the poly bushings into the control arm.



Grease the pivot sleeves.



Insert the greased sleeve into the bushings in the upper control arm

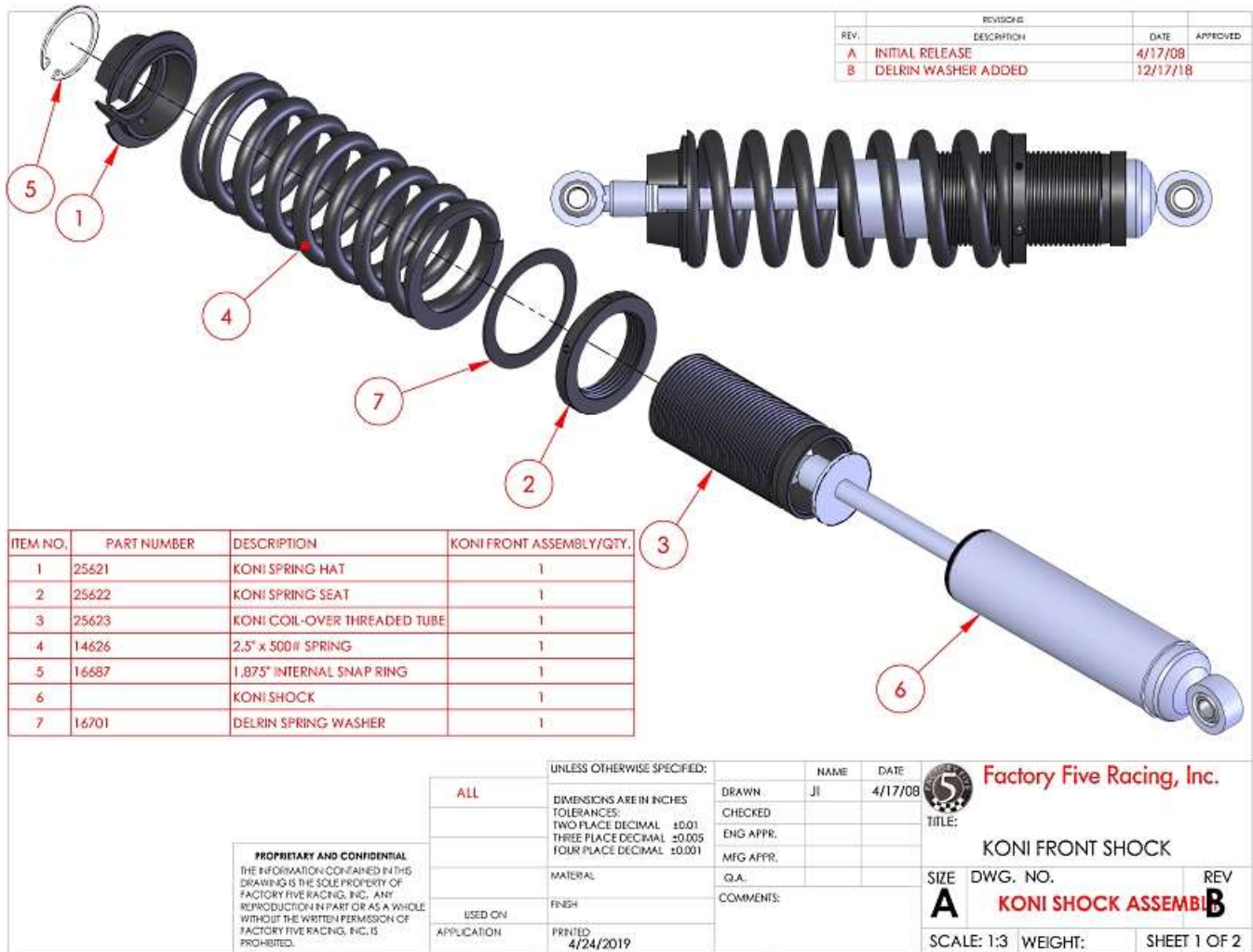


Install the grease fittings into the pivot points on the upper control arm. Attach a grease gun onto the grease fitting and fill with grease until the grease starts to seep out.

COIL-OVER SHOCK ASSEMBLY

- ✂ Snap ring pliers, $\frac{3}{4}$ " wrench, $\frac{3}{4}$ " socket, Ratchet, Torque wrench
- 🚗 Front shock set, Front shock set, Insulated clip hardware.
- 👤 The front shocks are pre-valved at the factory in compression and rebound for good street use. The shocks can be adjusted in rebound as per Koni's instructions if so desired. The front springs are 400lb, the rear springs are 250#. Other springs are available for different ride characteristics.
- 👤 **WARNING!** Incorrect assembly and maintenance of this part can cause serious injury or death.
- 👤 If using the silver double adjustable shocks, these must be mounted with the body of the shock

down.





Unpack the front shocks, coil-over's and hardware.

Double check the jam nut under the rod end and bump stop to make sure that it is tight.



Start the set screw in the spring seat.



Screw the spring seat down on the sleeve so it is closer to the unthreaded end.



Slide the coil sleeve over the body of the damper beginning at the end which has the rubber bump stop. The unthreaded end of the sleeve goes first so that it will sit on the snap ring on the shock body.



Place a small amount of white lithium or chassis grease on one side of the Delrin washer.



Put the Delrin spacer grease side down onto the spring seat on the threaded tube.



Slide the rubber bumper about two inches down on the shaft.



Put the spring and hat on the shock and rotate the spring seat back up the sleeve so that the spring pushes the hat tight against the end of the shock.



Install the snap ring on the spring hat so that it holds onto the shock end. Make sure that the slot in the snap ring and the slot in the spring hat are not aligned.

Check to make sure that the spring is seated correctly on the shock.

Run zip ties through the holes in the spring hat and around the spring to prevent the spring from becoming unseated.

FRONT SUSPENSION BUILD UP



The suspension has two sets of holes. The top set is for a lower ride height (4-4.5") while the bottom set is for a higher ride height (5.5").



If running the lower suspension hole set-up, the front lower control arm left side rear tab will have to be cut to the upper bolt hole location as shown so that the steering rack will not hit it. **Do not run the upper steering rack holes and the lower suspension holes.**



Insert the front upper control between the frame mount plates followed by the M16 x 110mm bolt.



Leave the upper control arm bolts loose until the grill is installed.



Install the shocks on the chassis with the body down. Use the 0.32" spacers on either side of lower the spherical joint and use the 1/2" x 2.00" bolts and locknuts.



The suspension has two sets of holes. The top set is for the stock Hot Rod while the bottom set is for the Truck and full fender cars.

- ✎ Make sure to install the upper shock bolts from the back side (engine side) going forward so that they can be removed if necessary once the radiator is installed.





Install the other end of the shock to the upper control arm with the 0.21" shock spacers on either side of the spherical joint using the 1/2" x 2.00" bolts and locknuts. Make sure to install the upper shock bolts from the back side (engine side) going forward so that they can be removed if necessary once the radiator is installed.



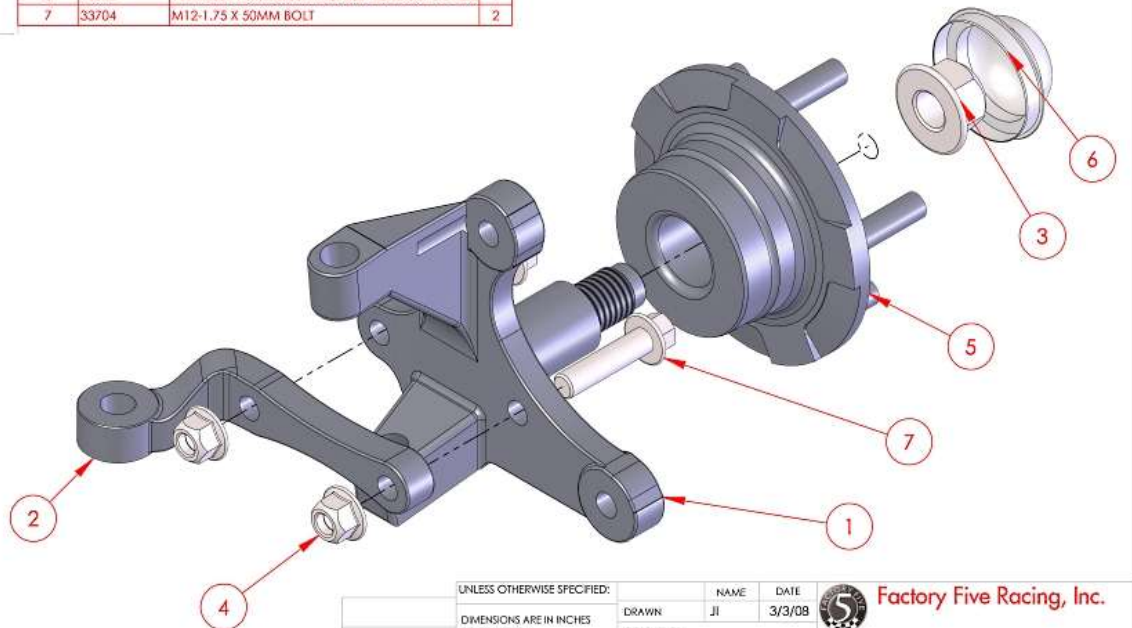
Install the lower control arm onto the frame. The fixed part with the ball joint is towards the rear of the arm.

FRONT SPINDLES

-  $\frac{13}{16}$ " socket, Torque wrench, Needle Nose Pliers, Rubber Mallet
-  Spindle Assembly.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	33043	SPINDLE - Hot Rod Driver/Roadster Passenger	1
2	33045	33045 - HOT ROD STEERING ARM, DRIVER SIDE	1
3	14511	89-97 MUSTANG HUB NUT	1
4	25995	M12-1.75mm FLANGED NYLON LOCK NUT	2
5	14510	1994-2004 FORD MUSTANG FRONT HUB	1
6	14512	1994-2004 FORD MUSTANG HUB NUT DUST COVER	1
7	33704	M12-1.75 X 50MM BOLT	2

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	3/3/08	



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THREE PLACE DECIMAL ±0.005
FOUR PLACE DECIMAL ±0.001

MATERIAL

FINISH

USED ON:
APPLICATION

DRAWN: JI
COMMENTS:

PRINTED: 3/22/2019



Factory Five Racing, Inc.

TITLE:
DRIVER SIDE SPINDLE ASSEMBLY

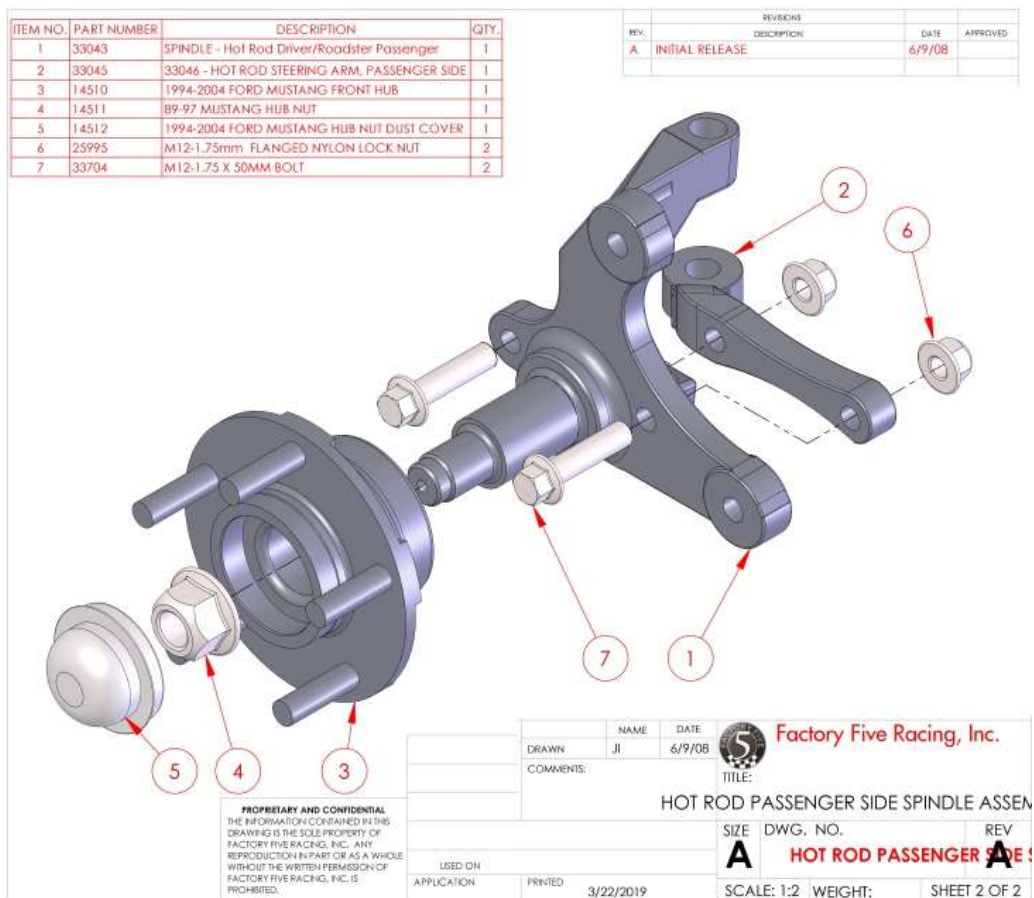
SIZE: A
DWG. NO.

REV: A
Hot Rod Driver side Spindle

SCALE: 1:2

WEIGHT:

SHEET 2 OF 2



Assemble the spindles (driver side is on the left; passenger side is on the right).

👉 If installing bike fenders attach the fender mount now.

The steering arms are attached to the spindles with the provided hardware. The steering arm pickups are oriented towards the rear of the car and drop down a bit. It may be easier to tighten these bolts once it is installed on the frame.



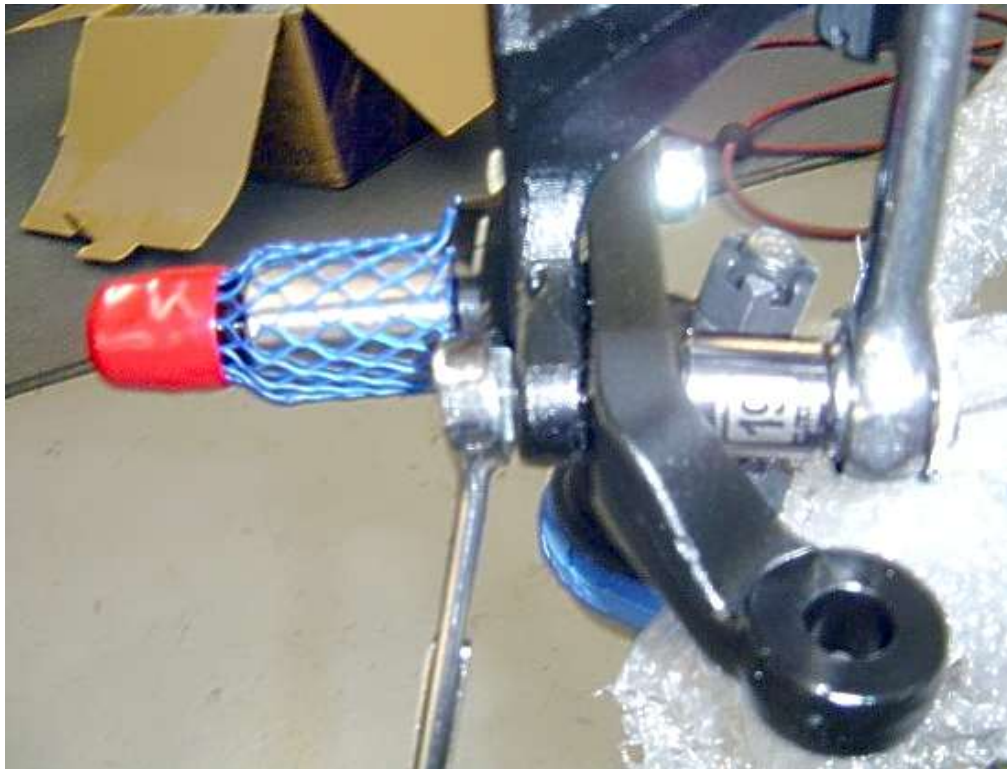
Attach the upper ball joint to the spindle and torque to **100Nm (75 lb-ft)** and install the cotter pin.



Install the spindle on the lower control arm ball joint stud. Then install the countersunk spacer on top of the spindle. There is a small taper on the inside edge of the spacer that should face down toward the spindle.



Torque to **106-149Nm (80-110 lb-ft)** and install the cotter pin.



Once the spindles are mounted firmly on the chassis, tighten the steering arm hardware then torque to **81Nm (60 lb-ft)**.

HUBS AND BRAKES



Install the front hub onto the spindle



Install the hub nut onto the spindle. Torque the hub nut to **305-338Nm (225-250 ft-lbs.)**.

FRONT SUSPENSION TORQUE SPECS CHART

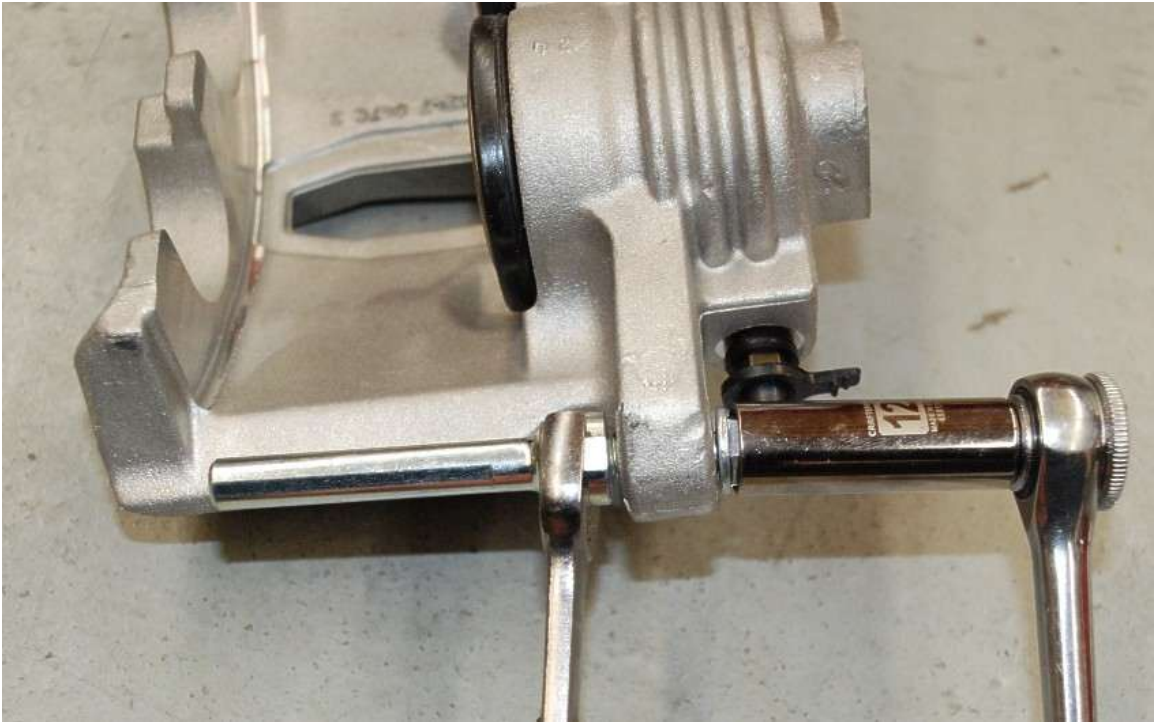
Item	Nm	lb-ft
Front lower control arm to frame	135-162	100-110

Front lower clevis to bushing sleeve	100	75
Front lower ball joint to spindle	106-149	80-110
Upper A-arm to frame	135-162	100-110
Upper ball joint to Spindle	95-122	70-90
Steering arm to Spindle	81	60
Spindle hub nut	305-338	225-250

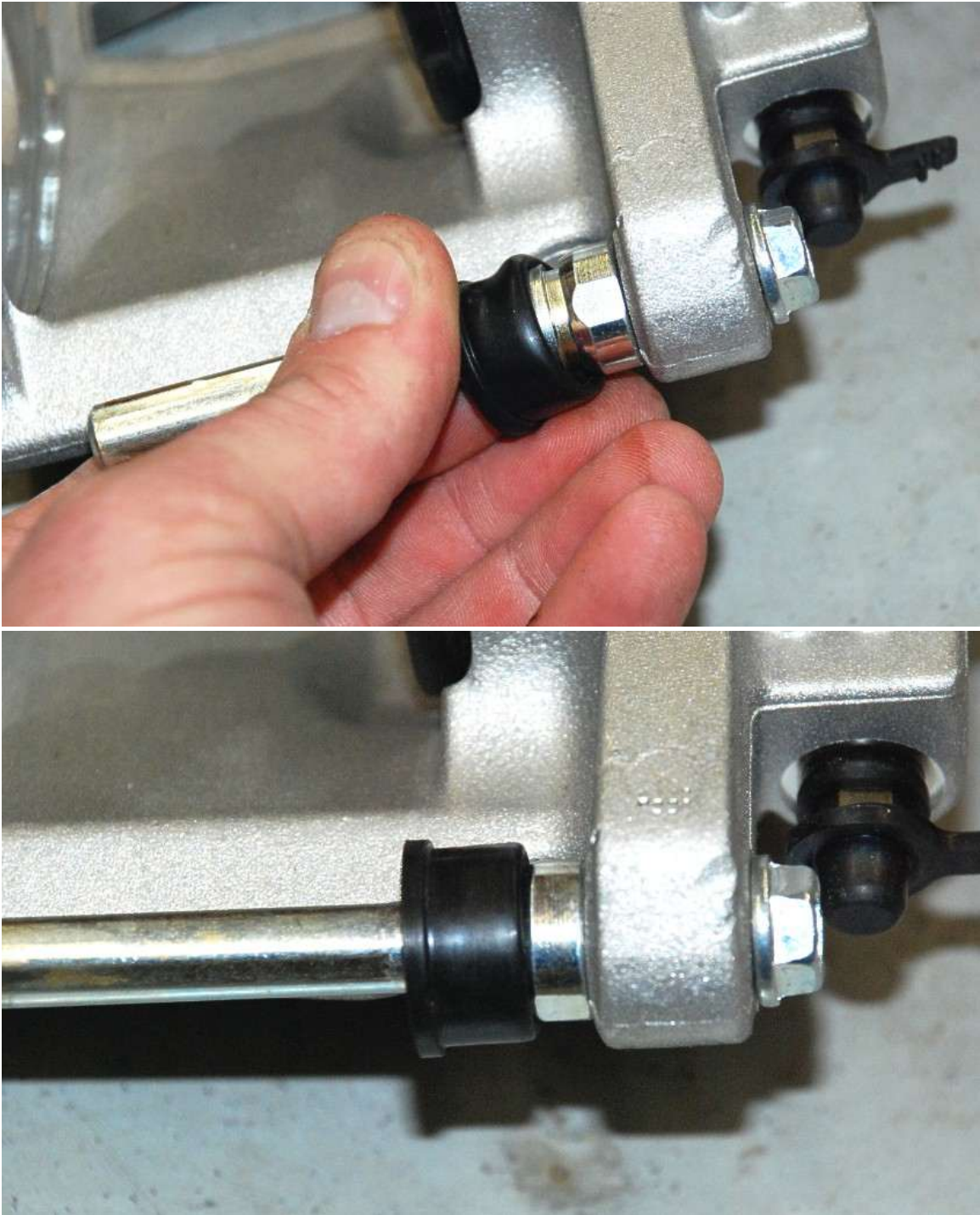
Front Brakes

- ✂ 12mm socket, Ratchet, 16mm wrench, Torque wrench, thread locker
- 🚗 Front 11" Caliper/Rotor Assembly





Install the caliper slider pins on the caliper using the supplied bolts and a 16mm wrench and 12mm socket. Torque to **23-26 lb-ft**

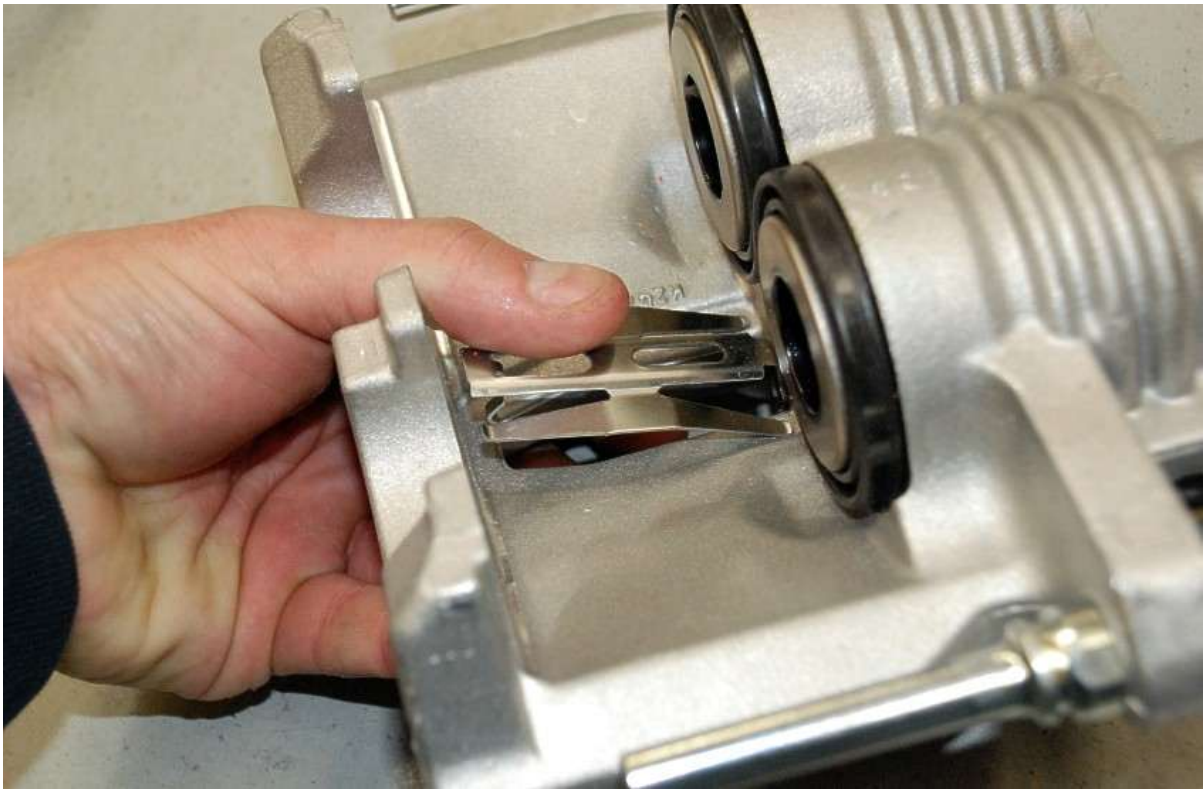


Install the slider grease boots on the slider pins.



In the supplied hardware bag there are six steel clips that are designed to separate the pads from the caliper. These clips allow the pads to slide on a smooth surface and not wear on the caliper. The four clips that go on the ends of the hanger are different end to end, and must be installed with the long tab facing out.

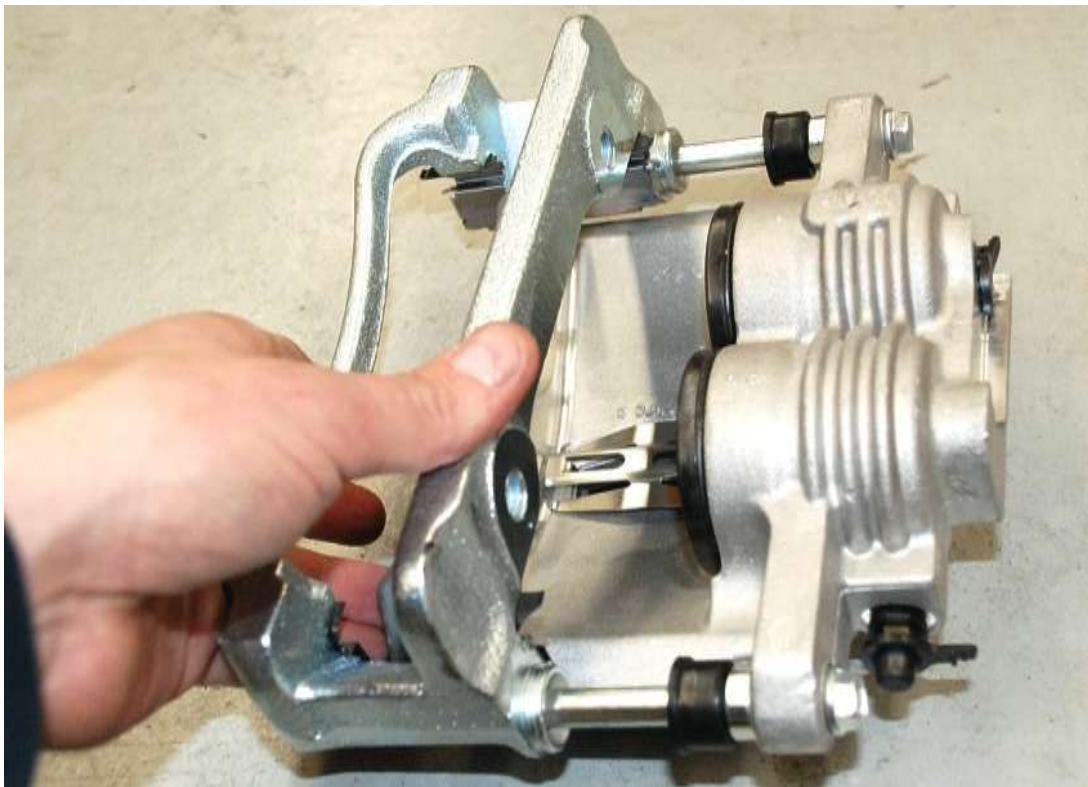






The two clips that are left go in the center of the caliper with the tab sticking up through the center hole. Insert the clip from the inside of the caliper through the large center hole with the larger tab on the side facing the pistons then press down on the outer part of the clip so the small clip goes through the large hole and clips on.

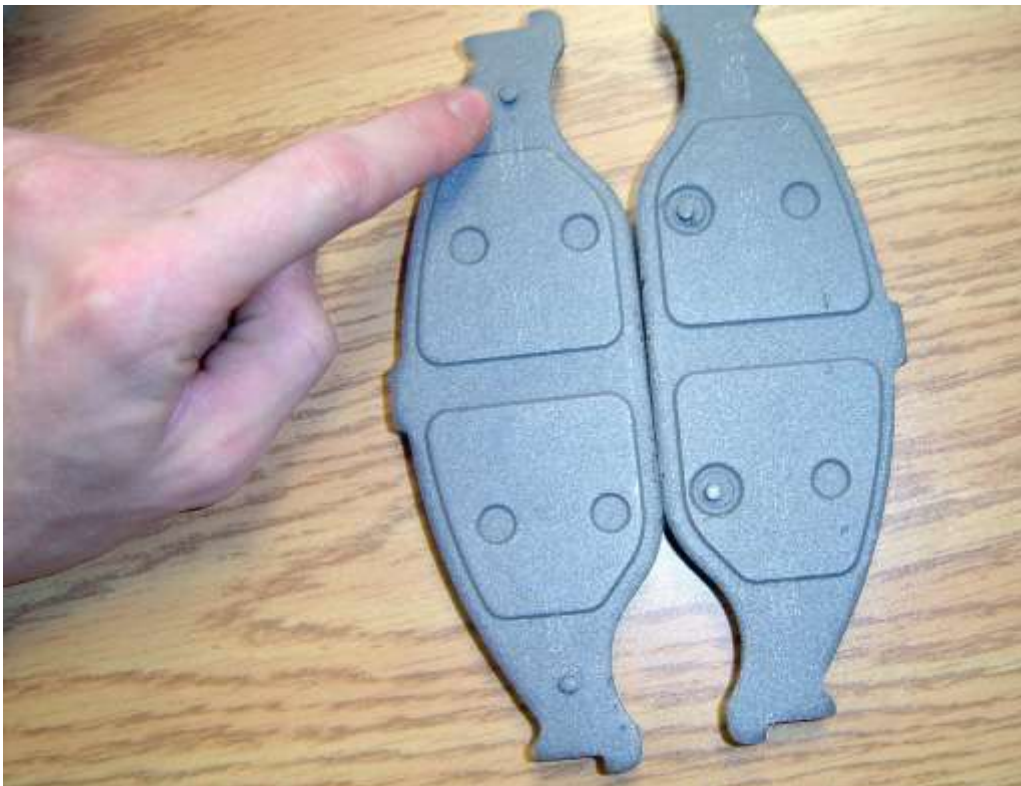
Grease the slide pins using the supplied grease.



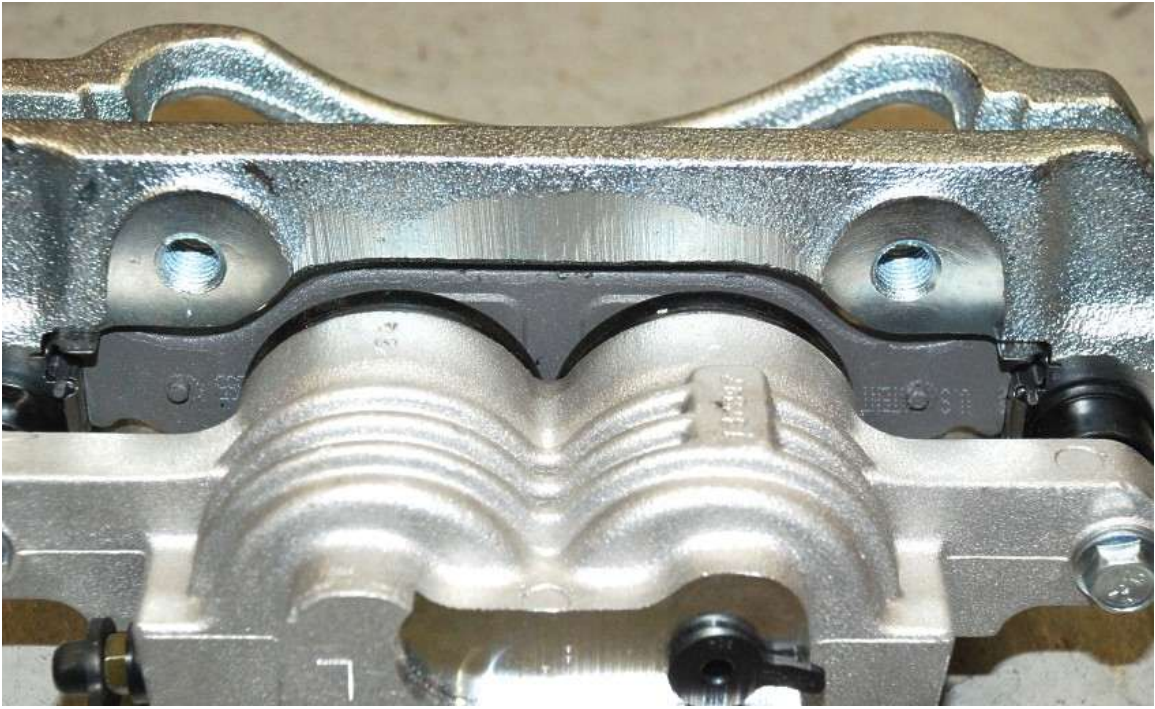
Slide the caliper hanger onto the caliper.



Push the rubber boots over the lip on the caliper bracket to seal the slider bolts correctly.



Look at the back side of each brake pad to find the inside pads and the outside pads. The difference is the location of the studs that are on the back of each pad. The studs on the inside pads are out near the ends of the pad, while the studs on the outside pads are near the middle.





Install the brake pads in the Caliper.



Clean the rotor with brake cleaner and push it onto the hub.



Install the caliper on the spindle; make sure that the fluid bleeder is at the top of the caliper. Note that the caliper marked LH will actually mount on the pass/right side so that the bleeder screw will be at the top of the caliper. Torque the caliper mounting bolts to **130Nm (95 lb-ft)**.



Install the calipers on the front spindles. Mount the calipers with the supplied bolts (FFR #14513). Make sure the pads are loaded into the caliper before installing it.

Solid Axle Rear Suspension

SOLID AXLE PREPARATION



$\frac{9}{16}$ " wrench, $\frac{5}{8}$ " drill bit, drill, Torque Wrench



8.8" Rear axle assembly



Use caution when working with the rear end assembly, it weighs 225 lbs.



If not already done, fill the axle with gear oil. See Appendix for specifications and capacities.

If using a used rear axle, remove the lower shock mounts and the anti-vibration weight under the pinion.





Drill the axle Panhard bar mount holes with a $\frac{5}{8}$ " drill bit.



If using a Moser rear axle install the axle tube vent using a $\frac{9}{16}$ " socket or wrench.

DRIVESHAFT ADAPTER

-  Driveshaft adapter, fasteners
-  8mm hex socket, torque wrench, Loctite.



Apply blue Loctite to the (6) M10 x 25mm socket head screws.



Attach the driveshaft adapter to the center section pinion flange and torque the bolts in a star pattern to **55Nm (41 lb-ft)**.

REAR COIL-OVER SHOCK ASSEMBLY



Snap ring pliers, 3/4" wrench, 3/4" socket, ratchet, ruler, marker, hack saw.



Rear shock kit



The shocks are pre-valved at the factory in compression and rebound for good street use. The shocks can be adjusted in rebound as per Koni's instructions if so desired.



The rear springs are 250lb. Other springs are available for different ride characteristics.



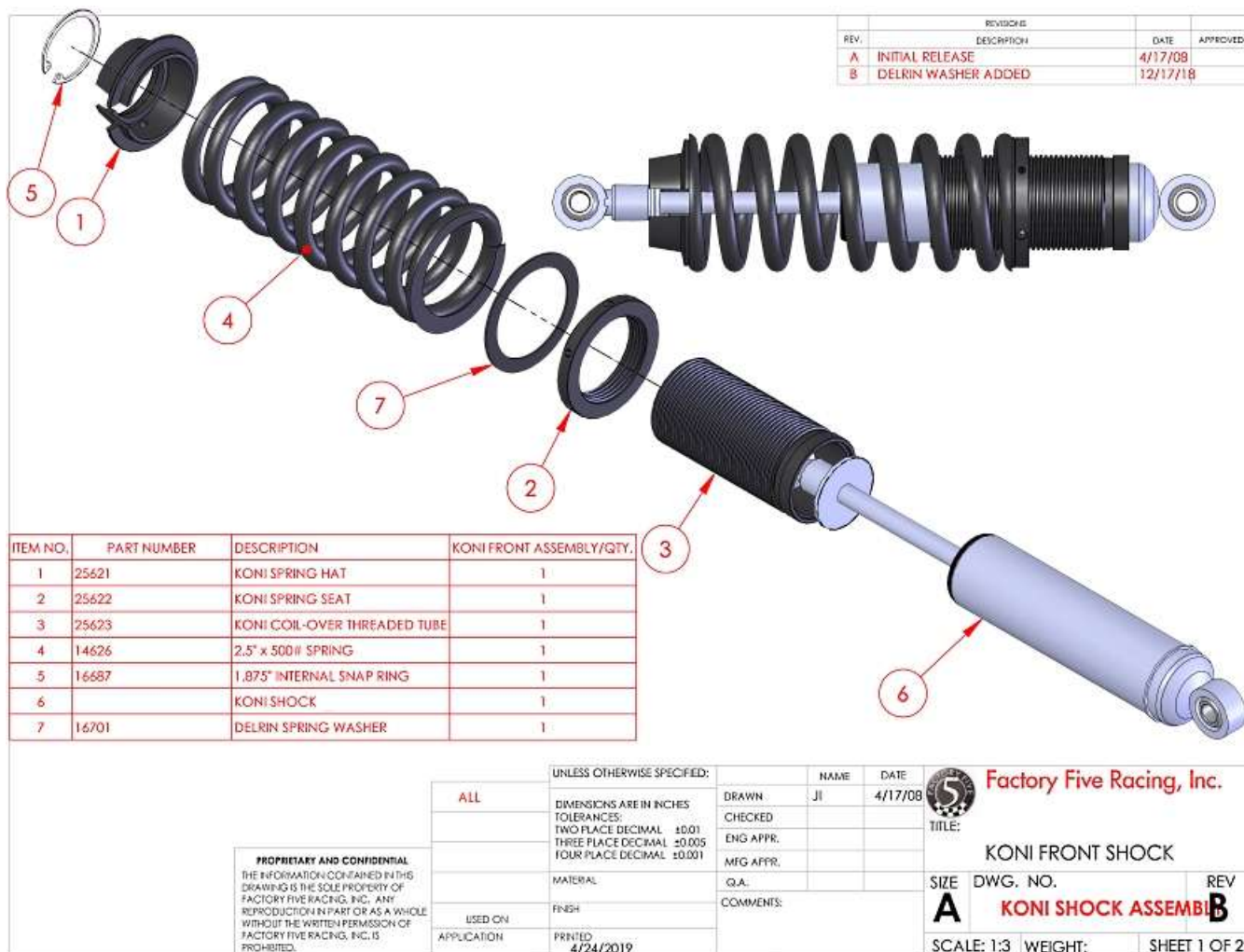
The front shock extended measurement is 15.15" center to center. They are 2.50" shorter than the solid axle rear shocks



If using the silver double adjustable shocks, these must be mounted with the body of the shock down.



WARNING! Incorrect assembly and maintenance of this part can cause serious injury or death.





Unpack the rear shocks, coil-over's and hardware.

Double check the jam nut under the rod end and bump stop to make sure that it is tight.



Start the set screw in the spring seat.



Screw the spring seat down on the sleeve so it is closer to the unthreaded end.



Slide the coil sleeve over the body of the damper beginning at the end which has the rubber bump stop. The unthreaded end of the sleeve goes first so that it will sit on the snap ring on the shock body.



Place a small amount of white lithium or chassis grease on one side of the Delrin washer.



Put the Delrin spacer grease side down onto the spring seat on the threaded tube.



Slide the rubber bumper about two inches down on the shaft.



Put the spring and hat on the shock and rotate the spring seat back up the sleeve so that the spring pushes the hat tight against the end of the shock.



Install the snap ring on the spring hat so that it holds onto the shock end. Make sure that the slot in the snap ring and the slot in the spring hat are not aligned.

Check to make sure that the spring is seated correctly on the shock.

Run zip ties through the holes in the spring hat and around the spring to prevent the spring from becoming unseated.



REAR COIL-OVER SHOCK INSTALL

- 👉 The suspension has two sets of holes. The top set is for the Hot Rod or low ride height while the bottom set is for the Truck.
- 👉 If using the double adjustable shocks, attach them to the frame using the upper holes.

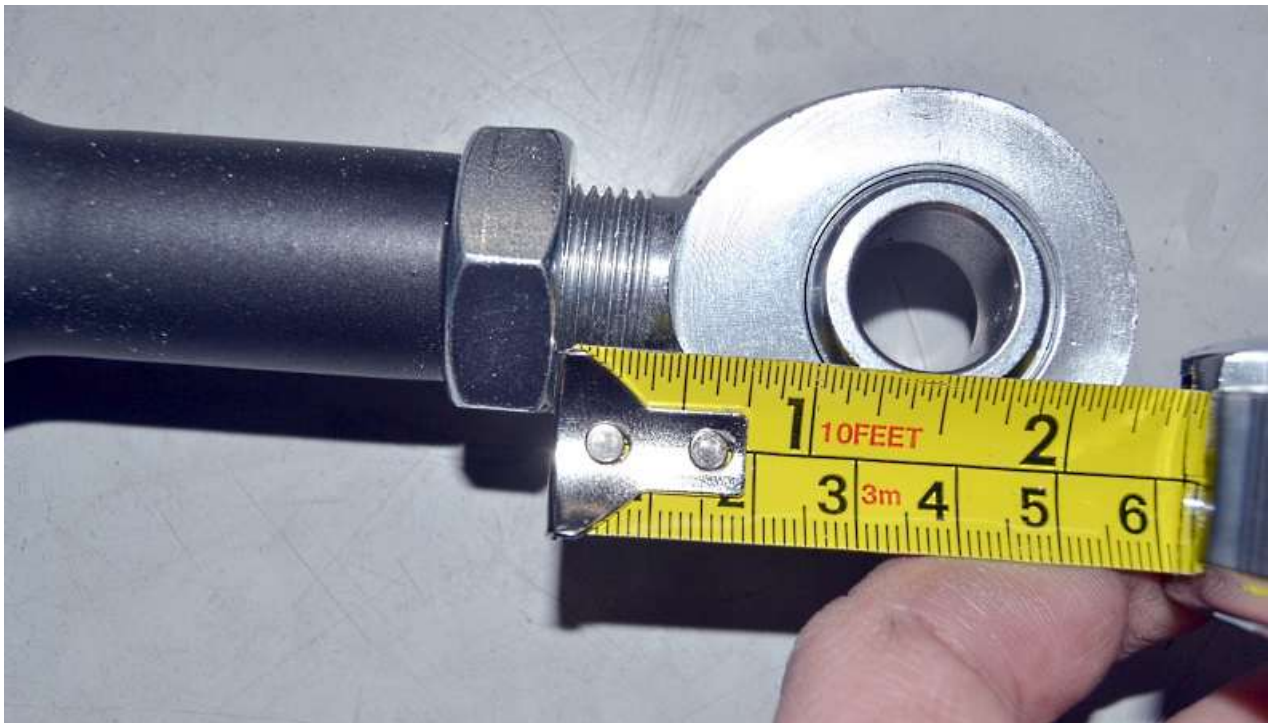
Install the shocks onto the frame with the body of the shock down using the 1/2" x 2.50" bolts. Make sure to use one of the 0.32" spacers on either side of the spherical joint.

REAR LOWER CONTROL ARMS

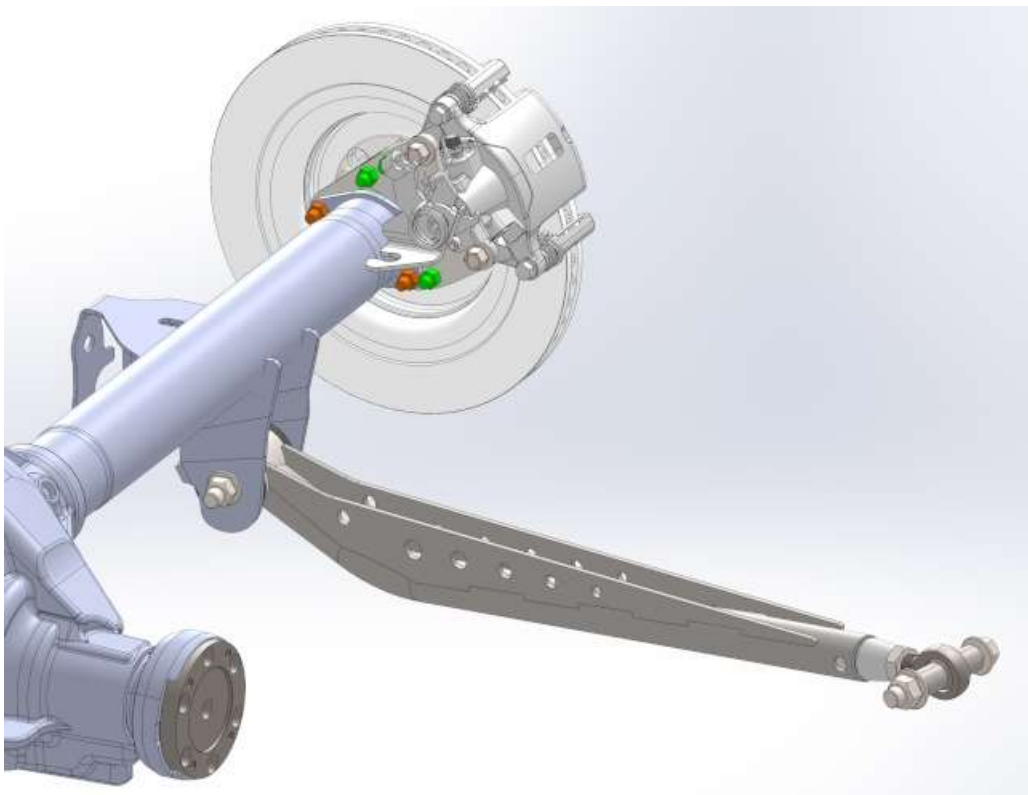
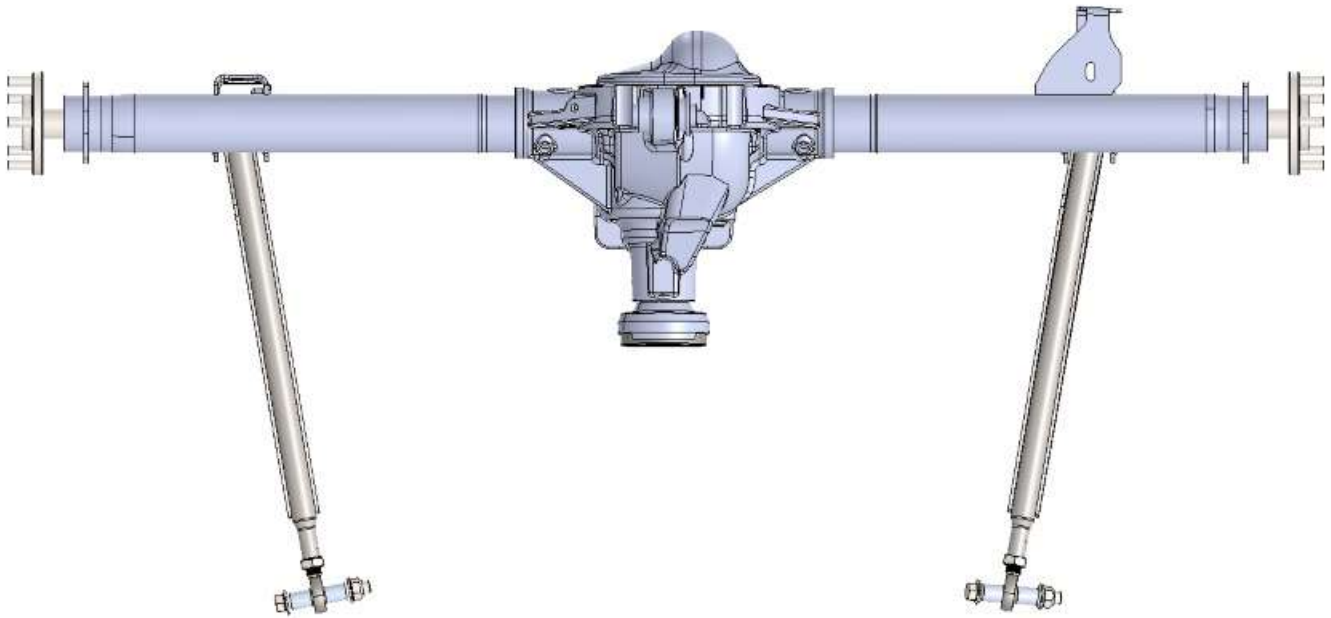
- 🚗 Rear lower control arm components
- 🔧 18mm wrench, 13/16" socket, ratchet, tape measure, torque wrench.
- 👉 The suspension has two sets of holes. The top set is for the Hot Rod while the bottom set is for the Truck.



Unpack the rear lower control arm parts.





Screw the jam nut onto the rod end and then screw the rod end into the control arm so that there is 1.50" from the end of the jam nut to the center of the rod end.



Attach the lower control arms to the axle using the M14 bolt provided so that the shock mount is on top and the control arms point in towards the front. **Torque to 101-111Nm (75-82 lb-ft).**

REAR UPPER CONTROL ARM

-  Rear upper control arm components
-  Torque wrench, ratchet, tape measure, 18mm wrench, $\frac{13}{16}$ " socket.



Unpack the rear upper control arm parts.



Screw the jam nut onto the rod end and then screw the rod end into the control arm so that there is 1.50" from the end of the jam nut to the center of the rod end.



Attach the upper control arm to the axle using the M14 bolt and **torque to 101-111Nm (75-82 lb-ft)**.

AXLE INSTALL

✂ Floor jack, $\frac{3}{4}$ ", $\frac{15}{16}$ " wrench, $\frac{3}{4}$ ", $\frac{15}{16}$ " sockets.

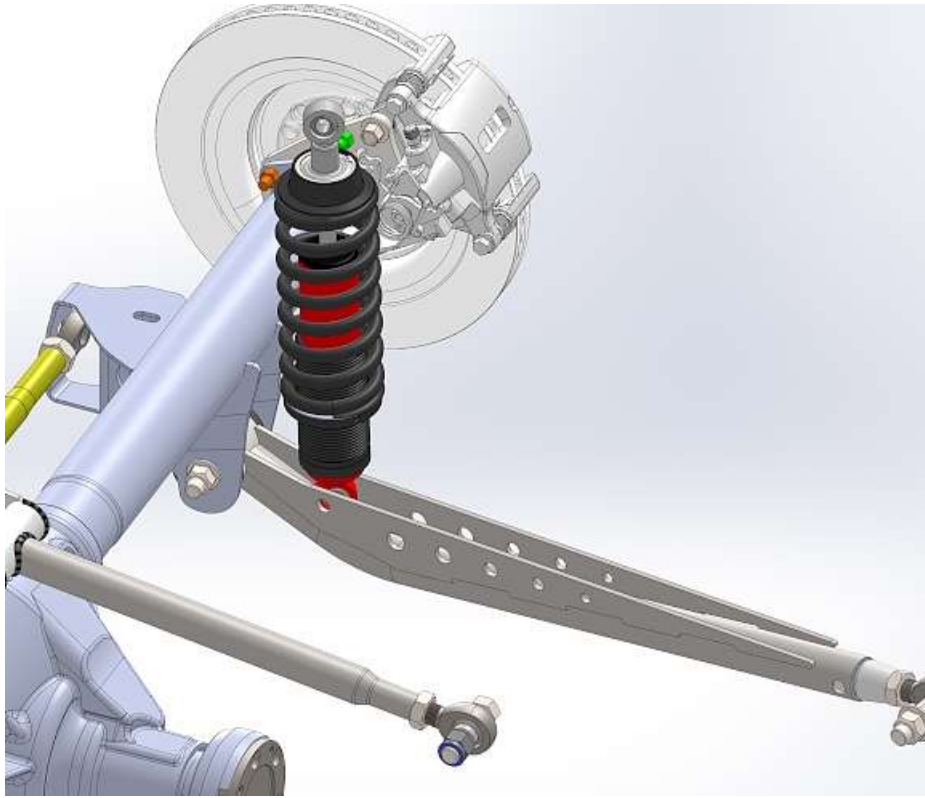
Place the rear axle assembly on a jack and move it into position.



Put the bolt through the lower control arm rod end from the inside out with the 1.06" spacers on each side of the rod end. **Torque to 101-111Nm (75-82 lb-ft).**



Attach the upper link to the center hole in the frame, using one of the 0.25" spacers (FFR# 33240) on either side of the rod end. **Torque to 101-111Nm (75-82 lb-ft).**



Attach the shock to the lower control arm using one of the 0.32" spacers on each side of the shock.



Rear axle installed.

PANHARD BAR



Panhard bar hardware



$1\frac{5}{16}$ " wrench, $1\frac{5}{16}$ " sockets.



Insert the rod ends into the swaged tubes (one is right hand thread and one is left hand thread). The bar will be adjusted once in place but make sure both rod ends are screwed in an equal amount before bolting it in place.



Install the Panhard bar into the left side of the axle. Pass the bolt from the back through the axle bracket then a $\frac{1}{16}$ " spacer followed by the rod end then a 1.06" spacer then the axle bracket and locknut.



The Panhard bar is then installed on the Panhard bar frame mount (right side) and mounted with a 0.375" spacer (FFR# 33239) on either side of the rod end.

3 LINK REAR SUSPENSION TORQUE SPECS CHART

Item	Nm	lb-ft
Upper link to axle	101-111	75-82
Upper link to frame	101-111	75-82
Lower control arm to axle	101-111	75-82
Lower control arm to frame	101-111	75-82
Upper shock to frame	54-67	40-50
Lower shock to axle bracket	54-67	40-50
Panhard bar	101-111	75-82

Optional Rear Brakes (Moser Axle only)



The installation of this kit can be performed by anyone with an average amount of mechanical experience, but it is very important to follow the instructions.



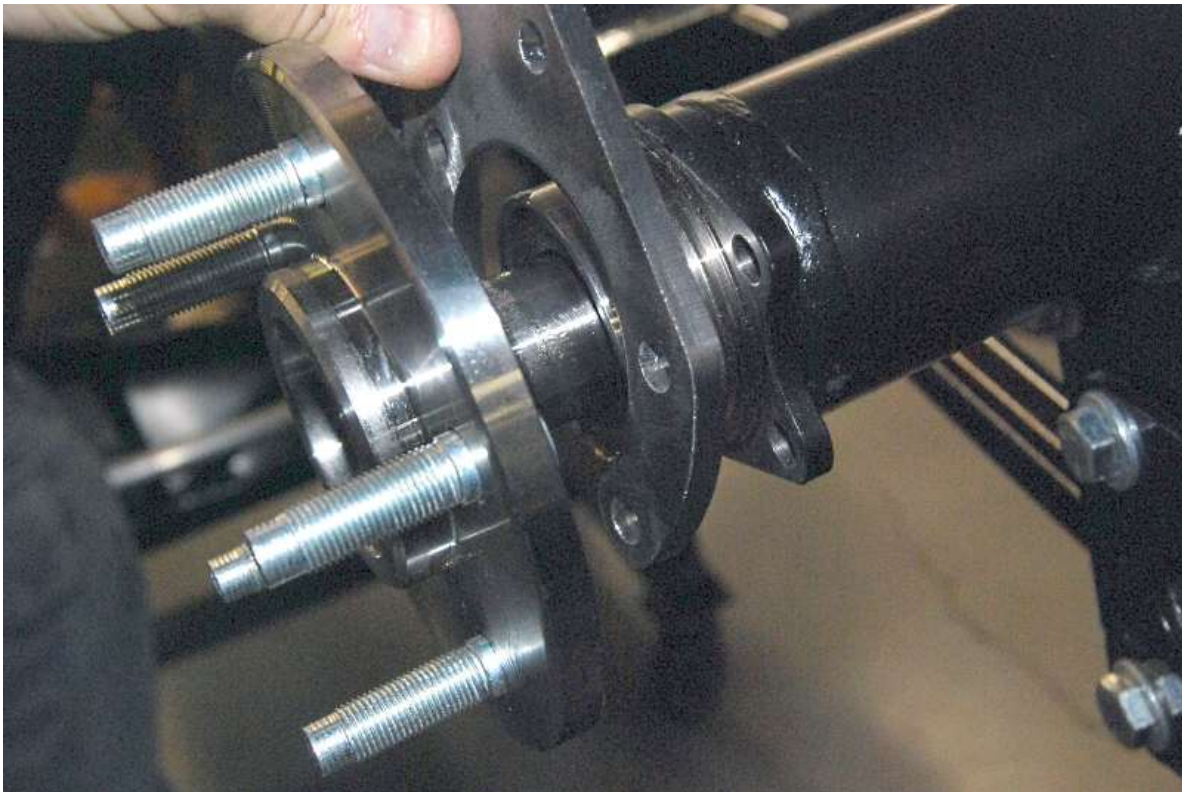
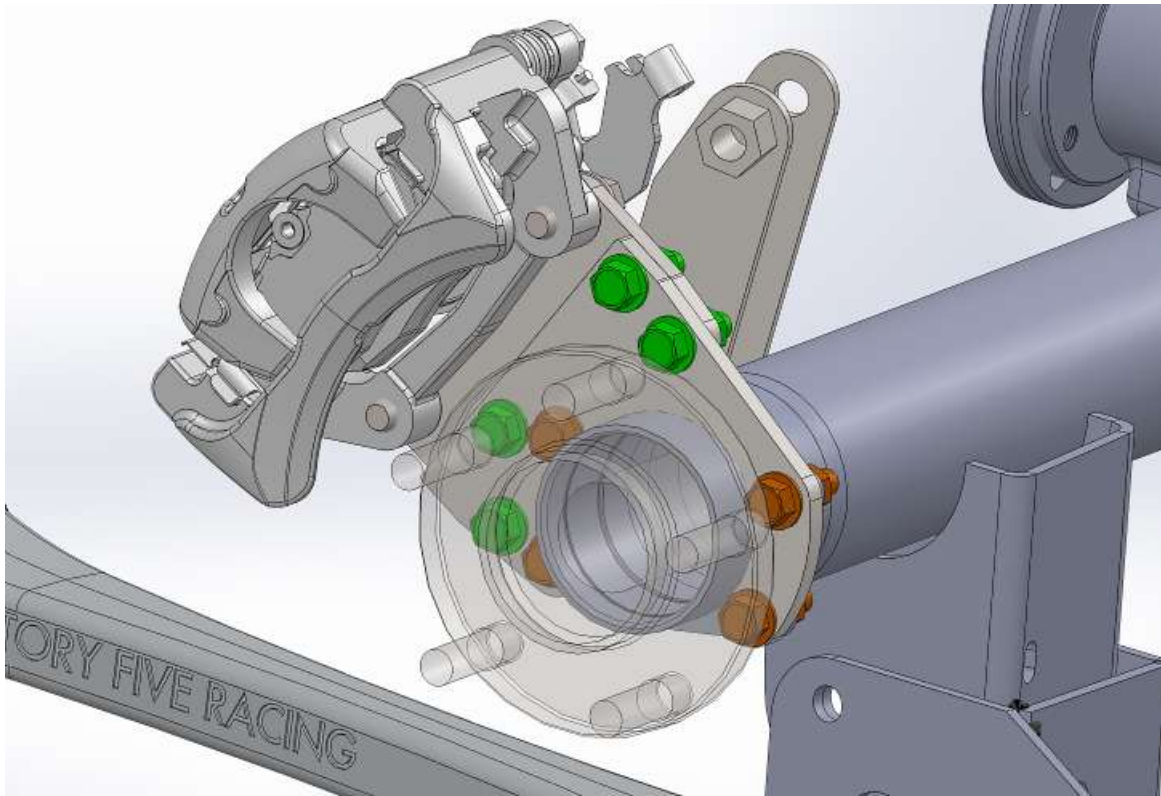
Improper installation of this kit could adversely affect the safety of your vehicle



Torque Wrench, 8mm, 1/2", 9/16", 3/4" sockets, Ratchet, 9/16" wrench, Needle nose pliers, Small flat head screwdriver, (2) Jack stands



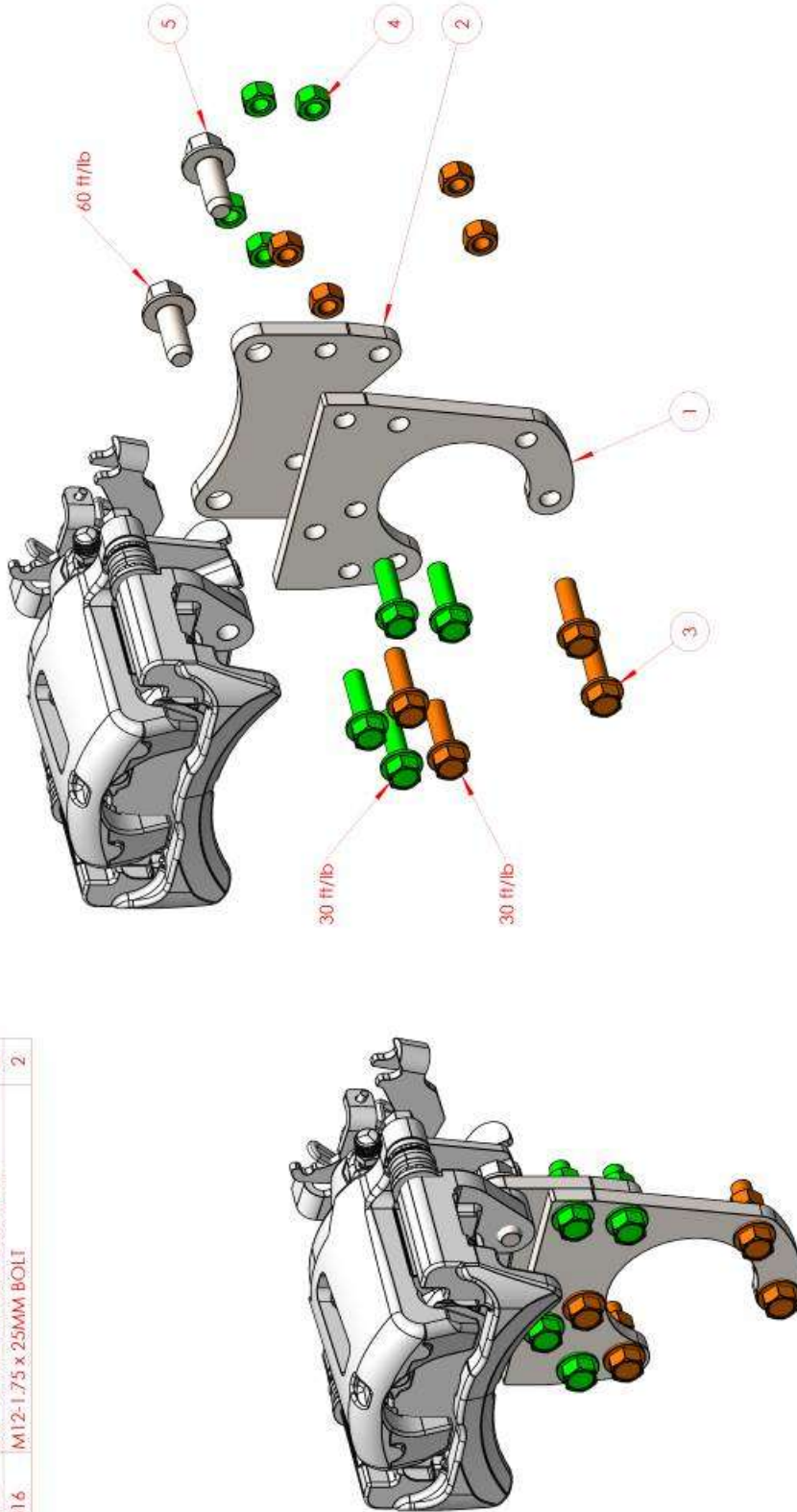
Brake Fluid



Place the caliper “C” shaped caliper axle mount bracket over the Axle so that the open part of the bracket is facing down.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	15571	REAR CALIPER AXLE MOUNT BRACKET	1
2	16244	11.65" REAR CALIPER TO MOUNT BRACKET	1
3	14530	3/8"-16 x 1.25" FLANGE HEAD BOLT	8
4	12172	3/8"-16 MECHANICAL LOCK NUT	8
5	80316	M12-1.75 x 25MM BOLT	2

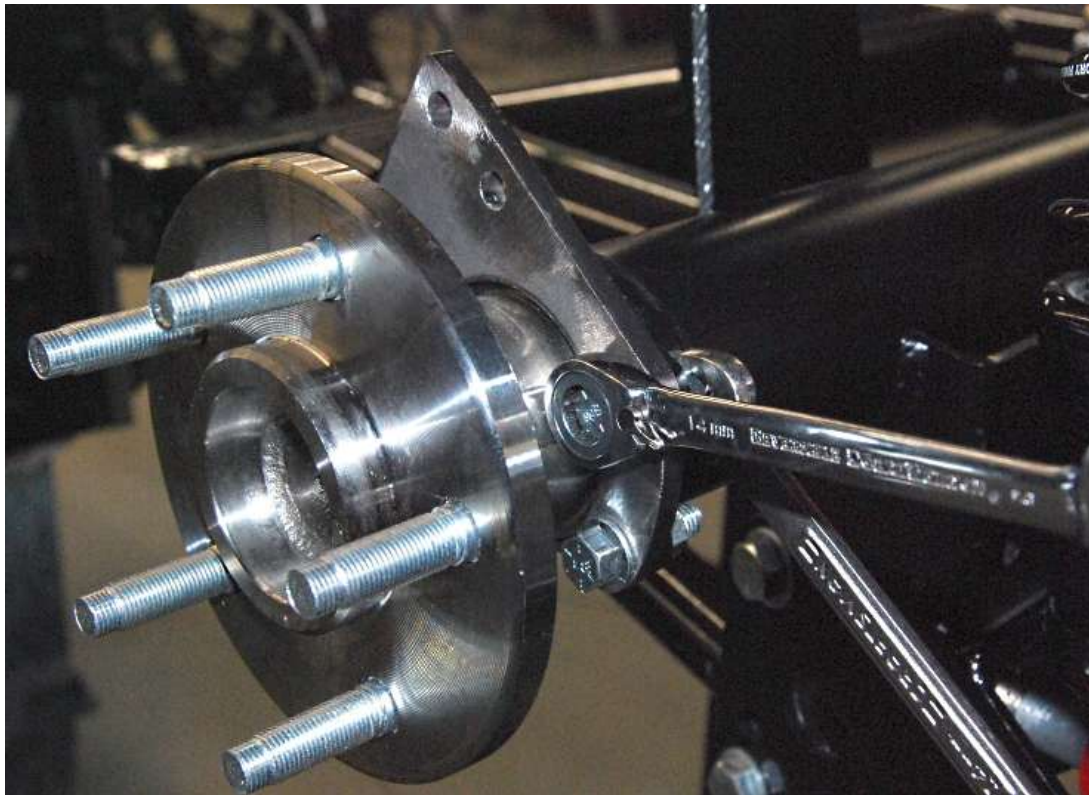
REV.	DESCRIPTION	DATE	APPROVED



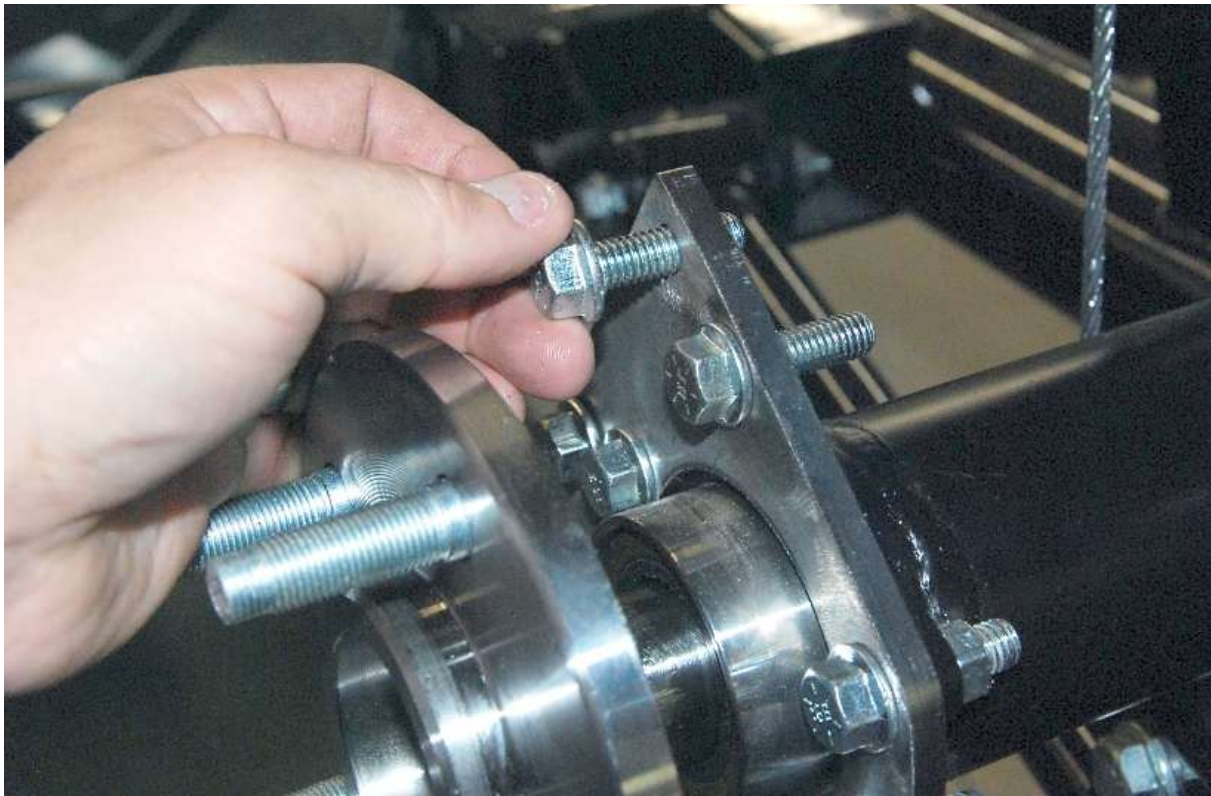
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		USED ON REAR BRAKES	MATERIAL FINISH	TITLE: REAR BRAKE CALIPER MOUNT	SIZE A	DWG. NO. REAR BRAKES	REV A	
APPLICATION REAR BRAKES		PRINTED 5/10/2021	SCALE: 1:3	WEIGHT: 3.43	SHEET 1 OF 1			



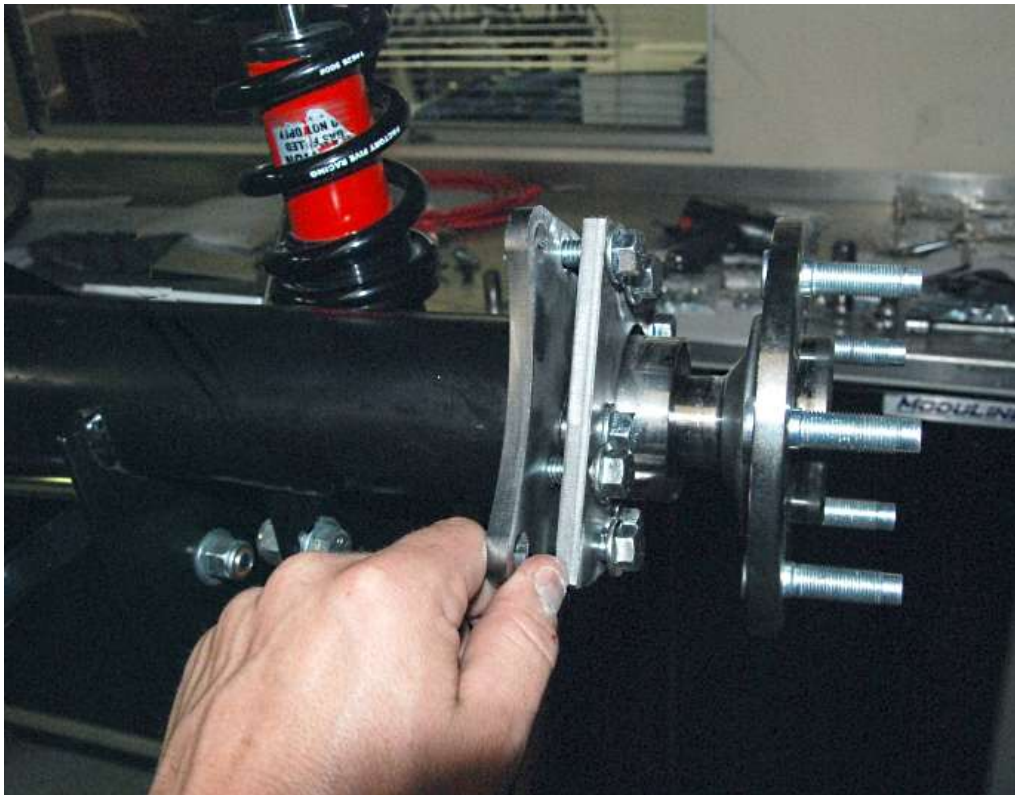
Insert the caliper axle mount bracket bolts from the outside in.



Torque the caliper bracket to 30 ft-lbs.



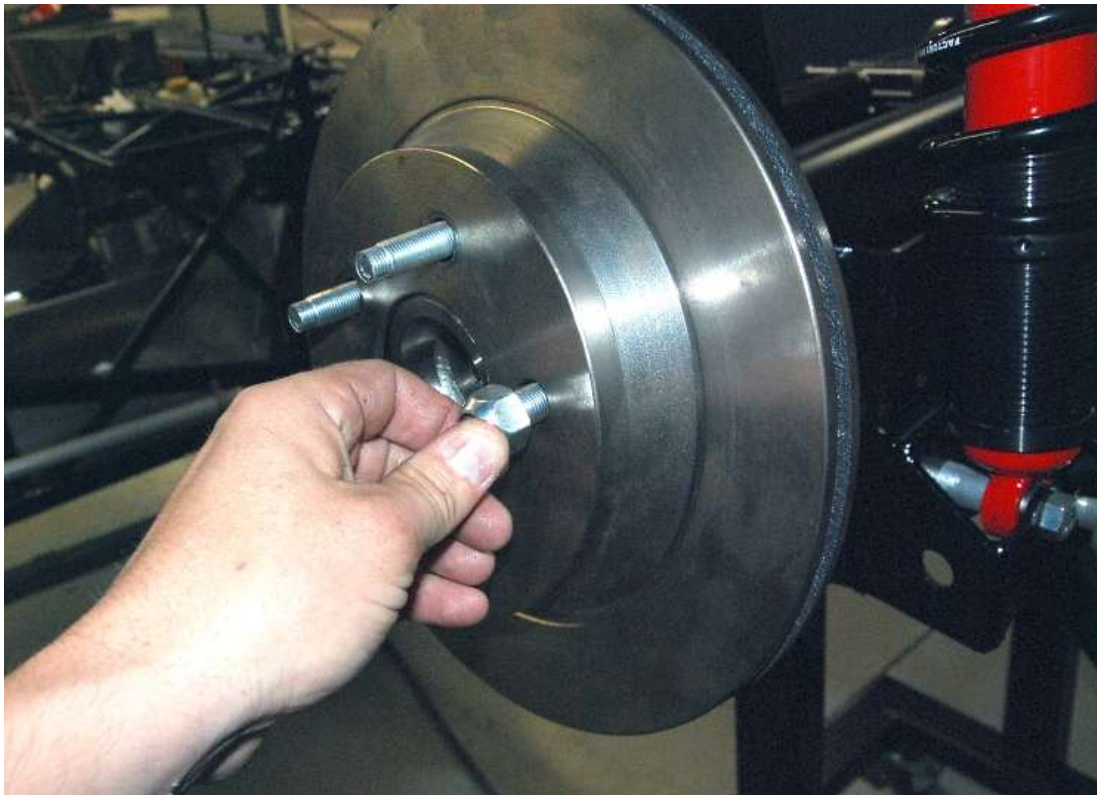
Insert the caliper mount bracket bolts from the outside in through the four remaining bracket holes.



Slide the caliper mount bracket onto the four bolts.



Torque the mounting bolts to the same 30 ft-lbs.



Next install the brake rotor using one lug nut to hold it in place. Make sure to clean the surface of the rotor with brake parts cleaner before installing the caliper.

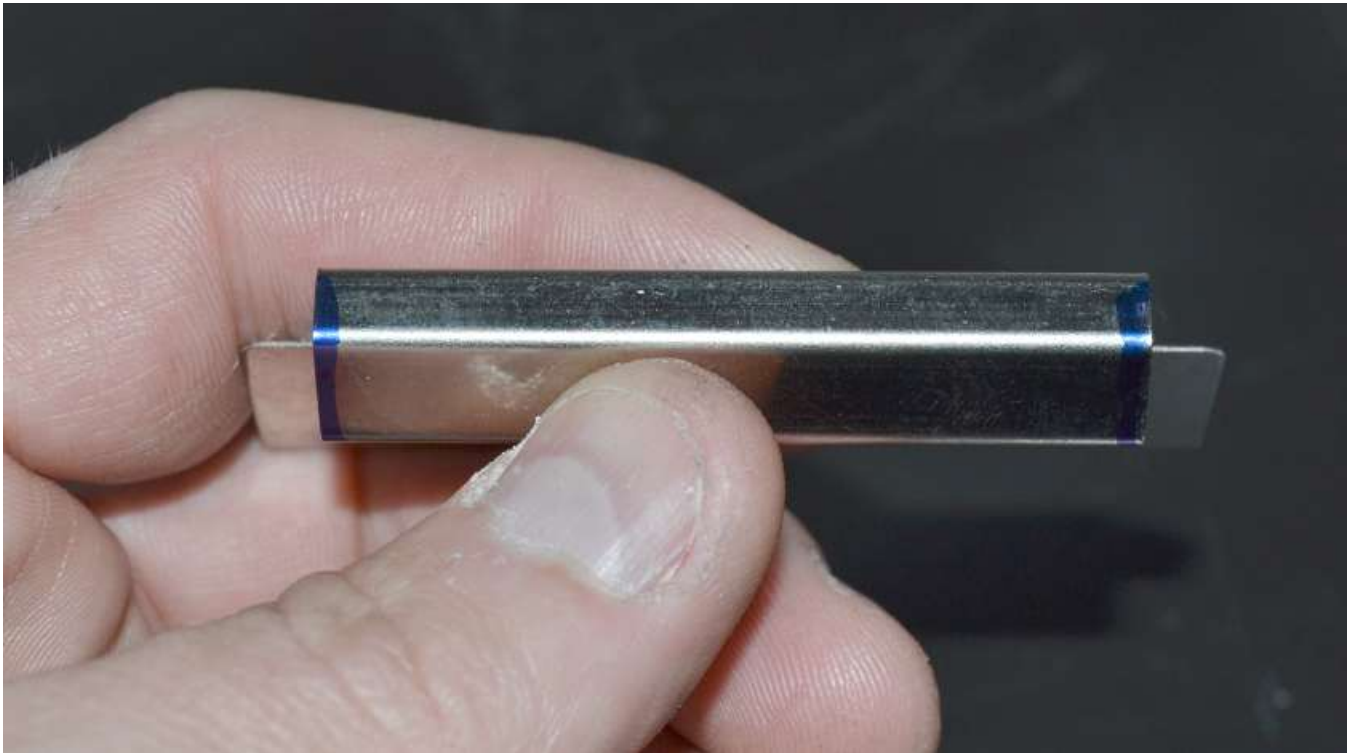
PAD INSTALL



Insert one of the metal clips into the caliper and hold in place.

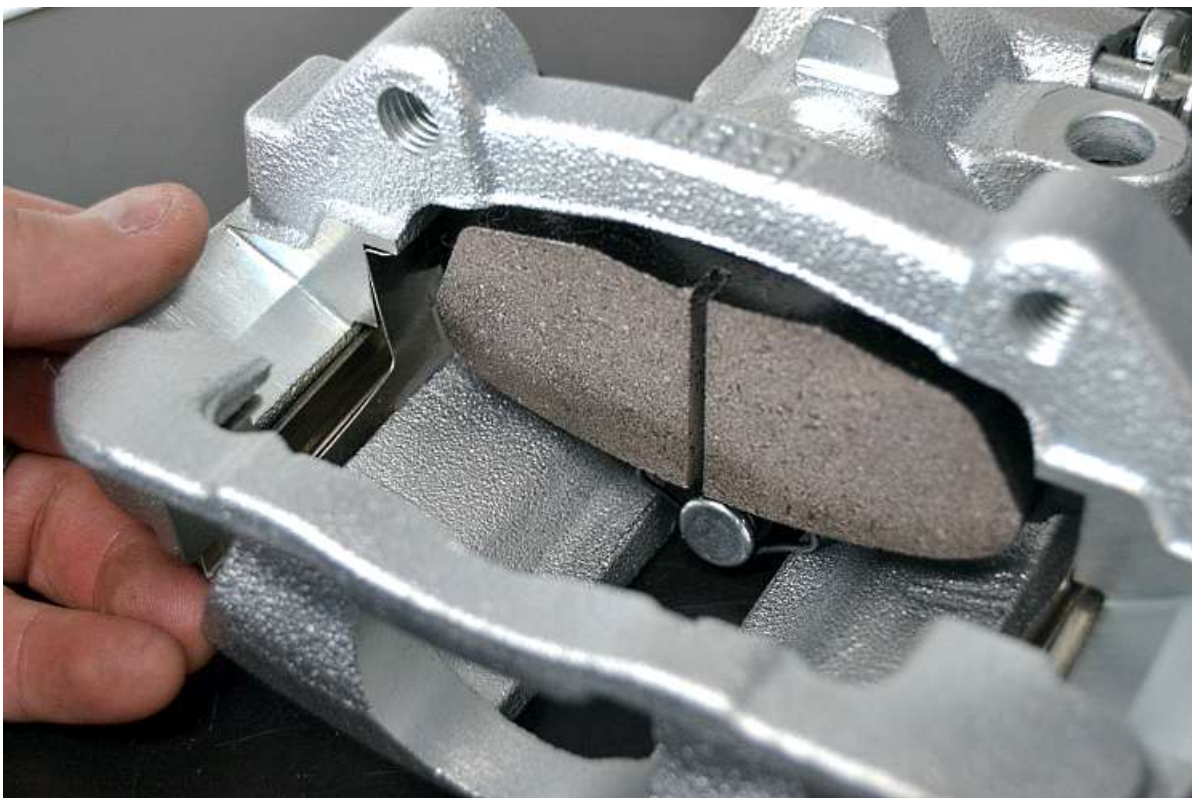


Looking from the top, the clip might get held out from the mounting surface in the corners.

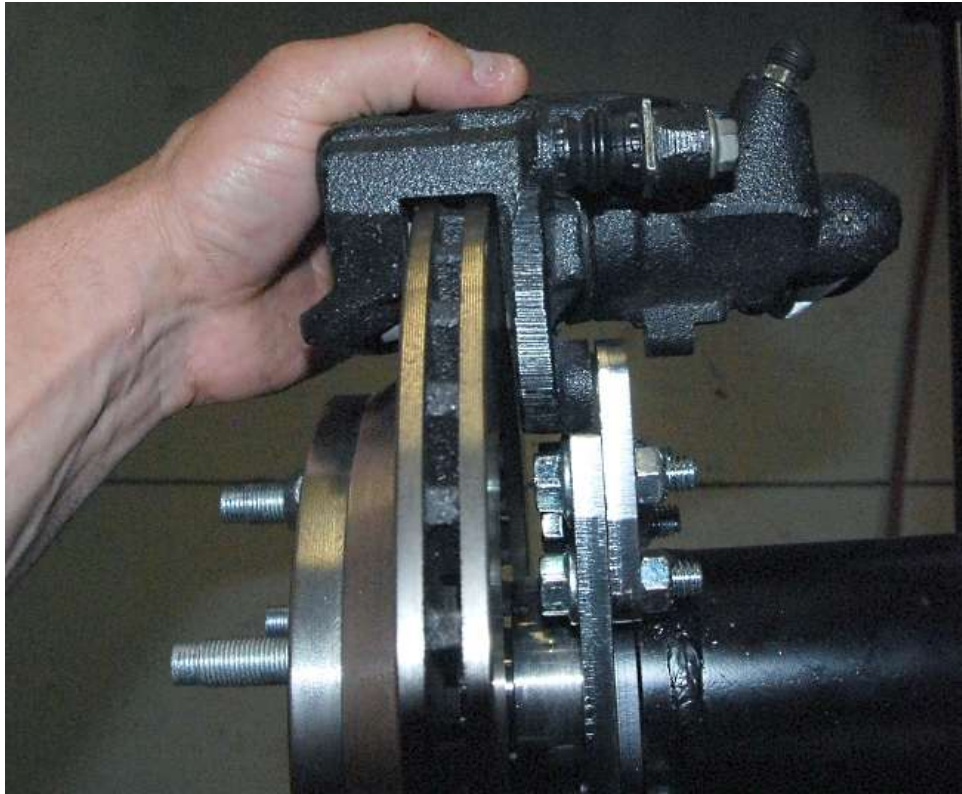




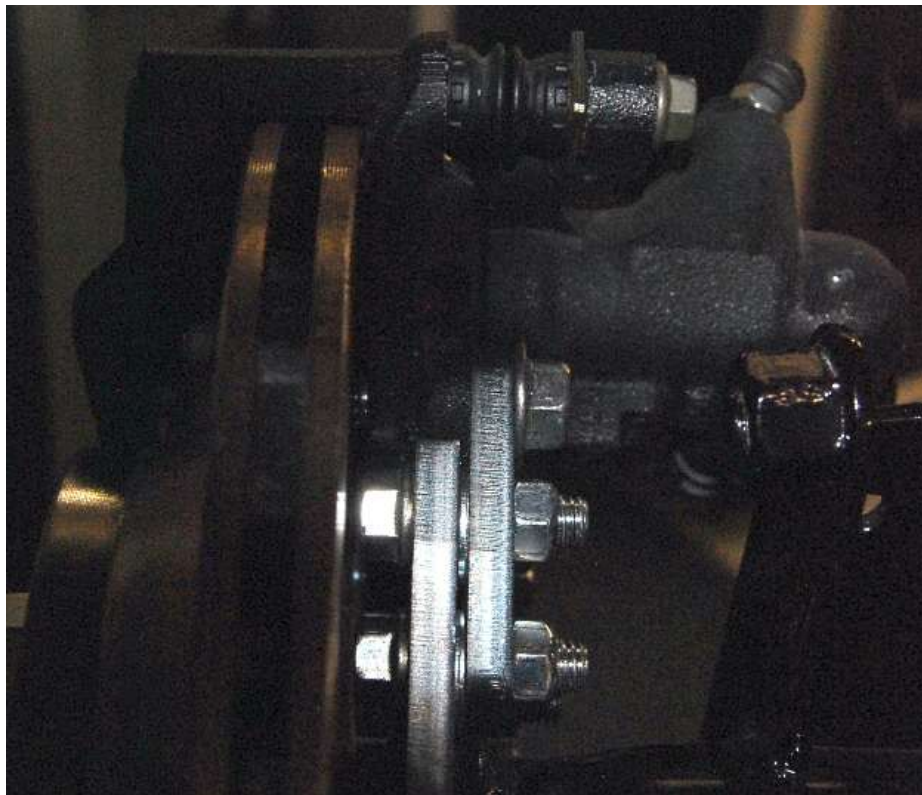
Trim the clip vertically so that it fits and doesn't slide out.



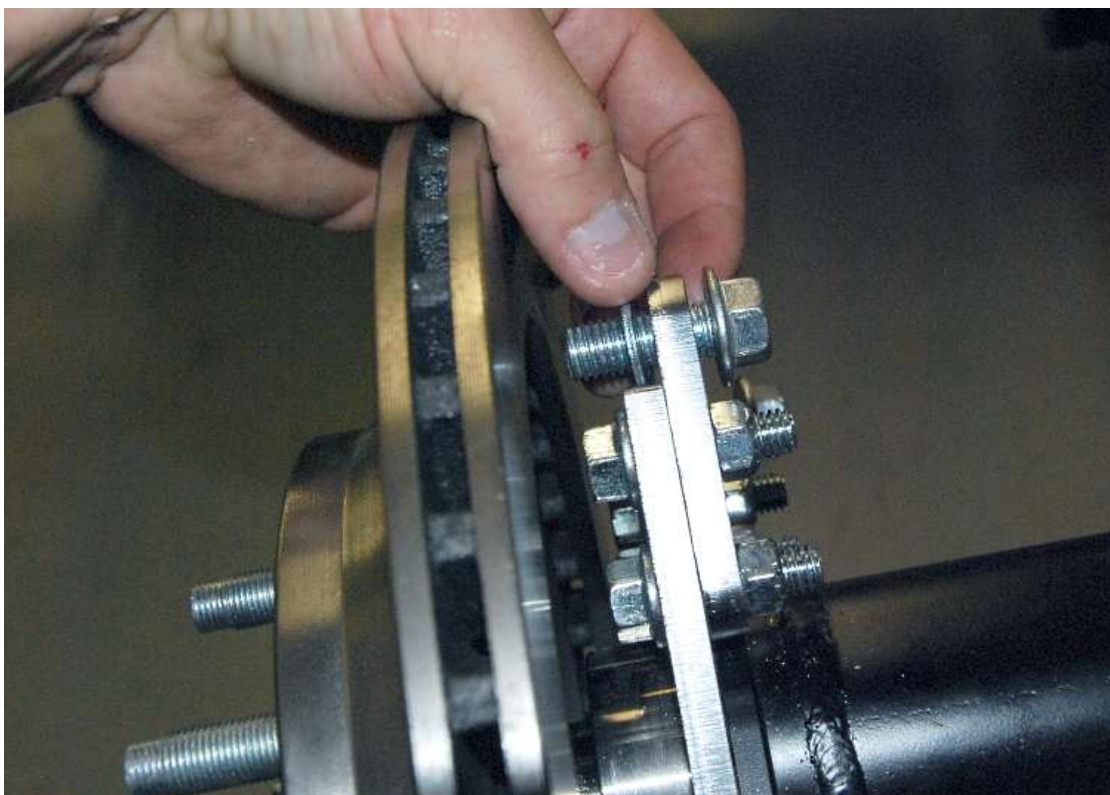
Put the brake pads in the caliper by pushing down on the pad to compress the wire springs on the top of the pad, and then slide them into the slots in the caliper bracket.



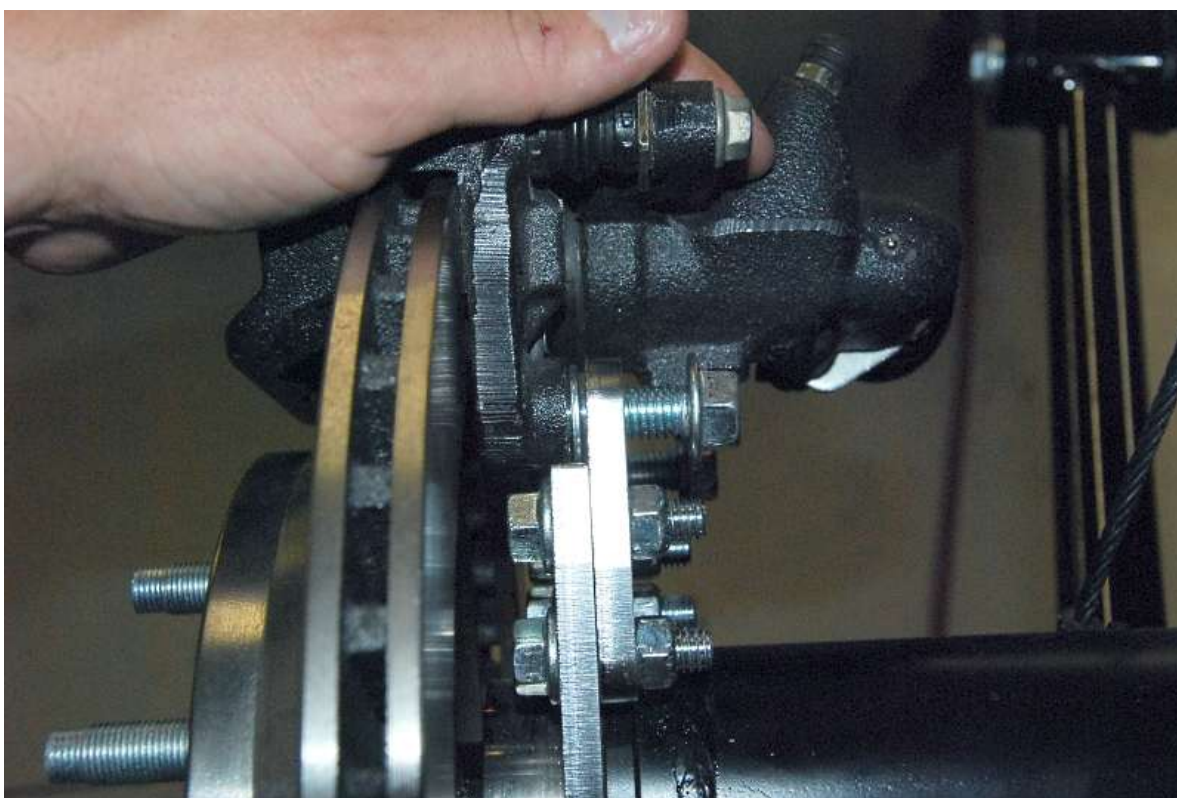
When installing the caliper make sure that the brake fluid bleed screw is on the top side of the caliper. Do not worry about the LH/RH markings on the calipers.



Make sure the caliper bracket is centered over the rotor then check to see if a spacer is needed between the caliper bracket and the caliper mount bracket or between the two brackets.



If needed remove the caliper and slide the shim onto the bolt.



Recheck the clearance between the caliper bracket and rotor.

Tighten and torque the two 12mm mounting bolts to 60ft/lb using a $\frac{3}{4}$ " socket.



If not already done, fill the rear axle with fluid and seal the cover with RTV silicone.

TORQUE SPECIFICATIONS:

FASTENER	TORQUE (FT./LBS.)
BANJO BOLTS	32

WHEEL NUTS	90
AXLE ADAPTER/REARBACKING PLATE BOLTS	30
AXLE HOUSING COVER BOLTS	25-35
AXLE FILL PLUG	15-30
CALIPER MOUNTING BOLTS	60

Firewall Aluminum

FOOTBOX FRONT ALUMINUM



Clamps



Packaged aluminum



Clamp the left side footbox front panel (has steering shaft hole in it) in place.



Clamp the right front footbox panel in place.

FIREWALL

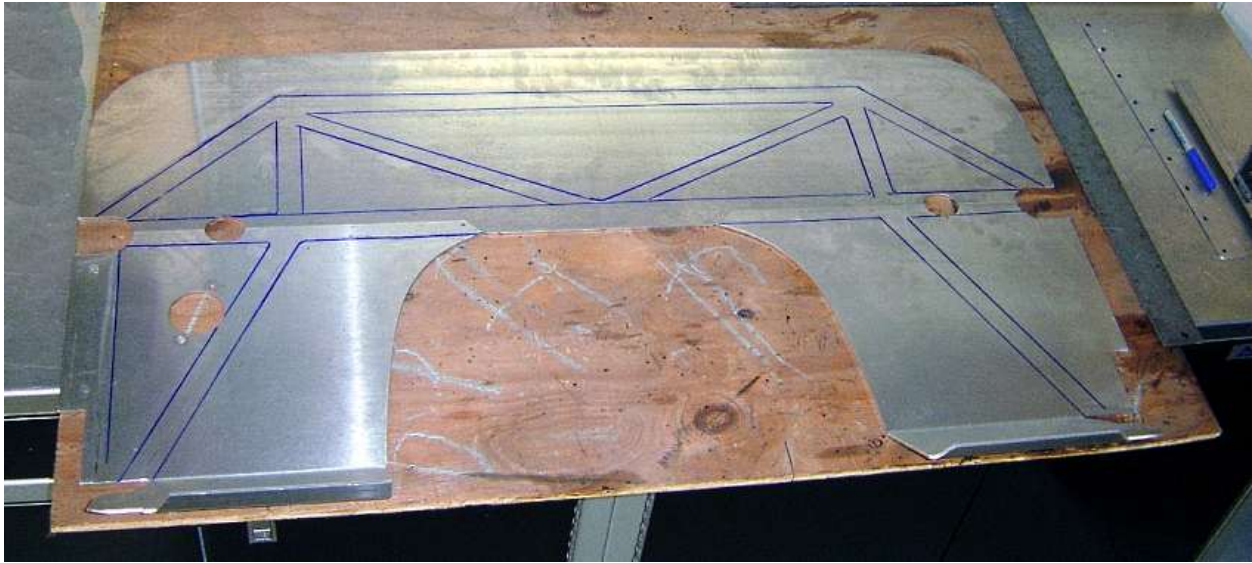
- ✂ Marker, drill, silicone, clamps
- 🚗 Secondary body fasteners, packaged aluminum, firewall



Clamp the firewall onto the frame. The bottom edge of the firewall meets the top edge of the footbox front walls.



Using a marker, mark the backside of these three pieces where they come in contact with the frame.



Remove the three marked panels.



Determine how you want to install your firewall ($\frac{3}{16}$ " rivets, $\frac{1}{4}$ -20" button heads or any other type of fastener). We recommend that you place a fastener every 3".

Mark the panel for your desired spacing and then drill the holes in all three pieces.



Skip the next section if not running a manual transmission.

OPTIONAL CLUTCH CABLE HOLE



1.375" hole saw, drill, $\frac{3}{16}$ " drill bit, tape, silicone



Manual Transmission components

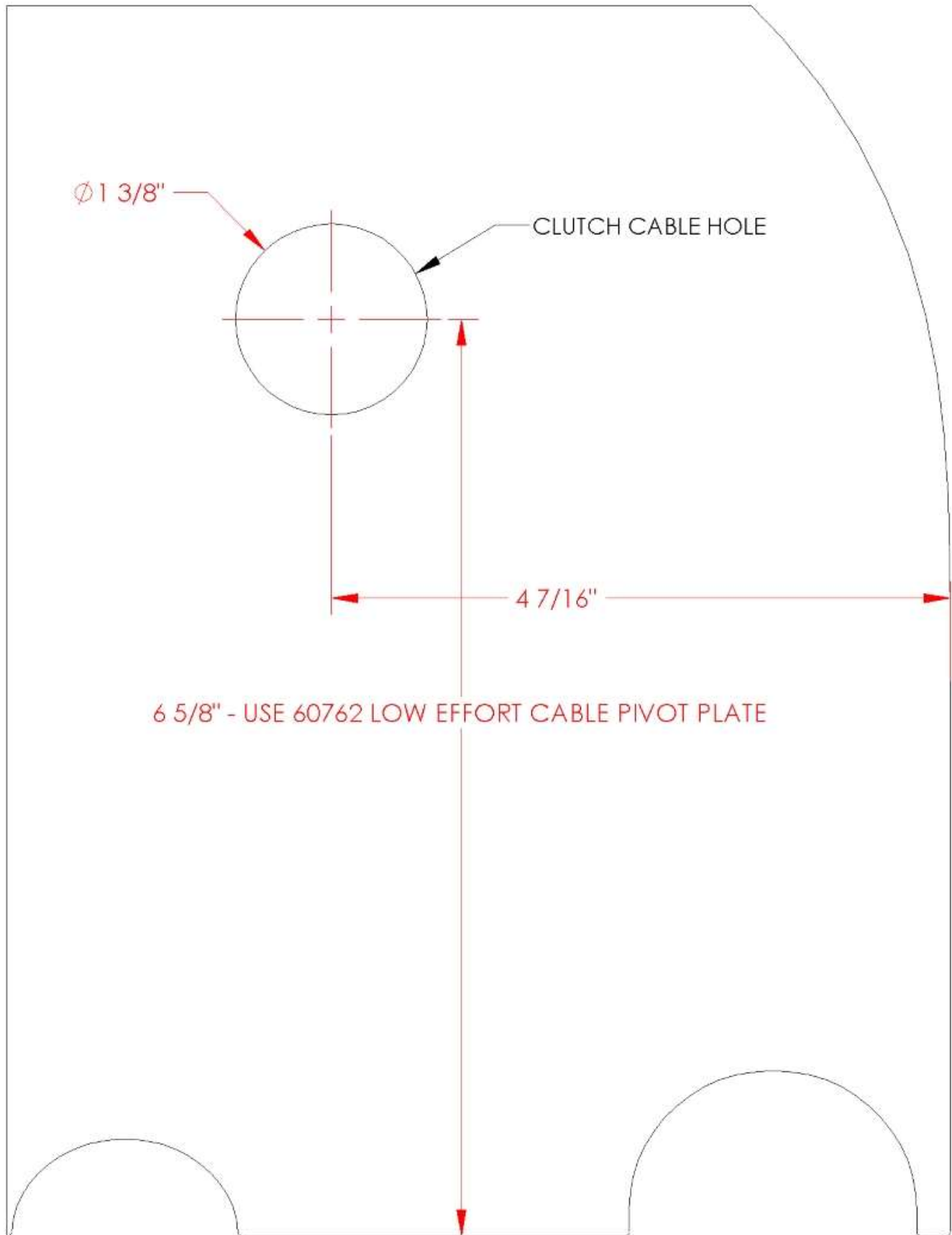


For use with optional manual transmission components.

If you are building a manual transmission car, lay the following template on the front surface of the firewall.

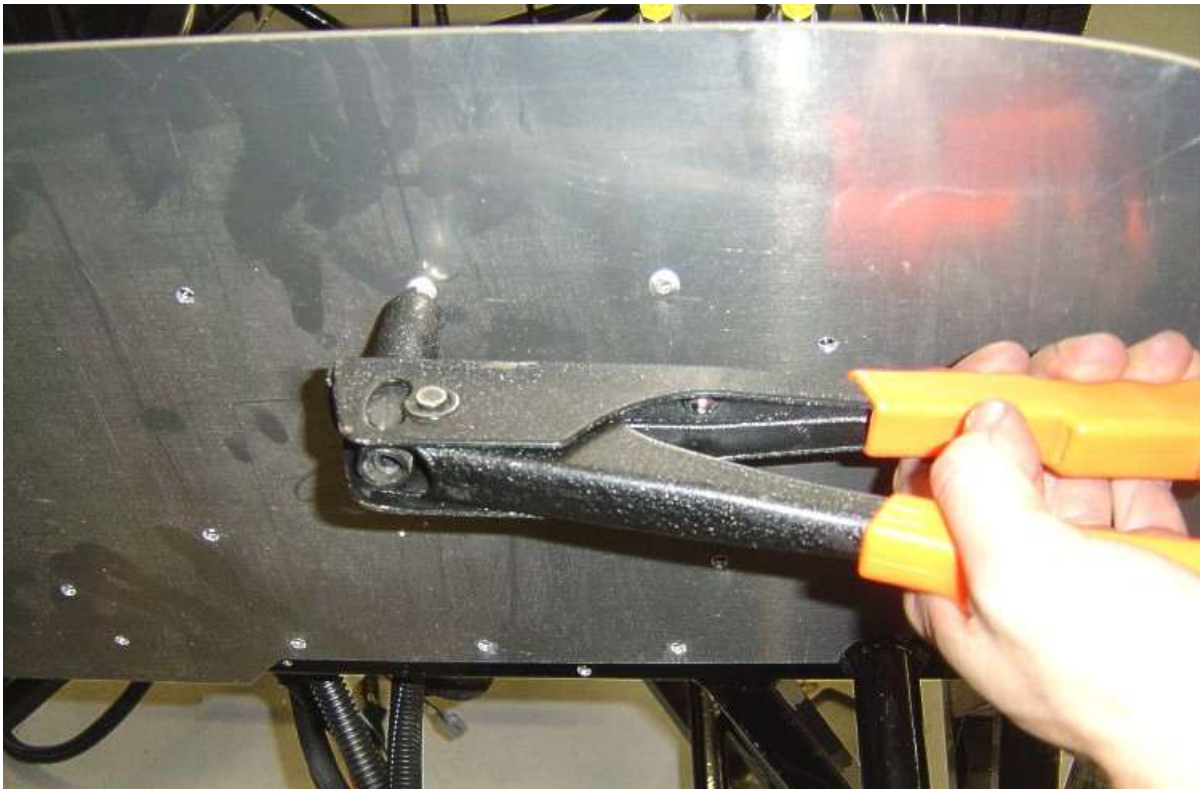
Drill the center mark with a $\frac{3}{16}$ " drill bit

Drill the firewall using a $1\frac{3}{8}$ " for the clutch cable.



FINAL FIREWALL INSTALL

Clamp all of the $\frac{1}{8}"$ aluminum panels back onto the frame and drill the frame for each attachment point.



Fasten/attach the firewall and the front footbox panels to the frame.

Steering Rack

- ✂ 15mm, 16mm, $\frac{5}{8}$ " socket, Ratchet, 16mm, 17mm, $\frac{5}{8}$ " wrench, Torque wrench.
- 🚗 Steering Rack Assembly



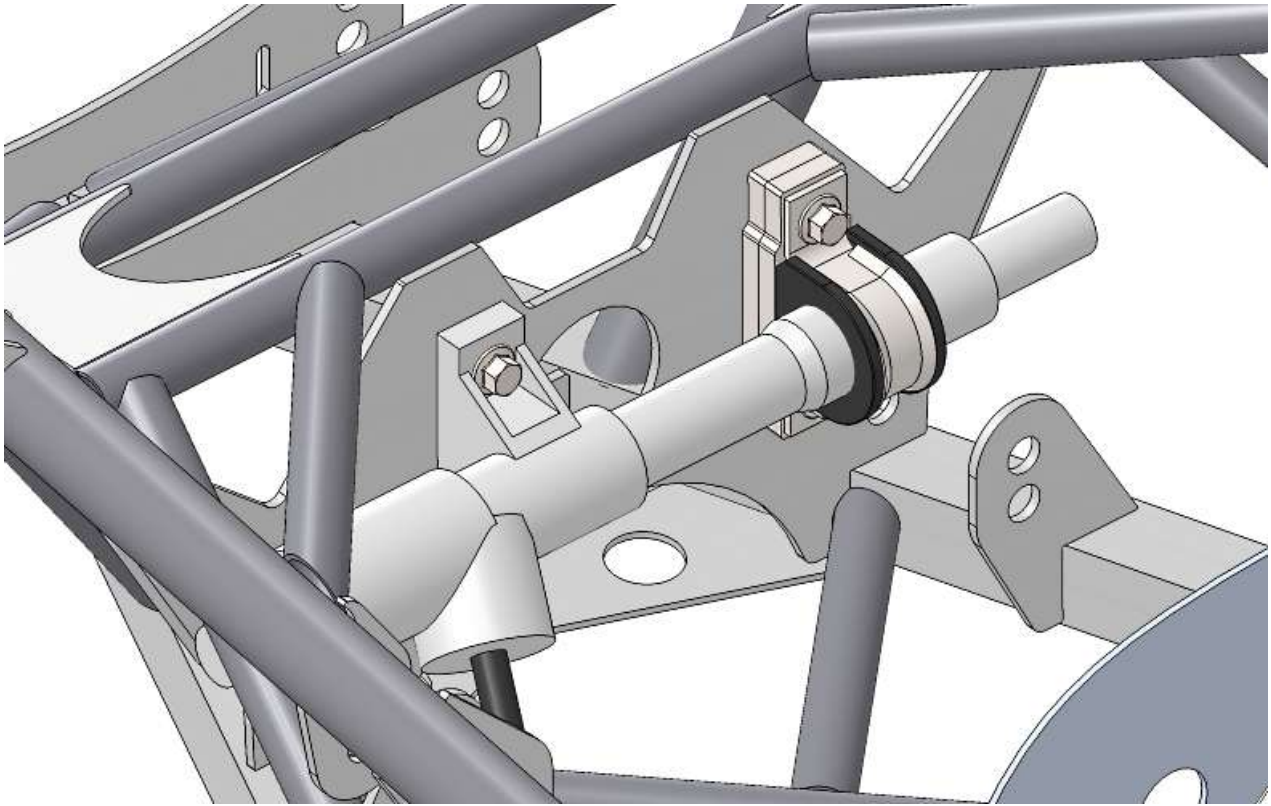
The steering rack is installed onto the chassis with the input shaft facing down and to the left side.



Position the rack in the frame.



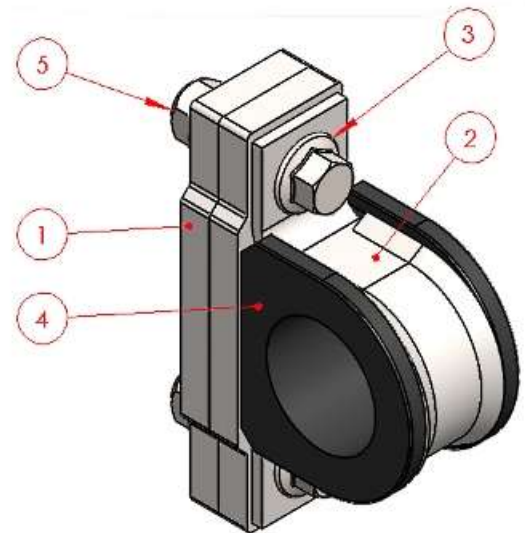
On the left side of the rack, use the M10 x 30mm fasteners. Push the bolts through and spin the nuts on but do not tighten yet.



On the right side, the rack is mounted using a polyurethane bushing and bracket.

Push the bushing onto the right side of the rack followed by the bracket.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34791	STEERING RACK MOUNT SPACER	2
2	34790	BUSHING MOUNT BRACKET	1
3	34876	M10 x 1.5mm x 40mm BOLT	2
4	34789	1-7/16" POLYURETHANE BUSHING	1
5	34877	10mm FLANGED NYLON LOCK NUT	2



Slide the rack mount spacers under the bushing and pass the M10 x 40mm bolts through the bracket, spacers and frame.



Check the fitment of the rack on the rack mount, make sure that the large nut on the rack is not hitting the plate. If it does, use a hole saw on the plate at this location for clearance.

Tighten all of the steering rack mounting lock nuts.



Screw the grease nipple into the outer tie rod end.



Make sure the jam nut is on the inner tie rod then spin the outer tie rod onto the inner tie rod.



Attach the tie rod to the spindle with the stud pointing down. For now, align the front end by eye. Torque the nut to **25 lb-ft**. If a castle nut is used, torque the nut then install the cotter pin.



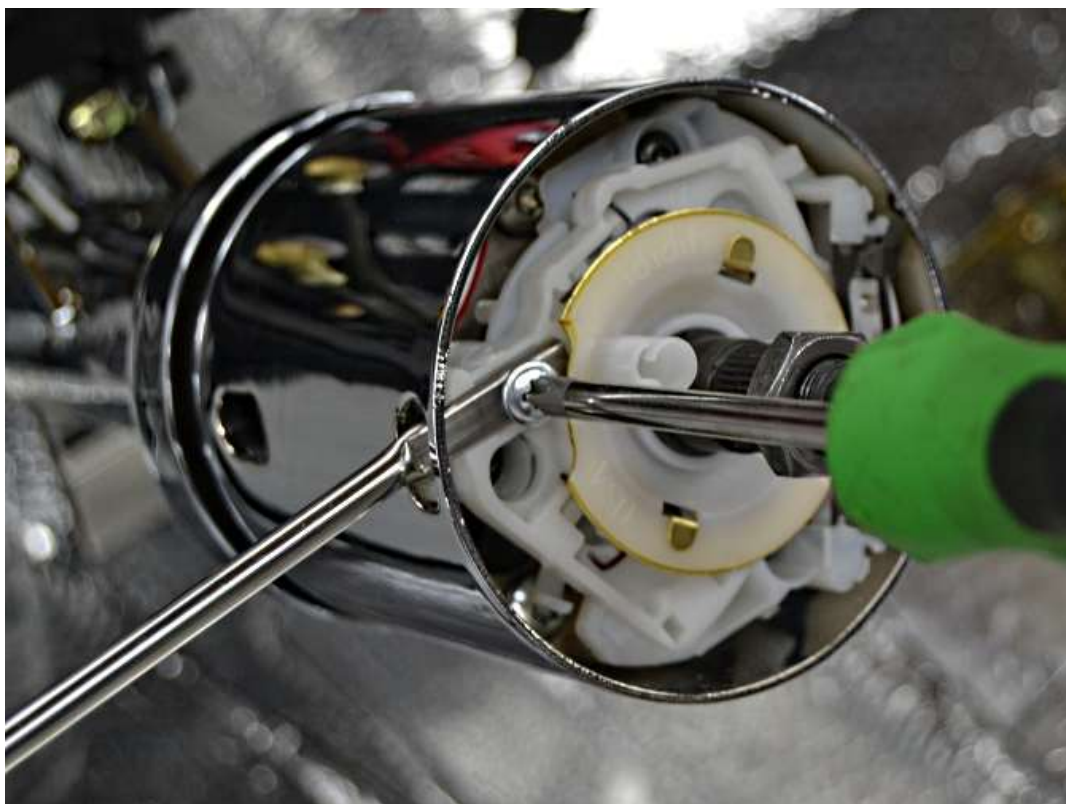
If the tie rod has a locknut instead of a castle nut, torque to **80Nm (59 lb-ft)**.

Steering Column

- ✂ 5/8" wrench, 5/8" socket, ratchet, flathead screwdriver.
- 🚗 Steering column, steering column components.
- 👤 The standard column material is brushed steel so you may want to coat, paint or clear coat this part.
- 👤 The front of the mount brackets on the column are slotted to allow some room to adjust it up or down.



Fasten the column to the chassis with the provided hardware (FFR# 13965 & 11058). The front mount should go through the bottom hole in the frame bracket.



Install the turn signal stalk onto the steering column with the provided screw.



Screw on the hazard switch onto the steering column.

Firewall Flange Bearing

- ✂ $\frac{3}{16}$ " hex key, $\frac{1}{2}$ " socket, ratchet.
- 🚗 Steering bearings/hardware

- 👉 Notice the direction of the bearing, the locking collar should point inside the cockpit. Do not tighten the locknuts until the steering shaft has been installed so that the bearing is in the correct orientation.
- 👉 Both parts of the stamped flange bearing holder must be mounted on the front side of the firewall.



Attach the steering shaft flange bearing to the front surface of the firewall using the $\frac{5}{16}$ " Button head and locking nut.

Steering shaft

- 🔧 $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ " hex keys, $\frac{1}{2}$ " wrench
- 🚗 Steering shaft components
- 👉 When installing the steering linkages, loosely install the entire system then tighten the bolts and set screws once it is complete.
- 👉 With all of the joints, the end of the shaft should be flush with the inner part of the joint.

ITEM NO.	PART NUMBER	DESCRIPTION	33592/QTY.
1	15838	9/16"-26 SPLINE x 3/4" DD U-JOINT	1
2	33591	3/4" DD JOINT	3
3	33438	291mm (11.4375") STEERING SHAFT	2
4	35071	MIDDLE STEERING SHAFT	1





Attach the $\frac{3}{4}$ " DD to $\frac{3}{4}$ " DD joint on to the steering column output shaft using a $\frac{5}{32}$ " Hex key and $\frac{1}{2}$ " wrench. The smaller end goes on the steering column. Tighten the set screw just enough so the joint does not slide off, it will be adjusted later.



Insert a DD steering shaft from the engine bay side through the firewall bearing (note the direction of the bearing with the locking collar inside the cockpit).



Insert the upper shaft into the steering column u-joint.

MANUAL STEERING



Push the steering joint ($\frac{9}{16}$ "-26 spline to $\frac{3}{4}$ " DD) all the way onto the input shaft of the rack making sure to align the set screw with the flat on the input shaft and the recessed area then tighten the set screw using a $\frac{5}{32}$ " Hex key.



Attach the second flange bearing to the front side of the frame bracket with the locking collar forward using the $\frac{5}{16}$ " button head screws, $\frac{3}{16}$ " Hex key and $\frac{1}{2}$ " wrench. Do not fully tighten the locknuts until the steering shaft has been installed so that the bearing is in the correct orientation.



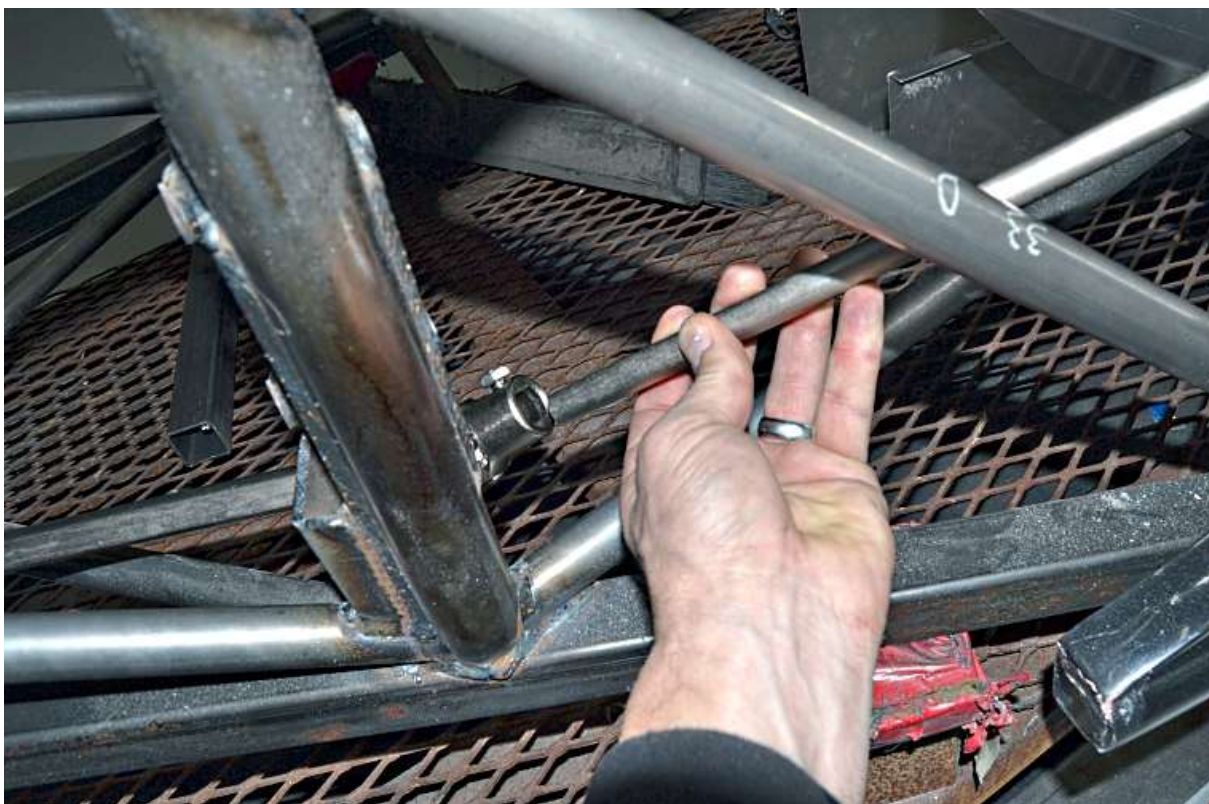
Insert a DD shafts through the front flange bearing and into the steering rack u-joint.



Push the shaft into the steering joint so that it is flush with the inside of the joint as shown above then tighten the set screw and jam nut using a $\frac{5}{32}$ " Hex key and $\frac{1}{2}$ " wrench.



Put another $\frac{3}{4}$ "DD x $\frac{3}{4}$ "DD U-joint on the end of the front shaft next to the front flange bearing with the short end of the joint on the shaft.



Attach the twisted 3/4"DD ended steering shaft to the longer end of the front flange bearing joint.



On the remaining 33591 3/4"DD U-joint remove the set screw and jam nut on the short end of the joint.



Place some blue Loctite on the included shorter set screw and insert it into the short end of the joint.



Push the long end of the u-joint onto the long steering shaft.



The locking collar of the firewall flange bearing should point inside the cockpit.



The location of the locking collars on the flange bearings, the short and longer u-joint ends, the short set screw on the firewall joint and the notches in u-joints all work together to make sure there is no u-joint bind or set screw/jam nut bind. The steering shaft must be assembled as

shown in these directions



Hold the short end up to the firewall flange bearing and slide the top shaft down into the joint so that it is flush on the inside of the joint.

Tighten the set screws on both joints with a $\frac{5}{32}$ " hex key.

Push the u-joint against the firewall and tighten the flange bearing set screw using a $\frac{1}{8}$ " hex key.





Angle the steering column as desired then tighten the steering column mount screws.

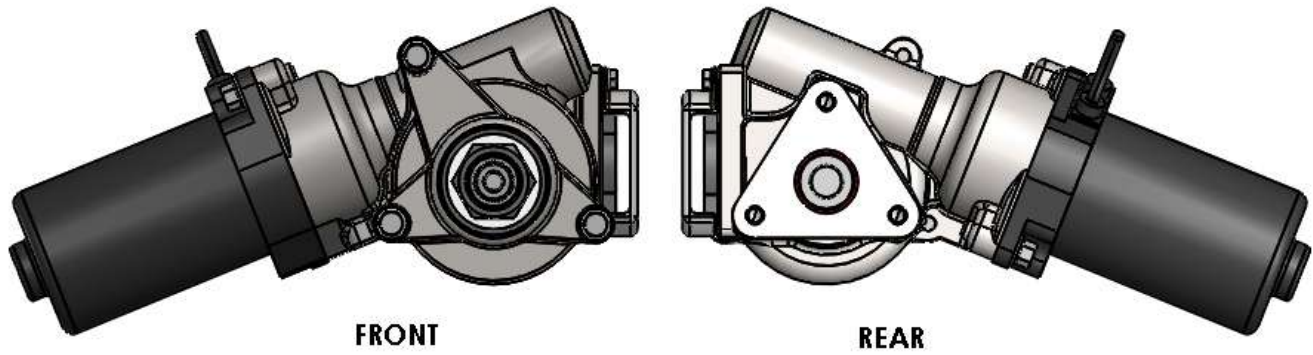
Check the upper u-joint on the steering column to see if the shaft going to the firewall is sticking through a lot. If it is, slide the u-joint up the steering column slightly and retighten the set screws.

Rotate the complete steering shaft so the steering rack goes from lock-to-lock. The steering should feel smooth throughout the travel. There should be no notchy or dragging feeling at any point. If there is, check the joints one by one to make sure there is no interference between the ends and no interference between the firewall joint and the flange bearing holder. The flange bearing holder can be filed slightly if necessary.

Start at the steering rack and go along the steering shaft and tighten all the set screws, jam nuts and flange bearing fasteners. Don't forget to Loctite the small set screw on the firewall joint.

ELECTRIC POWER STEERING (OPTIONAL)

-  13mm, 15mm, $\frac{5}{8}$ " sockets, 6mm, $\frac{5}{32}$ " hex key, $\frac{1}{2}$ ", $\frac{5}{8}$ ", 17mm wrenches, marker, grinder, hack saw
-  Electric steering components, Hot Rod steering shaft components.
-  The power steering unit may need to be rotated in order to clear the engine or oil pan that is being used.
-  The steering shafts included with the kit are the lengths required for manual steering. They will have to get cut for the electric steering.



Attach the motor to the front side of the chassis mount below the left engine mount using the screws included. Just snug the screws up so the motor is against the plate but can be rotated up and down in the slots.

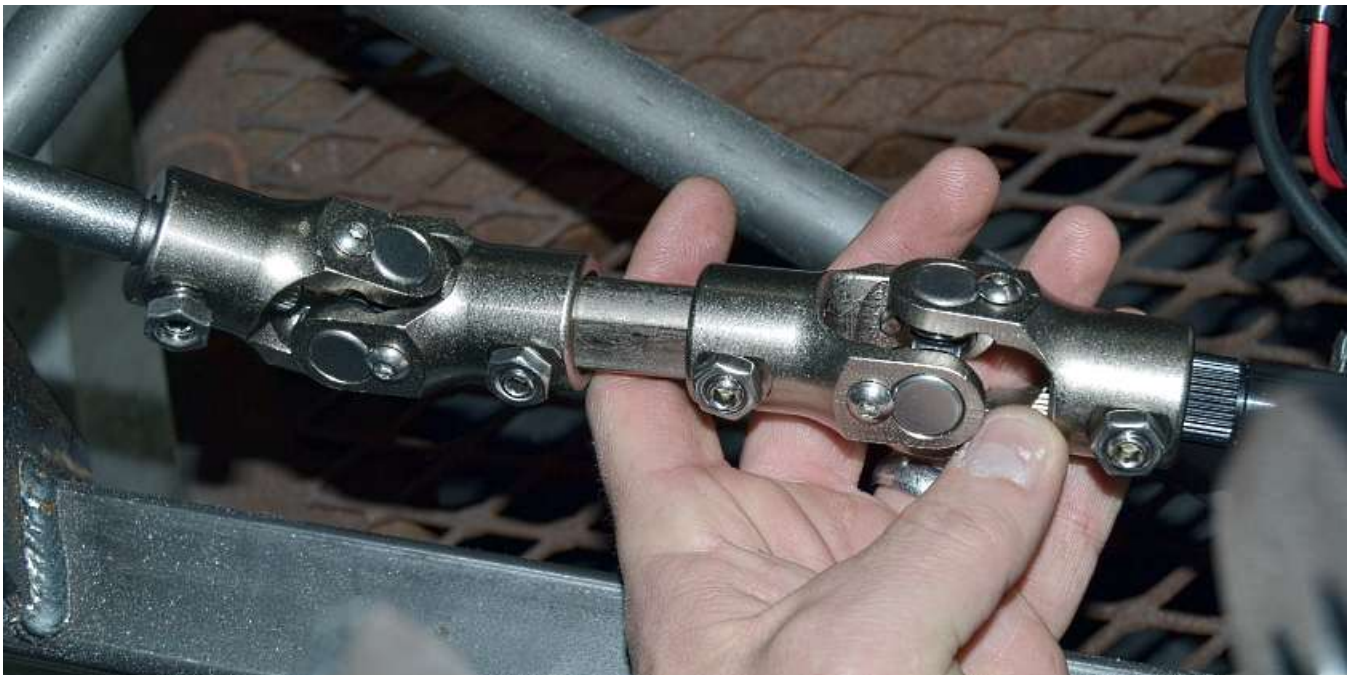
Take the shorter of the two remaining $\frac{3}{4}$ " DD shafts and cut a piece 2.50" long.



Push the short piece of $\frac{3}{4}$ "DD shaft into the end of the 15838 steering rack joint and the end of one of the 33977 electric steering joints.



Push the steering rack joint (smaller splined hole) all the way onto the input shaft of the rack making sure to align the set screw with the flat on the input shaft.



Push the electric motor joint (larger splined hole) onto the motor.



Tighten the set screw of the joint in the recess of the motor shaft.



Tighten the set screw of the joint in the recess of the steering rack shaft.



Push the other electric motor joint (33977) onto the other side of the motor.

Cut the twisted $\frac{3}{4}$ "DD ended steering shaft so that it is 14.375" long.



Attach the $\frac{3}{4}$ "DD twisted steering shaft to the electric steering joint.



On the remaining 33591 ¾"DD U-joint remove the set screw and jam nut on the short end of the joint.



Place some blue Loctite on the included shorter set screw and insert it into the short end of the joint.



Push the long end of the u-joint onto the long steering shaft.



The locking collar of the firewall flange bearing should point inside the cockpit.



The location of the locking collars on the flange bearings, the short and longer u-joint ends, the short set screw on the firewall joint and the notches in u-joints all work together to make sure there is no u-joint bind or set screw/jam nut bind. The steering shaft must be assembled as shown in these directions



Hold the short end up to the firewall flange bearing and slide the top shaft down into the joint so that the distance on the inside of the joint to the shaft is equal on both the steering column joint and the firewall joint.

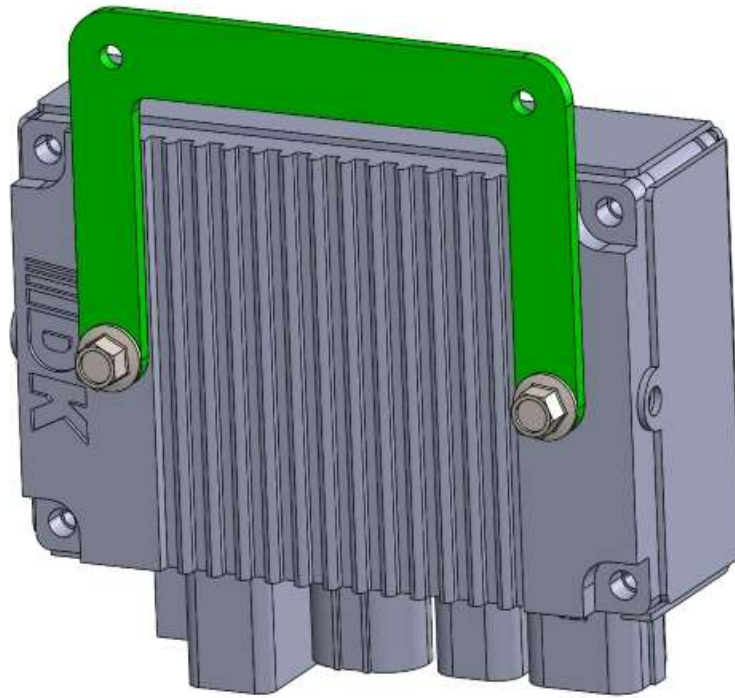
Tighten the set screws on both joints with a $\frac{5}{32}$ " hex key.

Push the u-joint against the firewall and tighten the flange bearing set screw using a $\frac{1}{8}$ " hex key

Rotate the complete steering shaft so the steering rack goes from lock-to-lock. The steering should feel smooth throughout the travel. There should be no notchy or dragging feeling at any point. If there is, check the joints one by one to make sure there is no interference between the ends and no interference between the firewall joint and the flange bearing holder. The flange bearing holder can be filed slightly if necessary.

Start at the steering rack and go along the steering shaft and tighten all the set screws, jam nuts and flange bearing fasteners. Don't forget to Loctite the small set screw on the firewall joint.

Control Module mounting



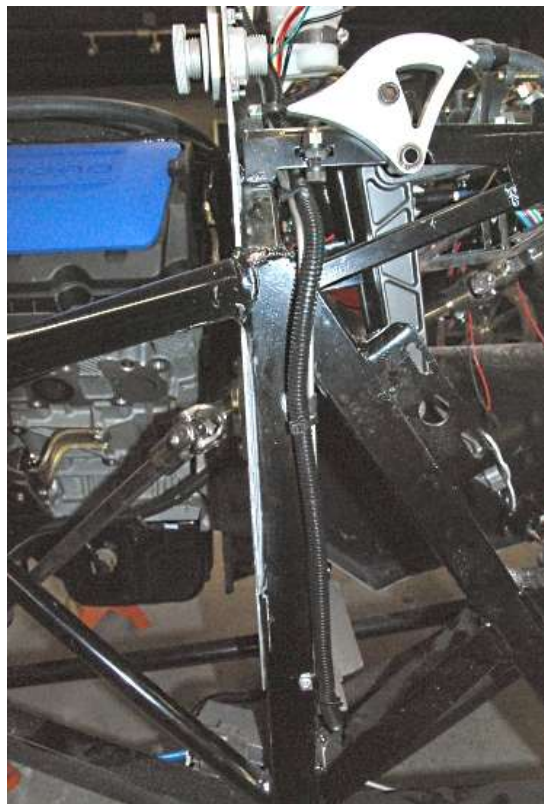
Attach the mounting bracket to the motor controller using the M6 screws.



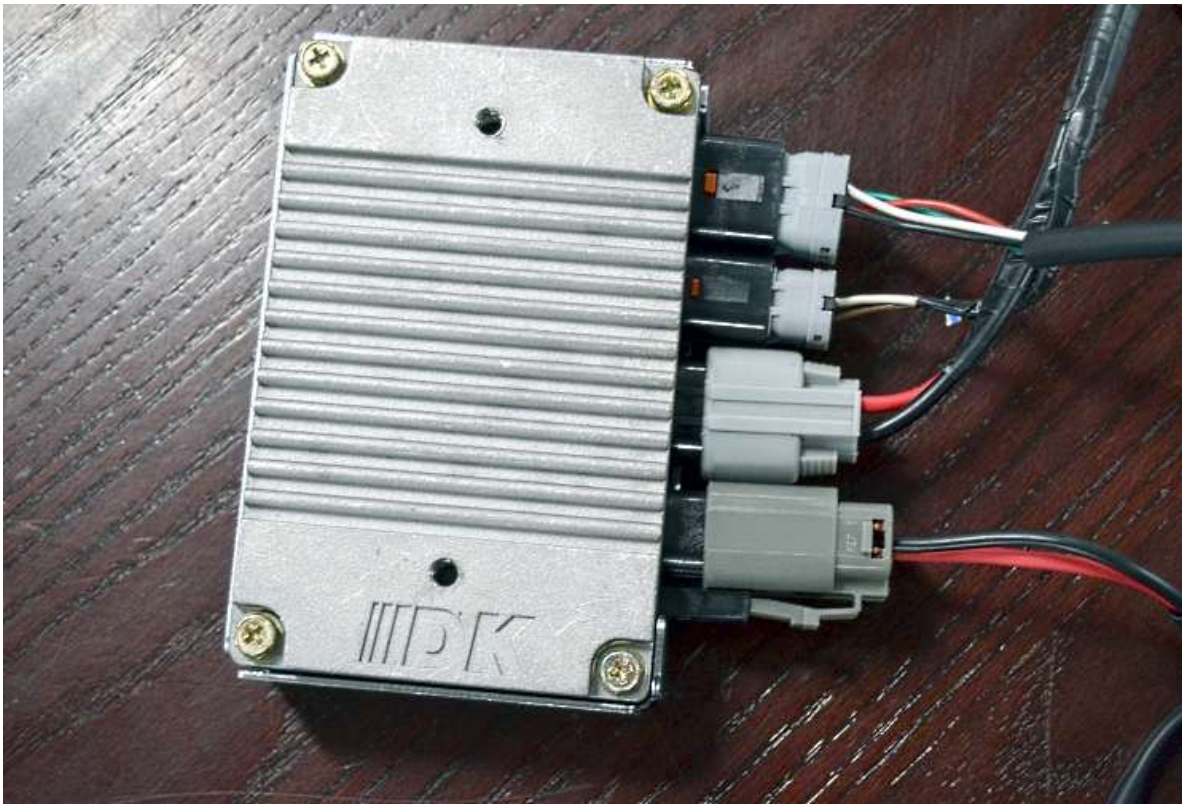
Attach the controller harness to the motor.



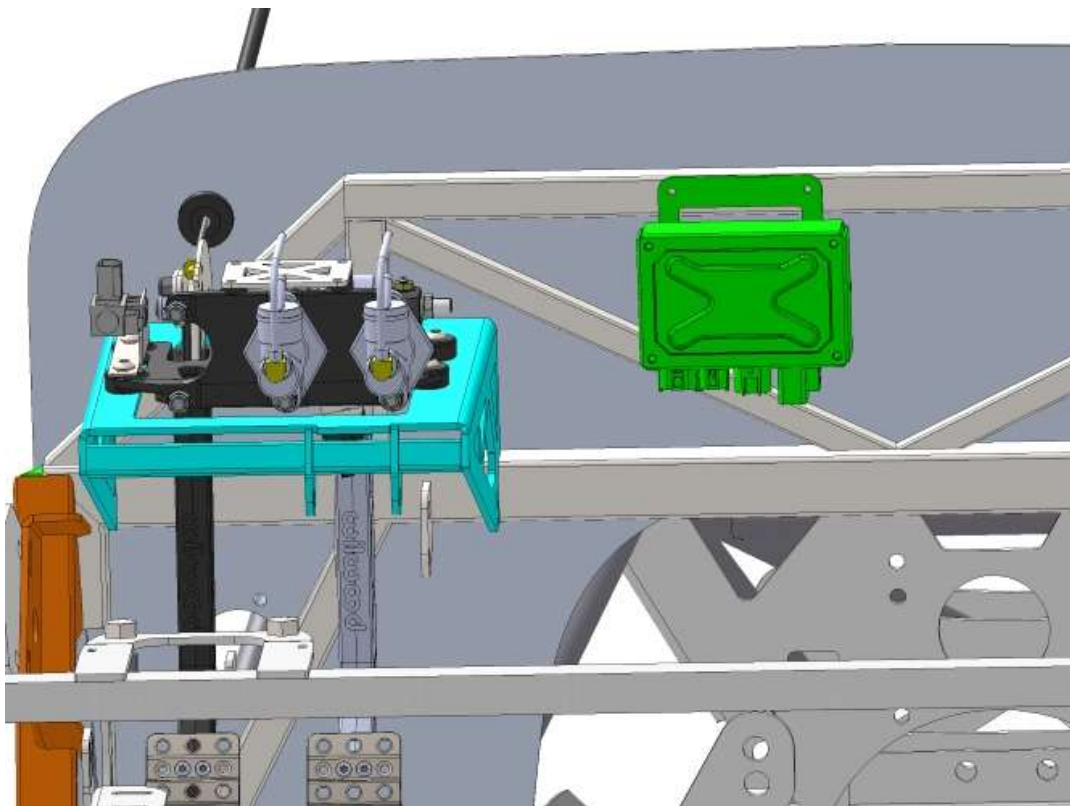
Attach the power wire harness to the motor.



Run the harnesses up behind the dash area.



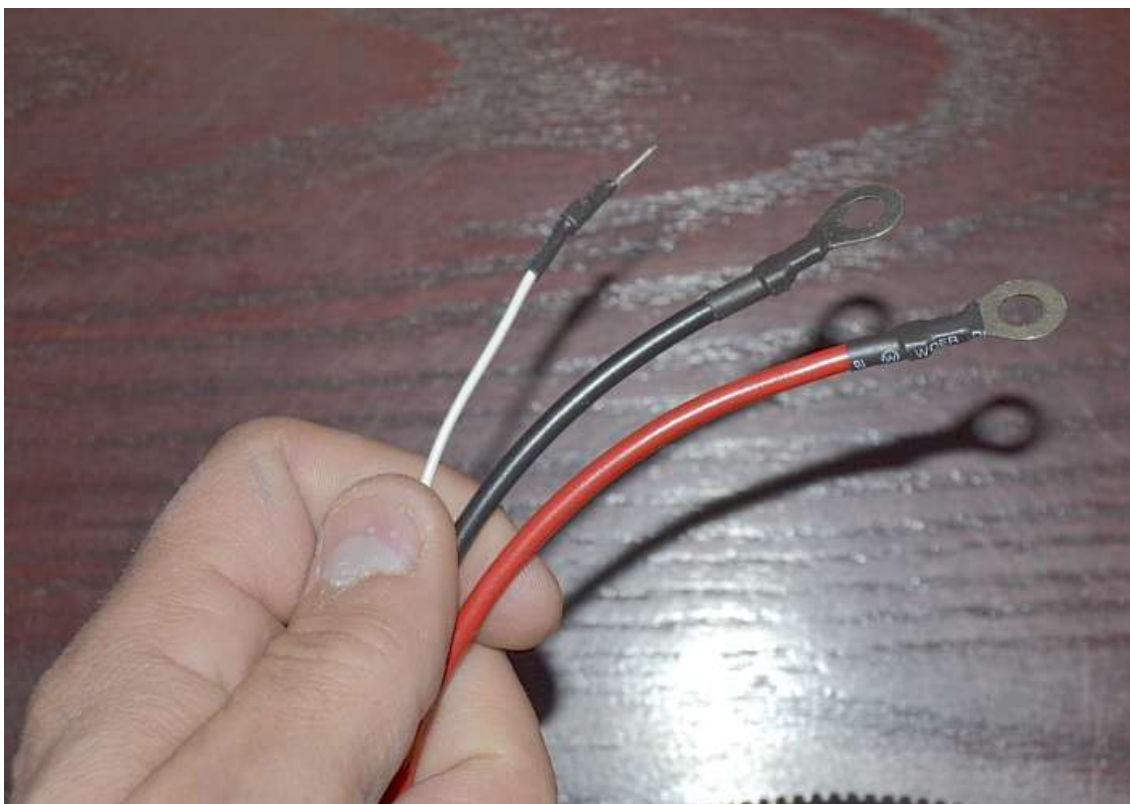
Attach the harnesses to the appropriate plug on the controller.



Attach the controller behind the dash area using the self-tapping #10 screws so that the harnesses will reach.

Wiring

👉 Return to this section and do the wiring after the chassis harness is installed.



Wire the large red wire to constant +12 volts.

The heavy black wire should get grounded.

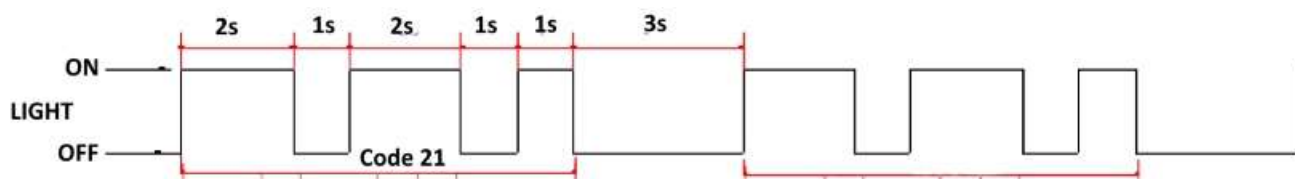
Connect the white wire to a switched +12 volts. This can be done by either running a wire directly to the key or, if running an EFI car or Carb without electric choke, the tan “electric choke” wire can be used. Remove it from the Sending unit plug and connect the wires together.

👉 If an existing circuit is used such as the “electric choke” for something other than the original purpose, make sure to note the new function on the fuse panel and also make sure the correct fuse size is used.

Troubleshooting

If there is a malfunction with the system, it will flash a code to identify the problem. Each fault code is shown by a series of flashes with the inline light.

Every fault code is a double digit shown by a series of long and short flashes of light. Each long flash represents a tens digit and is 2 seconds long and each short flash represents a single digit and is 1 second long. There will be a 3 seconds space between the long flashes and the short flashes.



For example: Long flash\long flash \space\short flash represents the code number 21.



Light Codes

21	Main torque sensor disconnection	1. Check sensor wiring harness 2. Replace ECU
22	Main torque sensor output error (voltage is too high or low)	
23	Vice torque sensor disconnected	
24	Vice torque sensor output error (voltage is too high or low)	
25	Main and vice torque difference is too large	
26	Main torque sensor inner fault	Replace ECU
35	Current sensor zero offset is too large	
32	Motor disconnected	Re-insert wire of the motor
33	Current of ECU is over the limit	Replace ECU
34	One side of motor has no assistance	
36	Motor voltage abnormal	Check motor wire, check motor plug

If you encounter a specific issue with the system check the chart below to see if you can find your issue and repair instructions.

Failure	Reason	Troubleshooting
Steering without assistance	1. Wiring harness connectors have a bad contact 2. The fuse blew 3. Relay damage 4. Controller, motor or sensor is damaged	1. Check whether wiring harness connectors are fully inserted 2. Replace the fuse (40A) 3. Replace the relay 4. Replace damaged item
Power is not the same for left and right	1. The output voltage has deviation 2. Controller, motor or sensor is damaged	1. Disconnect motor connectors, adjust the sensor data to keep the voltage in $2.5V \pm 0.1V$ 2. Replace damaged item
When system is on, steering wheel swings on both sides	1. Motor is mounted backwards 2. Controller or sensor is damaged	1. Swap the position of the red and black power wires at the motor 2. Replace damaged item
Steering becomes heavy	1. Battery power loss 2. Motor damage (power reduction) 3. Low air pressure in front tires	1. Charge battery 2. Replace damaged item 3. Inflate tires
System has noise	1. Motor damage 2. Steering u-joint to $\frac{3}{4}$ " DD fitment is loose.	1. Replace damaged motor 2. Tighten the u-joint screws.

Pedal Box

-  $\frac{1}{2}$ ", $\frac{9}{16}$ " sockets, $\frac{3}{8}$ ", $\frac{11}{32}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ " wrenches, Drill, $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{1}{2}$ " Drill bit, $\frac{1}{8}$ ", $\frac{9}{32}$ ", $\frac{5}{16}$ " Hex Keys, T-20 Torx bit, Hammer, Razor knife or file or grinder, snap ring pliers or two small screwdrivers.
-  Pedal Components, pedal box hardware.



If using an automatic transmission or a hydraulic clutch some of these steps will not apply.

The brake switch may look different than in the pictures.

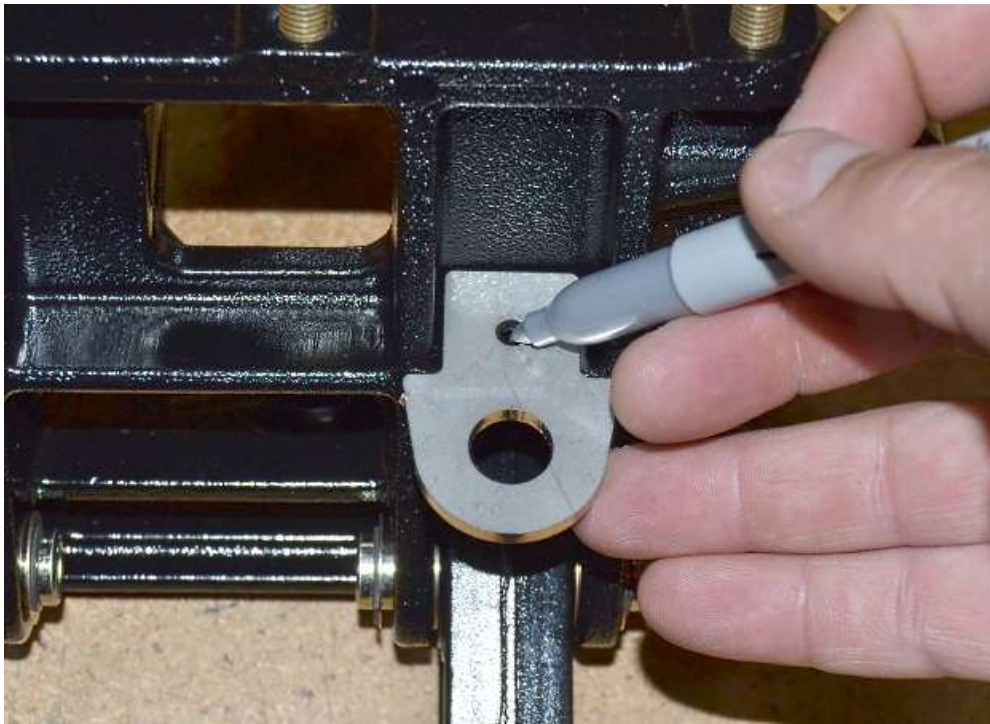
The pedal box comes with two pedal switches, one for the brake lights and the other can be used as a clutch safety switch (used to prevent starting the car while in gear) if desired.

PEDAL PADS



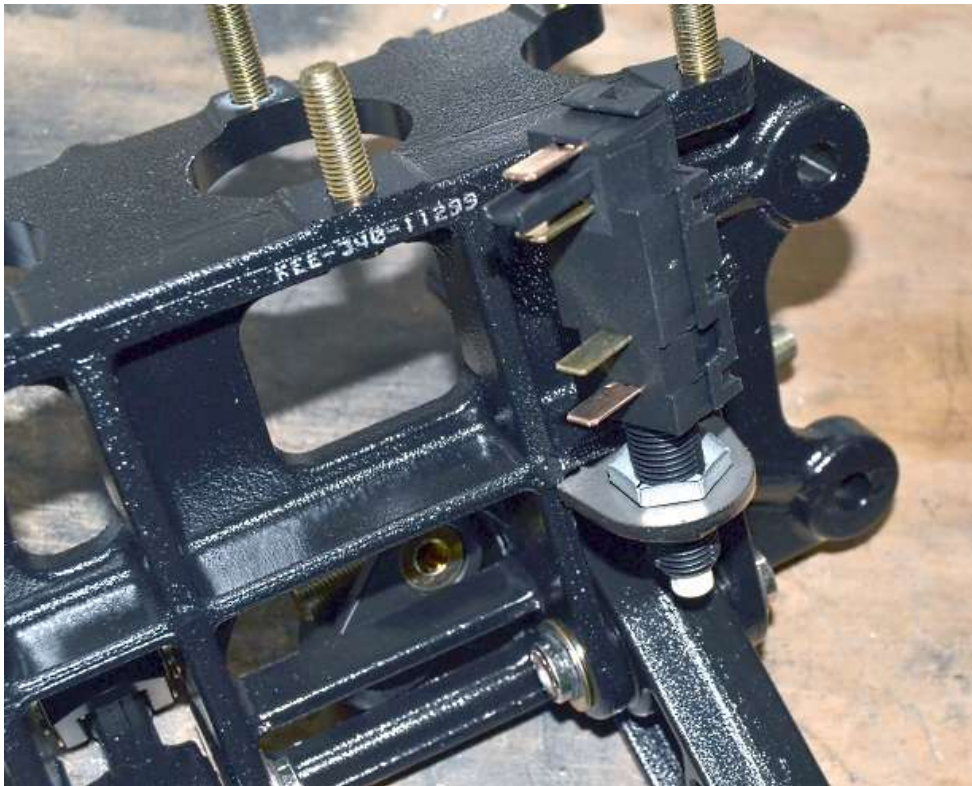
Attach the pedal pads to the pedals using a T-20 Torx bit. The pads mount holes allow the pads to be moved around if desired depending on foot room needed. Start with the pads in the middle holes. Once the seats are mounted in the car the pads can be moved or cut as needed.

BRAKE SWITCH MOUNT



Place the switch mount between the brake pedal mount tabs on the side closest to the brake pedal pivot holes and drill a $\frac{3}{16}$ " hole through the brake switch mount hole and the pedal box.

Attach the switch mount to the pedal box using the black #10 screw and locknut.

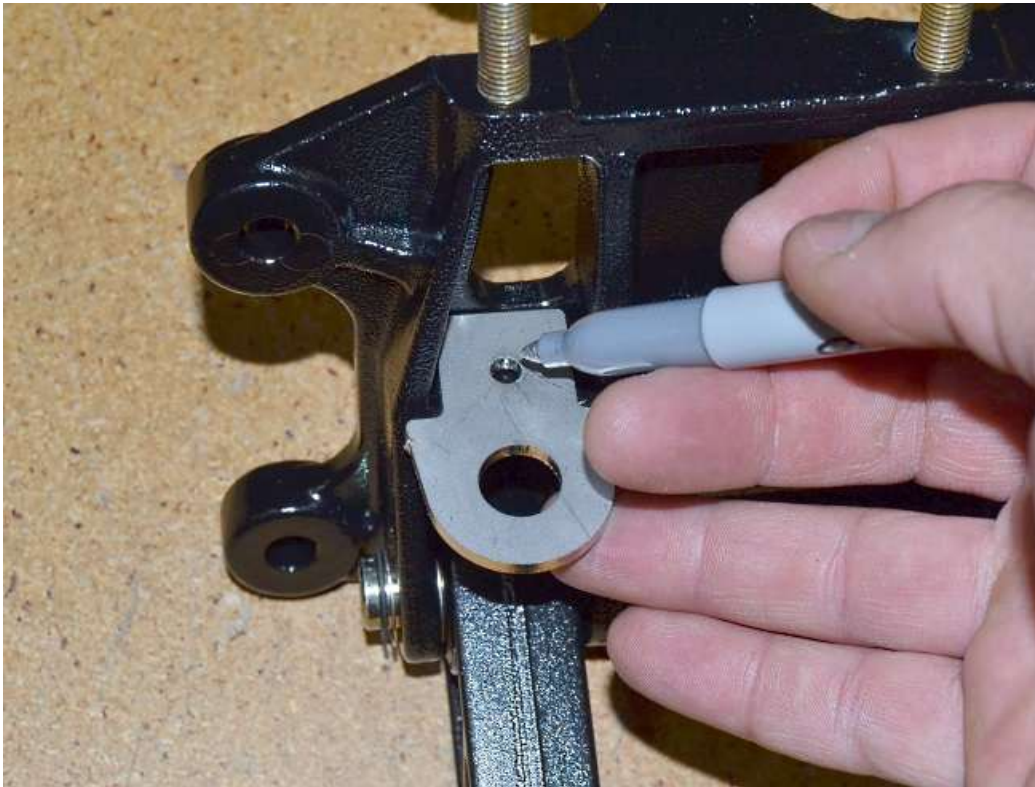


Connect the switch to the switch mount using a hex nut on each side of the mount bracket.

CLUTCH SAFETY SWITCH MOUNT



The clutch switch mount attaches the same way as the Brake switch mount.



Place the switch mount between the clutch pedal mount tabs on the side closest to the clutch pedal pivot holes and drill a $\frac{3}{16}$ " hole through the switch mount hole and the pedal box.

Attach the switch mount to the pedal box using the black #10 screw and locknut.



Connect the switch to the switch mount using a hex nut on each side of the mount bracket.

OPTIONAL CLUTCH CABLE QUADRANT



For use with optional manual transmission components.



If you are using an automatic remove the clutch pedal and disregard the next few steps.



$\frac{1}{2}$ ", $\frac{9}{16}$ " sockets, $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " wrenches, $\frac{1}{4}$ " drill bit, drill, Philips head screwdriver, $\frac{3}{16}$ ", $\frac{5}{16}$ " Hex Key, snap ring pliers



Use snap ring pliers or two small screwdrivers to remove the clevis at the top of the clutch pedal.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	REV.	DESCRIPTION	DATE	APPROVED
1	15609	INSIDE QUADRANT SIDE PLATE	1	A	INITIAL RELEASE	4/15/14	
2	15610	LEFT CABLE SIDE PLATE	1	B	QUADRANT PARTS REORDERED	6/21/16	
3	15611	PEDAL SPACER PLATE	1				
4	15612	OUTSIDE QUADRANT SIDE PLATE	1				
5	10802	1/4" NYLON INSERT LOCKNUT	2				
6	15638	1/4"-20 X 1.25" BOLT	2				
7	11040	3/8"-1.6 X 1.25" SOCKET HEAD	1				
8	13964	3/8-16 NYLON INSERT LOCKNUT	1				
9	60762	LOW EFFORT CABLE PIVOT PLATE	1				

ROADSTER	UNLESS OTHERWISE SPECIFIED:	DRAWN	NAME	DATE	5 Factory Five Racing, Inc. TITLE: WILWOOD CLUTCH QUADRANT ASSEMBLY
COUPE	DIMENSIONS ARE IN INCHES	COMMENTS:	JL	10/4/13	
HOT ROD	TOLERANCES TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001				
USED ON	MATERIAL STEEL FINISH				
APPLICATION		PRINTED	5/30/2024		SCALE: 1:2 WEIGHT:
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FACTORY FIVE RACING, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FACTORY FIVE RACING, INC. IS PROHIBITED.		SIZE DWG. NO. A 15613 REV B			
		SHEET 1 OF 1			

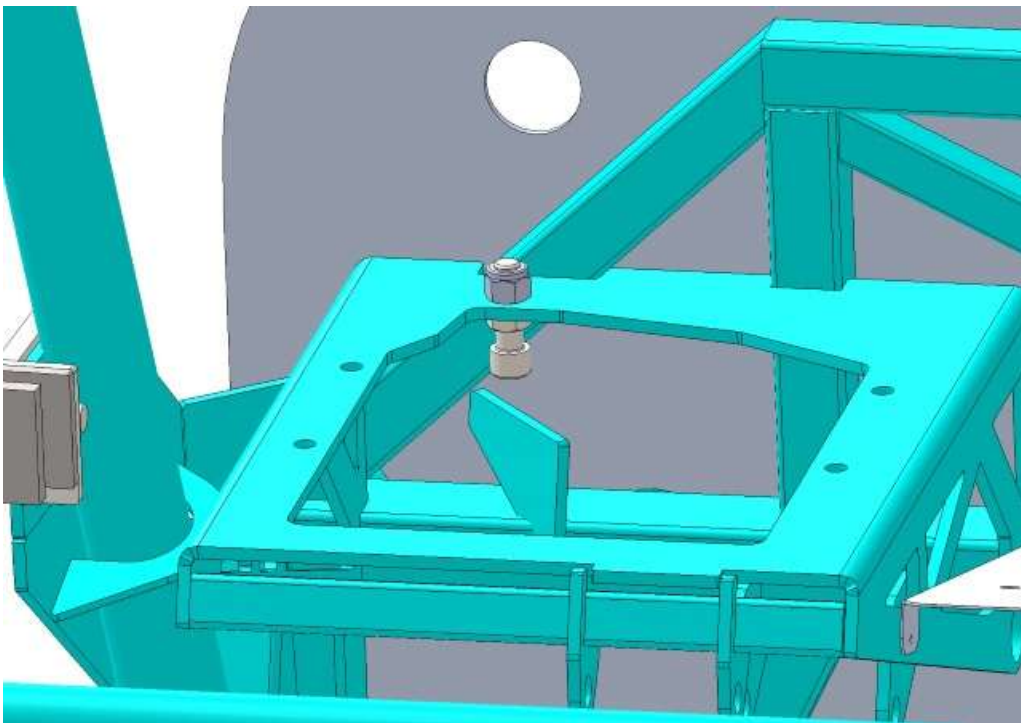
Assemble the clutch quadrant to the Wilwood clutch pedal as shown above.



If necessary, use a file to remove the forging centerline so the $\frac{3}{8}$ " bolt can go through the clutch pedal hole.

Clutch Quadrant Stop

✂ $\frac{5}{16}$ " Hex key and $\frac{9}{16}$ " wrench



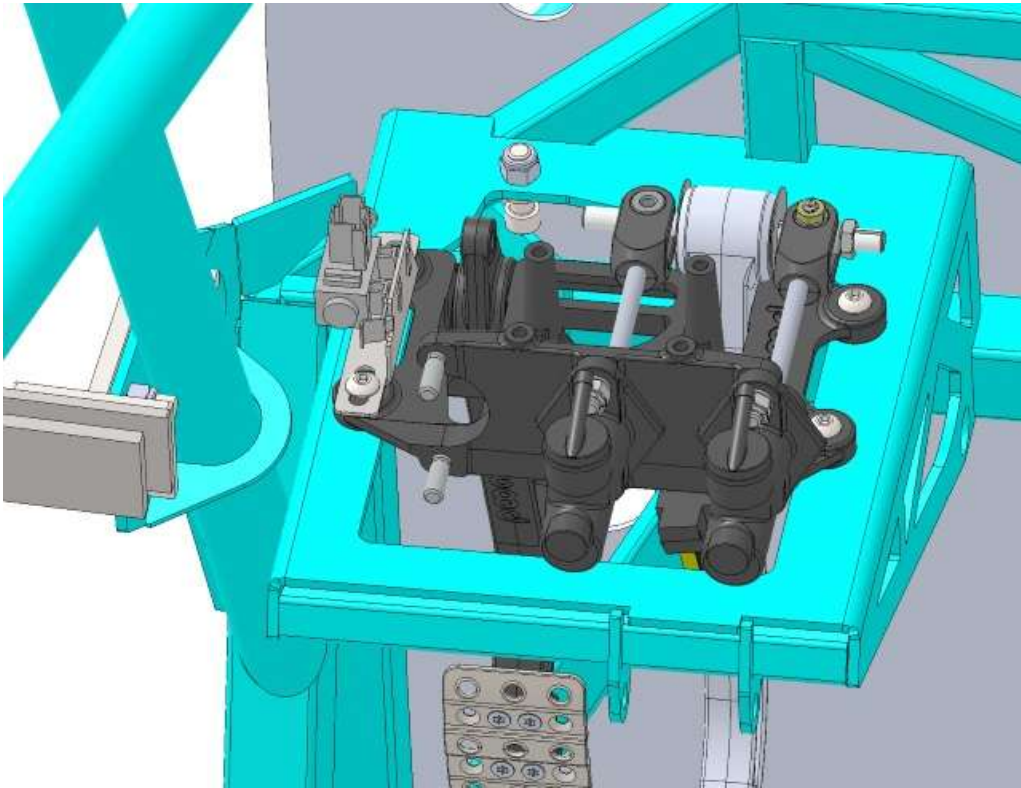
Install the clutch quadrant stop $\frac{3}{8}$ "-16 x 2" screw with the jam nut on the bottom and locknut on top of the pedalbox mount.

PEDALBOX INSTALLATION



$\frac{3}{16}$ " hex key, $\frac{1}{2}$ " socket.

If installing a Coyote engine, locate the clutch switch in the Ford control pack and the bracket in the Coyote install kit now.



Attach the pedalbox to the top of the frame mount using the $\frac{5}{16}$ "x 1" button head screws, locknuts, $\frac{3}{16}$ " hex key and $\frac{1}{2}$ " socket.

MASTER CYLINDERS



These instructions show the installation for a cable clutch car. If doing a hydraulic clutch, one more master will be needed.



6mm socket, $\frac{1}{2}$ " deep socket, ratchet, $\frac{1}{2}$ " wrench



Master cylinders



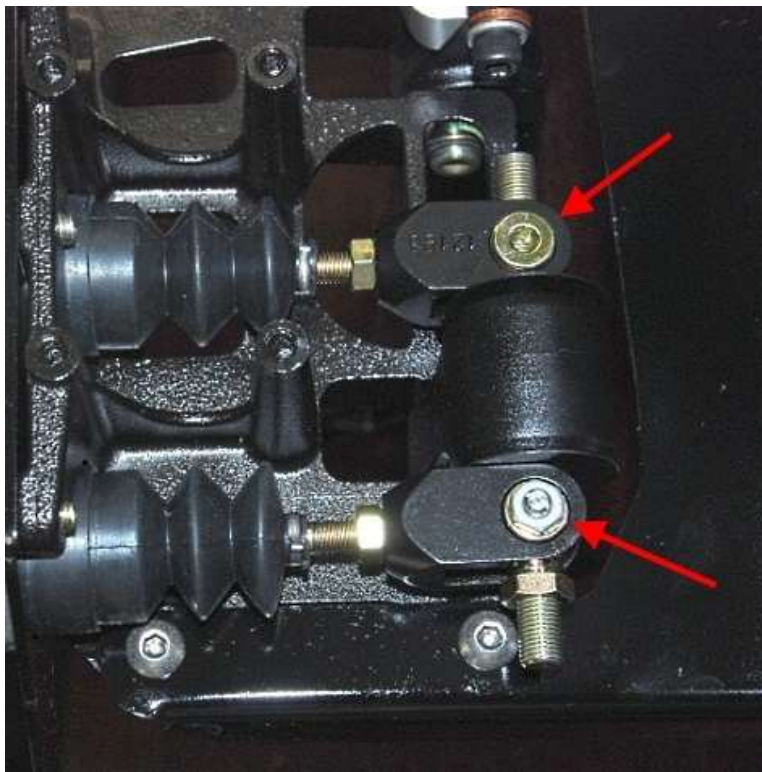
With the jam nut on the threaded shaft, cut $\frac{5}{8}$ " off each of the master cylinders.



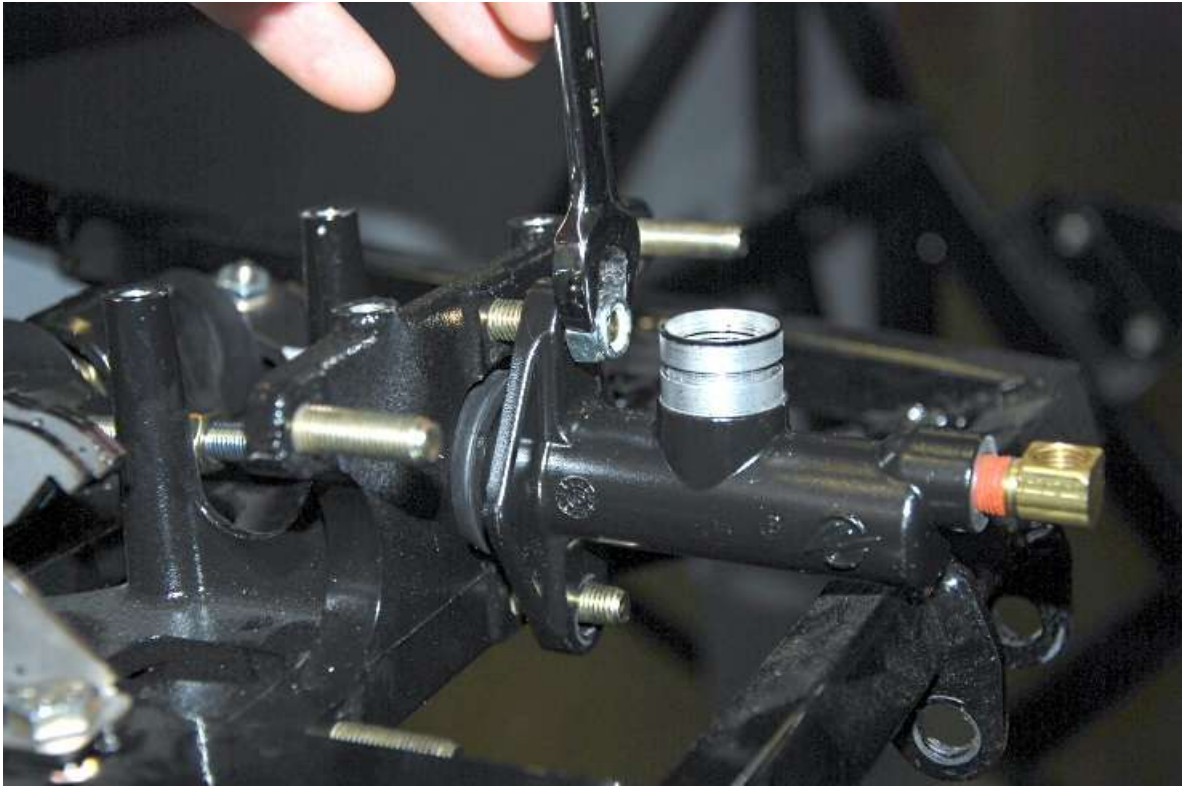
Screw the 90° brake line adapter into the end of the master cylinder making sure that the opening points up when tight.



Put one of the master cylinders onto one of the brake master cylinder mounts and turn the threaded shaft into the threaded mount on the brake pedal. As a starting point, thread the shaft in until you can see it is flush on the other side of the mount.



The brake pedal master cylinder pushrod mounts are different from each other. Only one has a screw and nut. This is normal.



Attach and tighten the locknuts using a 1/2" wrench holding the master cylinder to the pedal box then repeat for the other master cylinder.



Put the plastic angled inlet adapter with hose clamp on the master cylinders. Use a 6mm socket and ratchet to tighten the hose clamp.

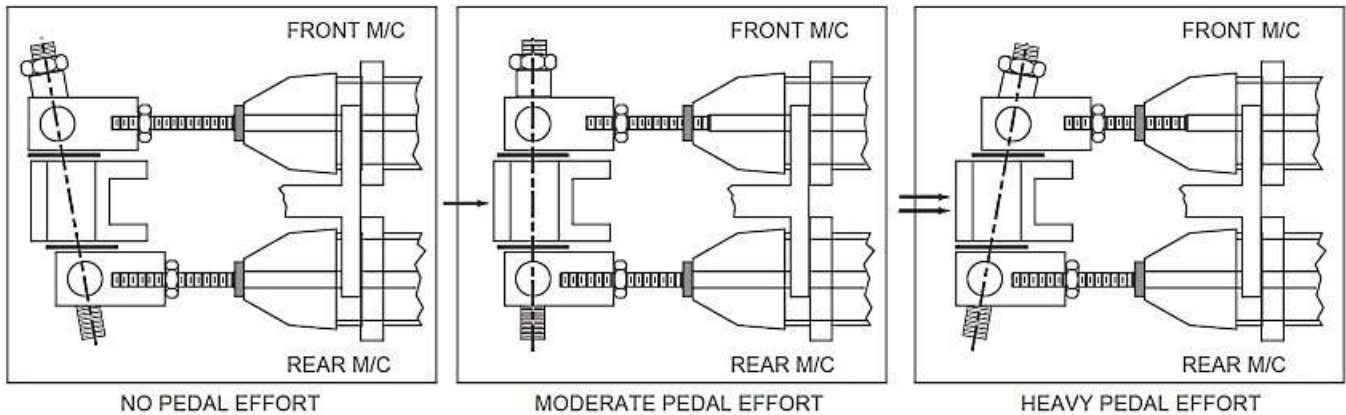


Tighten all the remaining hardware mounting the pedal box to the chassis.

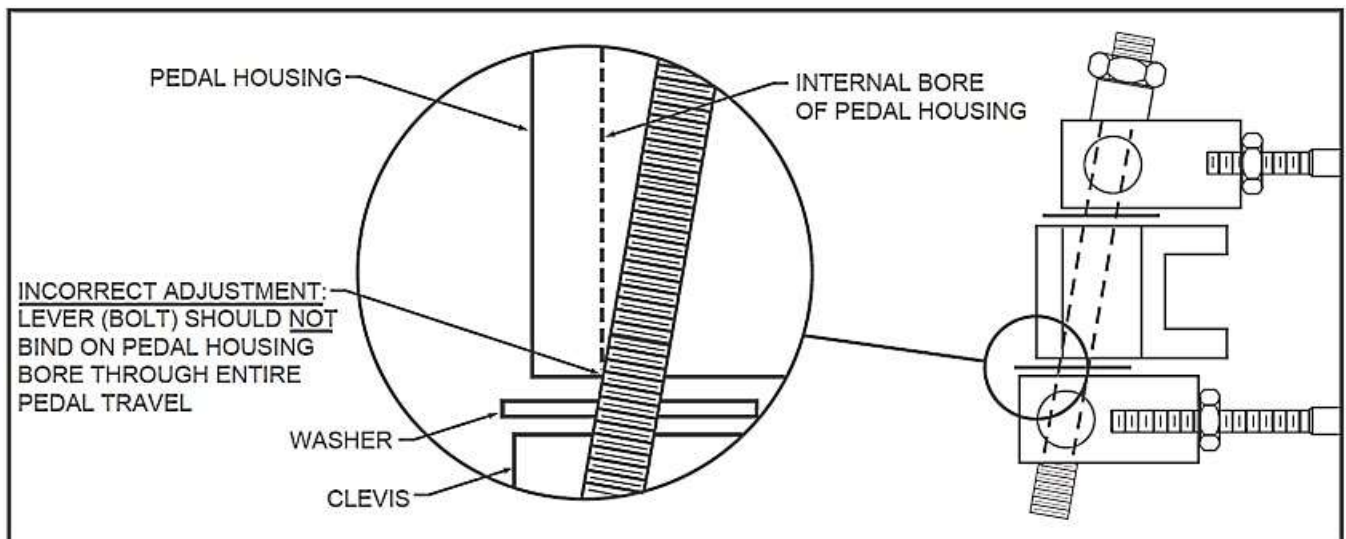
BALANCE BAR ADJUSTMENT

The balance bar is an adjustable lever (usually a threaded rod), that pivots on a spherical bearing and uses two separate master cylinders for the front and rear brakes. Most balance bars are part of a pedal assembly that also provides a mounting for the master cylinders. When the balance bar is centered, it pushes equally on both master cylinders creating equal pressure, if the master cylinders are the same size bore. When adjusted as far as possible toward one master cylinder it will push approximately twice as hard on that cylinder as the other.

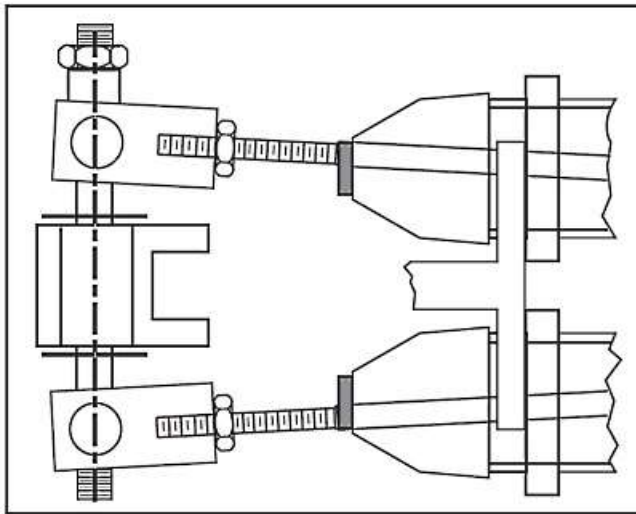
To set up the balance bar, thread the master cylinder pushrods through their respective clevises to obtain the desired position. Threading one pushrod into its respective clevis means threading the other one out by the same amount.



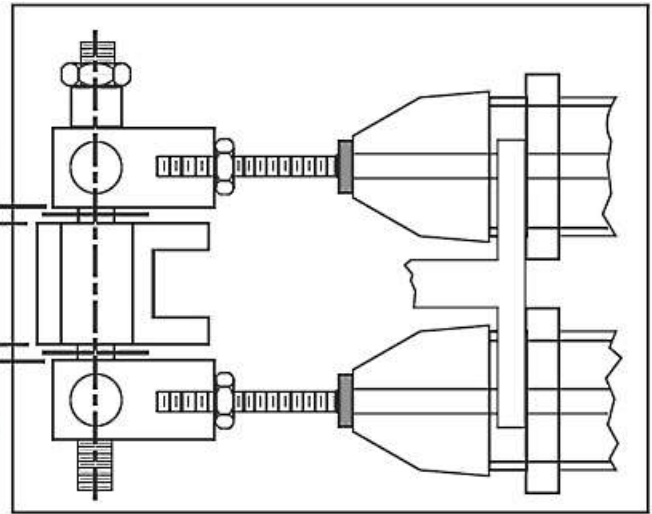
Sometimes this will lead to a “cocked” balance bar when the pedal is in the relaxed position, “no pedal effort”. This is acceptable as long as each master cylinder pushrod is completely free of pressure when the pedal is relaxed.



It is important that the operation of the balance bar functions without interference by over adjustment. This can occur when a clevis jams against the side of the pedal or the lever (bolt) hits the pedal bore during any point of pedal travel interference.



INCORRECT PUSH ROD ALIGNMENT



PROPER ALIGNMENT

DIMENSION A + B ADDED TOGETHER MUST BE IN THE .20" - .25" RANGE

Lever movement should be unimpeded throughout pedal travel. In the neutral position, clevises should have a gap between .20" - .25" total clearance between the side of the pedal. The large washers between the pedal and clevis should remain loose.



Make sure that the master cylinder pushrods remain true in relationship to the cylinder during entire pedal travel; pushrods should not be pushing master cylinder pistons at an angle.

Warning – If the Master cylinder pushrods are not straight, it will cause side loads on the master cylinder which will lead to a master cylinder failure.



In its non-depressed position, the pedal and balance bar should allow the pushrod of the master cylinders to fully return. This can be checked by feeling pushrods for very slight movement, not loose movement. Master cylinder pistons should be against the retaining snap ring (under boot).

Brake Reservoir



5mm Hex key, $\frac{7}{16}$ " wrench, $\frac{1}{4}$ " drill bit, drill.



There are two ways to plumb the brake fluid reservoirs. One way is to use two reservoirs, one for each master cylinder. The other way is only use one reservoir and put a "Y" in the line to go to the two reservoirs.

Unpack the master cylinder reservoir fittings and the reservoir kit from the pedal-box assembly.



Screw in the hose barb.



Remove the cap and put the reservoir gasket in the cap.



Use a small screwdriver to get the edge down under the threads.



The reservoir should be mounted in the engine bay on the firewall.

Use some tape on the firewall then locate the brake fluid reservoir and mark the hole locations.



Make sure that the top of the reservoir cap is below the top of the firewall or the cap will hit the body.

Using the bracket as a template drill $\frac{1}{4}$ " mounting holes.

Mount the reservoir using the $\frac{1}{4}$ " screws, 5mm hex key and $\frac{7}{16}$ " wrench.

Attach the reservoir to the mounting bracket $\frac{1}{4}$ " screw, 5mm hex key and $\frac{7}{16}$ " wrench.

If drilling a hole for the reservoir hose, drill a $\frac{5}{8}$ " hole. Take extra time with a file and round all the edges making sure there are no burrs left or sharp spots.

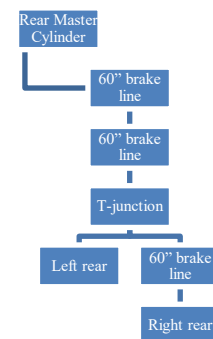
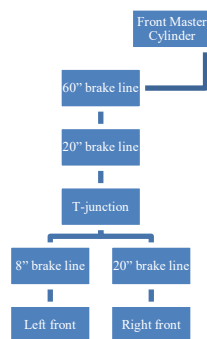
Attach the hoses to the reservoir and the master cylinders.

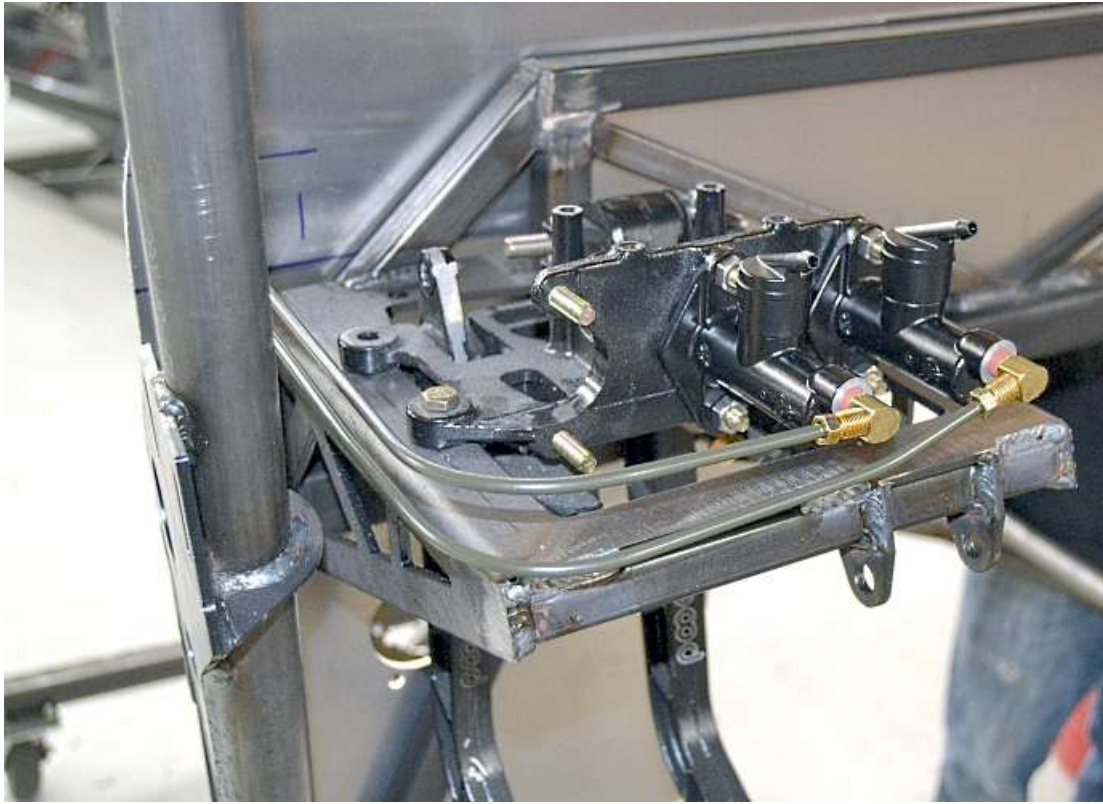
Use the $\frac{5}{8}$ " line clips and the $\frac{1}{4}$ "-20 x $\frac{1}{2}$ " socket head screws to attach the hoses to the top of the pedal box.

Brake Lines

✂ Tubing bender, $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{11}{16}$ " wrenches, pliers, $\frac{3}{16}$ " drill bit, drill, rivet tool, masking tape, marker.

🚗 Brake lines, insulated clip hardware, Hot rod brake line components
👉 Some pictures show the old frame but routing is similar.





Connect a 60" section of brake line hand tight to each of the master cylinders and route the line to the left of the pedal mount and then forward to the firewall.



Insert the cockpit front outside corner aluminum panel then route the brake lines down along the 1.5" tube below the floor level.



At the bottom of the frame, split the lines and angle the one from the $\frac{3}{4}$ " master towards the front of the car and the one from the $\frac{3}{4}$ " master towards the rear.

FRONT BRAKE LINE



Around the location of the electric steer motor or the flange bearing for the steering linkage, install a female-female brake line union.



Attach a 20" section of brake line to the brake line union then route this brake line to the front of the car running along the inside of the 1.5" frame rail.



At the end of the 20" brake line section, install the 3-female T-junction.

Install an 8" section of brake line and route it towards the driver side wheel.



Clamp the brake line mount on the round tube under the upper control arm.



Attach the flexible brake line to the caliper and make sure that when the steering is turned all the way in both directions that the brake line is not tight. If necessary, move the location of the frame bracket.

Attach the brake line mount to the frame using (2) $\frac{3}{16}$ " rivets.

Fasten the braided brake line to the frame with the brake line clip mount.



Move the spindle all the way left and right to make sure the flexible lines do not bind or rub on any parts.



Attach another 20" section of brake line onto the T-junction and run this line to the passenger side of the car.

Install the brake line mount on the round tube under the upper control arm. This mount is installed with (2) $\frac{3}{16}$ " rivets.

Fasten the braided brake line onto the frame with the brake line clip mount.



Torque the front flexible brake line to caliper banjo bolts to **29 lb-ft.**

REAR BRAKE LINE



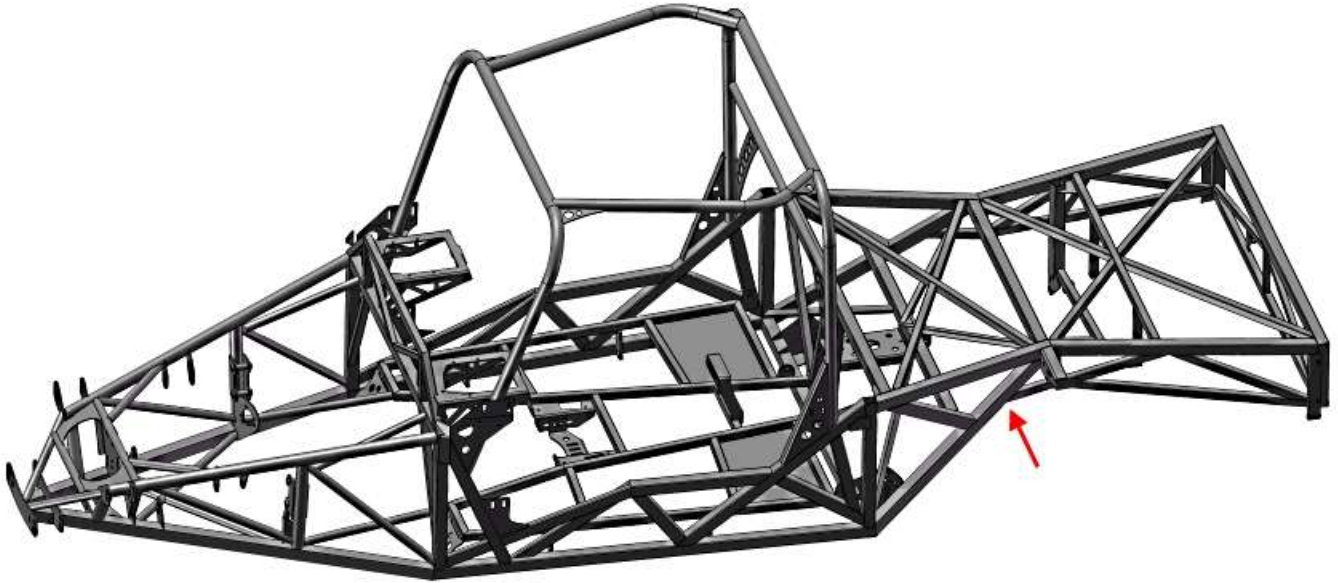
Route the initial 60" section of brake line along the inside of the outer 1.5" frame rail attaching it as you go with the ¼" insulated line clips.



At the end of the 60" brake line piece, install a female-female union and attach a second 60" section of brake line.



At the end of the cockpit area, route the brake line up the back side of the vertical 1.5" tube. Stay to the inside of the tube as the body will be very close to the outside of this tube.



Route the brake line on the inside of the 1.5" tubes to the arrow location shown above.

If you are using your own rear brake assembly, attach the rear brake line mounts now.

OPTIONAL 1 1.65" REAR BRAKES BRAKE LINE MOUNTING

Remove the flexible brake line adapter from the flexible brake line.



Insert the adapter into the brake line mount.



Attach the 2 female/1 male brake line adapter to the flexible brake line adapter.



Rotate to clock the brake line adapter as shown in the picture and push on the brake line clip.



Use a set of pliers to make sure the clip is fully seated around the groove in the flexible brake line adapter.



Hand tighten the rear brake line to the end of the brake line mount assembly and position the mount on the frame.



Place a crush washer on either side of the banjo fitting on the flexible brake line.



Loosely attach the flexible brake line to the brake caliper.



Attach the flexible brake line to the brake line frame mount by hand so that you can make sure that the brake line is not tight. If necessary, move the brake line mount to a new location so that the flexible line will reach without being tight. Keep in mind that the axle is hanging down so this is the maximum it would ever need to reach. It is also important that the flexible line will not rub on the control arm or frame when the axle is at ride height. Move the mount if necessary.



Place some masking tape on the frame tube and mark the hole locations for the mount.

Move the mount out of the way and drill one of the $\frac{3}{16}$ " mounting holes.

Remove the masking tape.

Reposition the brake line mount and attach it to the frame with a $\frac{3}{16}$ " rivet.

Drill and rivet the other mounting hole.



Run a 60" rear brake line from the end of the brake line mount up to the 1.5" tube that the shocks are mounted on then over to the same location on the other side of the frame.



Run the brake line down the frame on the right side to a location similar to the left side.



If necessary, put a loop or two on the brake line to take up extra line.



Attach the flexible brake line adapter to the frame mount using a brake line clip.

Attach the flexible brake line by hand to the brake caliper.



Attach the flexible brake line to the hard brake line and check the reach of the flexible brake line.

Drill and rivet the brake line mount to the frame.

Brake fluid filling/bleeding

🚗 Brake fluid - DOT 3

Adjust the pedal height temporarily high to ensure maximize travel in the master cylinders. The pedal should be topping out and bottoming out only when the master cylinder is at the extreme ends of its travel. Ensure that the pedal is not contacting any frame section or other installed part and limiting it's travel in either direction.

Fill the brake fluid reservoir with brake fluid.

Unscrew the brake lines from the master cylinders.

Bench bleed the master cylinders in the frame. This can be done in the car with a short piece of brake line run from the master cylinder back into the reservoir.

Reattach the brake lines to the master cylinders.

Gravity bleed the system to get a head start on filling up the lines with fluid - Crack the four bleeder screws and leave the reservoir lid loosely screwed in to allow for easier fluid movement. Depending on reservoir height and line routing you may not get fluid all the way to the calipers.

Work your way around the car getting fluid to each caliper before trying for a final bleed, always making sure the reservoir never runs dry.

Once you have some pedal feel the master cylinders will not travel the same distance as one another. This can lead to difficulty bleeding the side which isn't compressing as much. In order to solve this bleed one caliper from the front and one from the rear simultaneously through several pedal cycles. The bleeders do not need to be cracked open at the same exact moment but they both need to remain open until the pedal is fully at the bottom of its stroke.

- ✎ Air can get trapped inside the caliper even if none is coming out of the cracked bleeder. In order to get this air out it helps to give the caliper a few light taps with a soft mallet to dislodge the bubble and get it up to the bleeder nipple.

For the final bleeding, work from the farthest caliper away from the master cylinders until getting to the closest one last.

With the brakes bled you can set the bias and adjust the pedal heights, use the Wilwood adjustment procedure to set the pushrod lengths. Both the bias and pushrod adjustment can affect pedal feel so your pedal may not feel correct until this adjustment is made.

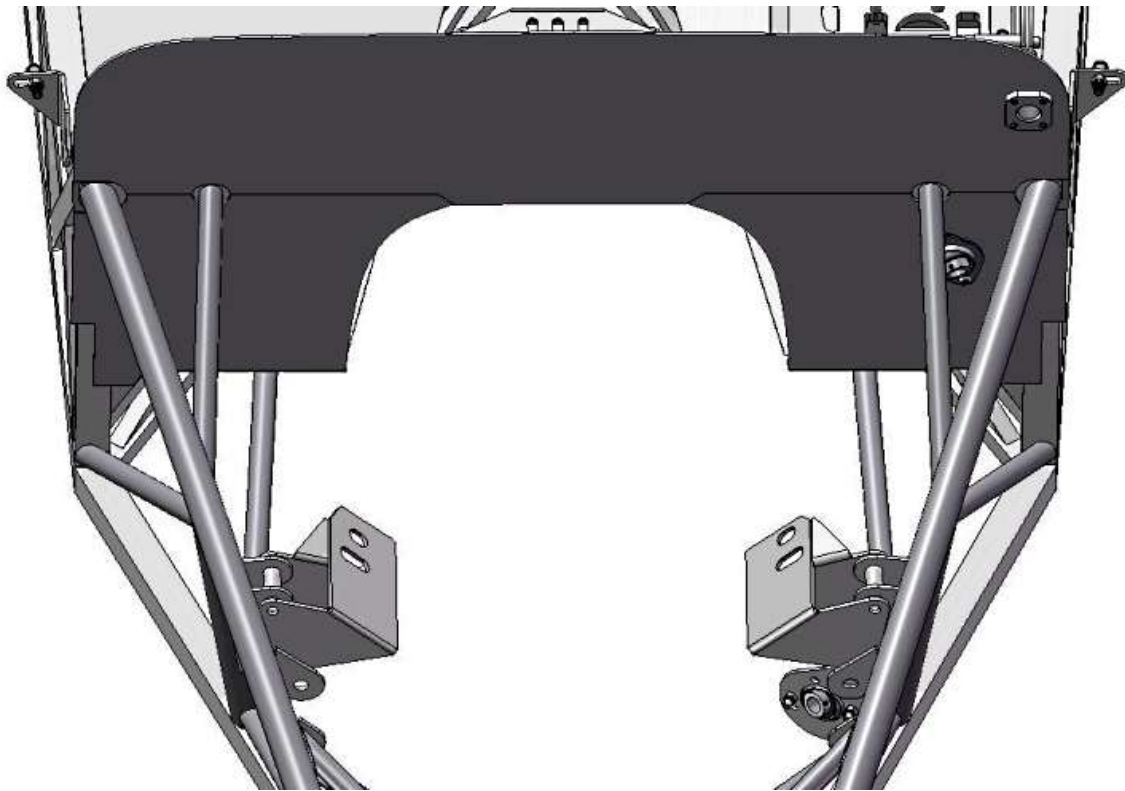
Engine/Transmission

- ✎ If installing a Small Block Chevy, LS or Ford Coyote Engine, go to www.factoryfiveparts.com/instructions for installation instructions.
- ✎ Appendix J has the various driveshaft lengths that we stock if you are using a unique engine or transmission.
- ✎ If using an automatic transmission, we recommend a torque converter stall speed of 3500 RPM due to the weight of the finished car

FRAME PREP



289/302/351 engine mounts



4.6L/Coyote engine mounts

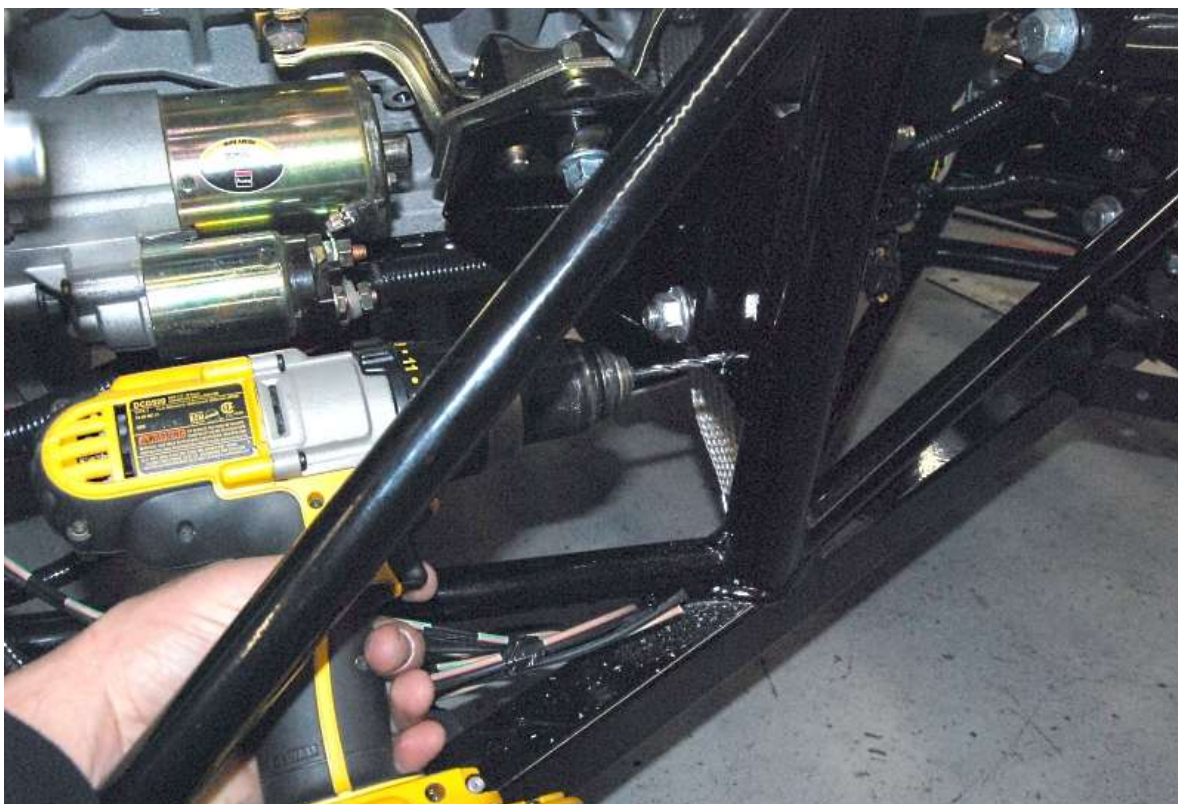


Install the engine mount mounts onto the frame with the ½"-20 hardware (FFR# 33454 & 25619). It is helpful to only bolt the top of the mount in for now and pivot it down and away while installing the engine to provide more clearance.

ENGINE GROUND



Find a location on the back side of the right engine mount to attach the engine ground strap.



Drill a $\frac{5}{16}$ " hole at the mount area.



Remove any powder coat or paint around the hole for a good ground.

ENGINE PREP



Engine hoist, chain, $\frac{3}{4}$ ", $\frac{15}{16}$ " sockets, ratchet, extension



Engine, Engine mounts, engine ground strap.



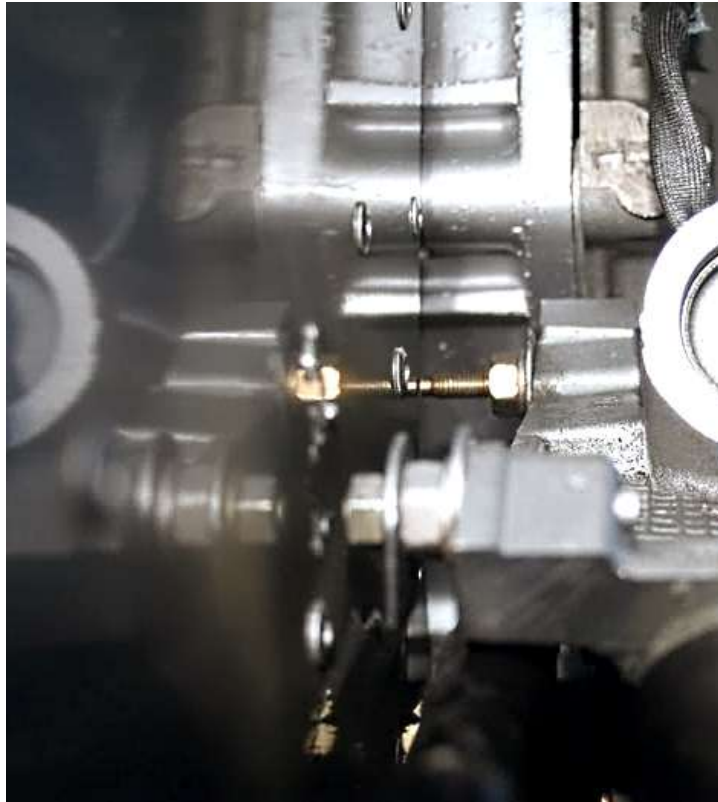
The easiest method to install the drivetrain is with the engine and transmission already bolted together and lowered in as a unit. Also remove anything that will make your job easier (shifter assembly, headers, power steering pump, etc....).



Some engine choices also need a short style oil filter. We recommend the Purolator L17019.



If running a carbureted engine install the Fan thermostat switch to control the fan.



The 4.6L/Coyote engine ends up extremely close to the firewall. Cut any extra length off the bolts to prevent damaging the firewall.

ENGINE MOUNTS



Unpack the engine and transmission mounts and loosely attach to the engine.



Attach the engine ground strap (electrical completion parts for complete kit) to one of the right-side engine mount bolts.

ENGINE/TRANSMISSION INSTALL



Bolt the Energy Suspension engine mounts to the engine before installing the engine. If the chassis is powder coated you may want to protect the engine bay down tubes.



Once the engine is hanging in place, pivot the engine mount brackets into place and bolt the engine brackets onto the chassis.

Install the nut on the Energy Suspension mounts attaching the engine mounts to the modular mounts.





The transmission mount plate is fully adjustable and can be positioned on the chassis to provide more adjustment to the front or the rear depending on the transmission choice. Lift on the rear of the transmission and slide this bracket into place. It is fastened to the chassis with the 1/2" carriage bolt, washer and nut.




Depending on the transmission choice, you may have to use the provided spacer to space the transmission up in between the transmission and the transmission mount.

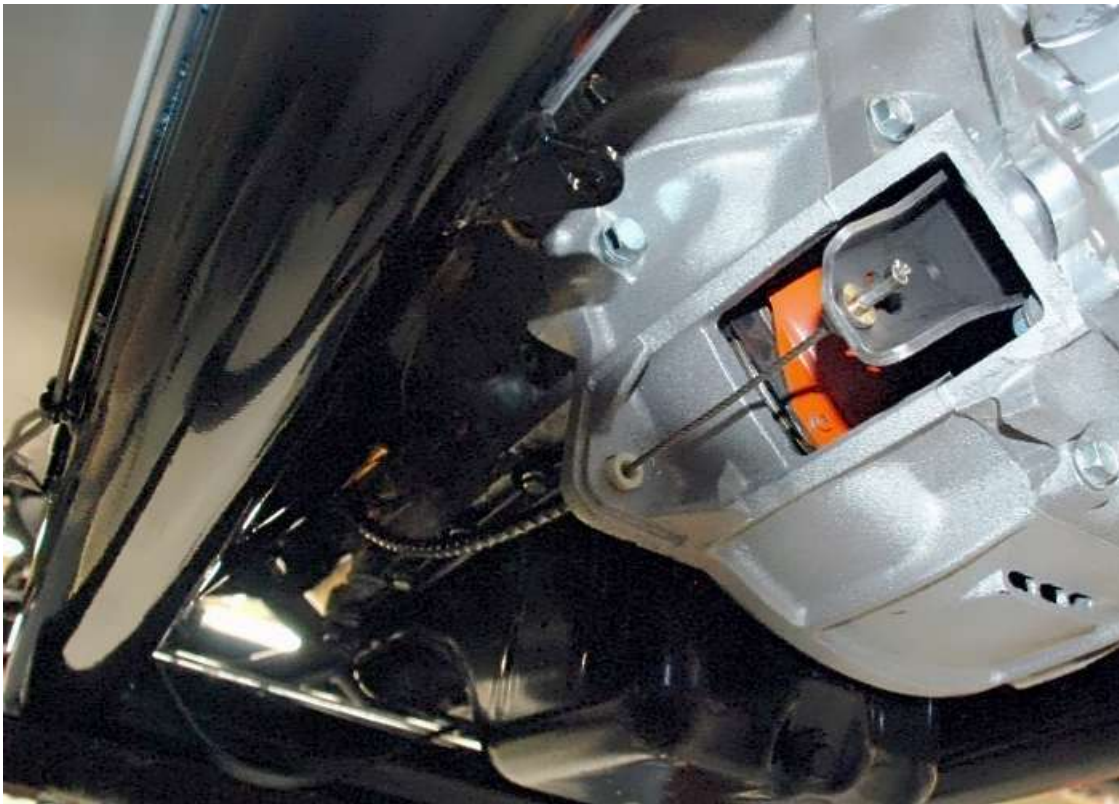
OPTIONAL CLUTCH CABLE

-  Clutch cable, insulated clip hardware
-  For use with optional manual transmission components.

Slide the clutch cable end through the clutch cable spacer and loop the cable over the quadrant.

Route the clutch cable down to the bellhousing. Using zip ties or insulated clips tie the cable safely away from the headers and the moving steering components. It can be fastened to the engine using the bracket on the cable to the front lower bolt that holds the starter cable just before it leaves the block or, to the lower engine bay $\frac{3}{4}$ " tubing.

-  Make sure that the cable is clear of the hot exhaust header and the steering shaft or the cable may fail prematurely.




Connect the clutch cable to the bellhousing and the clutch fork.



Thread the cable end adjuster nut on so that the cable has no play in it.

Adjust the pedal closer or further away as desired by screwing the pedal stop screw up or down.

Check the full range of travel for the clutch pedal.

-  There may be a small amount of movement in the firewall if you try pressing the clutch. Keep in mind that the firewall will get attached to the body which will help support/reinforce the firewall.

Engine Ground

-  Sand paper or grinder bit, $\frac{1}{2}$ " socket, ratchet, $\frac{3}{16}$ " hex key, drill, $\frac{5}{16}$ " drill bit
-  Electrical system completion components



Attach the ground strap using the $\frac{5}{16}$ " button head screw and locknut provided.

Fuel System

- ✂ $\frac{9}{16}$ " and $\frac{5}{16}$ " deep sockets, ratchet, $\frac{7}{16}$ " wrench, rubber mallet, hammer, marker, punch or flathead screwdriver, $\frac{3}{16}$ ", $\frac{5}{16}$ " hex key, floor jack, friend, WD 40 or other light lubricant, drill, $\frac{1}{4}$ " drill bit.
- ✋ OEM Fuel tank components, Secondary Body Fasteners Assembly, Fuel strap fasteners, fuel line components, fuel lines.

FRAME PREP

- 🛠 Secondary body fasteners, fuel tank straps, fuel strap fasteners

Unpack the fuel strap fasteners.



Unpack the 1" square plastic end caps from the secondary body fasteners.



Push the two plastic end caps into the tubes hanging down in front of the gas tank area.



Put the Fuel tank bolts in the gas tank front frame mounts.



Hang the fuel tank straps from the rear mount of the chassis using two of the $\frac{3}{8}$ " x 2.25" bolts and locknuts. The longer strap goes on the passenger side.

FUEL TANK VENT



$\frac{1}{4}$ ", $\frac{5}{16}$ " sockets, ratchet, $\frac{7}{8}$ ", 1" wrenches, Teflon tape, razor knife

Unpack the OEM fuel tank components including the tank and straps.



Screw the vent into the plastic bushing and tighten.



Insert the small rubber vent gasket in the small hole on the top of the tank.



Push the vent into the grommet.

FUEL PICK-UP

Prep



If the car will have a high horsepower fuel injected engine there are a few “tweaks” we recommend get done to the fuel pick-up.



Drill, pliers, $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{1}{4}$ ", $\frac{9}{32}$ " or $\frac{19}{64}$ " drill bits



Remove and discard the rubber piece on the end of the return line, this can affect the fuel pressure at the engine.



Starting with a $\frac{1}{4}$ " drill bit drill out the end of the send line then change to a $\frac{9}{32}$ " or $\frac{19}{64}$ " drill bit, the pressed end is a little restrictive.



Starting with a $\frac{1}{4}$ " drill bit drill out the end of the return line then change to a $\frac{9}{32}$ " or $\frac{19}{64}$ " drill bit, the pressed end is a little restrictive.

Install



Set the rubber O-ring gaskets in place for the fuel pump pickup.



Slide the pickup down into the tank; you will have to rotate as you go to get the tubes into the sump and line up the tabs on the pick-up and slots on the tank. You can see this looking through the filler neck hole.





With the pickup all the way down slide the mounting collar and tap tightly into place with a punch and hammer.



Make sure that the lock ring is held by all three locking tabs on the tank or the sender will leak.

FUEL GAUGE SENDER



Set the rubber O-ring in place for the fuel level sending unit.



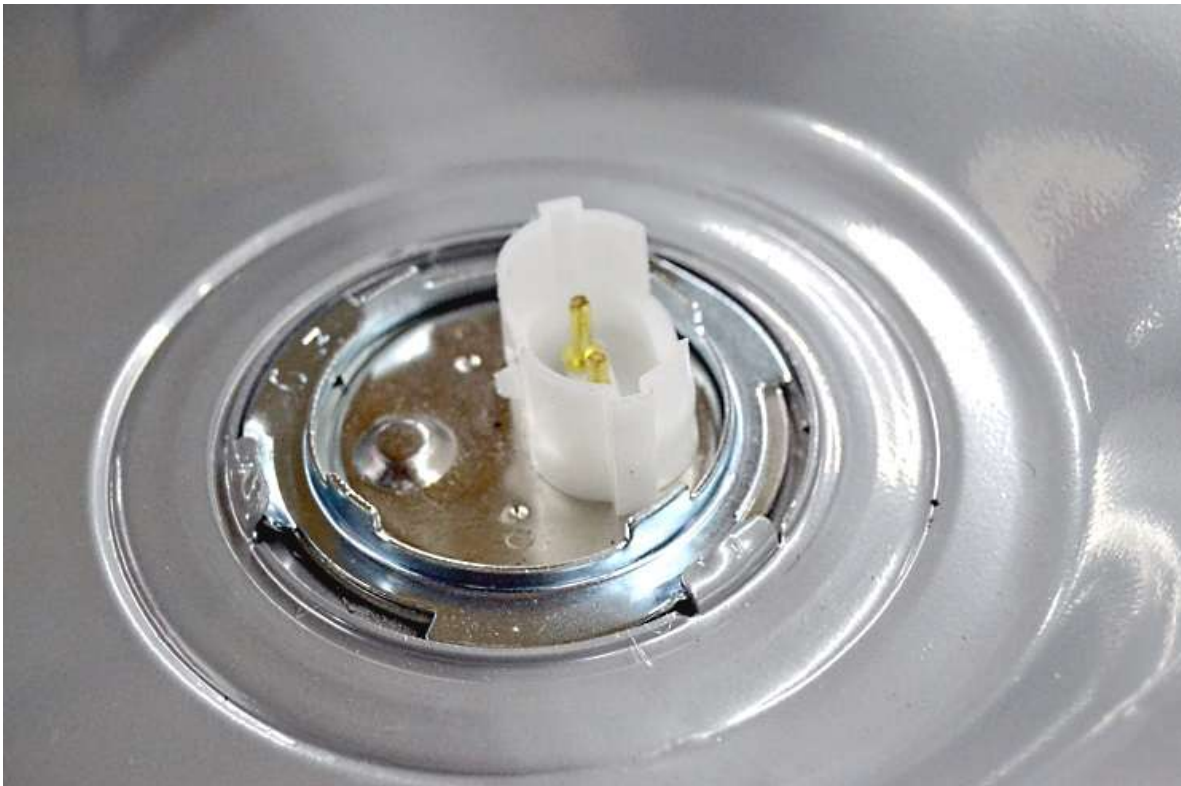
Insert the fuel level sender into the tank.



Tap the locking ring tightly into place with a punch and hammer.



To prevent the connector from breaking, use a pair of wire cutters to cut about 1/3 of the locking tab off the sender.

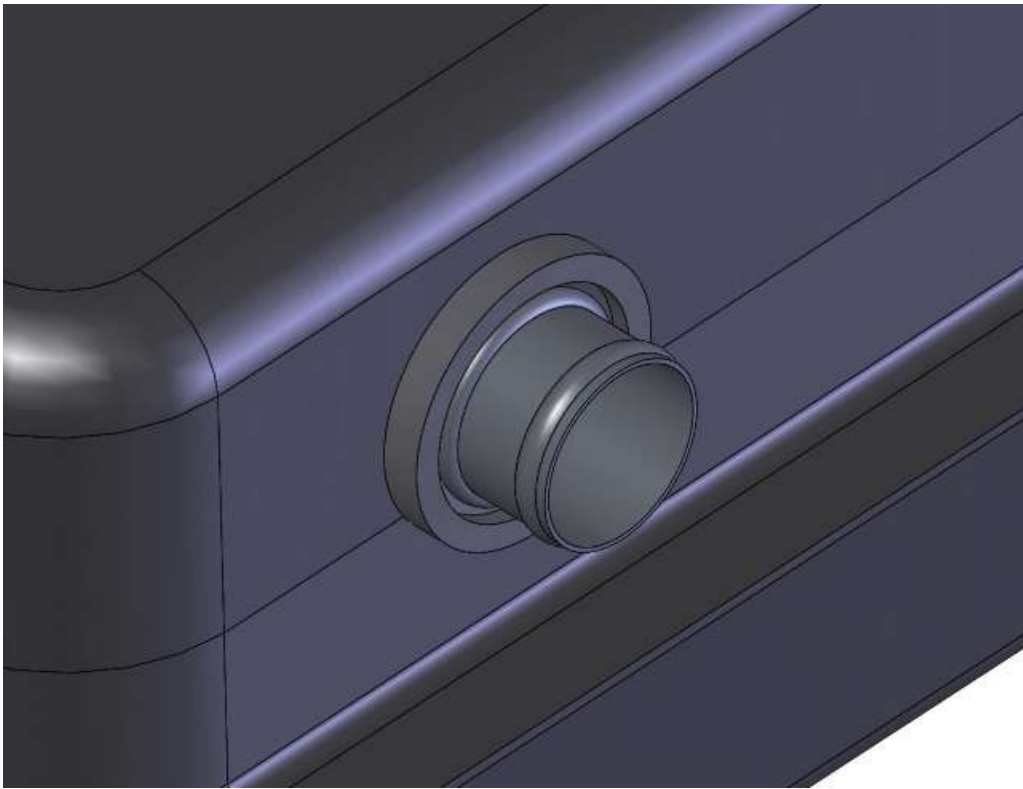


Make sure that the lock ring is held by all three locking tabs on the tank or the sender will leak.

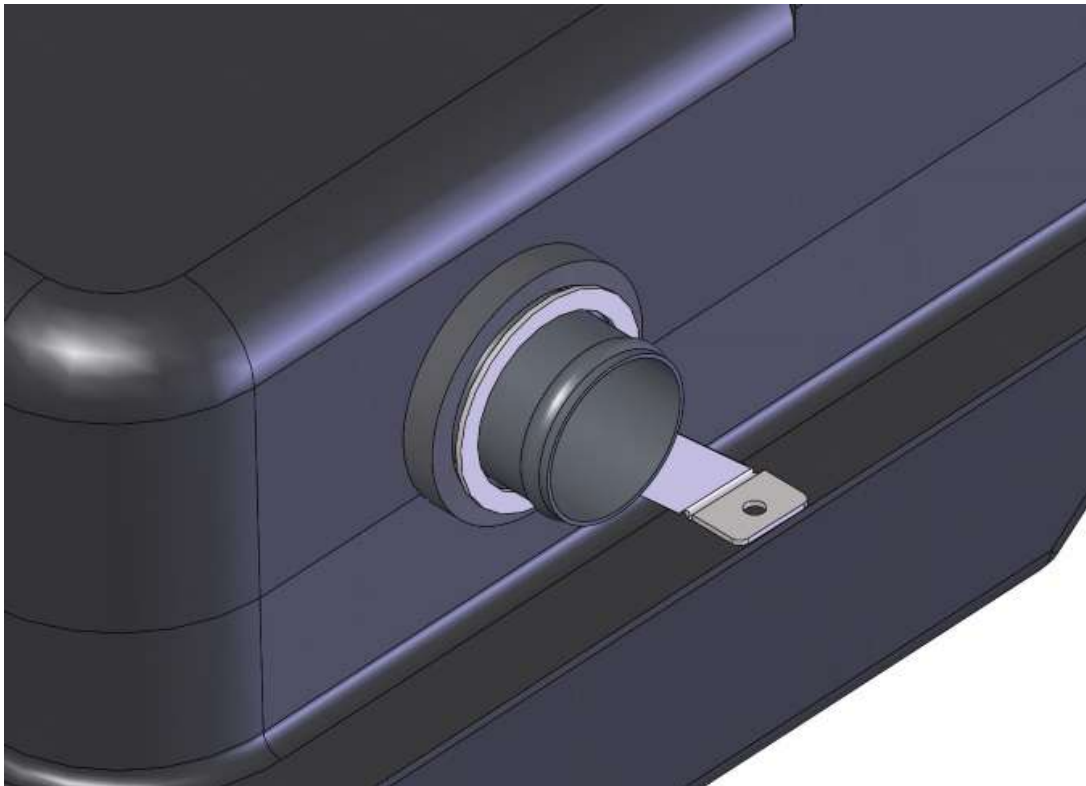
FUEL FILLER NECK



Insert the large rubber filler neck gasket in the side of the tank.



Slide the filler neck tube into the tank. A little oil or WD40 on the rubber gasket helps.



Slide the retaining bracket onto the filler tube



Line up the bracket with the tank flange and mark then drill a $\frac{1}{4}$ inch hole making sure it lies outside of the weld seam. Use the $\frac{1}{4}$ " bolt and locknut to attach the retainer to the tank.

FUEL TANK INSTALL

At the locations on the tank where the tank straps come near the tank, use a pair of pliers and bend the bent parts flat.



Put the metal tank in the plastic tank cover.



Using two people or a floor jack to raise the tank up into place on the chassis. Make sure the plastic cover is in position below the tank.



Bolt the straps in at the front with the $\frac{3}{8}$ " x 2.25" strap fasteners, $\frac{9}{16}$ " wrench and socket then drop the jack. The locknut will not go all the way up; the tank only needs to be tight against the frame.



Tighten the rear strap fasteners using a $\frac{9}{16}$ " wrench and socket.

FUEL FILLER NECK

- ✂ $\frac{5}{16}$ " socket, ratchet, razor knife, tape measure, marker
- 🚗 Fuel tank components.



On the 2" diameter end of the fuel filler hose, measure and cut 2.00" off the end using a razor knife.



Put the 2.00" diameter end of the filler hose end down on a flat surface and hold it against a vertical flat surface.



Depending on the type of truck bed being installed either mark and cut the tube 7.00" for the stock bed or 7.75" if using the aluminum bed.



Push the short end of the filler hose onto the filler tube in the tank then attach a hose clamp between the beads on the tube.

VENT HOSE



If not using a charcoal canister, attach a 25" section of $\frac{5}{16}$ " fuel line and fuel line clamp onto the vent.



Run the vent hose down to the $\frac{3}{4}$ " tube near the battery and attach it to the tube using a zip tie.

FUEL FILTER



Tube bender, $\frac{3}{16}$ " drill bit, drill, rivet tool, marker, tape measure, flat head screwdriver



Insulated clip hardware, Fuel line components, $\frac{1}{4}$ ", $\frac{5}{16}$ " fuel lines, OEM fuel tank components.



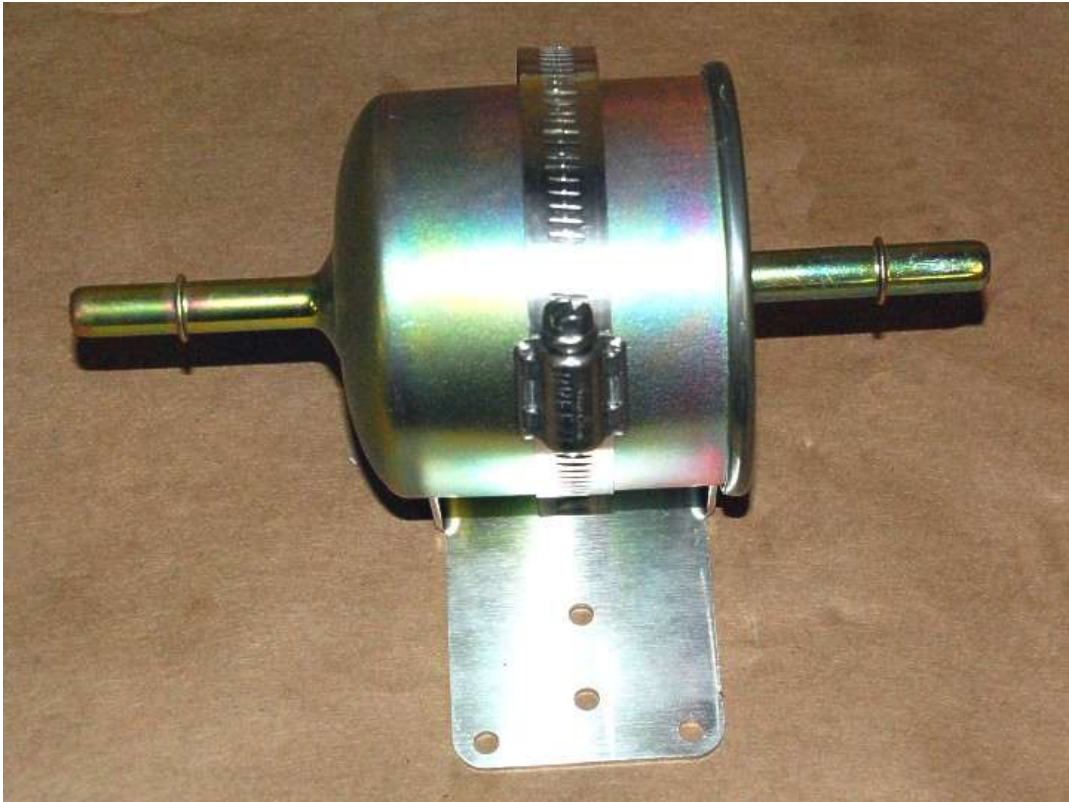
This install shows the set-up for a pick-up with an inline fuel pump. If using the EFI in-tank fuel system option see www.factoryfiveparts.com/instructions for in-tank fuel pump set-up.



Unpack the fuel filter and mounting hardware.



Open the hose clamp and slide it through the slots in the mount and start to tighten it back up into a hoop just bigger than the filter.



Clamp the filter in place on the mount with the filter flange oriented as shown.



Attach the short nylon fuel line to the filter and the tank to show where your mounting location must be. The elbow end can attach to either end as shown here; we have attached it to the tank.

Hold the filter up to the chassis, mark the holes, then drill and rivet the bracket on using $\frac{3}{16}$ " rivets.

HARD LINES



Unpack the fuel lines and the fuel line assembly which is in the secondary chassis components box.



The larger $\frac{5}{16}$ " line is the send fuel line to the engine. If you are running a return system then there is $\frac{1}{4}$ " line provided for that as well. There are barbed fittings provided for both sizes.



The fuel line routing will depend on your style of fuel pump, whether it is in-line, in-tank, or

mounted on the engine.



Route the lines so that they are protected by the chassis; not close to any heat source or moving parts; and provide enough slack in the rubber hoses for the engine to move.



Use the 1/4" flexible line, 5/16" flexible line, and fuel injection hose clamps to connect the nylon fuel line connectors to the hard line.

Regulator





Decide where you would like the fuel lines to end up in the engine bay along with where you are going to install your fuel pressure regulator if using a separate regulator. Usually this is on the right side of the firewall.

Mount fuel pressure regulator if you are using one.



Install the rubber fuel hose from the regulator to the engine. Make sure to clamp the line onto the barbs with the correct size hose clamps.

$\frac{5}{16}$ " Send Line



The larger fuel line is the feed for the engine. Install the $\frac{5}{16}$ " fuel line barb at the end of one of the 60" $\frac{5}{16}$ " lines.

Push one of the quick connect fittings onto the "out" side of the fuel filter.



Position the end of the $\frac{5}{16}$ " fuel line 3" from the fuel filter, far enough away that you can disconnect the fitting from the filter.



Run the fuel line down the back of the 1.50" tube and then bend and snake it over the 1" tube and under the floor.



Run the fuel line down sharply to the lower inside of the side 1.50" tube. The lower the better (but above the bottom of the tube) to keep it away from the exhaust if you are going to run the side exit pipes.

Position insulated line clamps to hold the fuel line every 12" or on each side of a bend.



Use either the small insulated clamps for each of the lines (hard on the $\frac{5}{16}$ " size) or put both lines in a single $\frac{5}{8}$ " clamp.

Use the clamp hole as a guide and drill $\frac{3}{16}$ " rivet holes then place the rivet in the hole to hold it in place but do not pull the rivets with the rivet tool yet.

Measure and cut a 4" section of the rubber $\frac{5}{16}$ " fuel hose to connect the fuel filter to the $\frac{5}{16}$ " hard line. Connect the rubber fuel line to the quick connect fitting using one of the fuel injection hose clamps.



Connect the other end of this rubber line to the barb on the $\frac{5}{16}$ " hard line.



If you are not running a return line, skip the next part and continue with the $\frac{5}{16}$ " line.

$\frac{1}{4}$ " Return Line

Position the end of the $\frac{1}{4}$ " line 12"-20" away from pick-up.



Run the $\frac{1}{4}$ " line next to the $\frac{5}{16}$ " line down the 1.50" tube to the side 1.50" tube.

Use large insulated line clips to hold both lines then drill $\frac{3}{16}$ " holes and rivet the clips to the frame.



It is helpful to slightly flatten them with a pair of pliers to conform to the shape of the lines being next to each other.

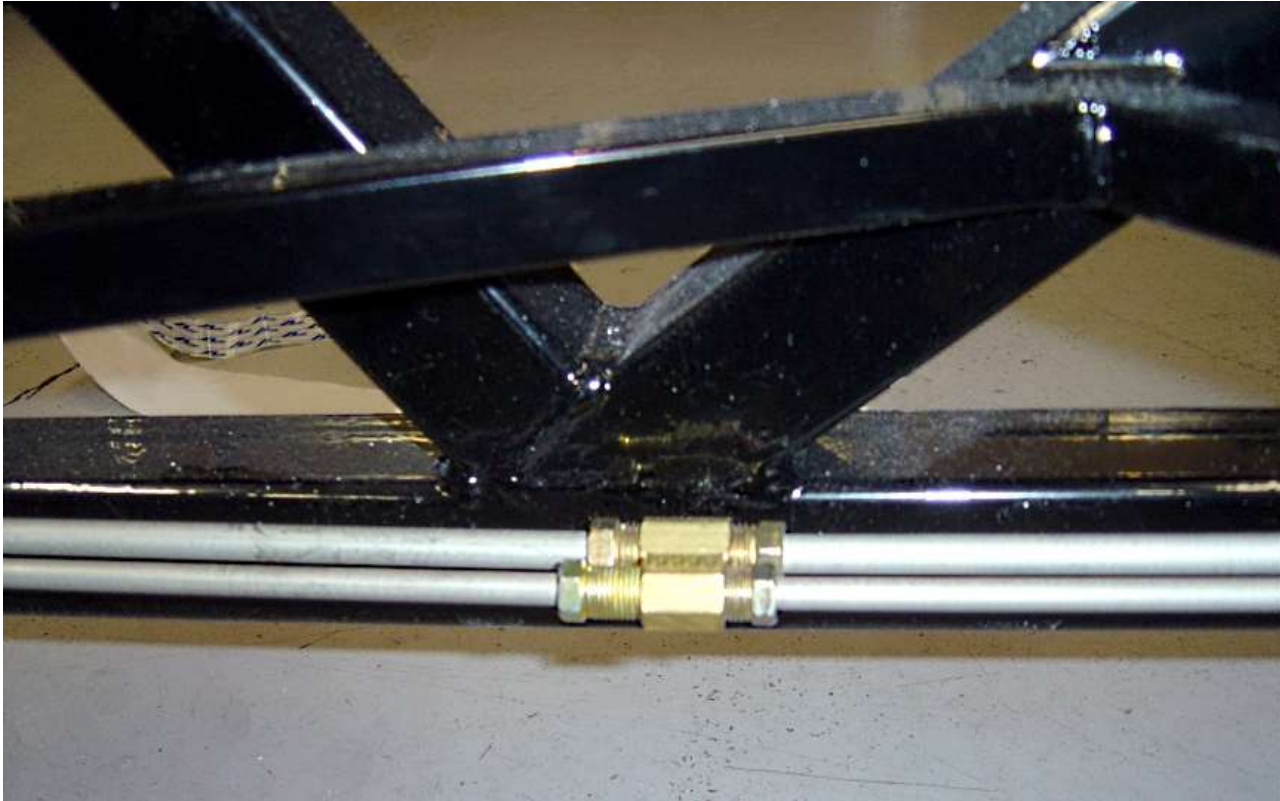
Push the $\frac{1}{4}$ " fuel line onto the $\frac{1}{4}$ " plastic connector and attach with a fuel injection hose clamp.
Push the connector onto the tank return fitting.

Run the hose over to the hard-line return barb, slide another clamp on the hose then cut the hose to length with a razor knife.

Push the hose onto the barb and tighten the hose clamp.

If necessary, use the insulated line clips to hold the soft lines from moving around too much.

Engine Bay Fuel Lines



Use the $\frac{1}{4}$ " and $\frac{5}{16}$ " unions to connect another piece of 60" fuel line.



Run the fuel lines to the front of the footbox and up to the fuel pressure regulator.



Attach the lines to the correct ports of the fuel pressure regulator or to the lines on the engine depending on your fuel system.

Floors

✂ Drill, 1/8" drill bit, rivet tool, silicone gun, (4) 10oz. tubes 3M Marine 5200 Adhesive/Sealant

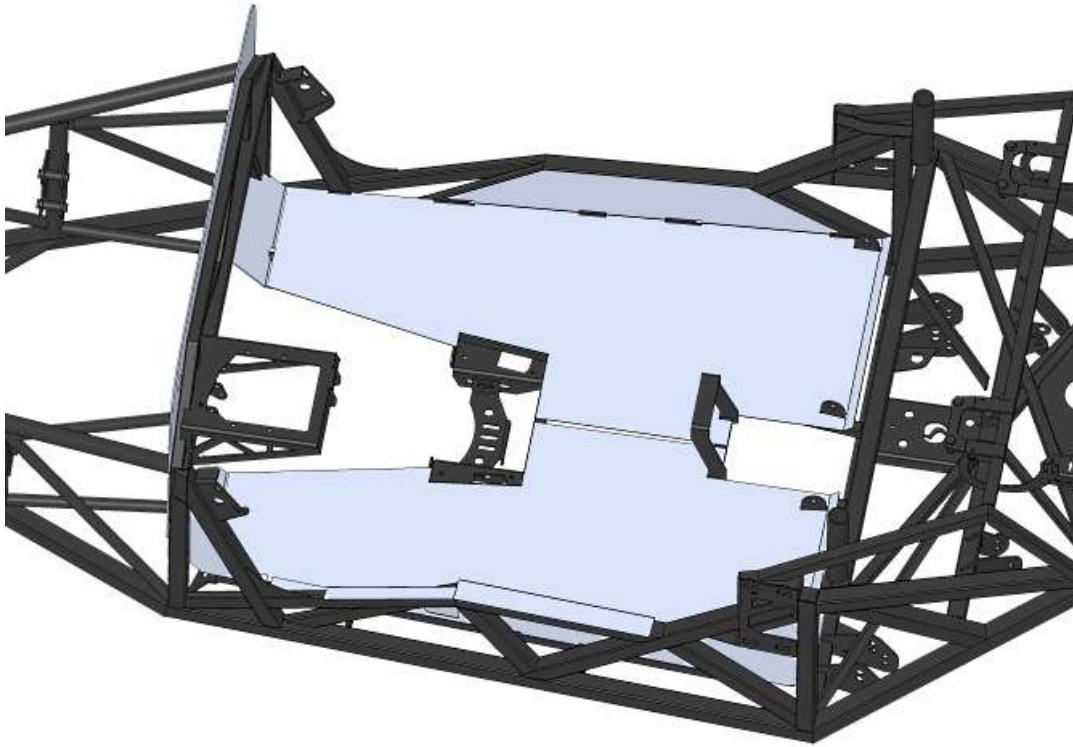


Packaged aluminum, Mounted aluminum, Secondary chassis components, foam core inserts
The Foam core with aluminum bonded to it is extremely strong when used with the correct adhesive. The Factory Five chassis is designed to use 3M Marine 5200 Adhesive/Sealant. Do not use silicone, it is too flexible.



Test fit all of the foam panels in the cockpit floor and use a marker to mark the location of the foam part.

Remove the foam from the floor areas.



If not already marked, place the floor top panels onto the frame and trace the frame tubes from the underside then remove.



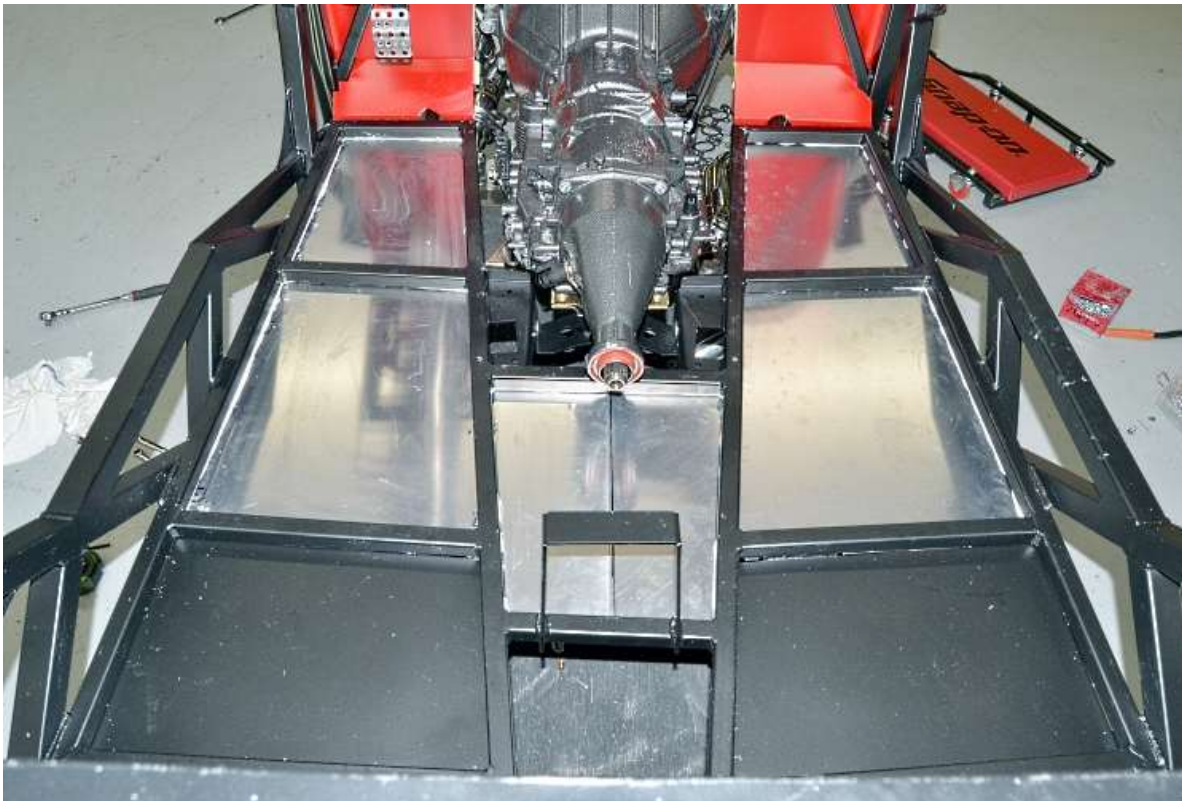
Clamp the flat under-floor aluminum panels to the bottom of the frame and trace around the tubes from the top.

Remove the under-floor panels.

Mark and drill the top and bottom aluminum panels for $\frac{1}{8}$ " rivets using a 3" hole spacing.



Using the 3M 5200 sealant, cut the tip at an angle and run the sealant on the bottom of the frame where the aluminum will touch.



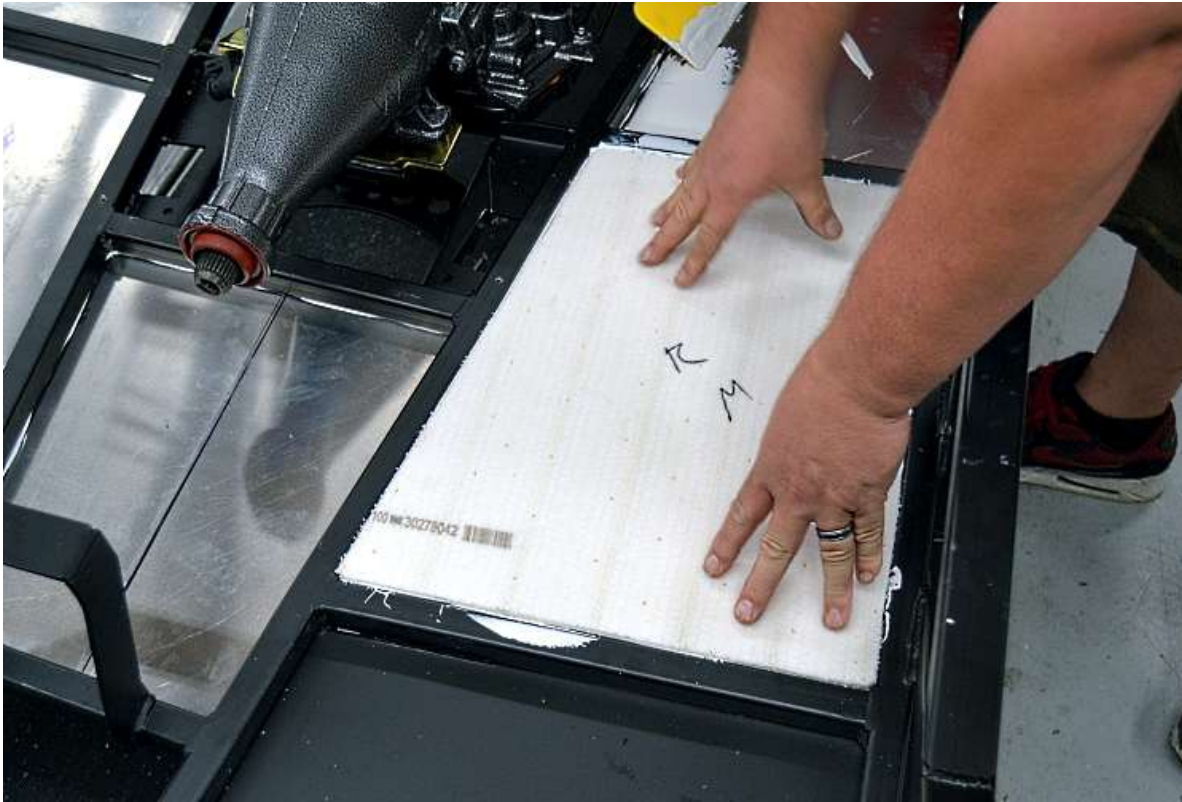
Clamp the under-floor aluminum panels to the bottom of the frame then drill and rivet the panels to the frame using $\frac{1}{8}$ " long rivets.



Remove the plastic tip of the sealant and apply to all of the aluminum and inside steel surfaces one area at a time.



Spread the sealant so that there is a consistent coating everywhere.



Push the correct foam piece into the frame opening until the top is flush with the top of the 1" tubes.



Repeat this procedure for all of the openings.



Spread the sealant over the top of the foam and 1" frame tubes where the aluminum will touch.



Put the floor tops on the frame.



Drill and rivet the top floor panels to the frame using $\frac{1}{8}$ " long rivets.

Driveshaft



Appendix I has the various driveshaft lengths that we stock if you are using a unique engine or transmission.



Install the drive shaft next. Begin by inserting the front of the driveshaft onto the output shaft of the transmission.



Fit the driveshaft snug against the yoke and install the bolts and tighten. You can put the transmission in gear to stop the driveshaft from turning while you tighten. Torque the bolts to **95Nm (70 lb-ft)**.

Front Grill, Radiator and Fan

ITEM NO.	PART NUMBER	DESCRIPTION	WITH QTY.
1	Grill 9-2-11		1
2	AC Condenser		1
3	34607	34301 - 35 TRUCK LEFT GRILL MOUNT	1
4	34289	35 TRUCK RADIATOR	1
5	34315	35 TRUCK HOOD HINGE COMPONENTS	1
6	34607	34302 - 35 TRUCK RIGHT GRILL MOUNT	1

REVISIONS		DATE	APPROVED
REV.	DESCRIPTION		
A	INITIAL RELEASE	6/13/18	

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
35 TRUCK	DIMENSIONS ARE IN INCHES	J1	4/18/08
	TOLERANCES		
	TWO PLACE DECIMAL ±0.01		
	THREE PLACE DECIMAL ±0.005		
	FOUR PLACE DECIMAL ±0.001		
	MATERIAL		
	FINISH		
USED ON			
APPLICATION			

Factory Five Racing, Inc.		SIZE	DWG. NO.	REV
5		A	34313	A
TITLE:		35 TRUCK COOLING COMPONENTS		
SCALE: 1:6		WEIGHT:		
PRINTED		SHEET 1 OF 1		

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Ruler, marker, 1/4", 25/64" drill bits, 5/32" hex key, riv-nut tool, grinder
 Cooling components, secondary body fasteners, radiator assembly, front grill.

RADIATOR



The 35 Truck radiator has the same mounting tabs as the hot rod radiator. The Hot Rod radiator is shown in some of these pictures.



Lay the grill on its front and use a marker to mark the location of the holes on the radiator mount tabs on the edge of the grill. Mark the vertical location of the holes on the top and bottom of the radiator mount tab.

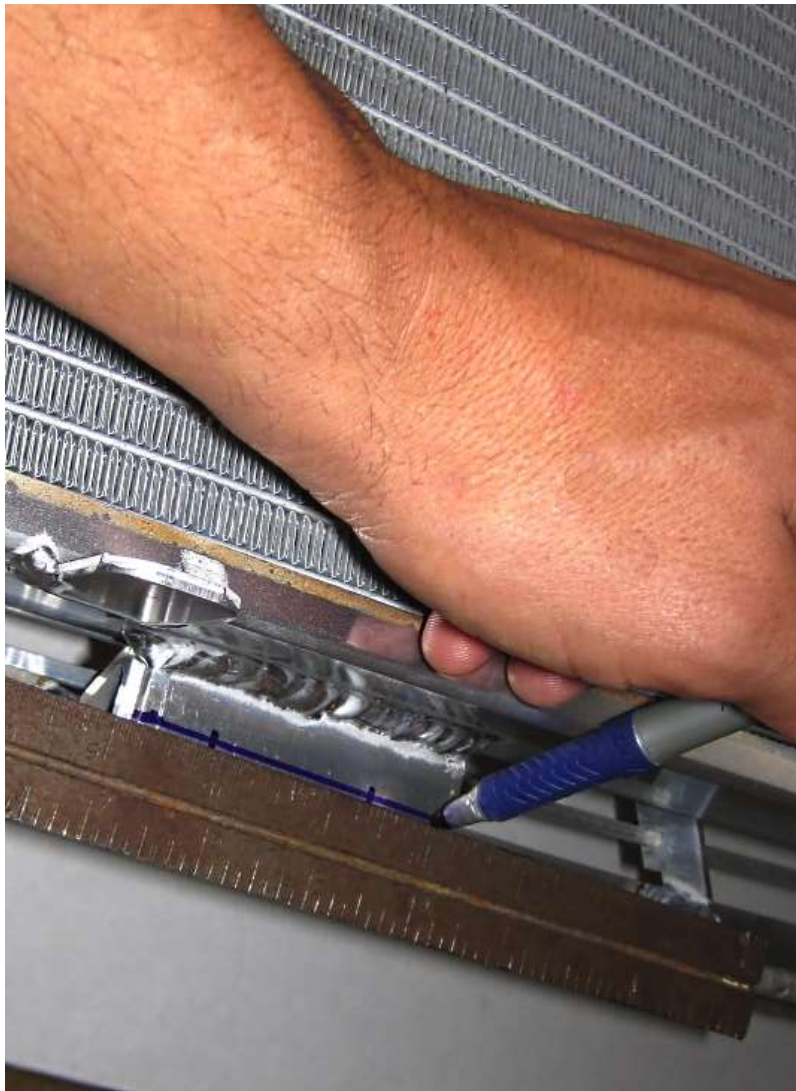


If you are installing an A/C unit in the car, mount the Condenser to the radiator now using the A/C instructions.

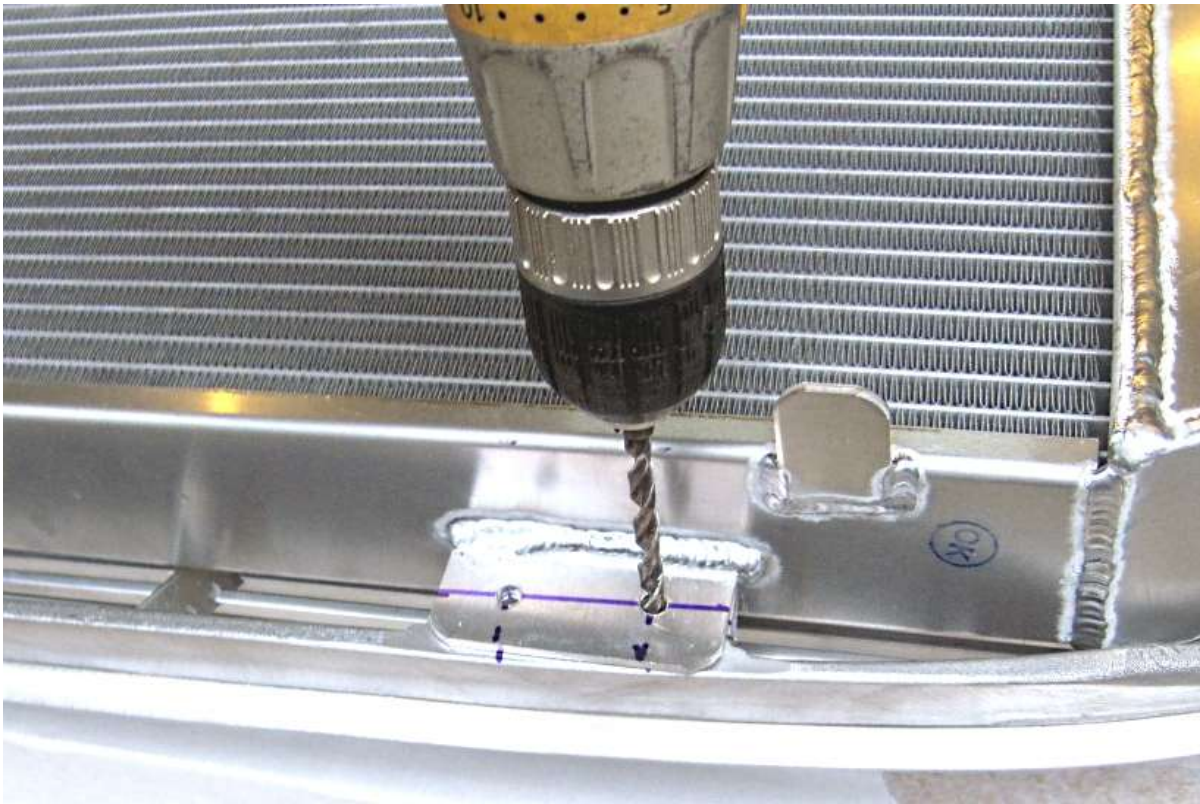
Place the radiator on the grill so that the radiator tabs are centered on the grill mounts.



Transfer the marks from the grill to the radiator.



Use a ruler to mark the locations of the holes on the radiator mount tabs.



Remove the radiator from the grill and drill 1/4" mounting holes in the radiator mount tabs.



Lay the radiator back on the grill and check the hole alignment by putting the 1/4" button head screws in as many holes as possible.



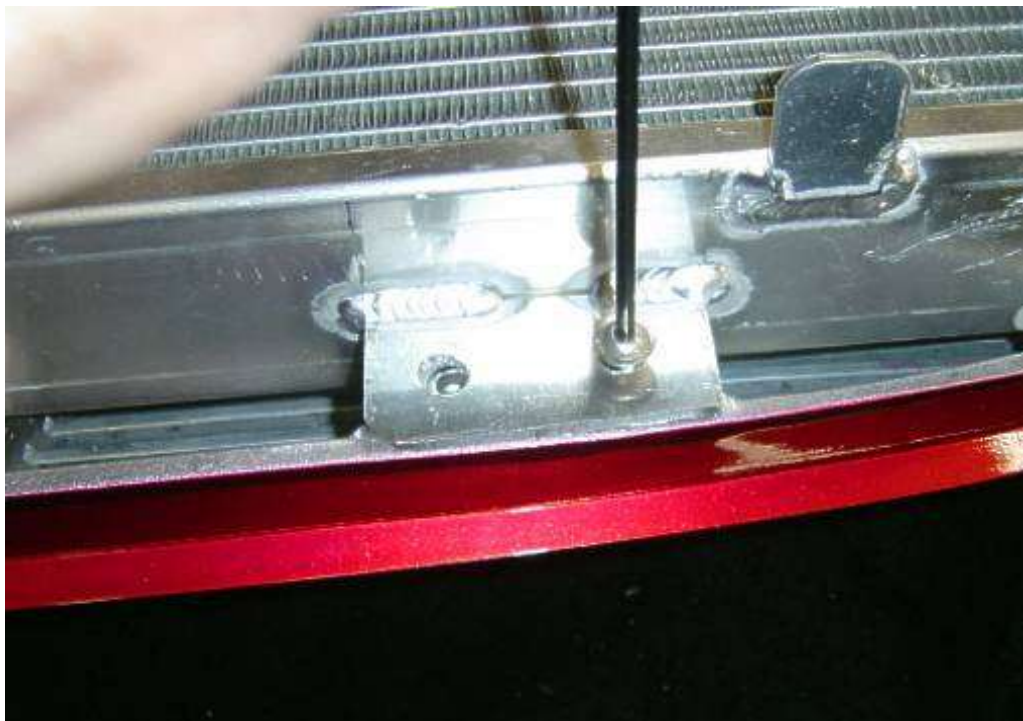
If necessary, with the radiator and screws in the grill, use the 1/4" drill bit and drill to "align" the holes.

Remove the radiator from the grill.

Open up the holes in the grill using a $\frac{25}{64}$ " drill bit.



Install Riv-nuts in the grill holes.






If not mounting an A/C Condenser, attach the radiator to the grill using the $\frac{1}{4}$ -20 x $\frac{3}{4}$ " screws provided.

ELECTRIC FAN

- ✂ $\frac{7}{16}$ " socket, ratchet
- 🔧 Cooling components, front grill

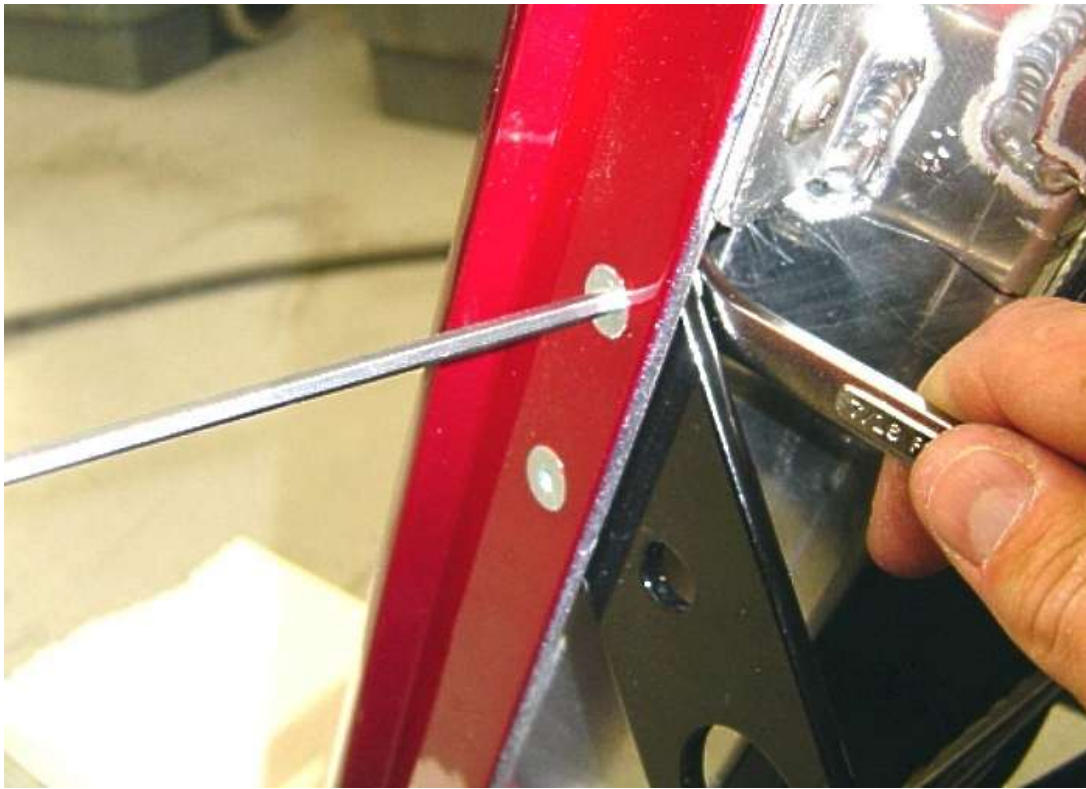
Rotate the fan assembly so that the fan wires are on the bottom and attach it to the Radiator by putting it on the mounting studs and at using the locknuts provided.

GRILL ASSEMBLY

-  $\frac{5}{32}$ " Hex key, $\frac{7}{16}$ " wrench, floor jack
-  Front Grill, cooling components, secondary body fasteners
-  If running A/C, it may be necessary to trim the grill mounts to clear the radiator mounts.



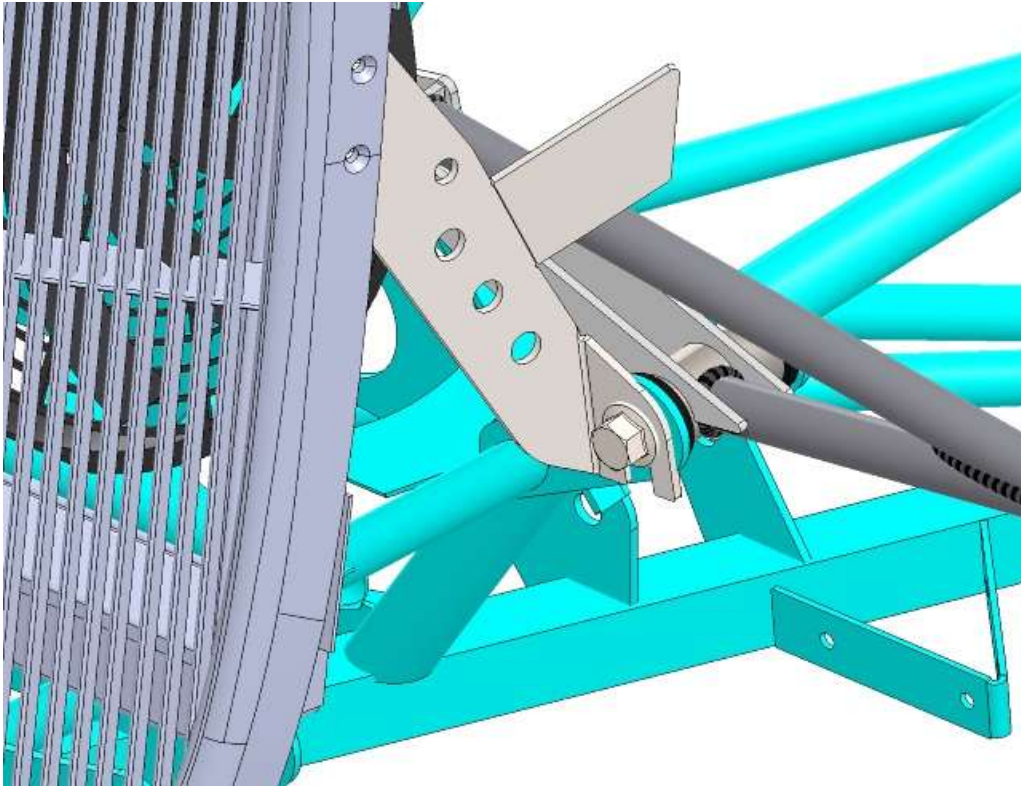
Hold the grill up to the grill frame mounts so that the mounts are on the inside of the grill.



Attach the grill to the grill mounts using the 1/4" flat head socket screws and locknuts in the secondary body fasteners. Leave the locknuts loose to allow adjustment when grill is put on.





Lift the grill and radiator as an assembly into position.



Insert the grill mount behind the head of the upper control arm bolt. Tighten these bolts even though they will need to be loosened later for adjustment, if you decide to drive the chassis before body fitment you want to be certain these will not fall out.



WIRING

-  Wire cutters, wire crimpers
-  Cooling components

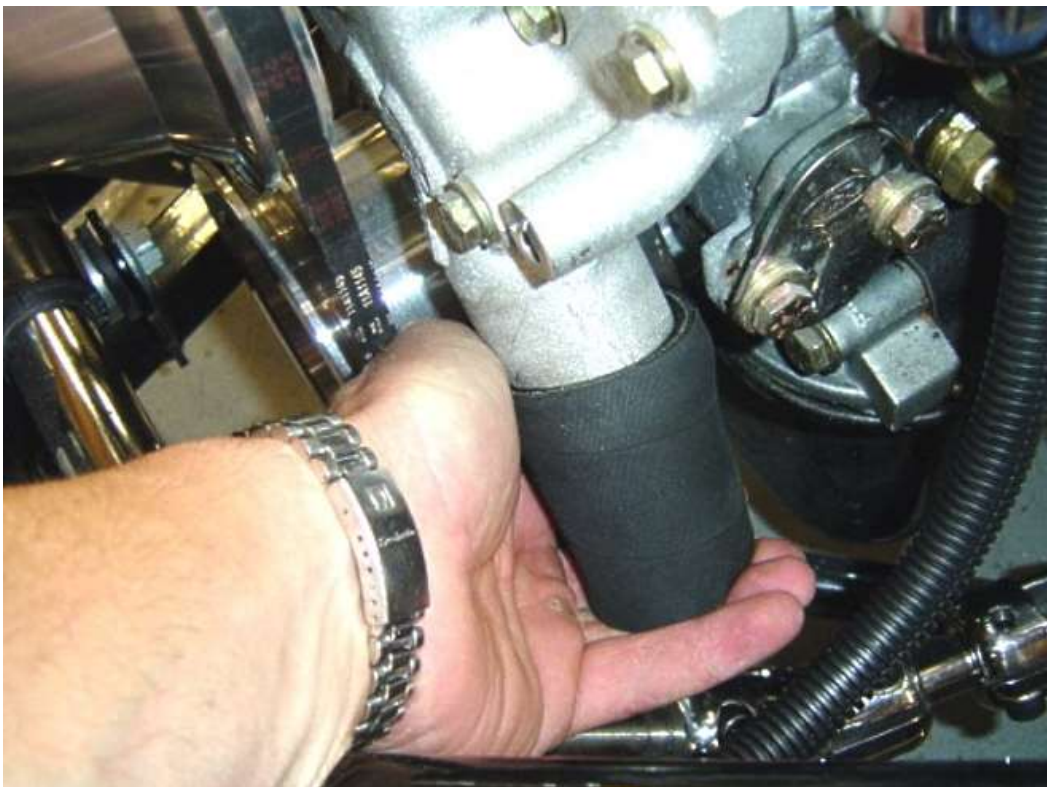
Locate the fan wires in the harness.

Connect the blue harness wire to the blue wire of the fan and the black to black.

Radiator Hose

-  Hack saw, razor knife, 7mm socket, ratchet, masking tape
-  Cooling components

LOWER RADIATOR HOSE



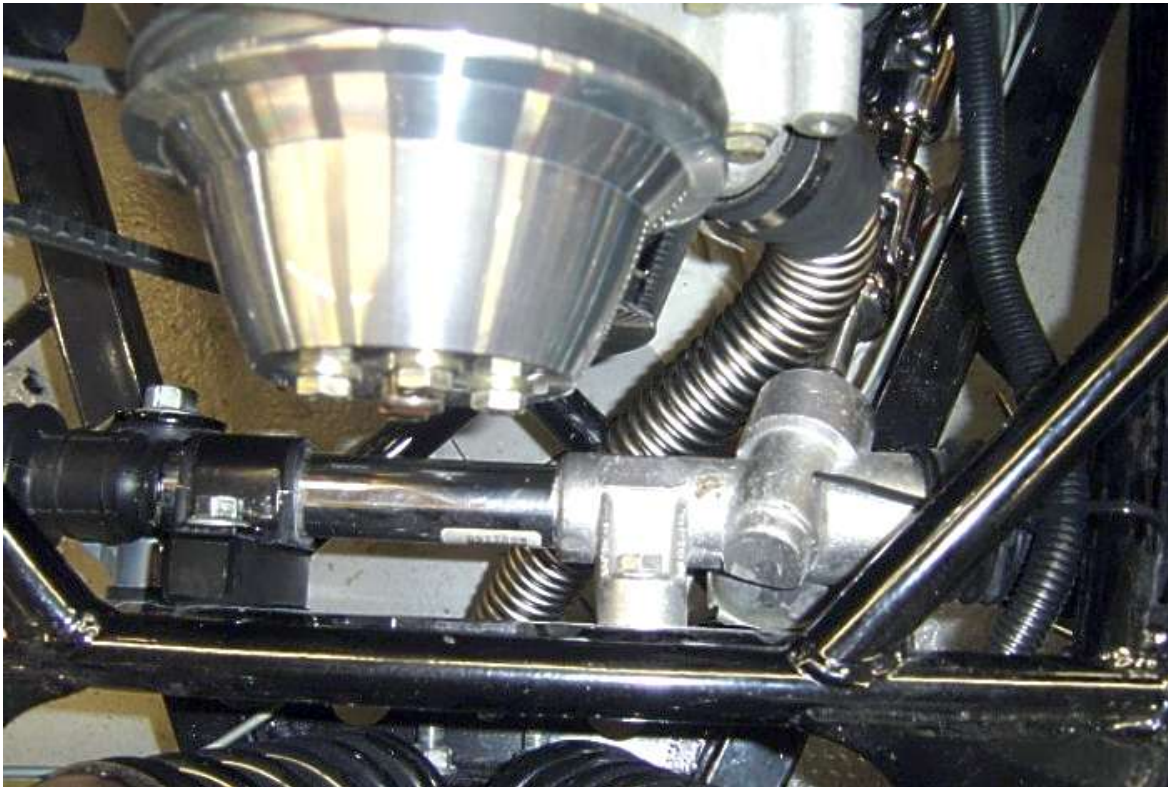
Open one of the radiator hose adapter kits and remove the adapters inside the larger hose and the hose clamps from the outside of the hose. Cut $\frac{1}{4}$ " off the end of the larger hose. Push the large hose onto the water pump inlet.



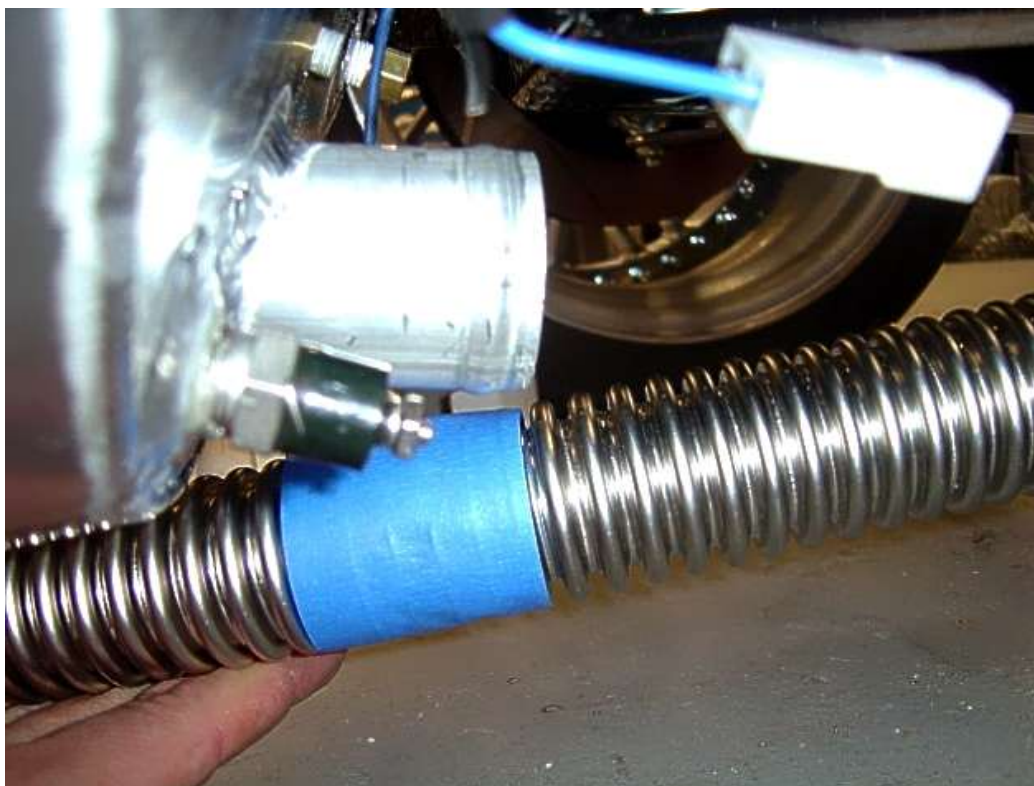
Attach the large hose to the water pump using one of the hose clamps and a 7mm socket and ratchet. It gives a clean look if you position the hose clamp so that the screw is accessible but is not seen.



From the underside of the frame, pass the corrugated radiator hose up behind the shock mount plate but in front of the 1" tubes.



Route the corrugated tube over towards the steering shaft and into the rubber hose adapter on the water pump inlet. You will have to put a sharp bend in the end of the tube. Do not hose clamp it.



Just in front of the shocks, route the corrugated hose up and to the lower radiator outlet. Use some masking tape or a marker to mark the cut location of the corrugated tube.



Remove and cut the corrugated tube with a hack saw or band saw.



Re-install the corrugated tube and hose clamp it to the water pump using a 7mm socket and ratchet.

Open another radiator hose adapter kit and remove the adapters inside the larger hose. Push the hose onto the lower radiator outlet and hose clamp it using a 7mm socket and ratchet.

UPPER RADIATOR HOSE



Open a radiator hose adapter kit and remove the adapters inside the larger hose. Push the hose onto the engine outlet and attach with a hose clamp and a 7mm socket and ratchet.



Push the corrugated tube into the hose adapter.



The Inline filler can be mounted two ways, the short end will get pushed onto the radiator inlet, the other longer end (shown on left), using WD-40 can get pushed onto the corrugated hose and go to the engine or the hose can be removed and a hose adapter can get used on the inline filler to connect to the corrugated tube.



Push the inline filler onto the radiator inlet.



Bend and route the hose over to the inline filler and use a marker or masking tape to mark the cut location of the corrugated hose.

Remove and cut the corrugated hose.

Re-install the corrugated tube and hose clamp it to the water pump and radiator using a 7mm socket and ratchet.



After running the car for the first time once coolant is added and while the system is still warm, retighten the hose clamps used on the cooling system.

Overflow Tank



Cooling components



The overflow tank can get mounted directly to the firewall.

Attach the overflow tank to the overflow tank mount.

Attach and route the overflow tank tubing to the radiator overflow nipple.

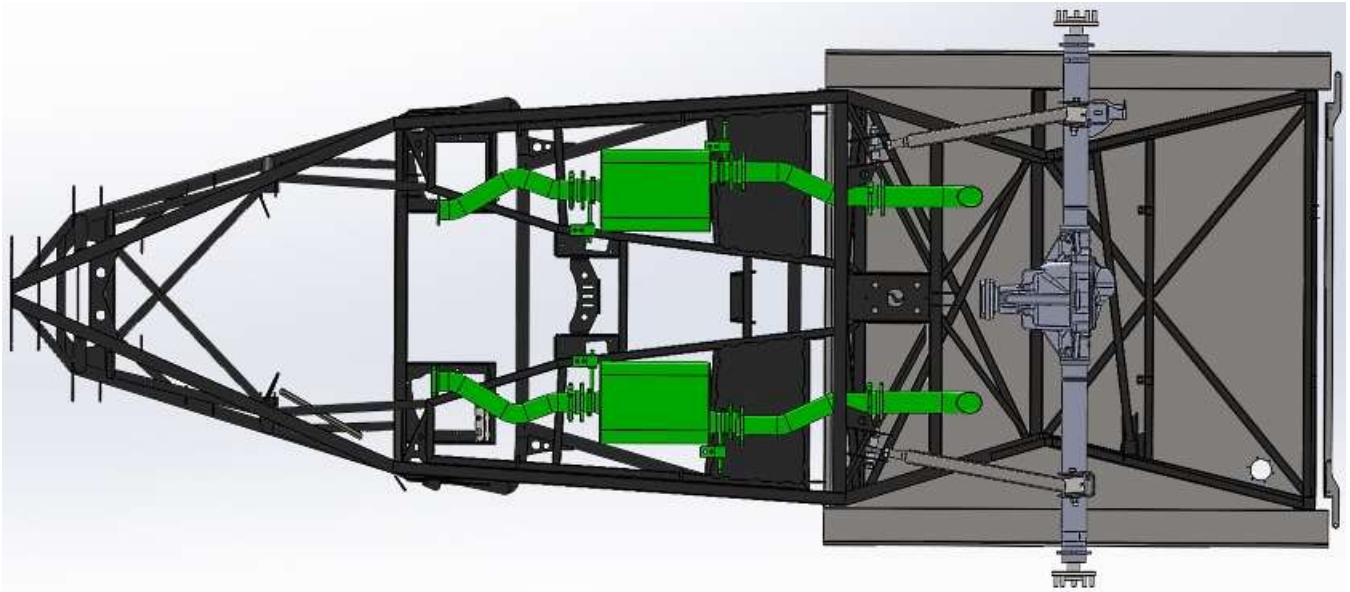
Exhaust



The exhaust has been designed and built with ball flanges to allow for the most adjustment. Some of the pictures show the older non ball flange Hot Rod pieces.



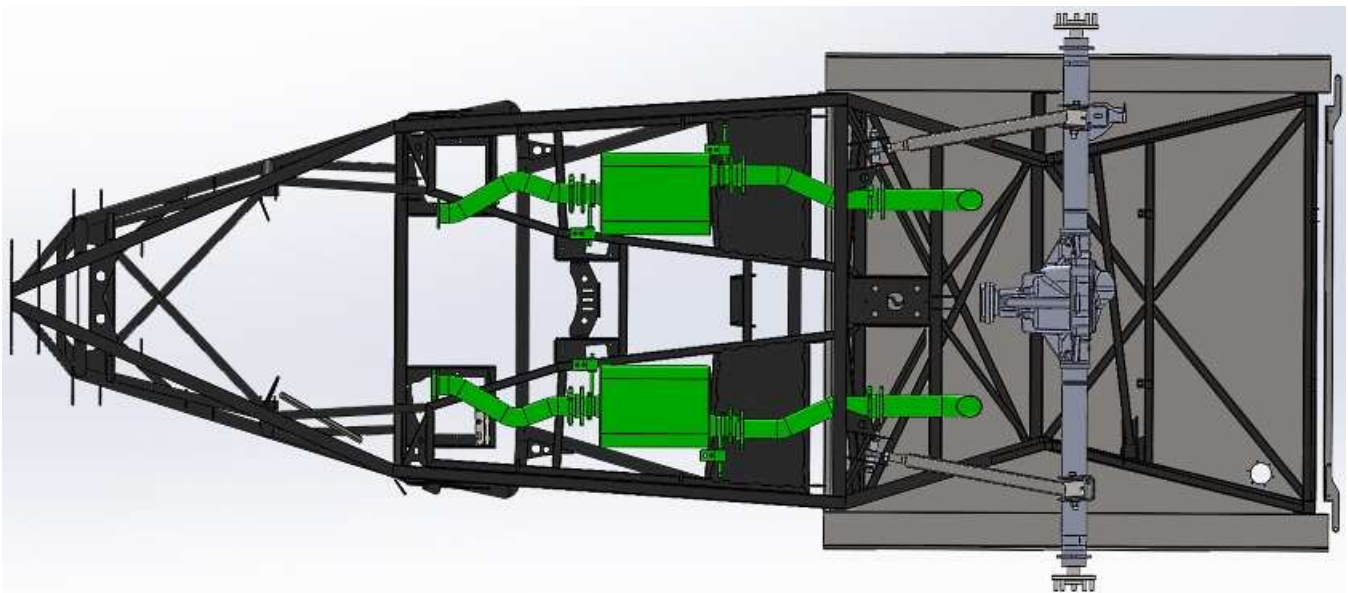
The stock exhaust is designed to dump in front of the rear axle.



Attach the shorty pipe to the shorty header coming off the engine. Do not fully tighten this ball and socket joint yet.



Attach the front exhaust pipe assembly to the shorty pipe with the supplied $\frac{3}{8}$ " hardware. Make sure to install the supplied gasket (FFR# 33369) between the two square flanges.

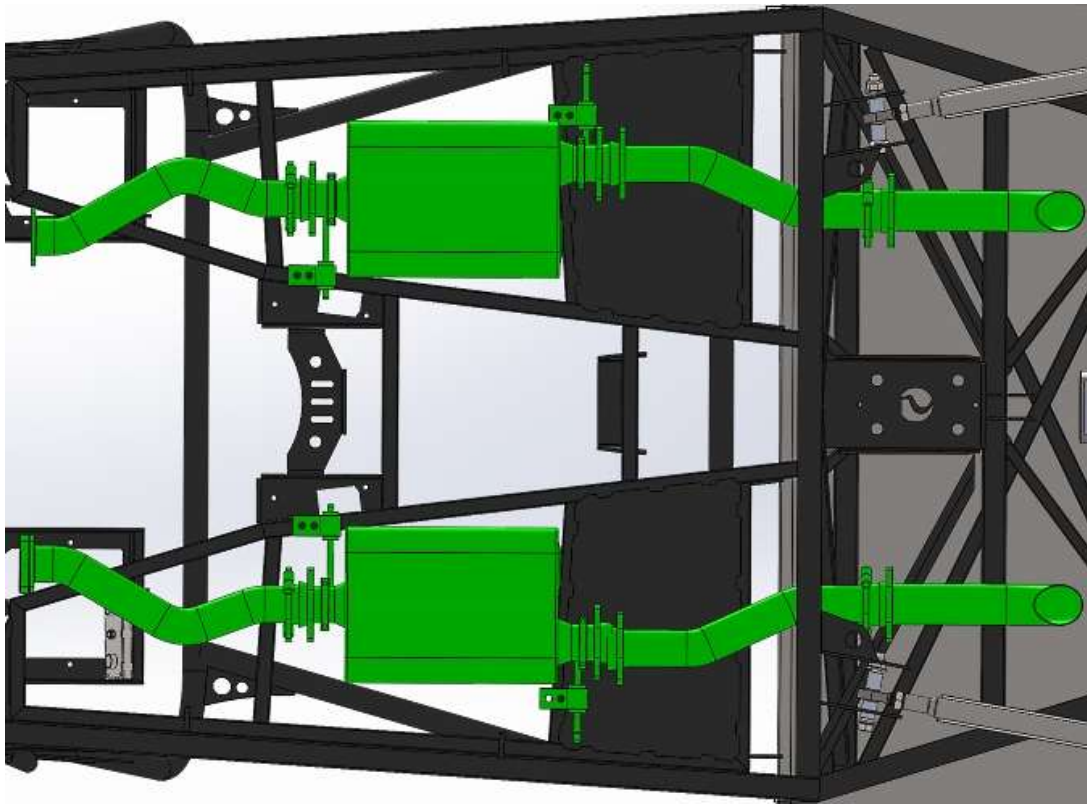


Loosely install the exhaust clamp and mount onto the muffler. The inlet to the muffler is in the center and outlet is offset to the outside of the car. The nuts on the exhaust clamps are oriented downwards with the u-bolt at the top. Place the front exhaust mount towards the center of the car and the rear one towards the outside of the car so that the mounts can attach to the small tubes.

Clamp the exhaust mounts to the frame to hold the assembly in place.

Run the front rear exit exhaust tube through the rear of the frame.

Bolt one of the ball flanges together around the front pipe ball and bolt the flange to the back of the muffler but do not tighten it yet.



Attach the exhaust tips to the exhaust tube.

The mount tabs for the exhaust mounts have the ability to slide on the rubber bushing. Position the mount tabs so that the front ones line up with the frame rails. Mark the location of the frame. Remove the exhaust mounts and drill the frame where you just marked with a 1/4" drill bit. Re-install the brackets and attach them to the frame with the 1/4" hardware provided.



Mark the location of the brackets that protrude past the surface of the frame where the aluminum floor sits.



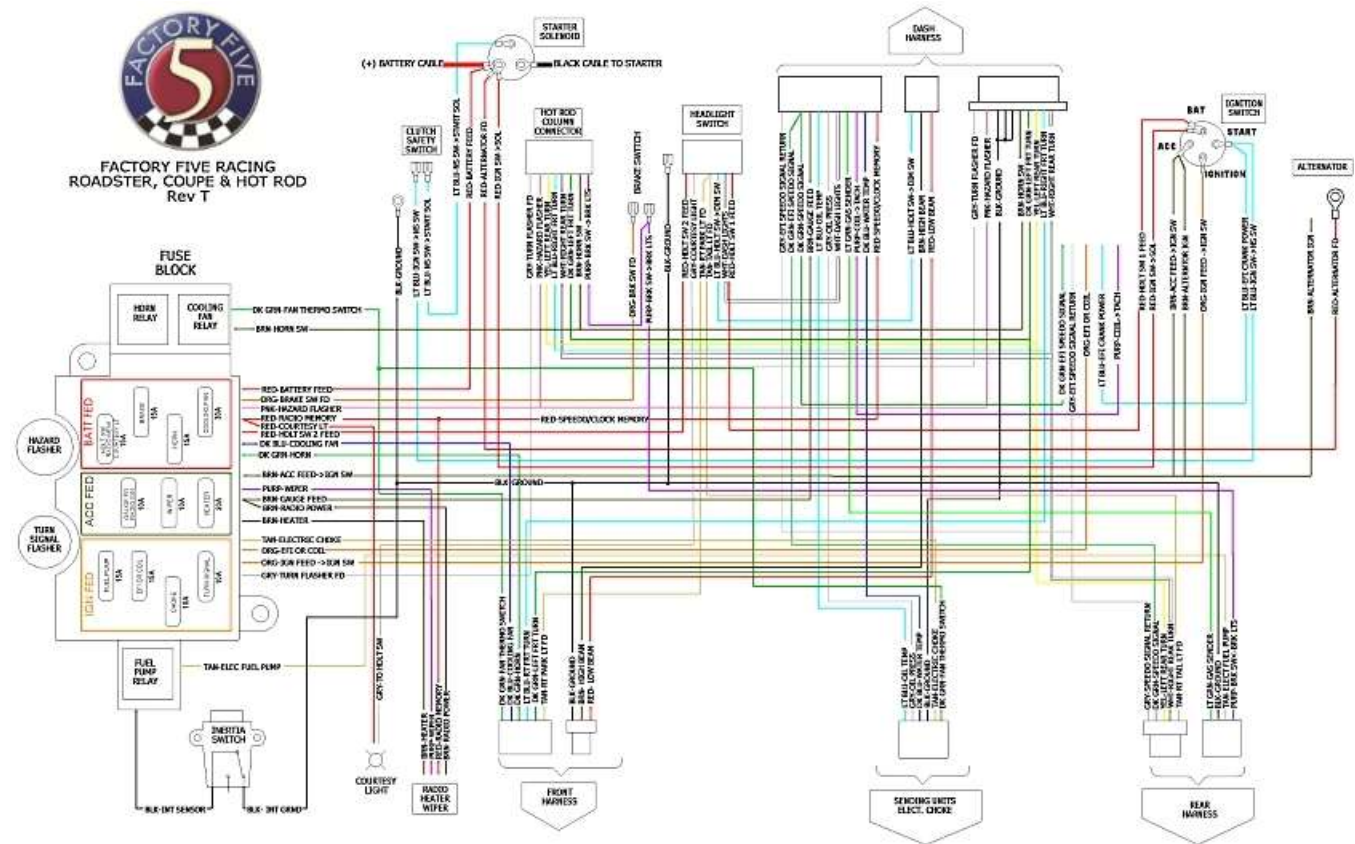
Old exhaust clamp mounts shown



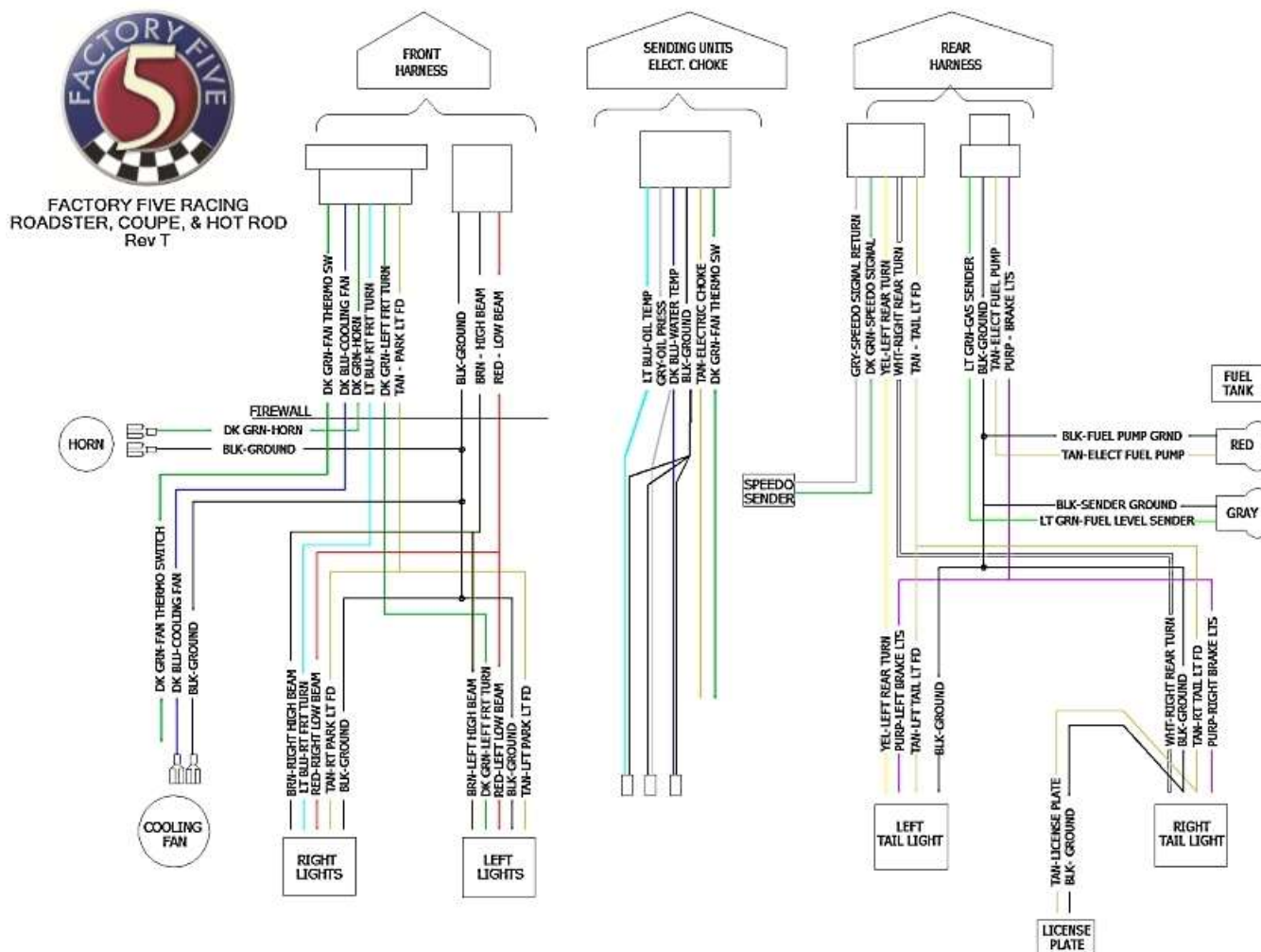
Grind the corners of the brackets which protrude past the surface of the floor.

Once you are happy with the placement of all the exhaust components, tighten all of the fasteners holding the exhaust in place.

Wiring Harness











Main wiring harness. A larger latest revision is packed with the harness.



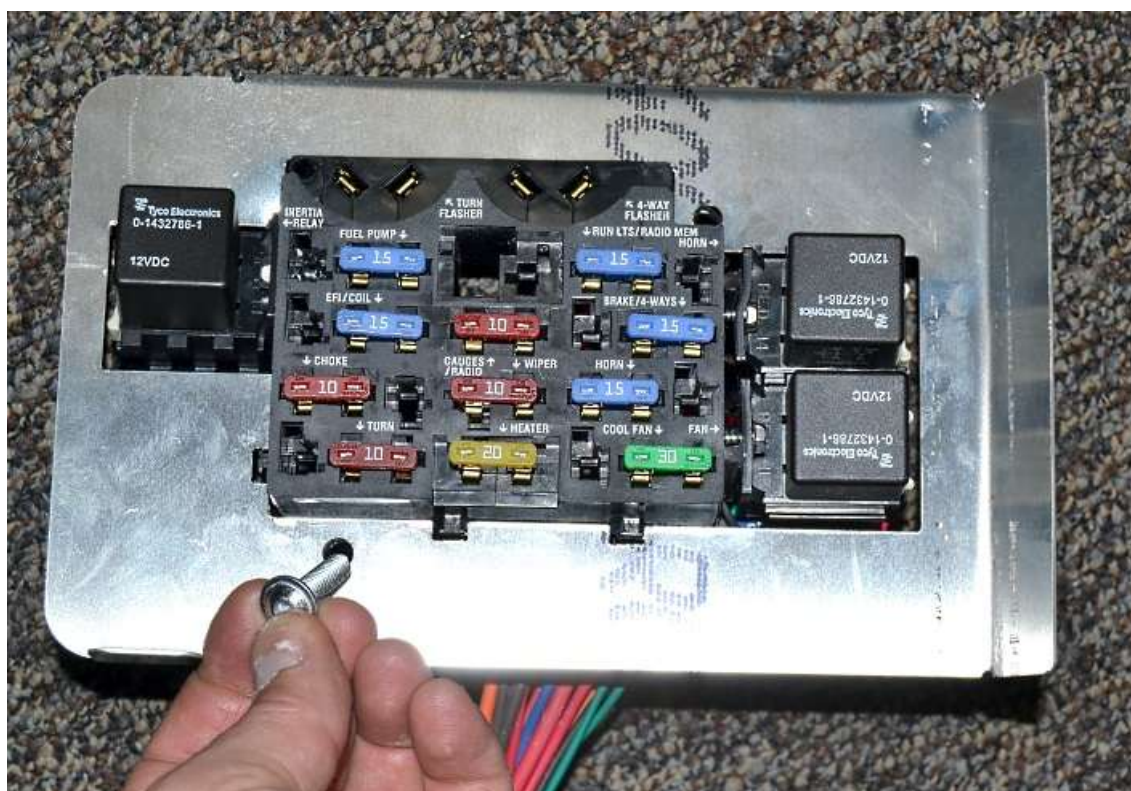
Front, engine sensor and rear wiring harness.

FUSE PANEL INSTALLATION

-  $\frac{5}{32}$ " Hex key, $\frac{7}{16}$ " socket, ratchet, $\frac{3}{16}$ " drill bit, $\frac{3}{8}$ " wrench
-  Read all of the instructions thoroughly before starting the actual installation. If you have any technical questions concerning this installation please call and ask for our tech department.
-  Route the harness away from sharp edges, exhaust pipes and moving parts.
-  Have all needed tools and connectors handy
-  When crimping wires, select the correct size crimper for the wire.
-  Do not use the routing instructions provided with the harness as it is geared towards the Roadster.
-  Use the instructions provided in this manual.
-  Use the fuse panel mount from your packaged aluminum box not the chassis harness box



Remove the two flashers from the fuse panel.



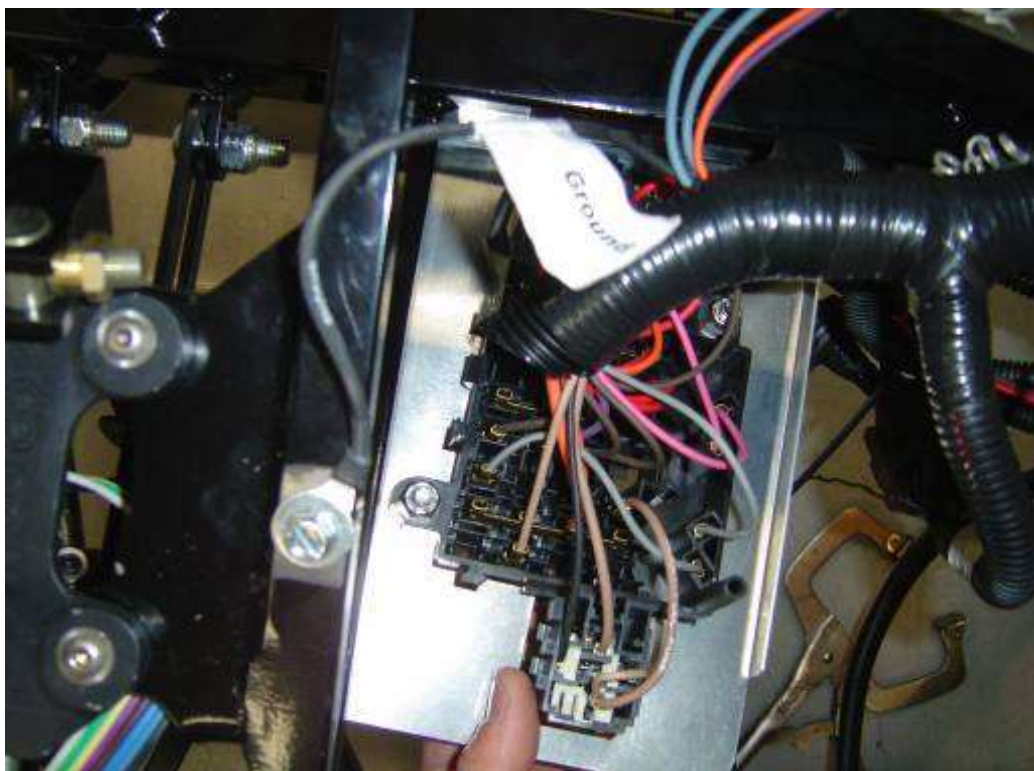
Attach the fuse block to the aluminum mount plate from the packaged aluminum box not the one included with the chassis harness using the 1/4" screws and locknuts.



Position the fuse block and the mounting plate to the right of the pedal box area with the fuses facing towards the ground



Drill into the 1.5" square tube (firewall mounting surface tube) and the $\frac{3}{4}$ " tube (lower one) which triangulates the pedal box mounting location. Install the panel with rivets.

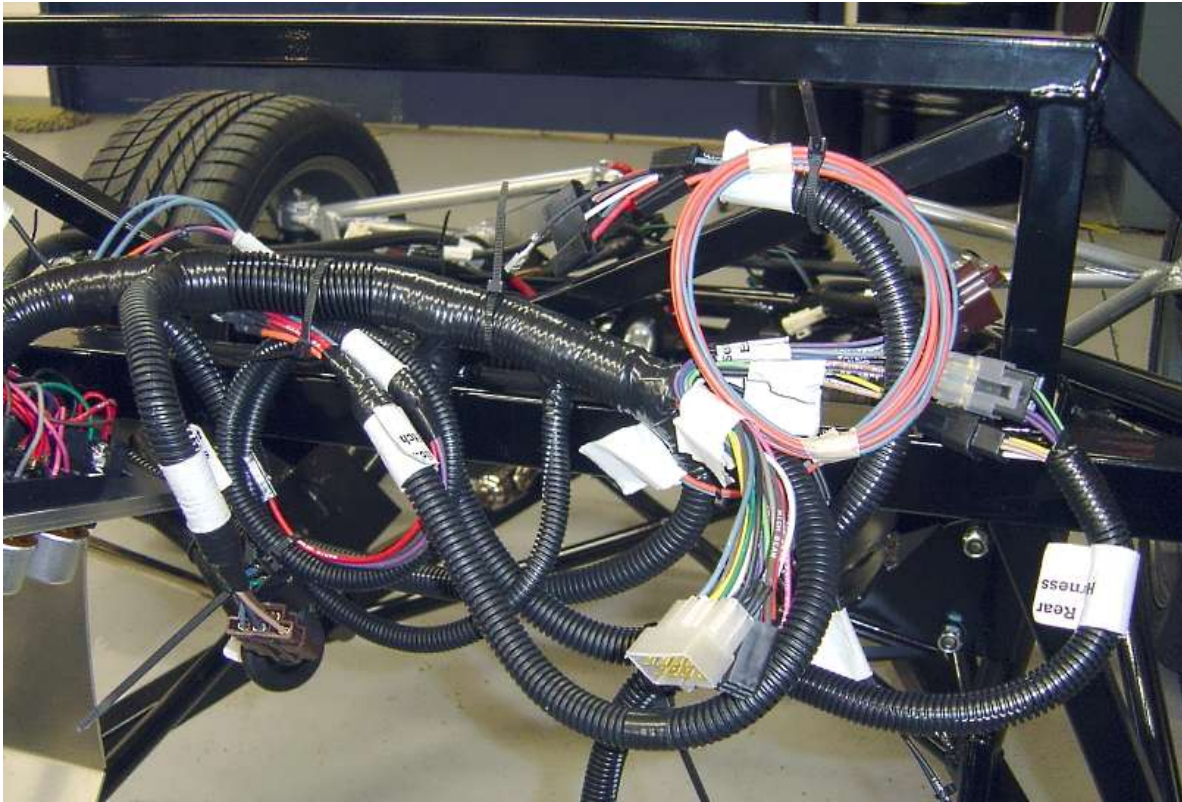


Attach the ground for the fuse block to the frame. If the frame is coated or painted be sure to remove this before grounding it.

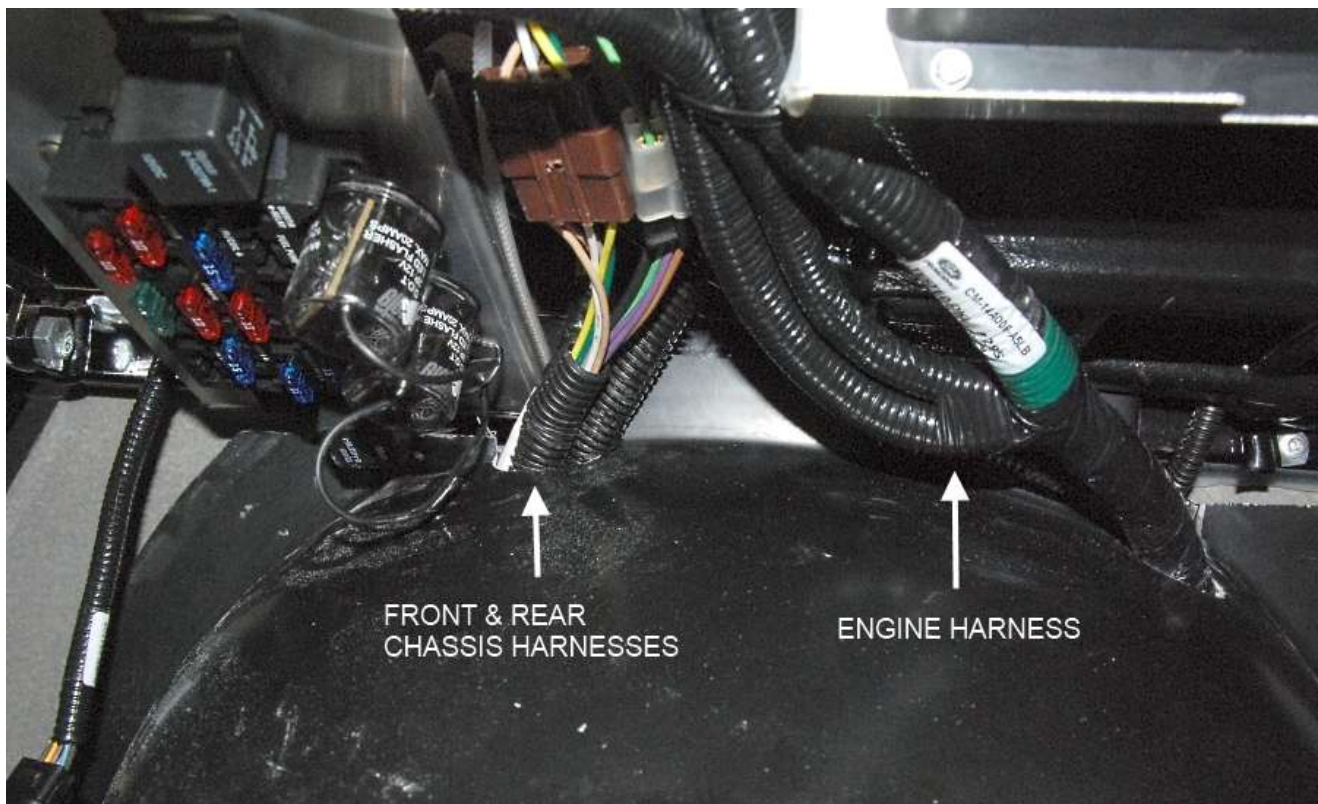


Locate the electronic flashers in the kit pack. These must be used instead of the standard flashers because of the LED lights. The flashers are located on the fuse block for the flasher and turn signal.

Make sure to ground the flasher wire.



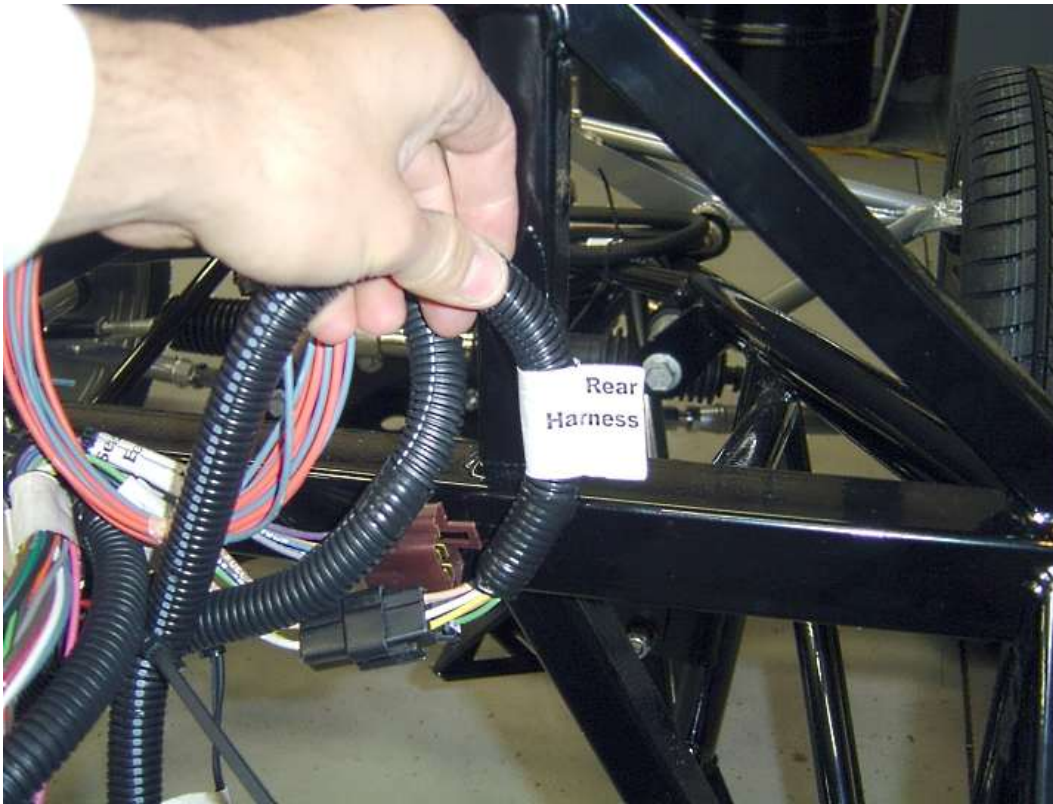
Use zip ties to begin draping the harness onto the frame.



The main wiring harness will exit the cockpit towards the right side of the transmission tunnel.

REAR HARNESS

👉 Some pictures show the old-style frame.



Locate the rear wire harness.

Starting at the firewall, route the cable and harness to the rear of the car by running it over the transmission mount and on top of the floor holding it in place loosely with zip ties temporarily. At the back of the cockpit area, go under the angled 1" tube and over the 1.50" tube.



Here, the rear harness continues up and over the 1.50" tube.

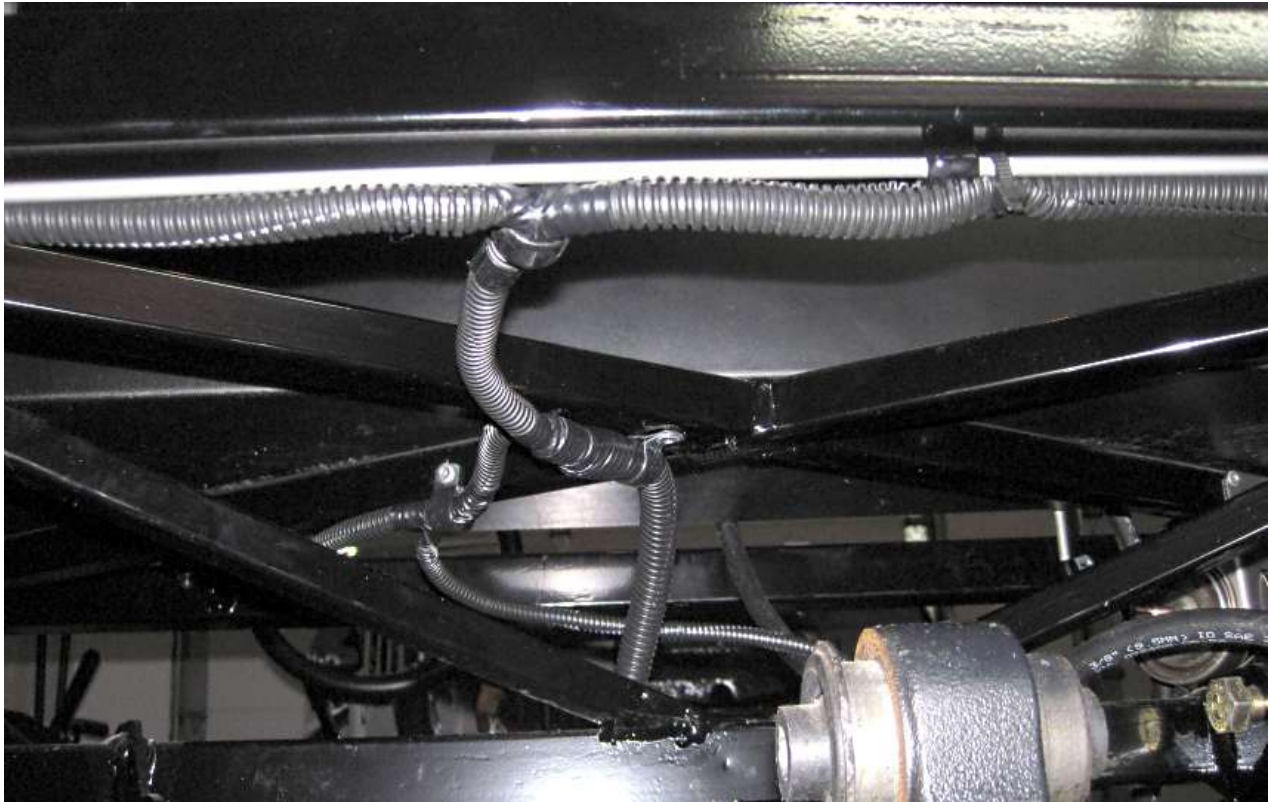


Drape the harness over the rear axle straight back to the rear of the frame so the harness can “T” at the back of the frame.

- ✎ The fuel pump will get located on the right/middle side of the frame while the fuel level is on the left side of the frame.
- ✎ The in-tank pump is close to the fuel level sender so it is not necessary to separate the wires.

Temporarily attach the rear light wires to the rear of the frame. Later these will get routed to the tail lights.

- ✎ If you are going to install a stereo in the car and plan to have rear speakers, now is a good time to run the rear speaker wires to the back of the cockpit inside the rear harness loom.



Starting at the back of the frame at the harness “T”, use the $\frac{5}{8}$ ” line clips and $\frac{3}{16}$ ” rivets to attach the harness to the frame.



Zip tie the rear light wires to the rear brake line running across the car.

Moving forward towards the firewall, pull the harness and battery cable tight and attach them to the frame every 12” or as needed using the $\frac{5}{8}$ ” insulated clips.

FRONT HARNESS

- ✂ Razor knife, electrical tape, drill, $\frac{3}{16}$ ” drill bit, rivet tool
- 🔧 Insulated clip hardware



The front headlights are able to be used as a Daytime Running lights in the center bar as well as the turn signal. If you would like to do this it is necessary to run another wire to each of the headlights and connect this to Key on +12V such as the choke wire if not used. Without running an extra wire, the only option is to use it as a turn signal.



Run the front harness through the front of the transmission tunnel cover along the left side of the engine.



Run the harness forward to the engine mount then run it along the inside of the 1.50" square tube next to the brake line.



Forward of the "X" bring the harness up above the $\frac{3}{16}$ " plate.



Zip tie the left headlight harness to the 1.50" round tube going to the upper control arm.

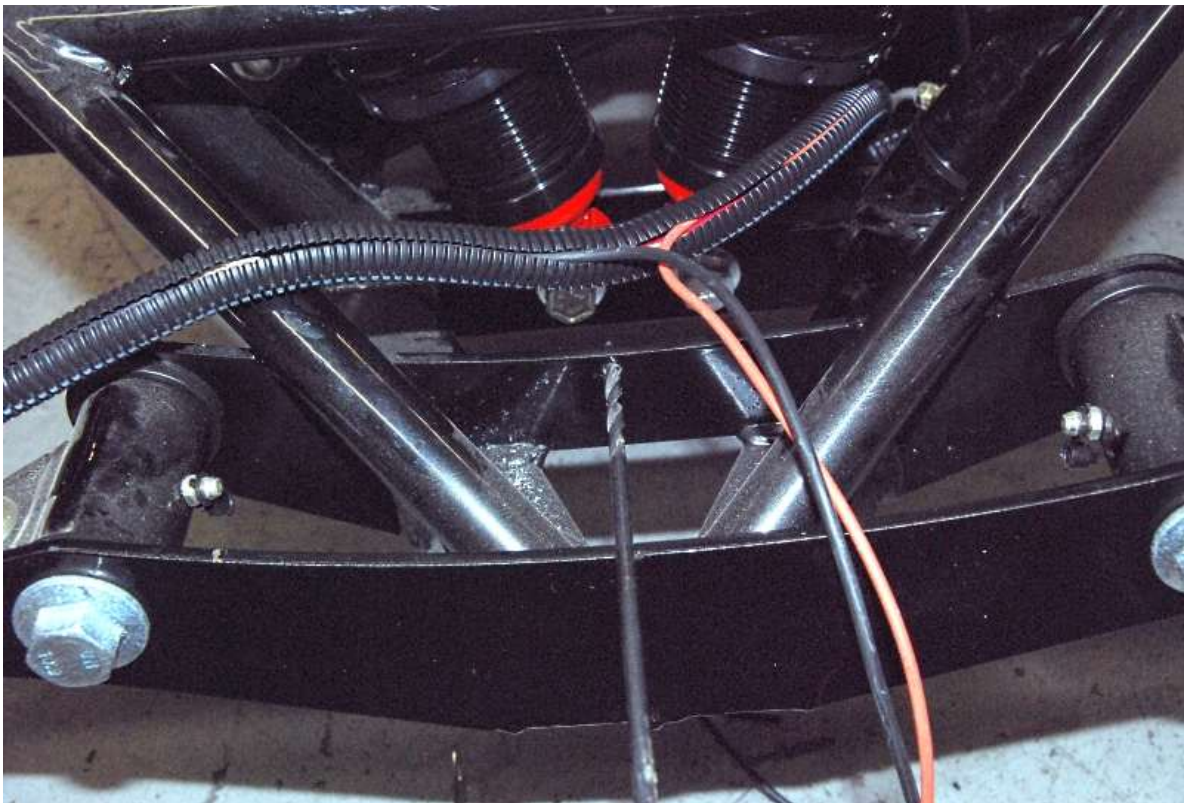


Pull the blue fan wire and the ground back out of the harness so that it can get located front and center.

Run the right-side headlight forward to the front of the frame.



Locate/center the fan wires. If necessary, use scrap wire of the correct gauge to extend the ground wire. Re-tape where the fan wires come out of the harness.



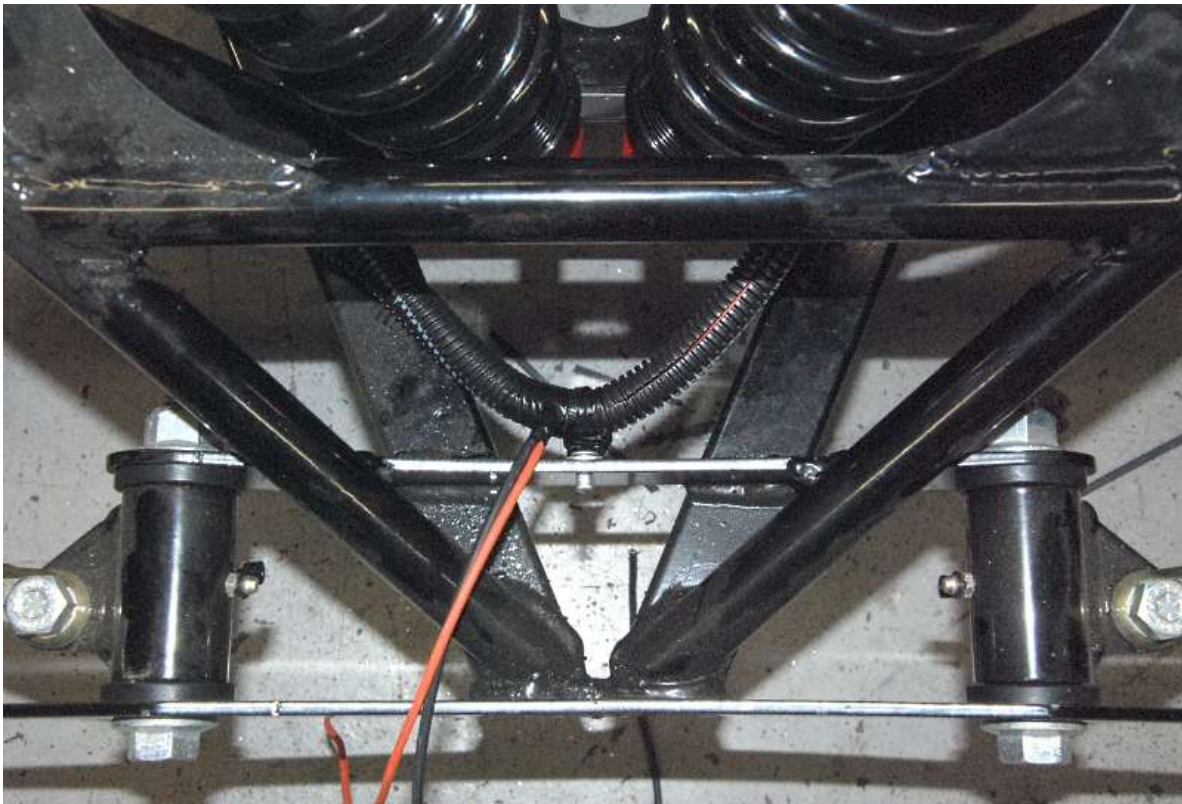
Drill a $\frac{3}{16}$ " hole in the center of the rear lower control arm mount.



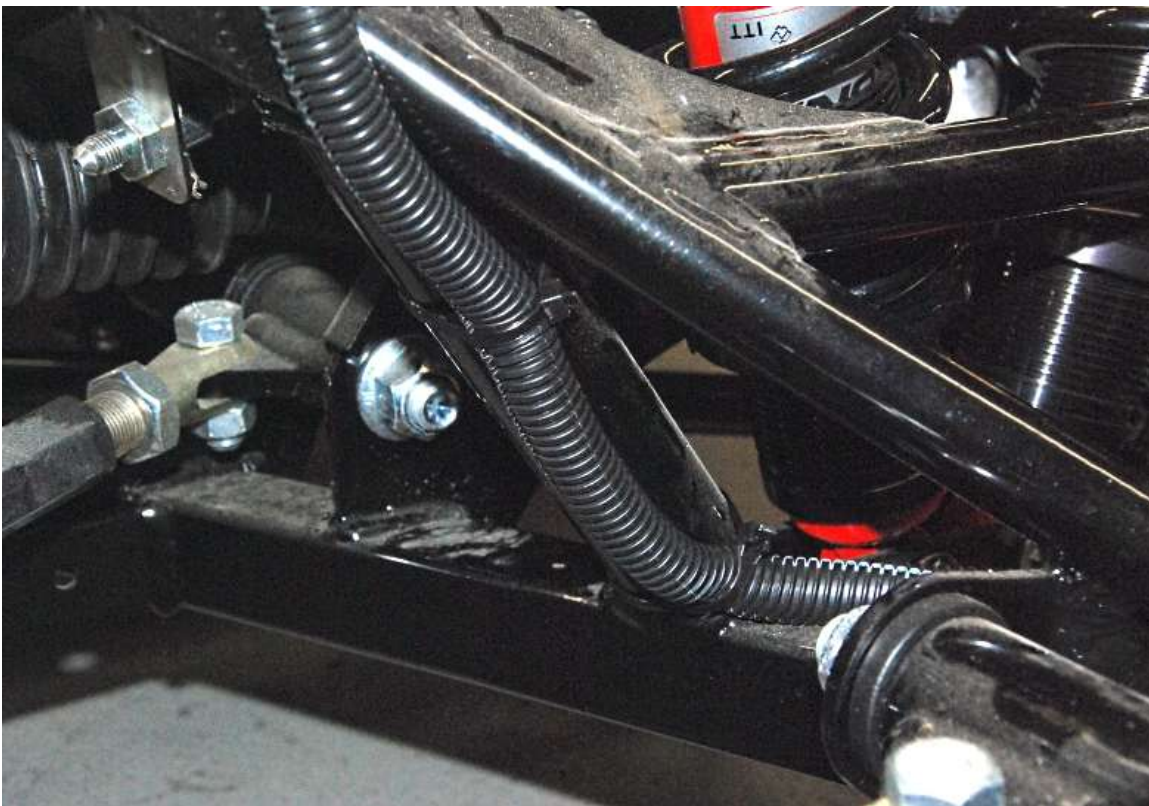
Insert a long $\frac{3}{16}$ " rivet into a small insulated line clip.



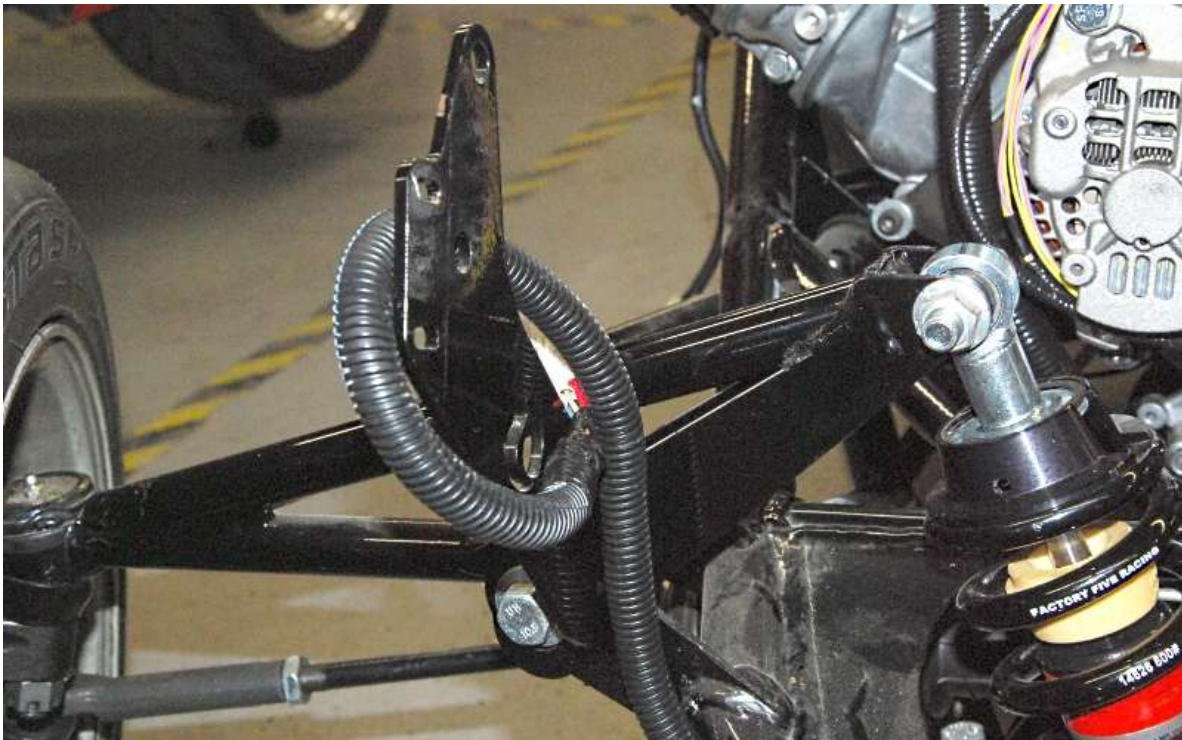
Rivet the line clip to the back of the lower control arm mount plate.



Use a zip tie to hold the front harness to the line clip.



Run the right headlight harness up the right 1.50" round tube.

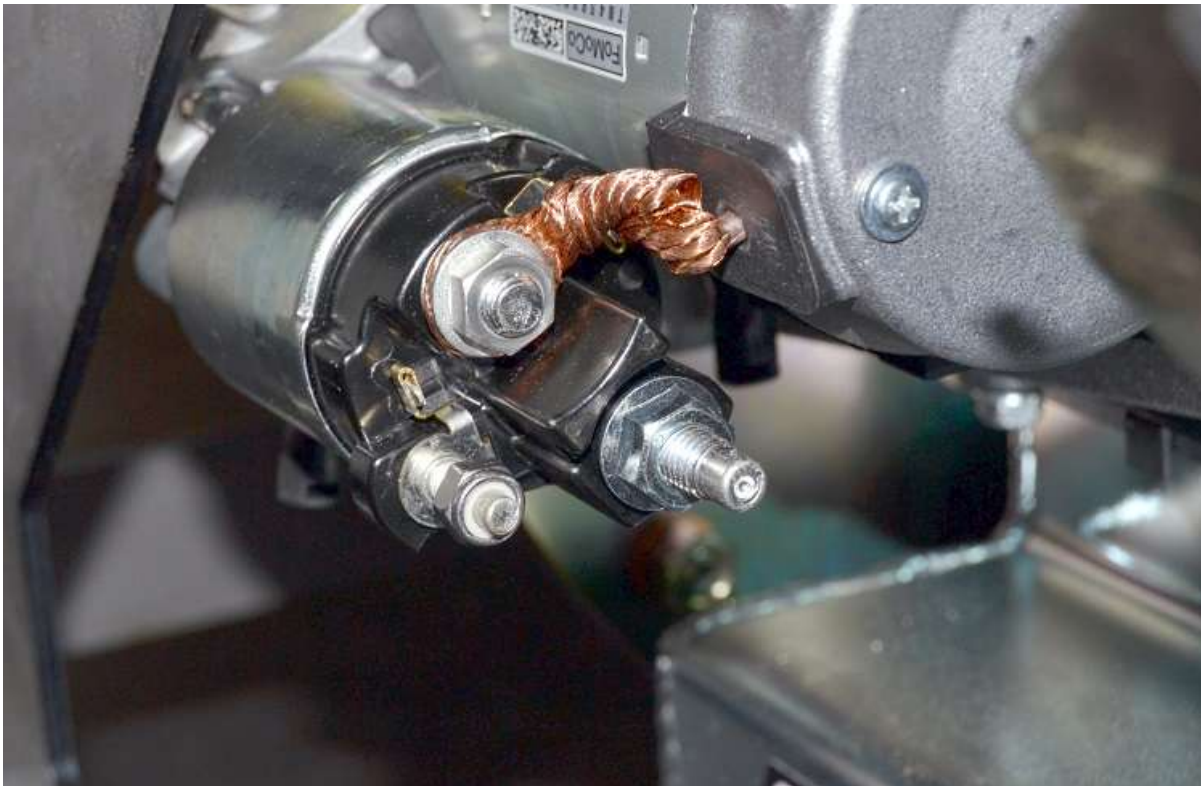


Leave the right headlight harness around the grill mount until the headlight is wired later.

STARTER SOLENOID WIRING



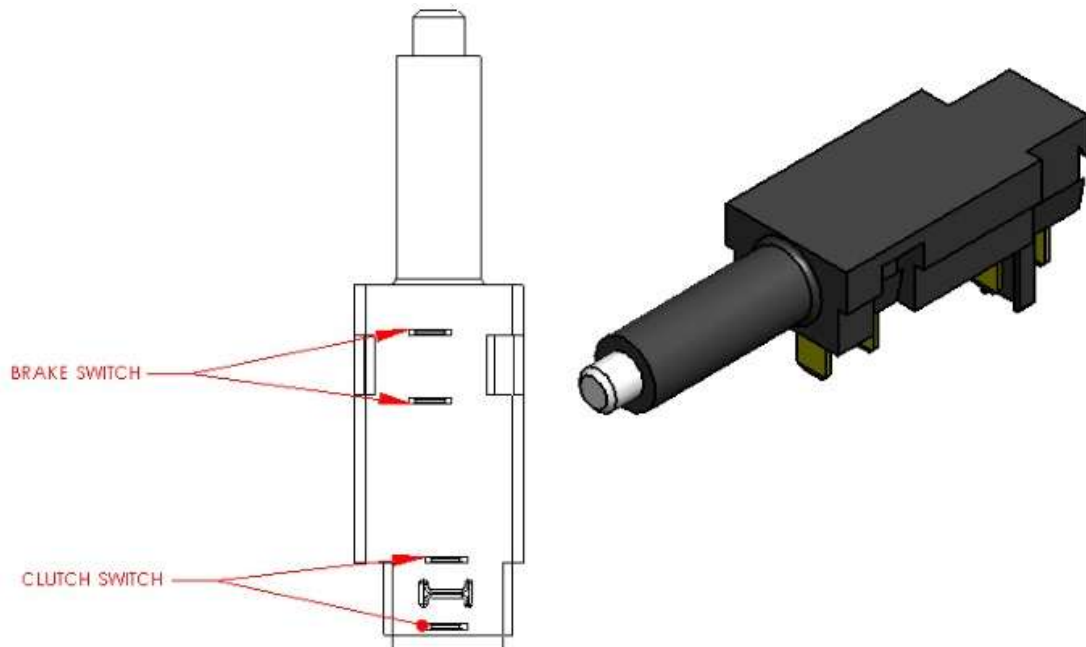
Locate the starter solenoid wires.



Wire the solenoid on the back side of the starter. The battery cable and red harness wires go on the large post. On the smaller S-terminal connect the LT BLU-NS SW > START wire. See chassis harness manual.

BRAKE SWITCH

Locate the brake switch plugs on the chassis harness



Connect the orange and purple wires to the spades on the brake pedal switch.

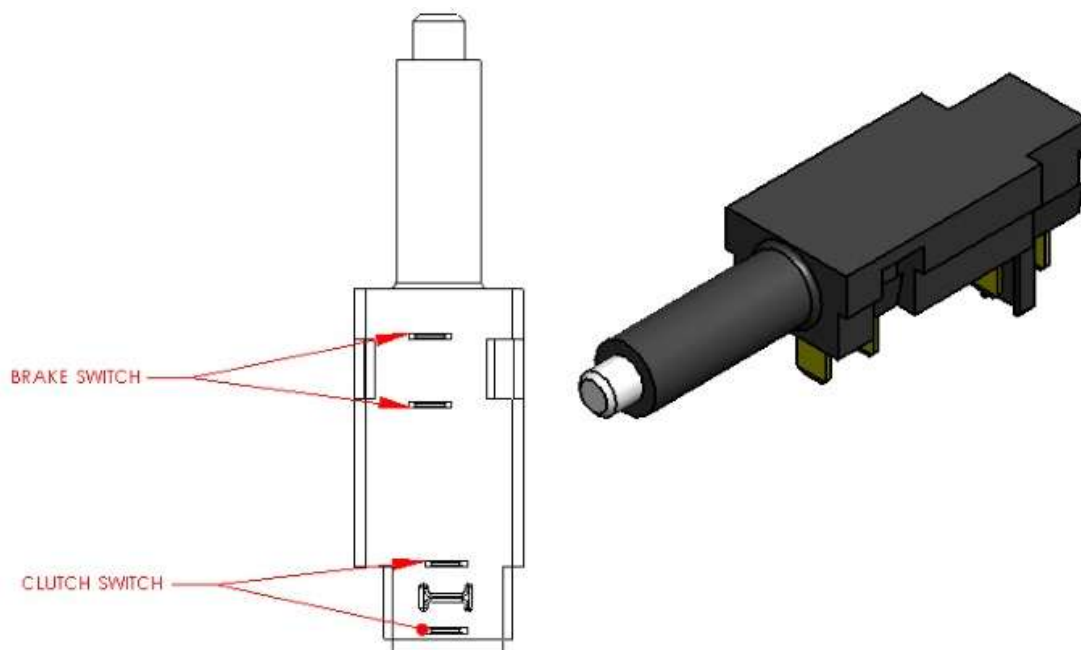
CLUTCH SAFETY SWITCH



A clutch safety switch is used to prevent starting the car while in gear. It requires pushing the clutch pedal in while starting the car.



Another option is to use a momentary dash switch that must be used at the same time as the key.



Attach the two blue wires to the clutch switch.



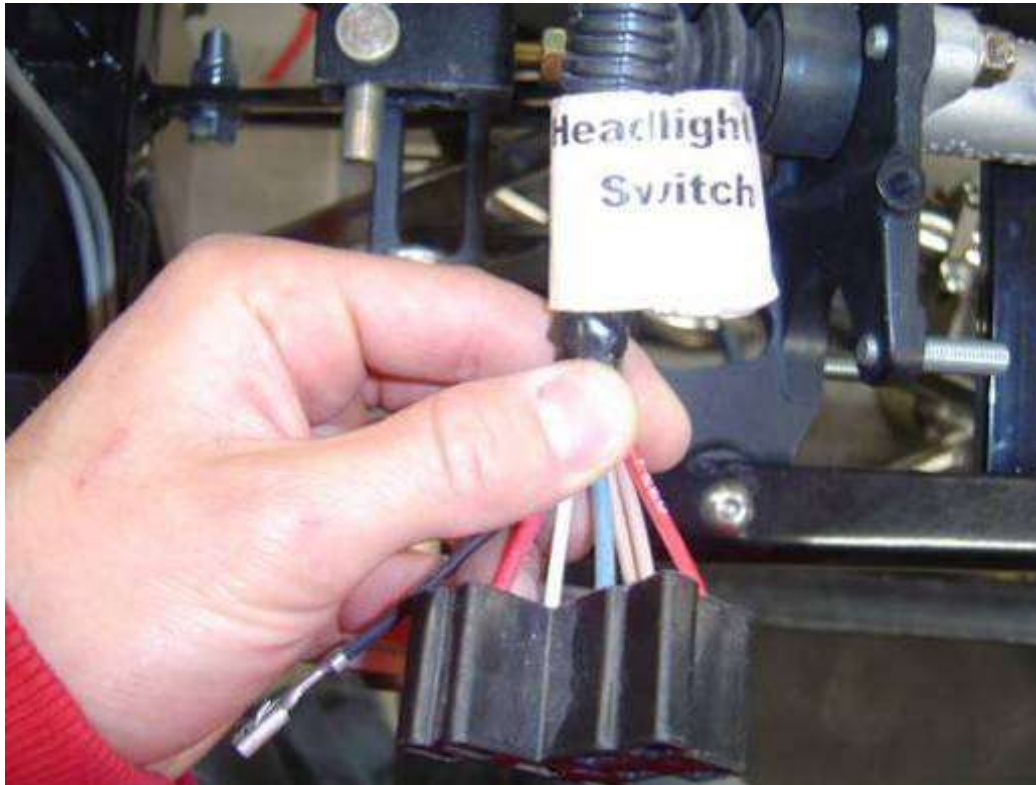
If a switch is not going to be used, connect the two wires together by either soldering the wires or using a butt connector from the “misc. electrical components” assembly in the Factory Five Racing main kit pack.

FUEL INERTIA SWITCH

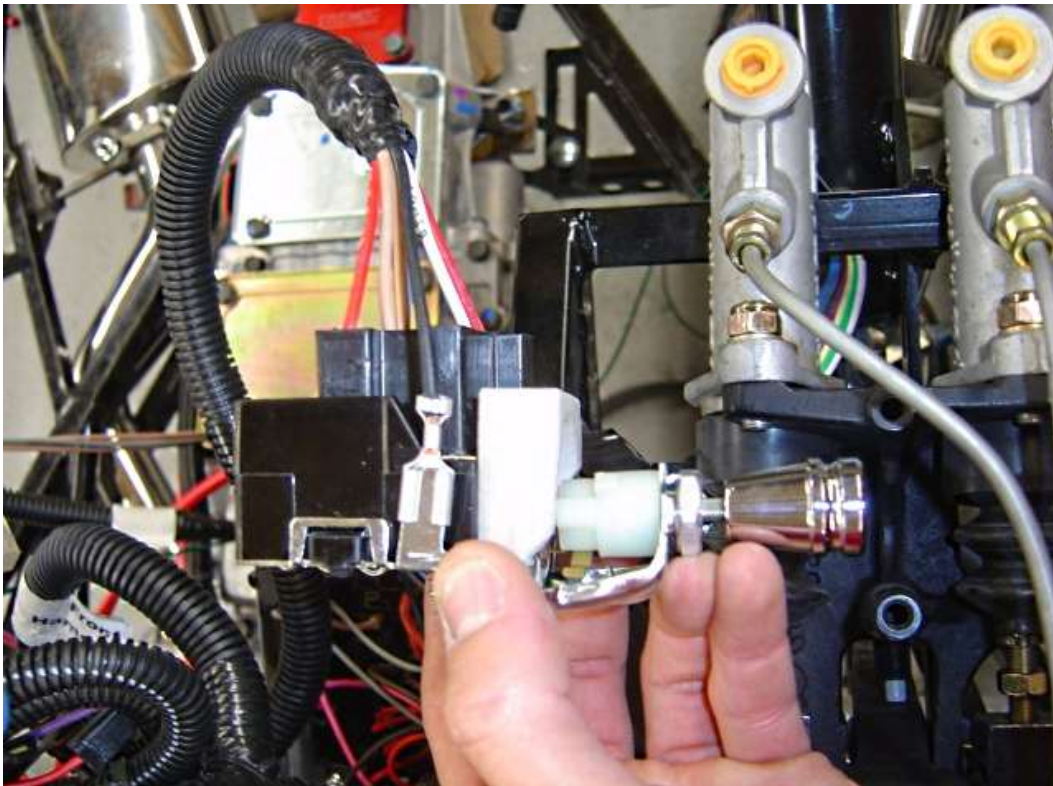
✂ Drill, 1/4" nut driver

Use the fuel inertia cut-off switch (attached to the main harness near the fuse panel) as a guide and mount the inertia fuel cut-off switch to the 1x1" frame rails on the backside of the firewall on the frame rails near the column mount using the #8 self-tapping screws provided. Use a cordless drill with a 1/4" nut driver. Do not mount the switch over the stamped chassis numbers.

HEADLIGHT SWITCH



Locate the headlight switch plug and install it onto the headlight switch.

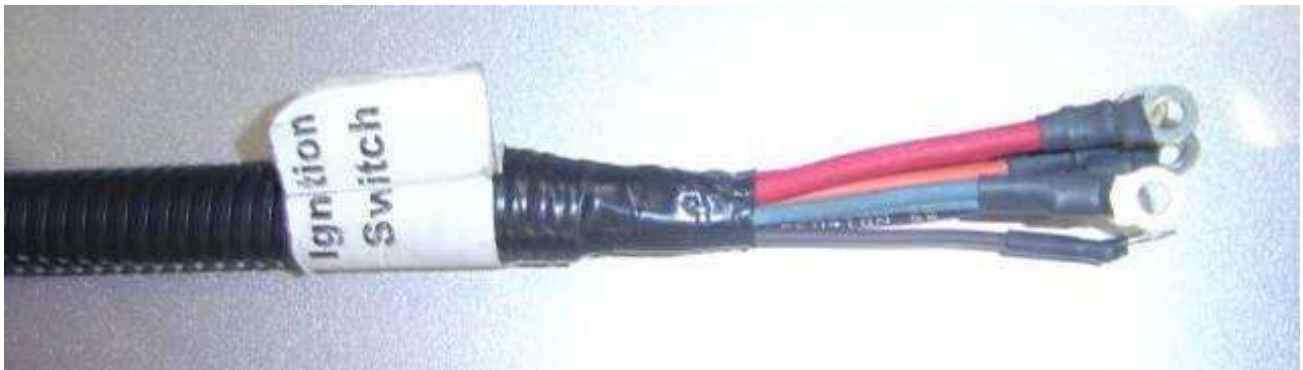


Install the female spade connector which is connected to the black wire (ground) onto the male spade connector on the side of the headlight switch.

IGNITION SWITCH WIRING



If you are using a one wire alternator with the chassis harness, the brown Alternator ignition power wire is not necessary.



Locate the ignition switch wires and make the following connections to the ignition switch itself.

Ignition wiring

BAT	RED-HDLT SW 1 FEED RED-IGN SW>SOL
ACC	BRN-ACC FEED >IGN SW BRN-ALTERNATOR IGN
START	LT BLU-EFI CRANK LT BLU-IGN SW>NS SW
IGNITION	ORD-IGN FEED>IGN SW



After you connect the wires to the correct terminals tape over the backside of the casing with electrical tape to prevent electrical shorts.

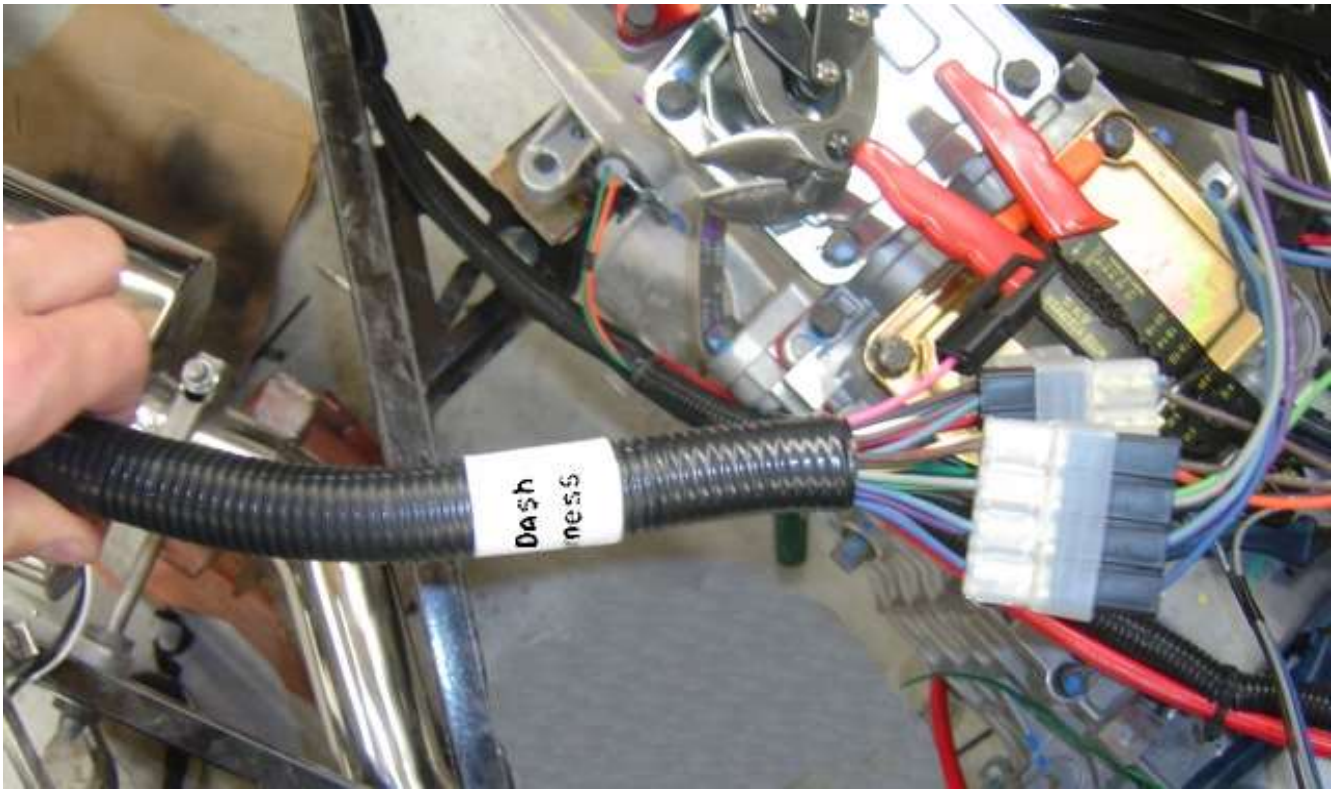
UNDER DASH LIGHTING



Install the under-dash lights on the frame as desired according to the wiring harness instructions.

STEERING COLUMN WIRING

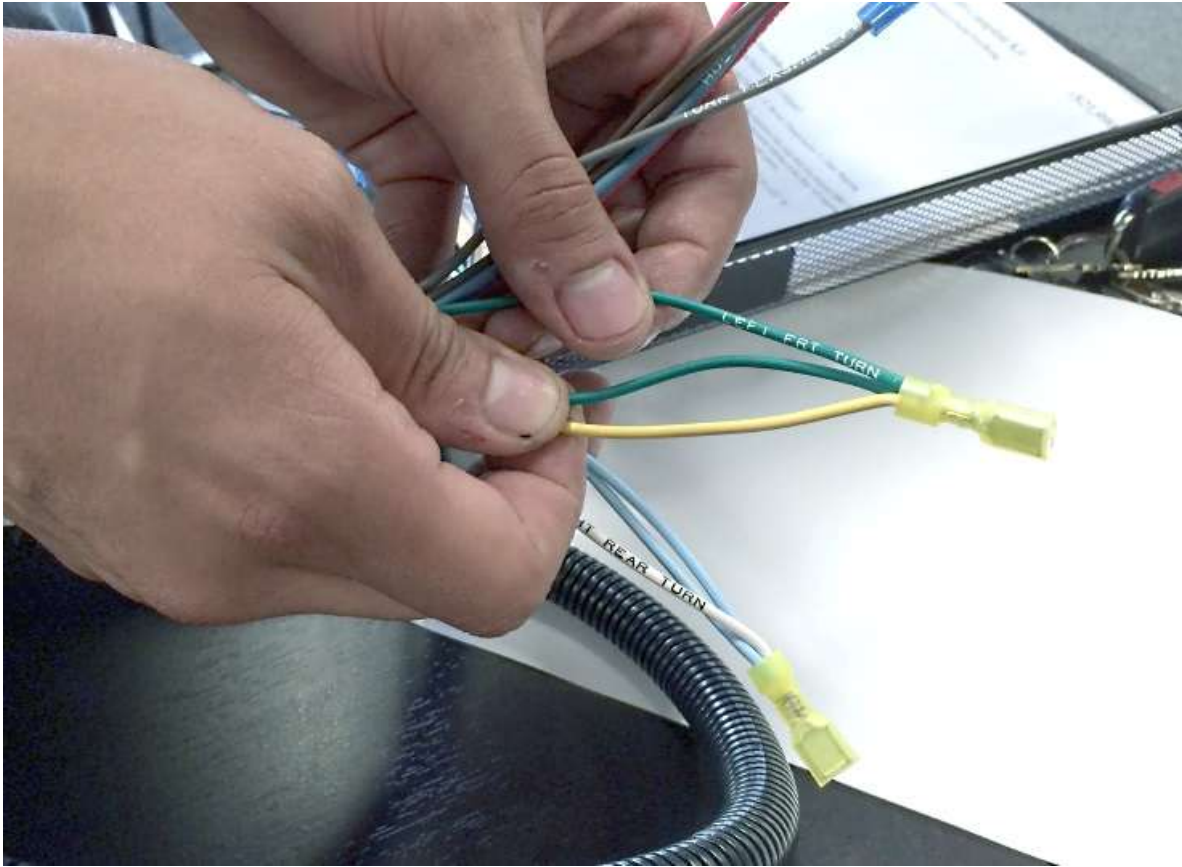
Plug the steering column into the chassis harness plug.



Locate the dash harness section of the chassis harness.


Cut the horn wire back and tape the end so that it will not ground out and make the horn go off once they are connected.

Cut the (pink) hazard wire back and tape the end so that it will not ground out and pop the brake fuse.








Cut the yellow and white rear turn signal light wires off the turn signal connectors that are for the dash turn signal switch so that the turn signal lights do not back feed and light the front turn signals when the brakes are pressed.

ALTERNATOR

 The brown wire is only used on alternators needing a trigger for the charging circuit. Run the alternator wires along the top of the engine to the alternator.

Using a **one-wire** or coyote Alternator, attach the ring connector to the post on the alternator. The brown wire is not used.


FAN THERMOSTAT SWITCH

-  Teflon tape, $\frac{11}{16}$ " wrench
-  Cooling components, front grill
-  The kit includes a thermostat grounding switch that will ground the fan relay when the temperature reaches 185°F and turn the fan on.
-  The thermostat switch can be mounted in the engine if running a carbureted engine.
-  If running EFI, the computer usually controls the fan so see your EFI instructions.

Wrap the thermostat threads with Teflon tape.

Insert the electric fan thermostat switch in the engine and carefully tighten the thermostat switch.

Battery

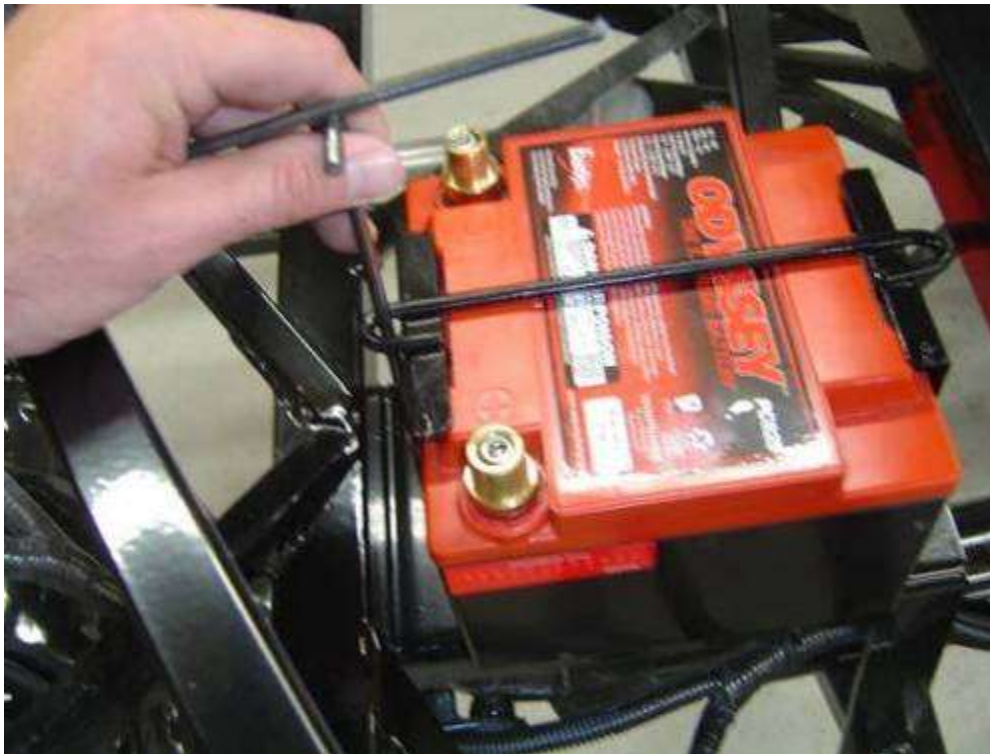
-  Drill, $\frac{1}{4}$ " drill bit, $\frac{7}{16}$ " deep socket, ratchet, hack saw, hammer, vise, marker, ruler.



Battery installation components



Install the battery on the platform centered behind the rear bulkhead of the cockpit. We recommend the Odyssey PC925 dry cell or similar.



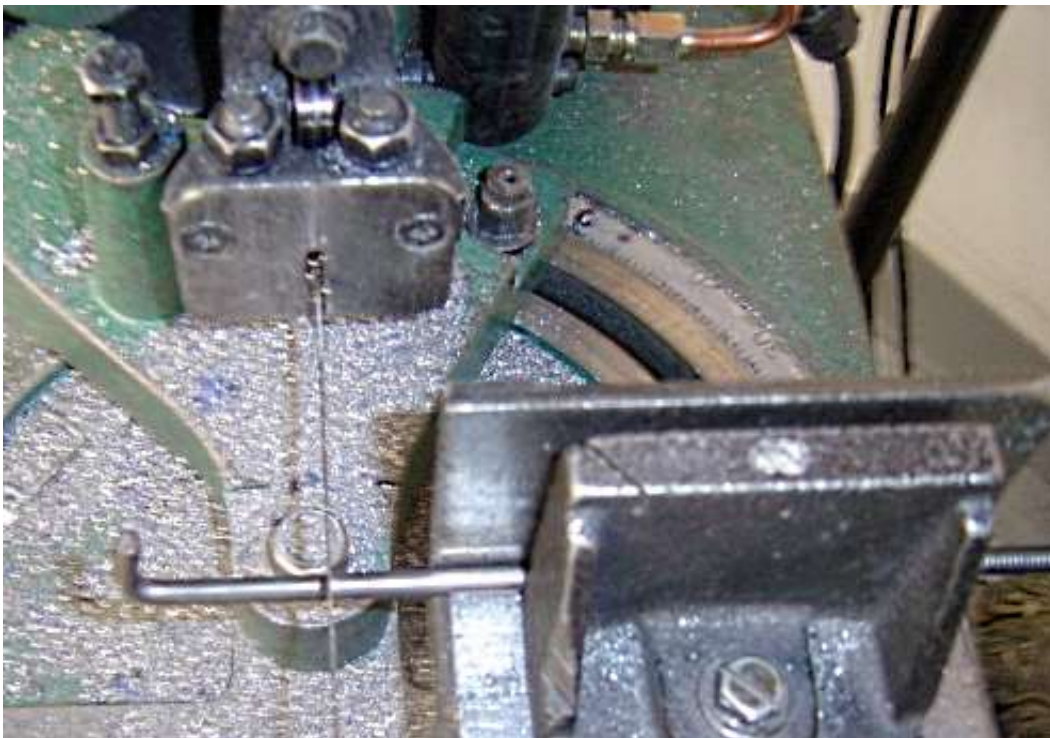
The battery is held in place with the center mount cross bar hold down and the J-bolts. Mock up these items on the battery tray and mark where the mounting surface so that the J-bolts can pass through it.



Remove the battery and drill the holes for the J-bolts to pass through.

Install the battery and mount it in place with the J-bolts. Pass the looped section through the frame and then use the supplied nuts and washers on the top to fasten the center mount cross bar hold down to the battery.

Attach the chassis side of the ground strap onto the chassis with the supplied $\frac{5}{16}$ " button head fasteners.



Depending on the battery choice, you may have to shorten the J-bolts. Shorten them from the "J" side.



Place the J-bolt in a vise with approximately 1" of the shaft sticking above the jaws of the vise. Using a hammer, form a new "J" in the J-bolt.

POSITIVE CABLE



Run the cable down the right side of the transmission to the starter.



Attach the battery cable forward and to the battery post on the starter.

Beginning at the starter, leave a little slack then use zip ties or the $\frac{5}{8}$ " insulated line clips to hold the cable in place.

Leave some cable next to the battery so it can be disconnected.

If there is extra cable loop it over the rear driveshaft loop and attach it to the frame.

NEGATIVE CABLE



Grind the paint or powder coat so that the ground cable has a good connection to the chassis.

Attach the ground strap to the chassis with the supplied $\frac{5}{16}$ " button head screw, locknut, $\frac{3}{16}$ " hex key and $\frac{1}{2}$ " socket.

🖐 Do not connect the negative lead to the battery until all of the wiring on the vehicle is finished.

Horns

- 🔧 14mm wrench, wire cutters, wire crimpers, $\frac{5}{32}$ " hex key
- 🚗 Hot Rod Electrical system components



There are a couple of possible locations to mount the Horns. If you plan on running the car without the engine side covers, a hidden location is between the front shocks.



The other location is the side body mount which is described in the following instructions. The wires are long enough to reach either location.



Attach one horn to the included bracket using one of the 14mm lock washers and nuts included. Note the orientation of the wire connectors when tightening the bracket so that it will be correct when installed. The flat horn outlet is pointed right.



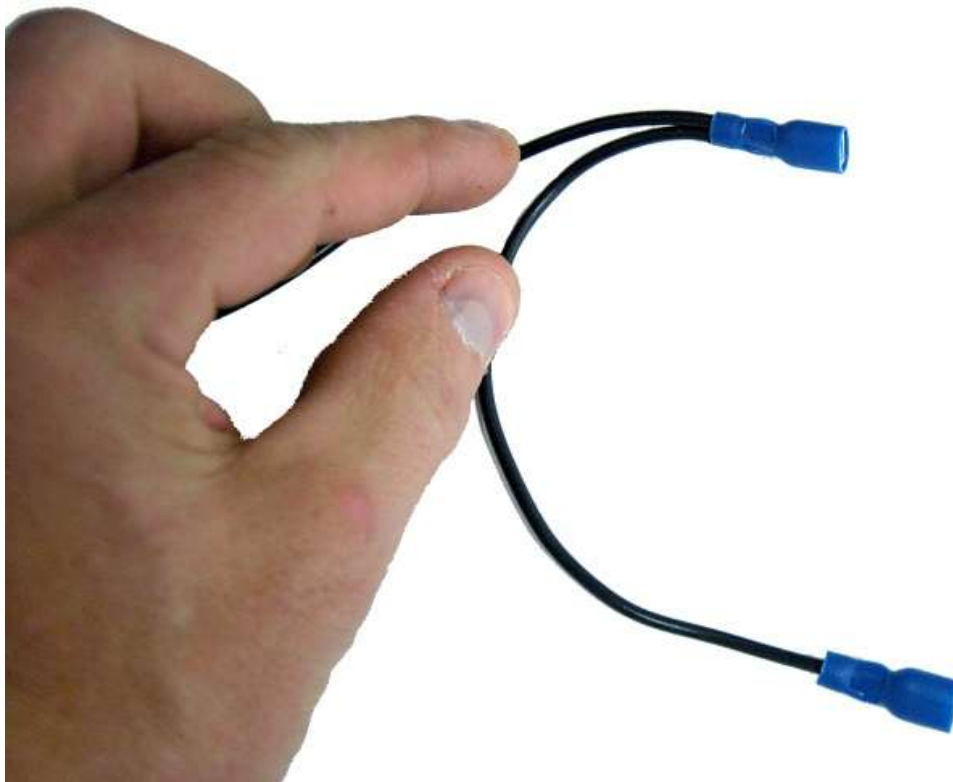
Mounting brackets on the horns



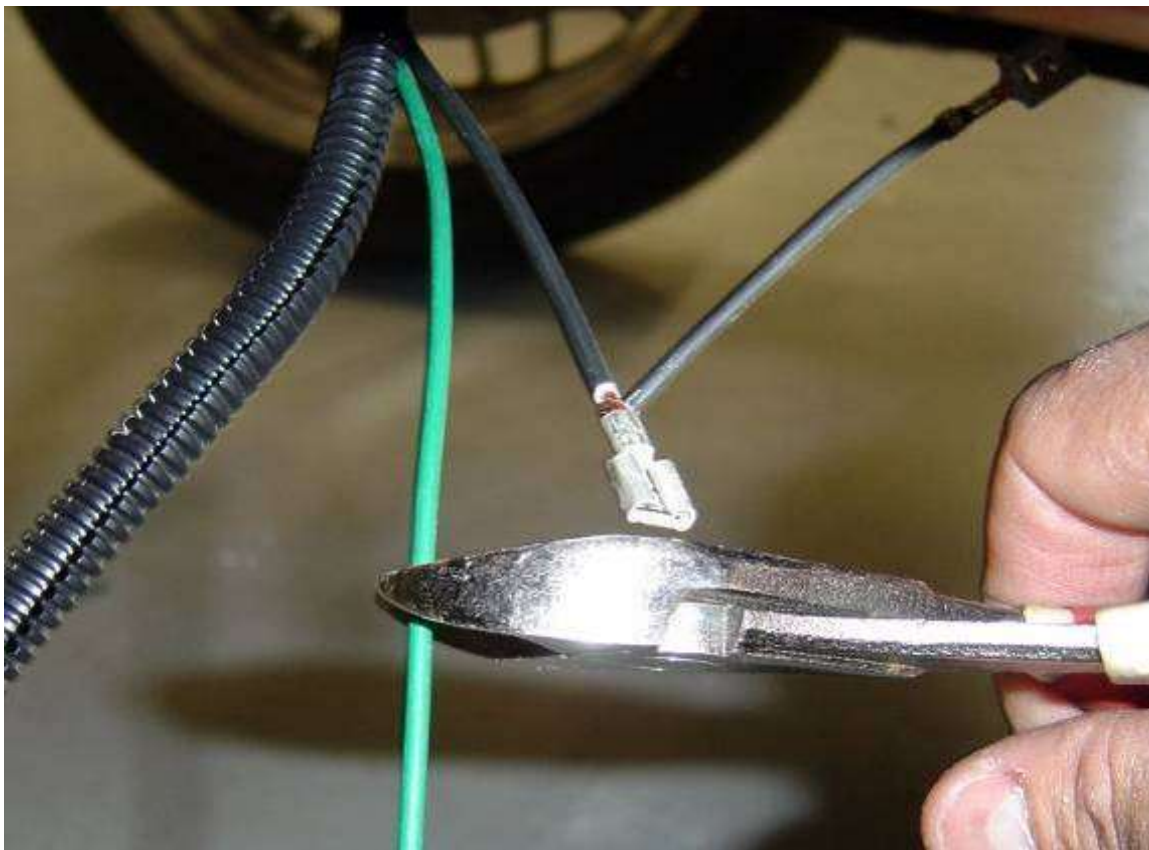
Holding the horns, the connectors should be spaced so that the wires will not hit each other.



Cut 2" off the end of the chassis harness horn ground wire and strip the end of the chassis harness ground wire.



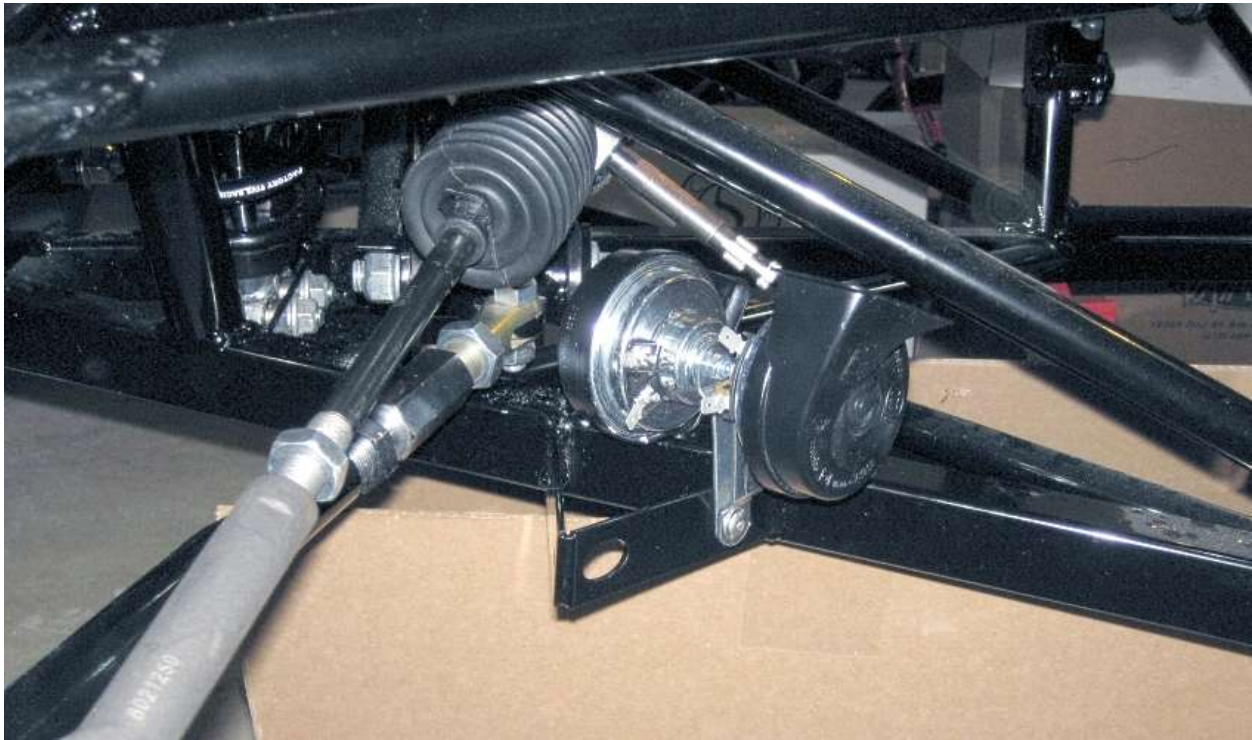
Twist the chassis harness ground wire and small wire ground together and insert them into one of the ¼" female connectors included then crimp the connector on.



Cut the same 2" off the green horn power wire and strip the ends of both wires.

Twist the chassis harness green wire and small wire ground together and insert them into one of the ¼" female connectors included with the horns then crimp the connector on.

Attach the chassis harness horn wires to one horn and push the jumper wires on to the other horn. Either connector on the horn will work.



Attach the two horns to the backside of the side body mount behind the driver side front wheel using the supplied 1/4" bolt.

TROUBLESHOOTING

Some of the areas that can cause problems are:

Inertia Switch – This switch can cause a “no start” problem. Make sure that the button is pushed down.

Wire connections – Tape connections are not recommended. The best connection is a soldered connection that has heat shrink tubing over it. If this is not possible, a well crimped connector is recommended.

Grounds – Make sure that the ground wires are connected to clean bare metal surfaces. Battery grounds must be attached to the battery. Make sure there is a ground from the engine block to the frame.

If a radio is being used connect the power wires to the radio.

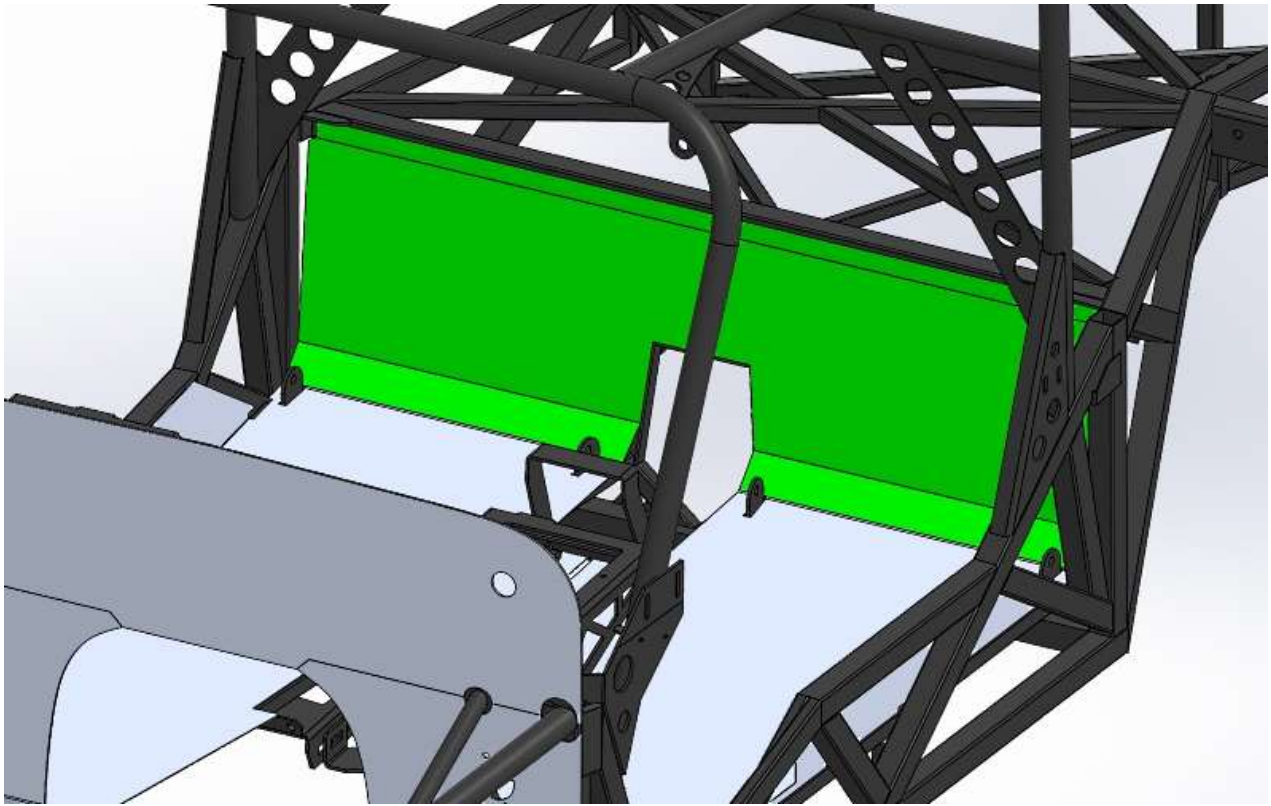
If a heater or wiper system is being used, connect the wires using the instructions from that option.

Chapter 3 - Interior

Interior Aluminum

✂ Drill, 1/8" drill bit, rivet tool, silicone, silicone gun

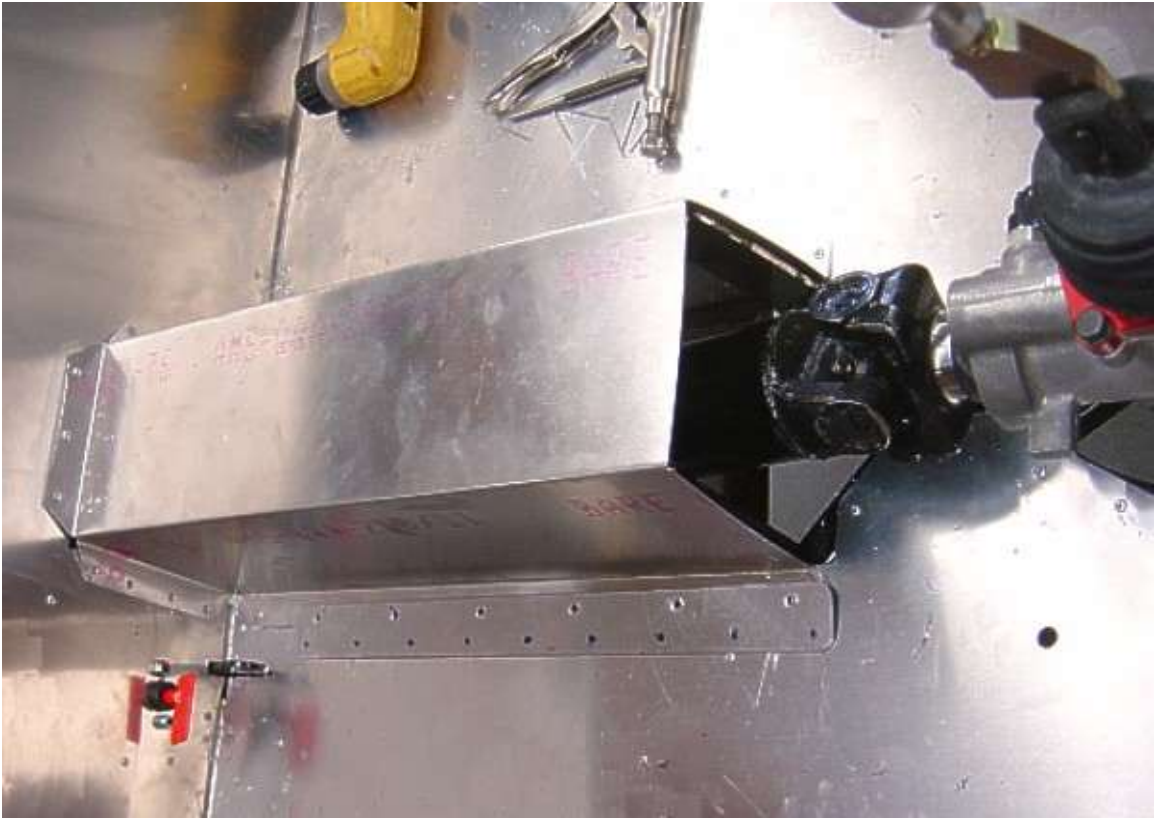
🚗 Packaged aluminum, Mounted aluminum, Secondary body fasteners



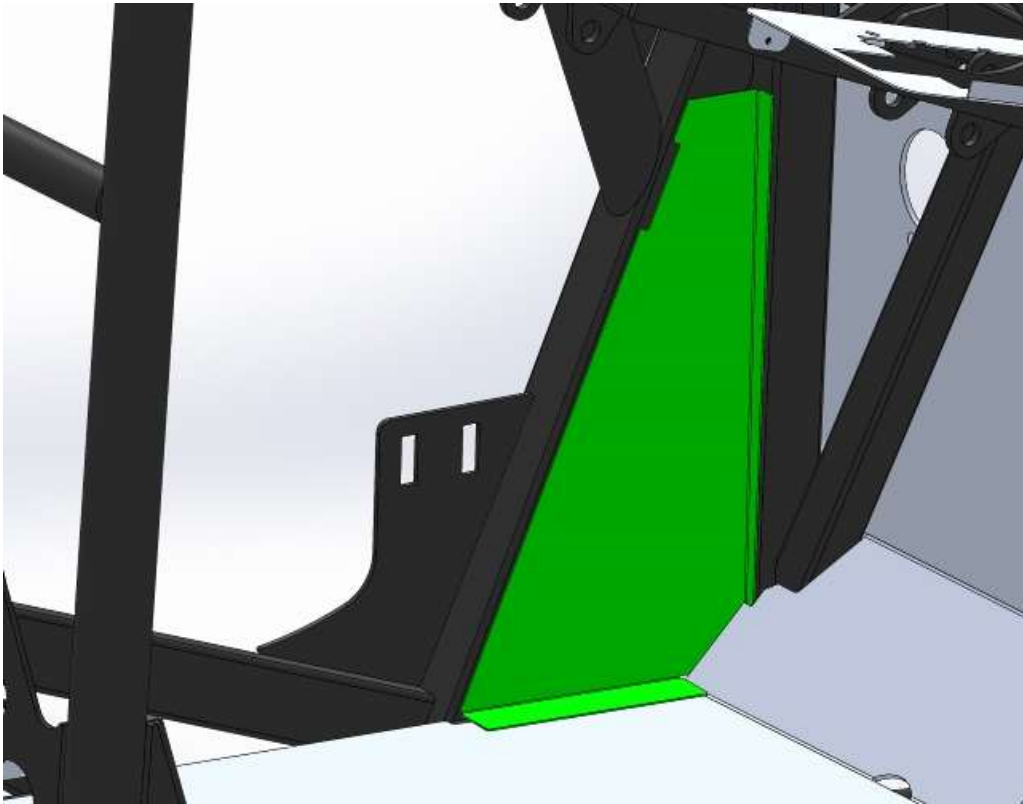
Drill and rivet the rear cockpit wall piece of aluminum on top of the floor rear lip.



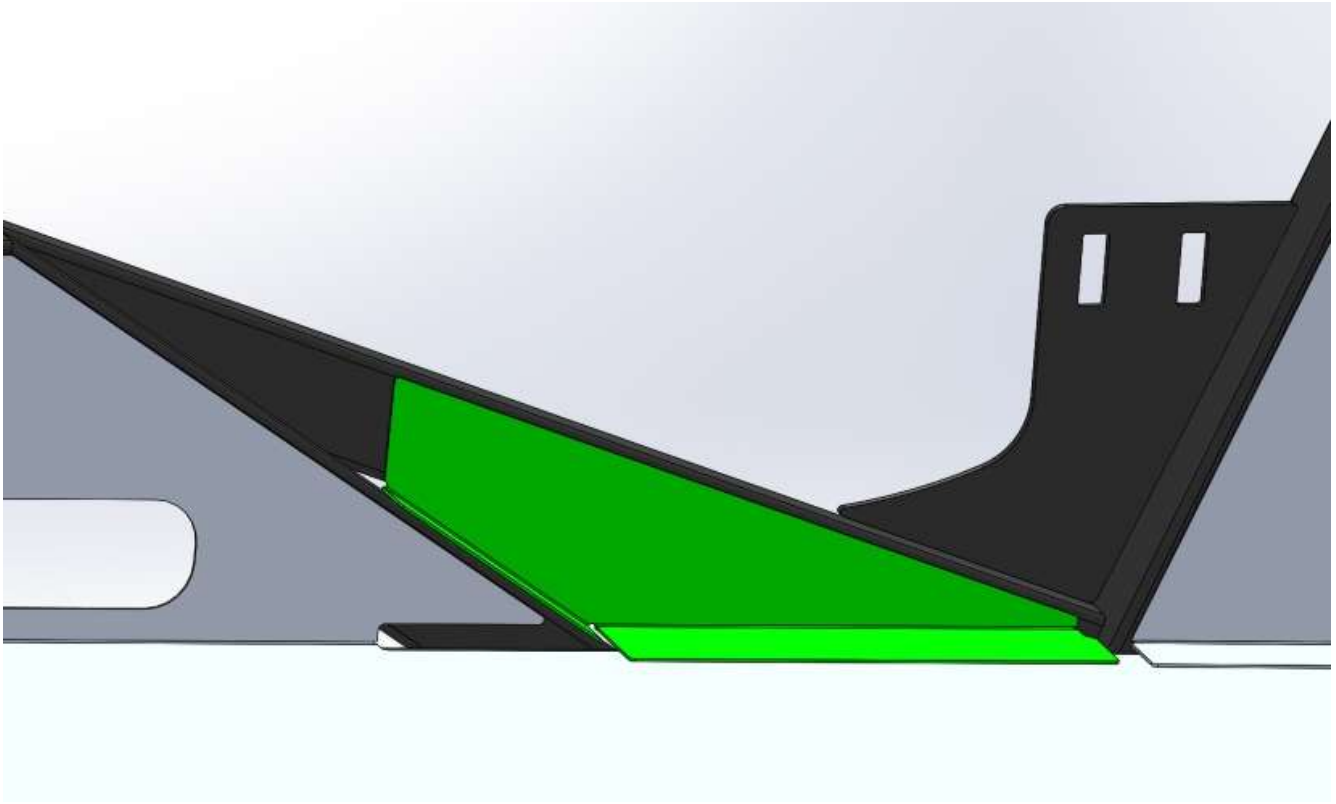
Install the patch panel on the left side floor if not using a hood hinge release cable or this location.



Install the drive shaft cover piece of aluminum.





Silicone, drill and rivet the front outside corner panel to the frame and floor.

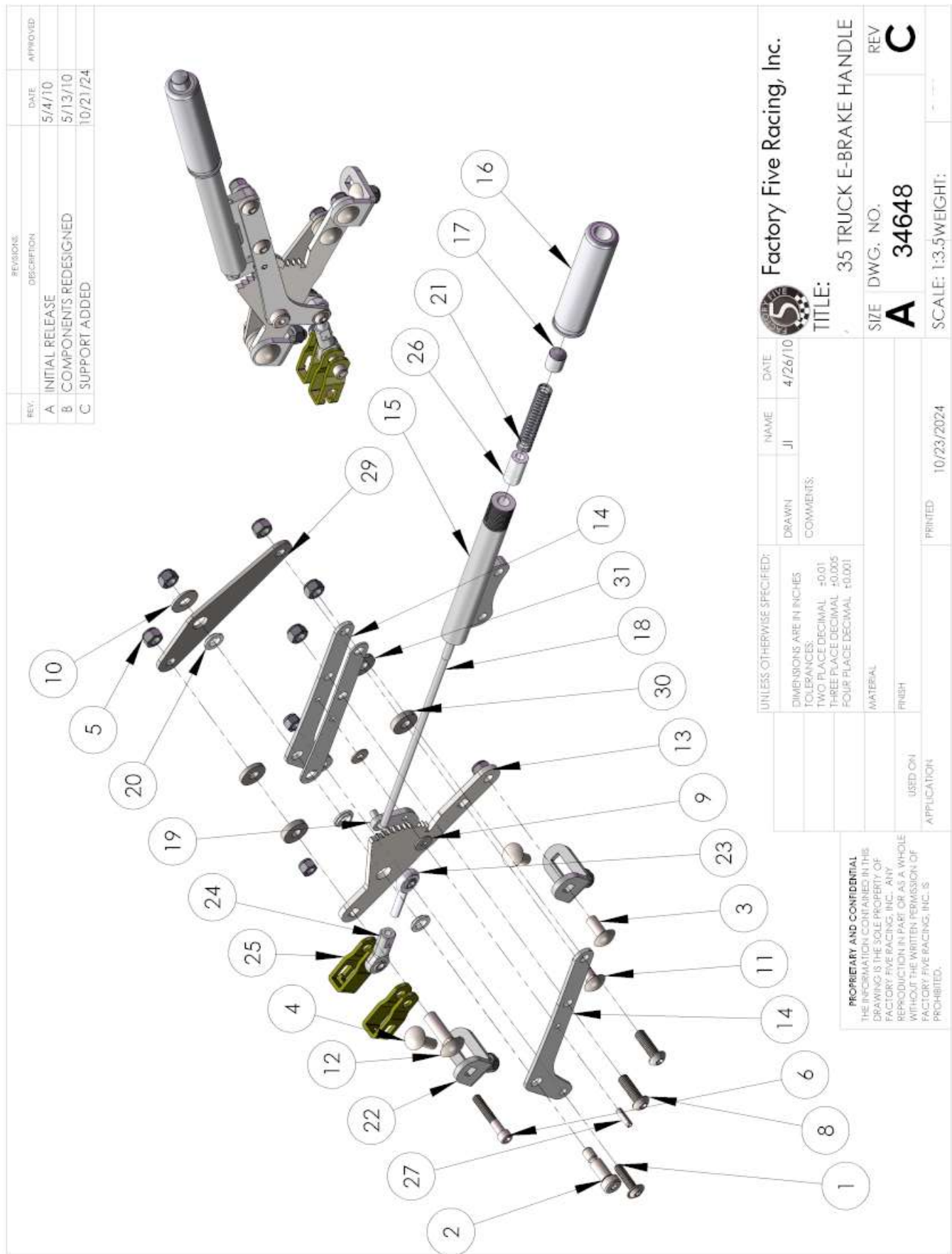


Silicone, drill and rivet the under-door aluminum wedge panel to the frame and floor.

E-brake Handle

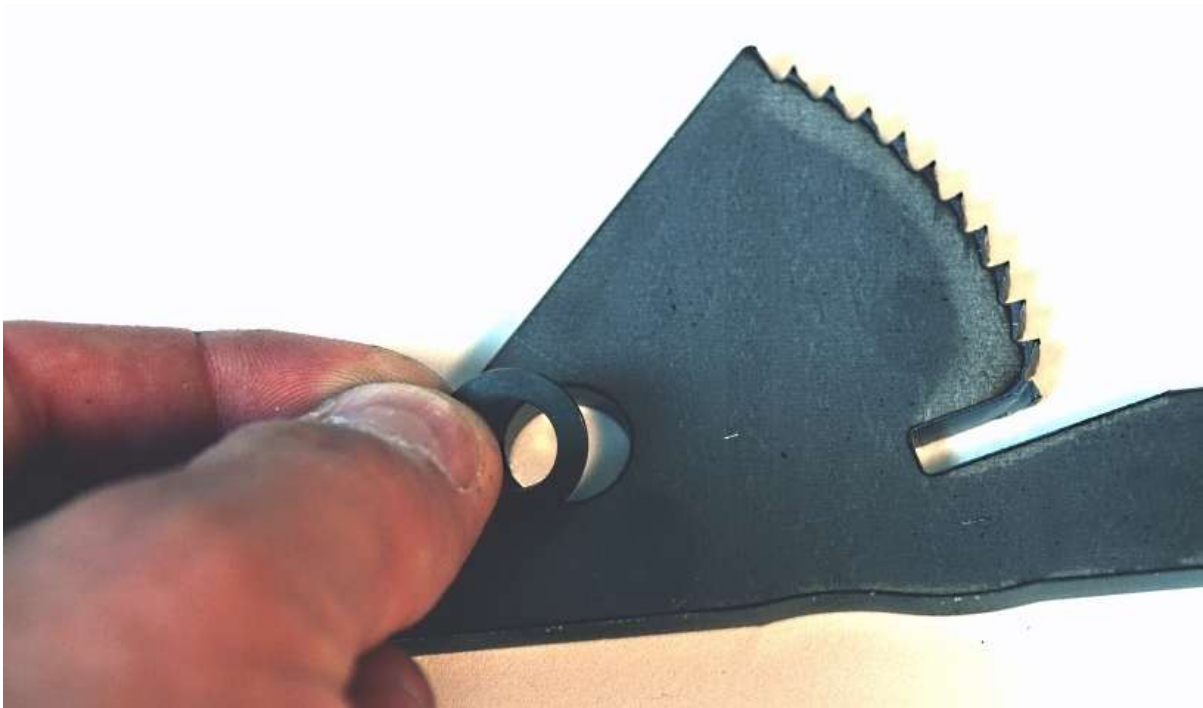
ASSEMBLY

-  $\frac{5}{32}$ ", $\frac{3}{16}$ " hex keys, $\frac{7}{16}$ ", $\frac{1}{2}$ " wrenches, channel lock pliers, WD-40
-  E-brake handle components.



ITEM NO.	PART NO	DESCRIPTION	QTY.
1	25461	1/4" x 1"	1
2	17737	3/4" LONG SHOULDER BOLT	1
3	25562	5/16" x 3/4" CARRIAGE BOLT	2
4	15392	5/16" x 1" CARRIAGE BOLT	1
5	13963	5/16" NYLON INSERT LOCKNUT	8
6	12336	1/4" x 1.5" SOCKET HEAD	1
7	10802	1/4" NYLON INSERT LOCKNUT	2
8	11024	5/16" x 1" BUTTON HEAD	2
9	10635	#10 WASHER	2
10	11005	5/16" WASHER	1
11	15392	5/16" x 1" CARRIAGE BOLT	1
12	35289	5/16" x 1.25" CARRIAGE BOLT	1
13	15167	FIXED GEAR	1
14	15168	HANDLE TO RATCHET MOUNT	2
15	15176	LOWER HANDLE ASSEMBLY	1
16	15173	HANDLE GRIP	1
17	15174	E-BRAKE BUTTON	1
18	15166	ANCHOR BOLT, 1/4" x 10"	1
19	15169	RATCHET TOOTH	1
20	15165	NYLON BUSHING	3
21	15179	COMPRESSION SPRING	1
22	15170	MOUNT BRACKET	2
23	15177	1/4" MALE ROD END	1
24	15180	1/4" FEMALE ROD END	1
25	15181	E-BRAKE CABLE CLEVIS	2
26	15182	0.50" OD x 0.25" ID x 1" NYLON SPACER	1
27	15178	3/16" x 0.625" SPRING PIN	1
28	15168	HANDLE TO RATCHET MOUNT	1
29	17736	HANDLE SUPPORT	1
30	17734	3/16" THK SPACER	2
31	17735	1/8" THK SPACER	2

Unpack the emergency brake handle components.



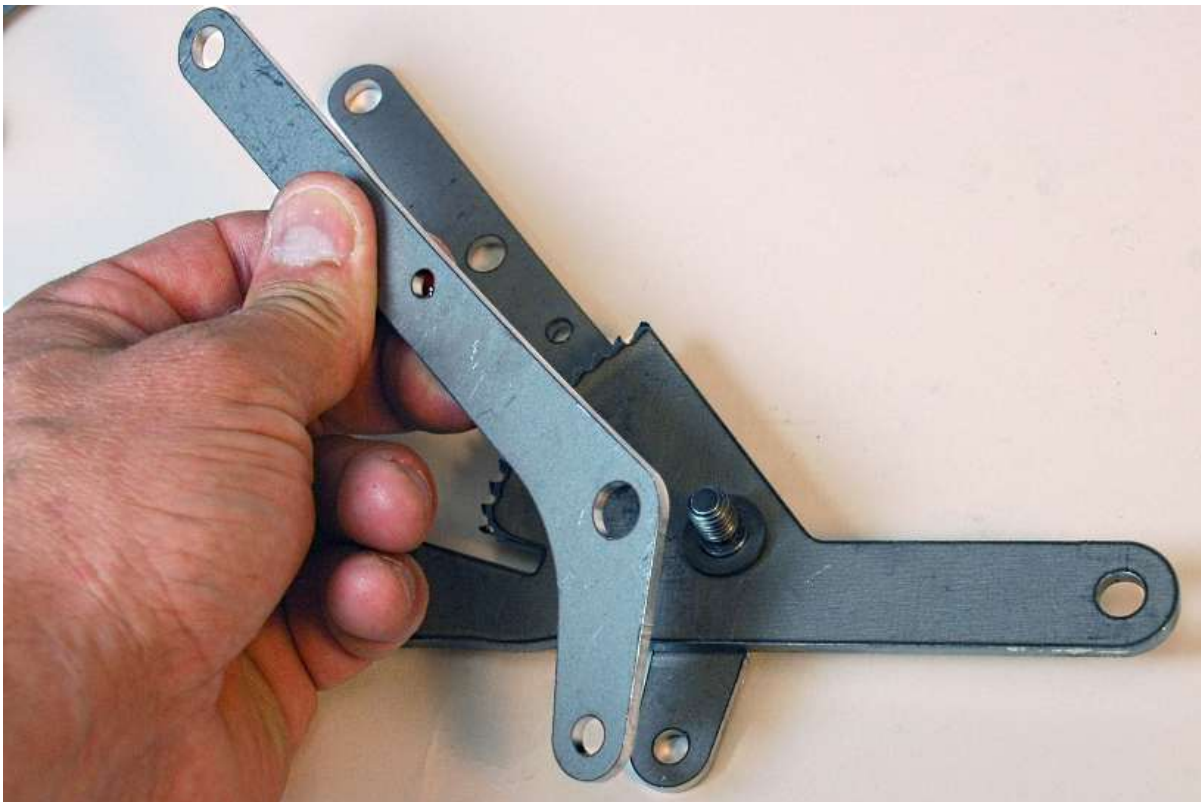
Push a nylon bushing into one side of the fixed gear.



Push the other bushing into the other side of the fixed gear.



From the right side of one of the Handle to ratchet mounts, insert the shoulder bolt through the ratchet mount and then the fixed gear.



Put the other ratchet to handle mount on shoulder bolt from the other side of the fixed gear.



Using a $\frac{3}{16}$ " hex key and $\frac{1}{2}$ " wrench, tighten the shoulder bolt lock nut so that the ratchet to handle mount plates are against the bushings but they can still move up and down. Make sure the ratchet to handle mount plate next to the locknut does not get caught on the edge of the shoulder bolt.



Slide the lower handle between the ratchet to handle mount plates and bolt the three pieces together using the two $\frac{5}{16}$ "x 1" button head screws as shown above. The bolt heads should be on the right so there is more clearance against the transmission tunnel.



Put the ratchet tooth on the long anchor bolt as shown in the picture.



Rotate the fixed gear out of the way and pass the anchor bolt up through the lower handle.



Rotate the ratchet tooth between the handle to ratchet mount plates and align the mount holes.



Push the included spring pin through the ratchet mount plates and the ratchet tooth using a pair of channel lock pliers.



Slide the 1" nylon spacer onto the end of the anchor bolt.

There are two nylon spacers included. They provide preload on the spring so there is more force holding the ratchet tooth to the fixed gear and making the release button harder to push. Try using the 1" long spacer first. After the handle is assembled, try the handle and if desired the other ½" spacer can be added.



Spray a little WD-40 on the lower handle threads and screw the upper handle onto the lower handle.



Insert the spring into the upper handle over the anchor bolt.



Screw the button onto the end of the anchor bolt.



Screw the male and female rod ends together.



Use a wrench to spread the ears of the ratchet to handle mounts so that the rod end can just slide between them.



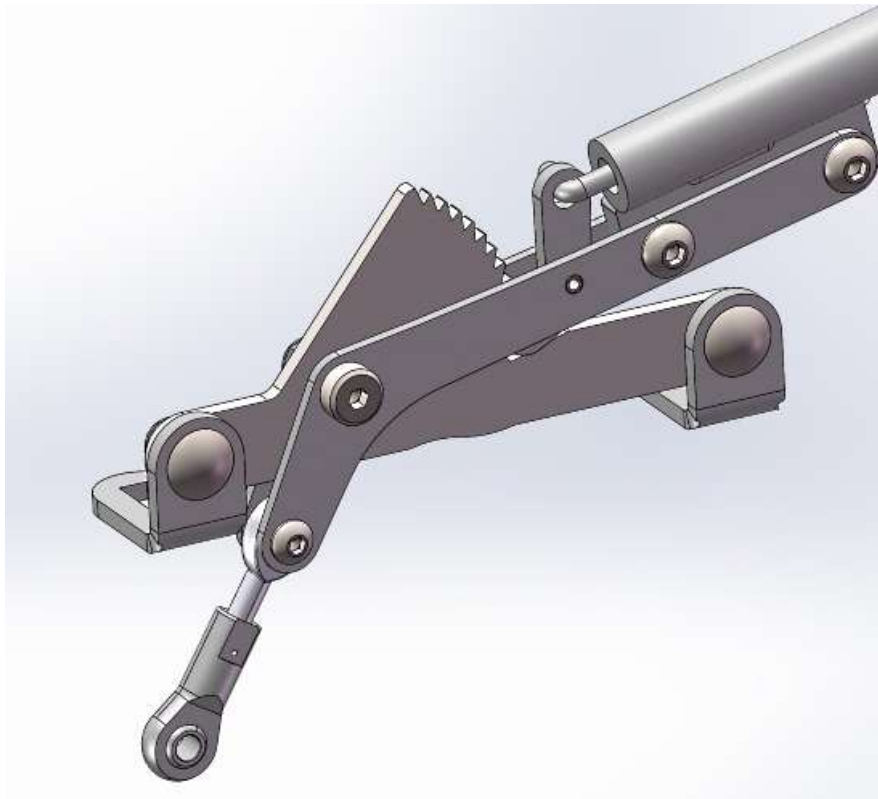
Slide the male rod end between the ratchet to handle mount plates and attach it using the 1/4" flange head bolt and locknut.



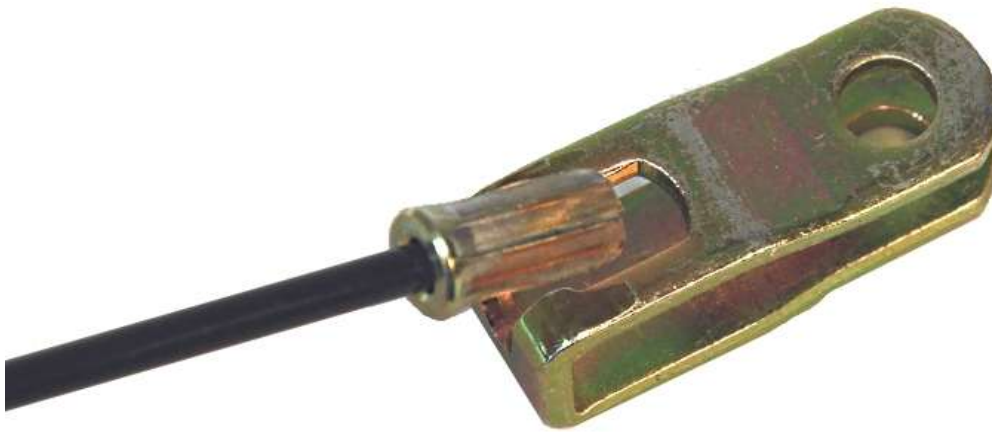
Insert a $\frac{5}{16}$ " carriage bolt into one of the bent mount brackets so the square shoulder is in the square hole.



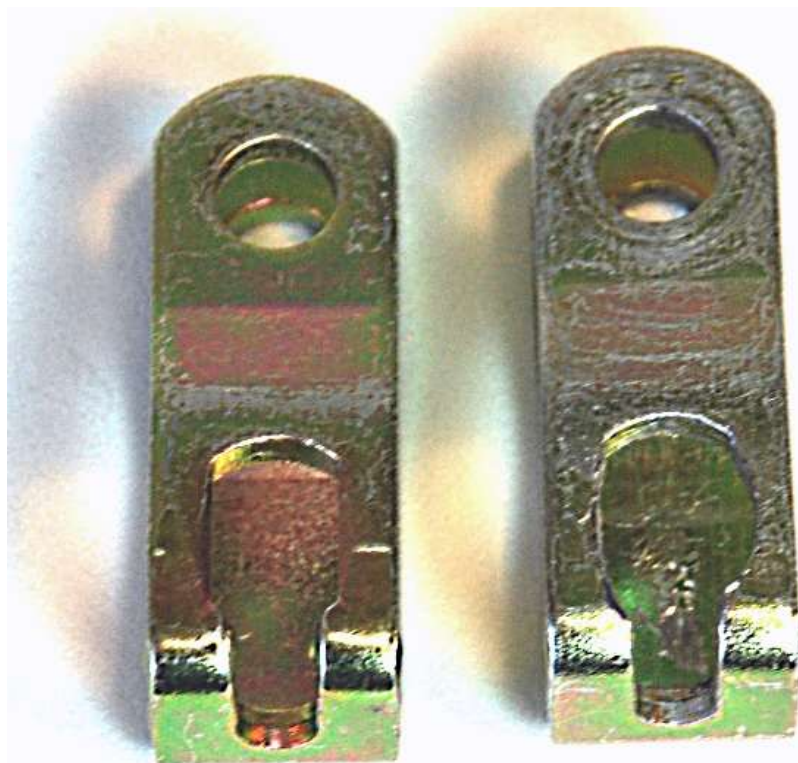
Attach the mount bracket to the front fixed gear using a 1/2" wrench. Leave the locknut slightly loose so positioning can be done on the frame later.



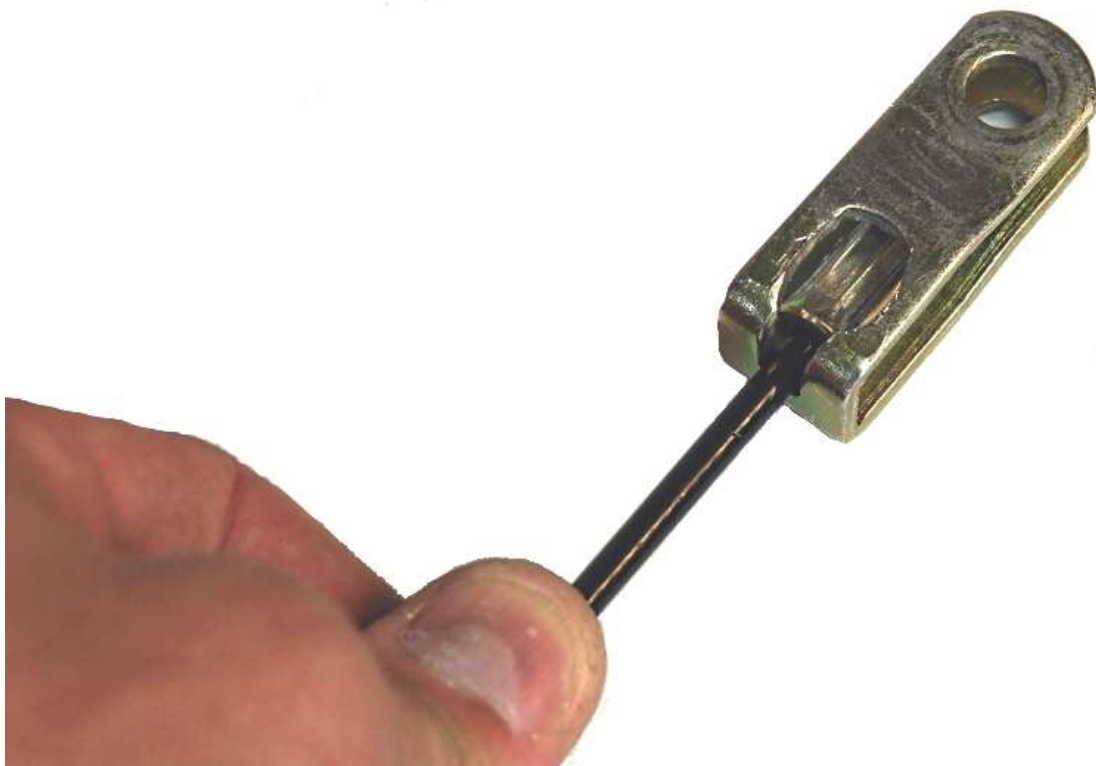
Attach the rear mount bracket to the handle using a 1/2" wrench. Leave the locknut slightly loose.



Check the fit of the emergency brake cable end in the brake cable clevis.

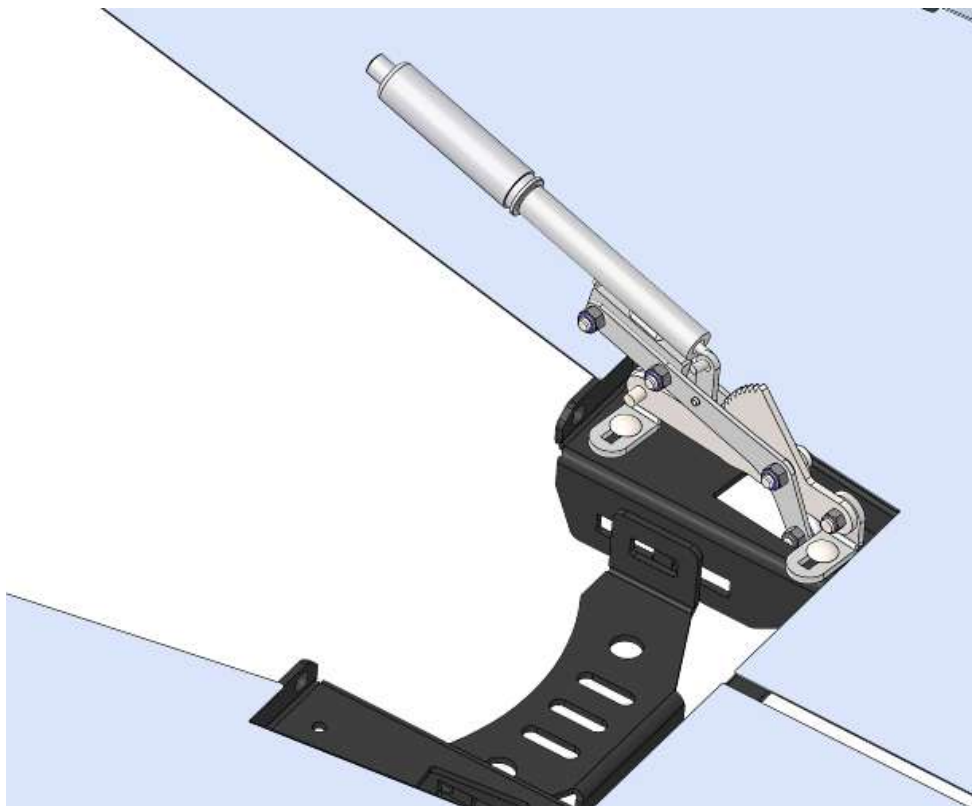


If necessary, use a drill bit and drill or a Dremel tool to open up the slot slightly.

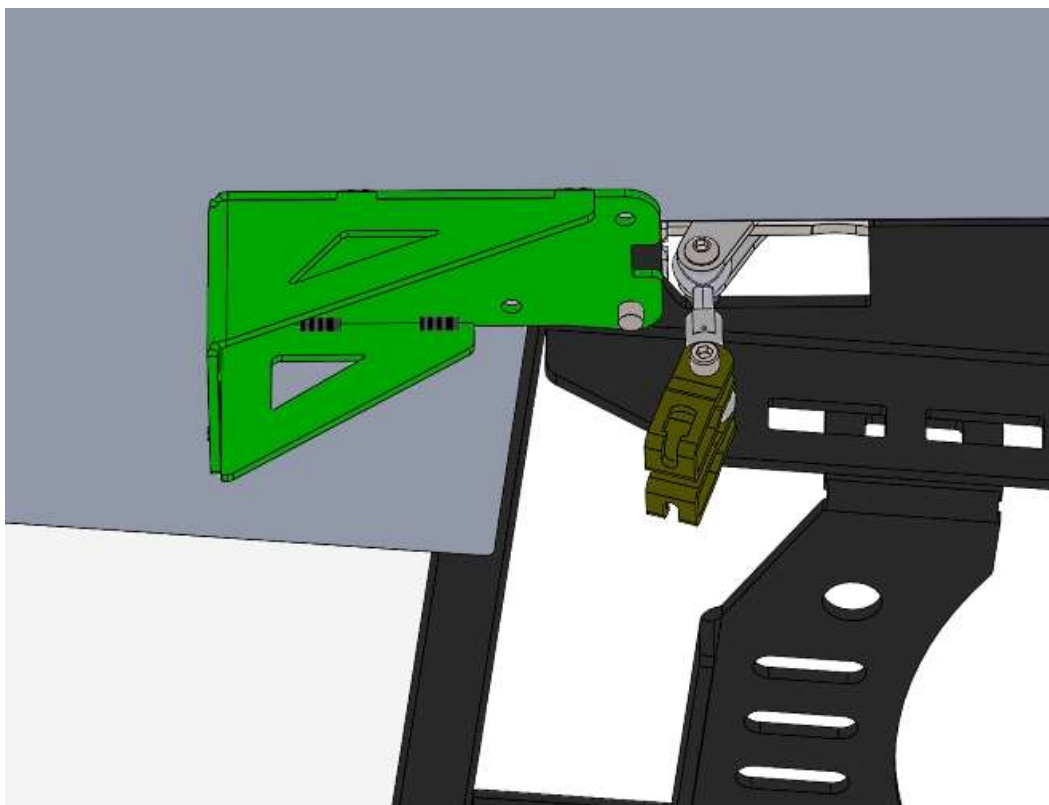


Facing the cable slots towards each other, attach one of the cable clevises to each side of the female rod end using the 1/4"x 1.50" socket head bolt and locknut. Just start the nut for now, do not tighten it.

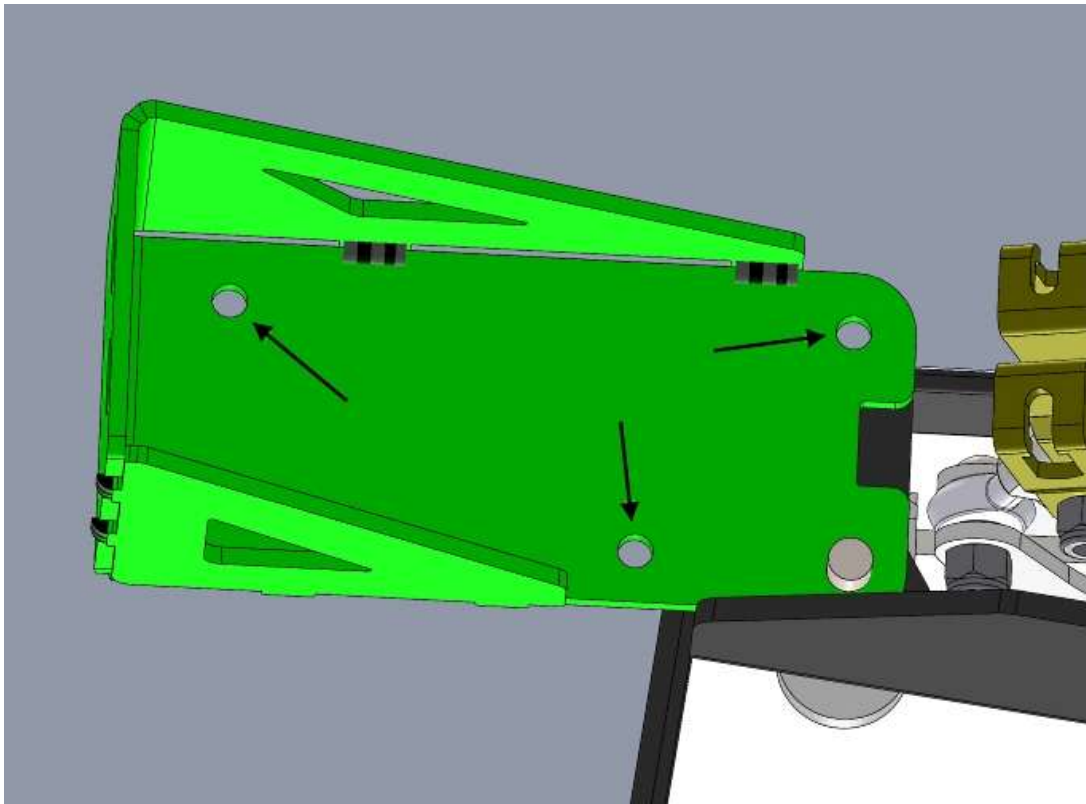
HANDLE MOUNTING AND CABLE MOUNT



Place the handle on the right-side transmission mount using the $\frac{5}{16}$ " x $\frac{3}{4}$ " carriage bolts. Only put the front locknut on.



On the underside of the frame put the cable mount on the rear handle bolt, align the front edge of the mount with the frame bracket so they are parallel then tighten the locknuts on the carriage bolts with a $\frac{1}{2}$ " socket.



Use a $\frac{5}{16}$ " nut driver to screw the #10 x 1" screws through the floor aluminum into the frame steel.

With the handle down, position the handle so that your hand can go around the grip and not hit the transmission tunnel while keeping it close to the tunnel so that it will not hit the seat.

CABLES

👉 Your E-brake cables should be from the same car as your rear brakes.

For FFR cables, route them through the cable mount bracket holes until the sheath end clicks in place.



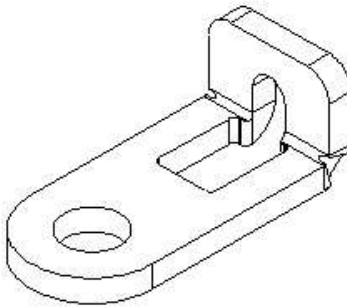
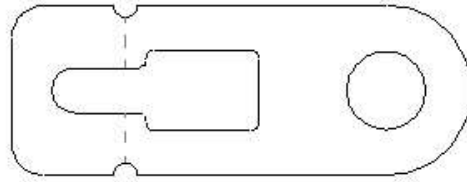
Route the brake cables over the Panhard mount if using a 3-link



Make sure your routing is out of the way of any moving parts and the cable has slack to move with the axle. Two possible ways are shown below, either in front of the rear shock or through the lower hole in the traction lock bracket.

Attach the brake cable to the brake caliper.

Wilwood e-brake adapter



WILWOOD CALIPER E-BRAKE ADAPTER



Insert the cable end into the bent bracket then bolt the bracket to the e-brake lever.

Wilwood brake routing

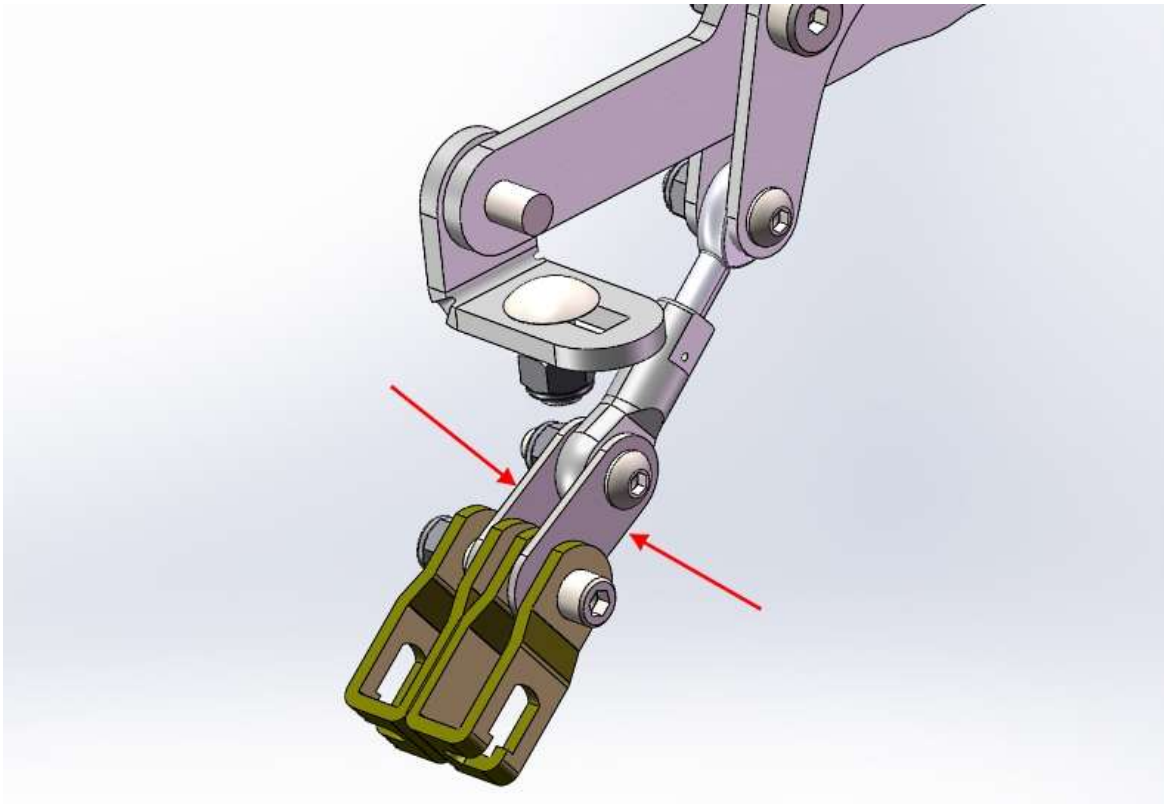


Run the left e-brake cable over the top of the center section and left rear mount then down and over to the brake caliper.



Run the right cable over the center section and right rear mount then down and over to the brake caliper.

ADJUSTMENT



If using Wilwood brakes attach the two spacer brackets included with the brakes between the clevises and rod end.

Remove the cable clevises from the rod end and attach them to the cable ends.



Adjust the rod end so that the 1/4" bolt goes through the rod end and both clevises and the cable is tight.



Put the locknut back on the 1/4" bolt hand tight.

Slowly pull up on the handle to set the brake pads and remove any slack from the brake cables.



Release the brake and if necessary, remove the 1/4" clevis bolt and readjust the rod end so that the cable is tight.



Reinstall the clevises and 1/4" bolt then tighten the bolt so that the clevis ends are closed, this will prevent the cable ends from coming out.

Pull the handle up. If the bolt for the rod end hits frame, trim the frame slightly to clear.

Transmission Tunnel Cover

- ✂ Jig saw or air saw, 1/4" drill bit, drill, marker, masking tape, 1/4" hex drive bit, silicone, sanding tool, measuring tape, clamps.
- 🚗 Mounted aluminum/components, body finish components, shifter boot components
- 👤 The pictures shown are of the older tunnel but the process is similar.
- 👤 The transmission tunnel is designed to be adjustable to allow maximum foot room for every engine/transmission combination.
- 👤 The tunnel sits on the aluminum floors and forward against the front of the footboxes and the 1.5" square bulkhead cross member.
- 👤 Depending on the thickness of the fiberglass, you may have to sand the rear inside of the tunnel to allow it to sit flat on top of the drive shaft loop/aluminum.



Insert the fiberglass transmission tunnel into the cockpit.

Look at the bellhousing to tunnel clearance. It is advisable to have at least 1/2" clearance between the bellhousing and the tunnel to allow the engine to torque under acceleration without hitting.

Check both sides of the engine to ensure clearance.

If there is a lot more clearance, remove the transmission tunnel.



Cut the middle area fiberglass holding the two sides of the transmission tunnel together at the front the same amount measured before.

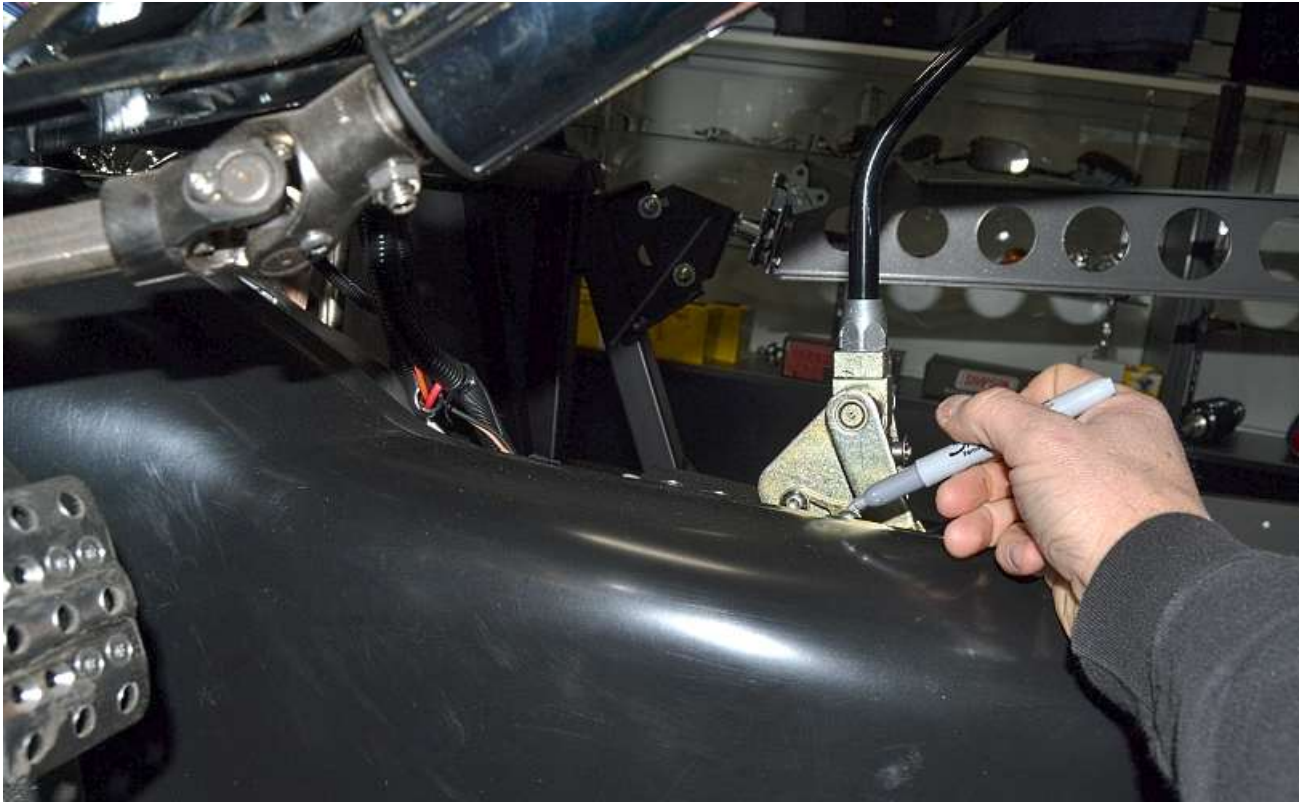
Place the tunnel in the cockpit and push the sides in until there is $\frac{1}{2}$ " clearance to the bellhousing and mark the floor so it can get put back in the same place.

Mark the front cut area so that the sides butt against each other when the sides are in the correct place, tape the piece together.

Check the clearance for the emergency brake handle.

If necessary, remove and trim the transmission tunnel cover for the emergency brake handle.

Reposition the tunnel in the frame and mark the front cut area so that the parts butt against each other when the sides are in the correct place.



With the tunnel side positioned in the frame mark the center of the shifter handle location front to back.
Remove the transmission tunnel.



Cut the center of the transmission tunnel so that it sits down on the transmission tunnel flange.

SHIFTER HOLE

Mark the center cover where the center of the shifter is located.



Center the shifter boot ring over the point marked so that the mounting holes are front/back and on the sides.

Look at the amount of bend needed on the piece.



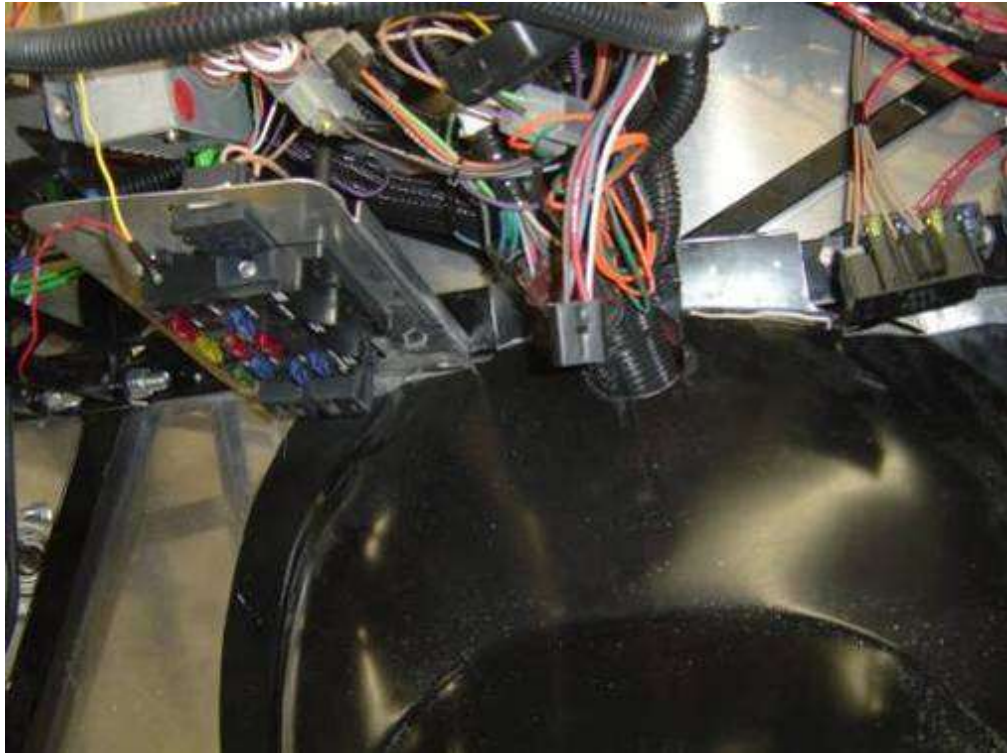
Move the ring to the back of the tunnel and push down on the sides of the ring so that the ring forms to the shape of the cover then move the ring forward to marked location and check the shape of the ring. Bend more if necessary.



Position the ring so it is centered on the shifter point and mark the inside of the ring on the tunnel cover.

Cut the area marked with a jigsaw.

Position the transmission tunnel cover on the frame.



Position the top center piece and mark where a slot needs to get cut in the front to pass the wires into the engine bay to run to the rear of the car.

Remove and cut the center piece for the wires.

Reinstall the center cover.

- ✎ The transmission cover will get fastened after the accelerator pedal is installed.
- ✎ The shifter ring will get installed after the carpet later.

Accelerator Pedal Positioning

- ✎ $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " wrenches, $\frac{5}{32}$ " hex key
- ✎ Accelerator pedal components, secondary body fasteners
- ✎ There are a few things to keep in mind when locating the accelerator pedal, foot clearance to the brake pedal, clearance to the transmission tunnel height to the ball of your foot and the location for drilling the accelerator cable hole in the firewall.



If running a Coyote engine or other drive-by-wire use the accelerator included with that control harness.

Set the seat on the floor.



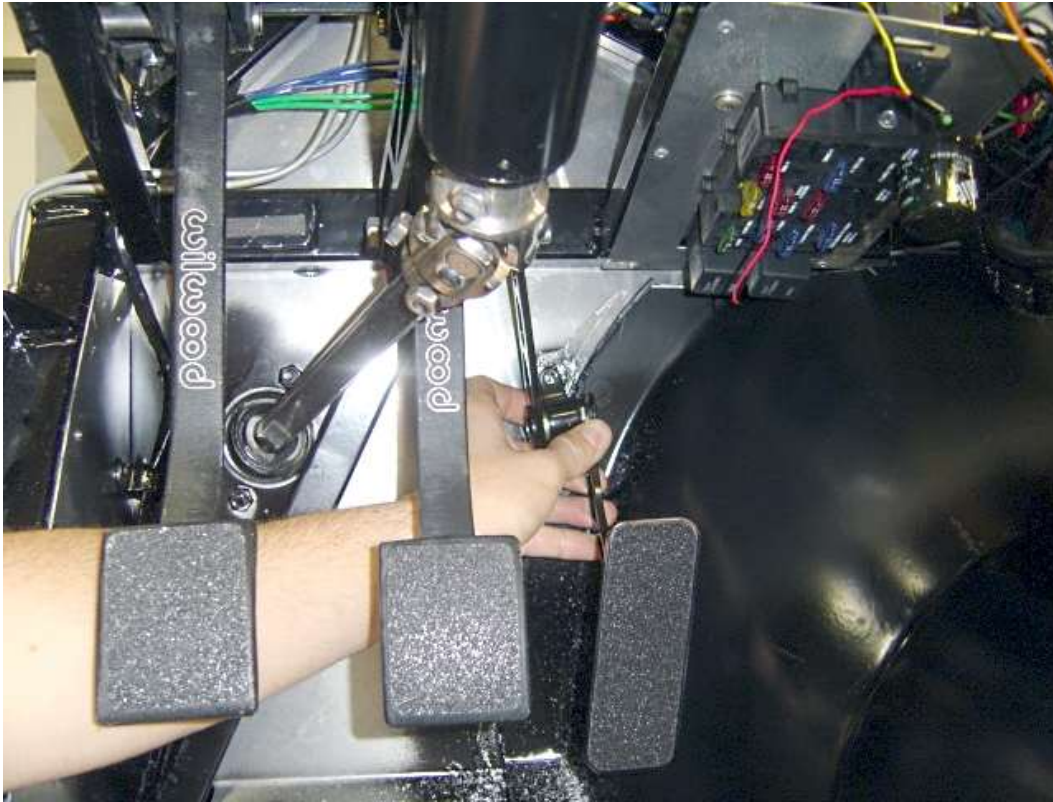
Unpack the throttle pedal and separate the lower arm from the center mount using the included hex key.



Roughly adjust the pedal as shown and reinstall the washer and screw. The pedal will get adjusted later after install.



Attach the ball stud to the top hole in the pedal using a $\frac{5}{16}$ " wrench and $\frac{3}{8}$ " socket.



Position the throttle pedal where it feels comfortable for you and mark the mounting holes on the aluminum.

Hold the Accelerator pedal in position and push the top up so that the top of the pedal is just below the 1.50" square tube.

Mark the firewall where the ball stud retainer is horizontal.

Check the front of the firewall that the location marked is not in the way of the engine head.

Drill ¼" throttle pedal holes in the front of the footbox.



Mount the accelerator pedal to the aluminum footbox using two 1/4"-20 x 3/4" flange head screws in the secondary body fasteners. We like to install these fasteners from the engine side of the firewall for a cleaner look.

- ✎ The throttle pedal should get final installed after the carpet is installed. Install it now though to cut the tunnel and do the accelerator cable.



Mark the flange on the side of the tunnel if it hits the accelerator pedal mount.



Attach the throttle pedal mount to the firewall.

Check the full range of the accelerator pedal travel to ensure that there are no interferences with the pedal or travel.

Accelerator Cable

- ✂ $\frac{5}{64}$ " hex key, $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ " wrenches, wire cutters.
- 🛠 Accelerator cable components, insulated clip hardware
- 👤 The cable design is set up for a 96-04 4.6L Mustang engine with an OEM pedal but using the supplied ball studs and retainers it can be adapted for all applications.

87-93 5.0L FUEL INJECTED APPLICATIONS

Run the accelerator cable to its proper position on the engine.

Attach the engine end of the cable sheath to the cable mount on the intake using $\frac{3}{8}$ " and $\frac{7}{16}$ " wrenches and push the cable wiper onto the remaining threads.



Put a dab of silicone on the rear edge of the rubber wiper then push the rubber wiper back onto the threads.

There is a ball stud and retainer in the accelerator cable components to attach to the throttle body on 87-93 applications.



Cut the barrel fitting off the end of the cable.



Push and twist the ball stud retainer onto the end of the cable and attach the ball stud retainer using a $\frac{5}{64}$ " hex key.

Push the ball stud retainer onto the ball on the bottom of the throttle body.

Make sure the accelerator cable is tied up and out of the way of moving or hot parts as well.

Check the idle screw underneath the throttle body to see if the throttle arm is hitting it. If it is not, either loosen the ball stud retainer set screw and readjust the cable or, readjust the accelerator pedal until the idle screw hits the throttle arm. You will notice a fairly high idle later when the car starts if the throttle is held open.

94-04 4.6L FUEL INJECTED APPLICATIONS



Accelerator cable mounted on 1998 4 valve Intake.



Accelerator cable mounted on 1996 2 valve Intake.

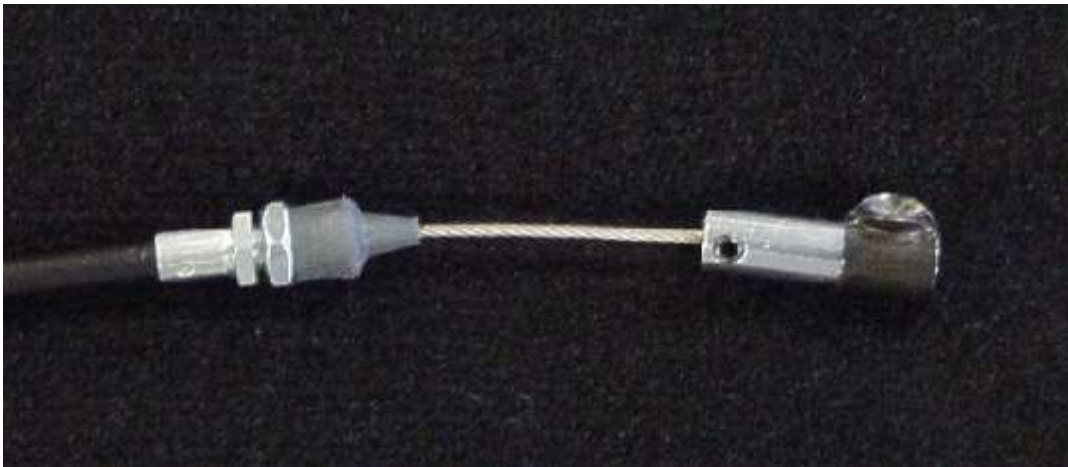
CARBURETED APPLICATIONS

If necessary, attach the supplied ball stud to the carburetor in the appropriate location. Refer to the carburetor instructions for placement.

Attach the ball stud retainer to the ball stud.



Using a pair of wire cutters, cut the barrel fitting off the cable.



Push and twist the ball stud retainer onto the end of the cable and attach the ball stud retainer using a $\frac{5}{64}$ " hex key.

Attach the engine end of the cable sheath to the cable mount on the engine using $\frac{3}{8}$ " and $\frac{7}{16}$ " wrenches. Put a dab of silicone on the rear edge of the rubber wipe then push the rubber wipe back onto the threads.

INTERIOR FITMENT



Hold the pedal ball stud retainer up to the firewall and mark the center location to drill the cable hole.

Drill a $\frac{5}{16}$ " hole for the accelerator cable.

Pass the cable sheath through to the cockpit.



Thread the inner cable through the cable retaining lock nut from the accelerator cable components assembly.

Tighten the accelerator cable locknut to the cable sheath.
Push the ball stud retainer onto the throttle pedal.



While pulling the cable tight, push the accelerator pedal up until the ball stud retainer hits the end of the throttle cable and clip off the cable ball fitting end so that the cable is long enough to go into the ball stud retainer $\frac{3}{8}$ " and get tightened with the set screw.

Push and twist the ball stud retainer onto the end of the cable and attach the ball stud retainer using a $\frac{5}{64}$ " hex key.

Check the full range of the accelerator pedal travel to ensure that there are no interferences with the pedal or travel.



After driving the car for the first time you may want to adjust the lower pedal location for optimum heel/toe and shoe size differences.

Remove the accelerator pedal until the carpet is installed.

Seat Risers



Seat Riser hardware.



$\frac{5}{16}$ " drill bit, drill, $\frac{1}{2}$ " wrench, $\frac{1}{2}$ " socket, ratchet, clamps.

Pull up on the rear of the base of the seat (it has Velcro at the rear) to expose the seat frame.



Clamp the riser brackets to the inside of the seat frame.





Use a $\frac{5}{16}$ " drill bit to drill through the riser holes and the seat frame.



Bolt the risers to the seat frame using $\frac{1}{2}$ " wrench and socket.

Seat Install

-  Drill, $\frac{1}{8}$ ", $\frac{5}{16}$ " drill bits, marker, $\frac{1}{2}$ " wrench, $\frac{1}{2}$ " socket.
-  Seats or Bench, seat mount hardware,



Position the seats or Bench in the chassis and adjust them to where you would like.

Without moving the seat, pull up on the rear of the base of the seat (it has Velcro at the rear) to expose the seat frame.



Mark the location of the seat frame on the aluminum floor.

Remove the seat and verify that the location of the mounting points intersects with the frame rails by looking at the floor rivets.



Drill (4) holes through the metal framework of the seat and through the frame.



Do not mount the seats yet as you still need to install the carpet.

Steering Wheel



Steering wheel/hardware.



Attach the steering wheel hub to the steering column with the nut which came on the steering column.



Mount the steering wheel to the hub using the fasteners which came with the steering hub.

Wheels



See the Appendix for wheel/tire specs.

Install and torque your wheels. Make sure they rotate freely and do not interfere with the brake calipers, lines, or any suspension components.

Lower the car off the jack stands and onto the ground.

Go-cart the Chassis



check the car using the suggested “Final check” sheet in the appendix

Before you install the body is the best time to double check all of your hoses and wires to look for leaks, loose connections or interference with moving parts. Running the engine, and moving the car (even just back and forth in your driveway if you don't have a safe area to test) and using the brakes and putting the car in gear helps double check that all of your systems are working properly. Steer the wheels from side to side and check to make sure your flexible brake lines have plenty of length, and your steering moves freely, also check for wires or anything that can melt close to your exhaust components.

FRONT SUSPENSION



See the Appendix for alignment and ride height

Set the ride height of the frame.

Align the front suspension if driving the chassis.

FLUID LEVELS AND GREASE

- ✂ Grease gun, chassis grease, ratchet, rags
- 🚗 Transmission fluid, rear axle gear oil, engine oil, coolant, water

Transmission

Fill the transmission with fluid and install the shifter assembly. Leave the shift handle and knob off for now.

Engine

Fill the engine with Oil and coolant. Both these fluids should be rechecked after you have started the engine for the first time. Make sure there is some coolant in the overflow to start out, about $\frac{1}{3}$ full is good.

Suspension

All of the suspension and steering components that have grease fitting need to be greased. With a grease gun squeeze grease into each fitting on all the control arms, including rear lowers on a slid axle, and tie rods.

GENERAL

Double check all your hardware, make sure your wiring and hoses are away from extreme heat and moving parts.

Make sure the steering turns freely lock to lock, and make sure your brake flex lines have enough slack for the full range of wheel movement.

Get the engine up to temperature and check for leaks and make sure the fan is working.

After running the car for the first time once coolant is added and while the system is still warm, retighten the hose clamps used on the cooling system.

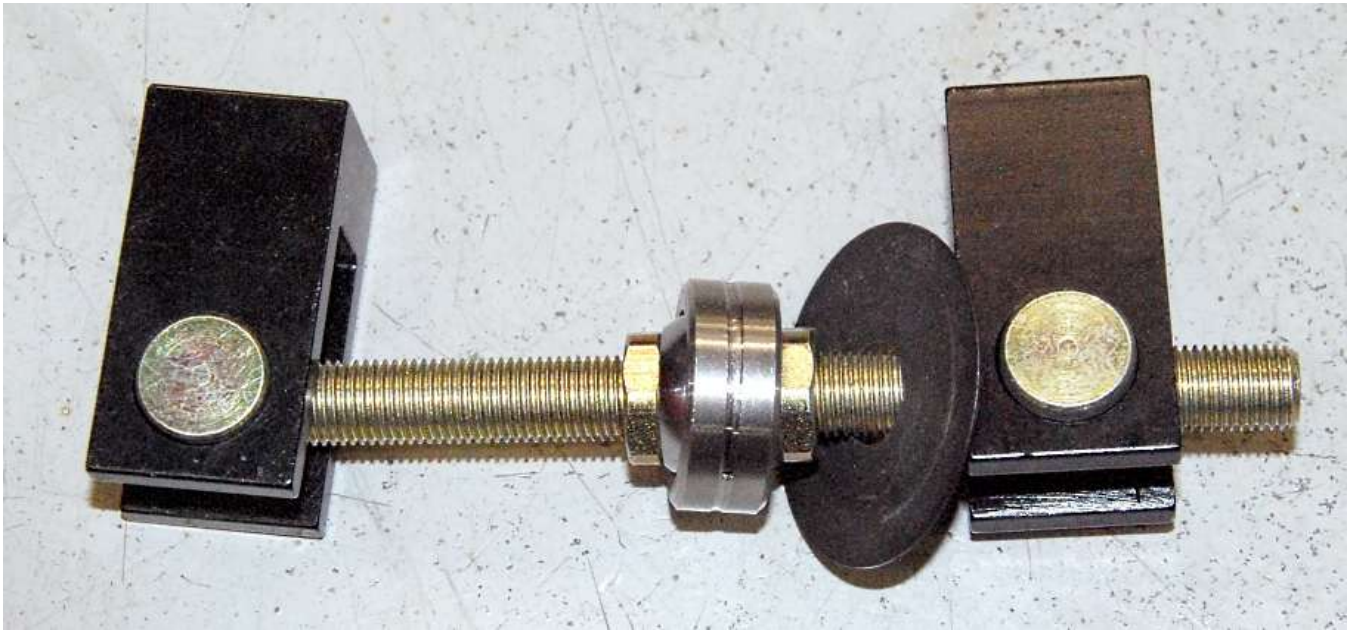


If you do this, bolt the seat harnesses in and use them



You will be very surprised at how quickly the car responds to small inputs and it is amplified by being extra light without the body in place. Things to check for:

- Any leaks – brake fluid – transmission fluid – engine oil – rear diff fluid – coolant
- Wiring – loose wires – close to heat sources or moving parts – loose grounds
- Suspension – all hardware tight – no binding or clearance issues
- Chassis – all hardware double checked – nothing loose or sharp
- Steering – all set screws tight – steering wheel tight – tie rods and rack tight
- Brakes – plenty of fluid – pedal not bottoming- all fittings tight to reservoir
- Brake Bias – if you have space, adjust your brakes bias with the balance bar (the set up and adjustment procedure is detailed in the paperwork that came with the pedal-box). Set up your brakes so that the fronts lock up just before the rears.



The brake pedal balance bar and brake pedal bearing looks like this.

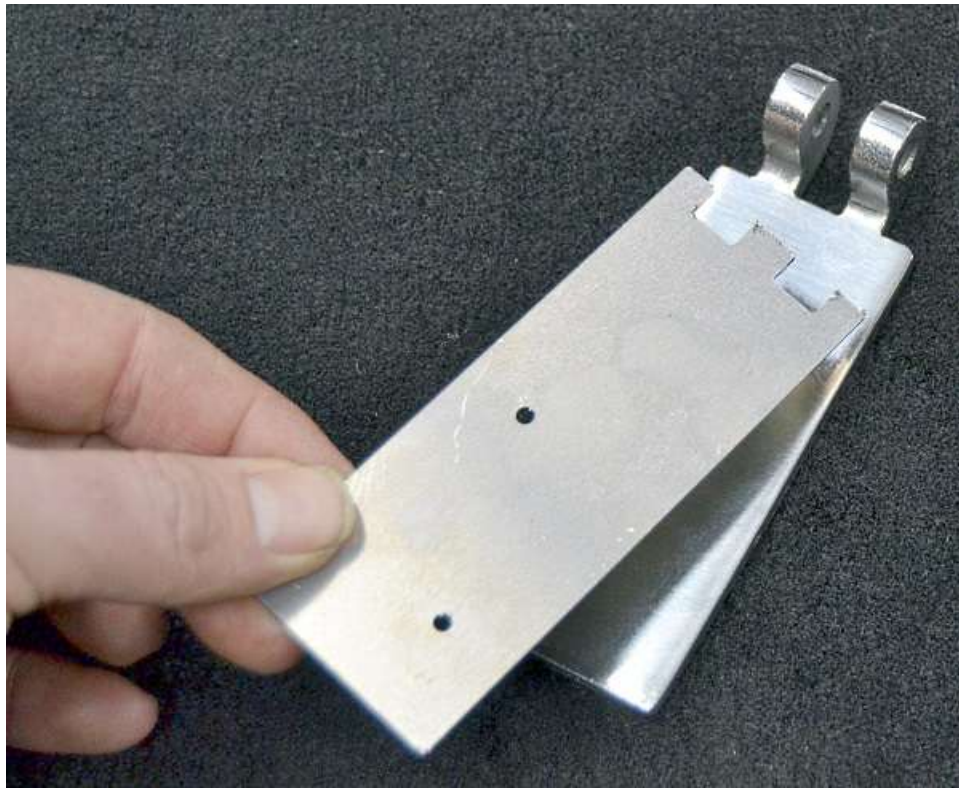
Chapter 4 – Body Work

Door Hinge prep

- ✂ Marker, drill, $\frac{1}{8}$ ", $\frac{17}{64}$ ", $\frac{5}{16}$ " drill bits, countersink bit, vise, saw
- 🚗 Door hinge components, packaged aluminum templates

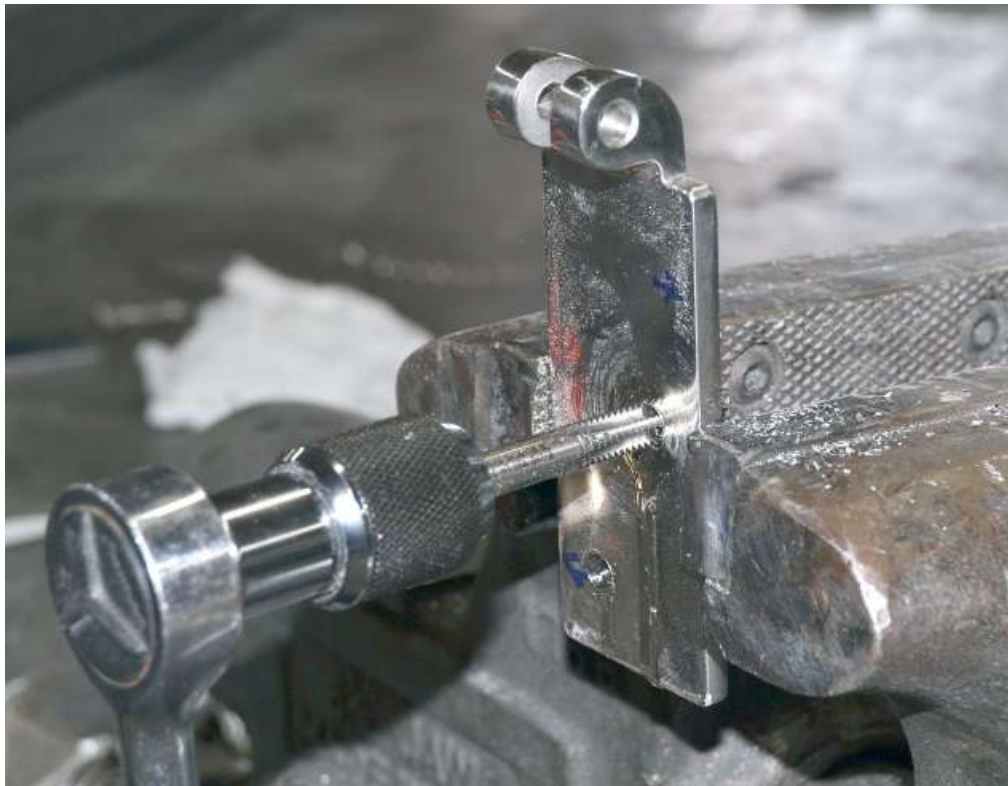


Remove the pins from the stainless door hinges.



Use the aluminum template with the staggered holes as shown to mark the male side of two of the door hinges incase the holes get destroyed when drilling **then flip the template over** and mark the other two male hinges.

Clamp the male hinges with the template on in a vise and drill the hole locations with an $\frac{1}{8}$ " drill bit.



On just the top male hinges, the outer hole only needs to be tapped. Open up the hole to $\frac{17}{64}$ " then tap the holes with the $\frac{5}{16}$ "-18 Tap included. Open the remaining untapped hole, and both holes in the lower male hinges to $\frac{5}{16}$ ".



Use the aluminum template with the holes in-line to mark the mounting holes on the female side of the door hinges and along the end of the template for cutting.

Cut the end of the hinge off at the line marked.



Clamp the female hinges with the template on in a vise and drill the hole locations with an $\frac{1}{8}$ " drill bit. Remove the template and open the holes on the female side of the hinges to $\frac{5}{16}$ ".



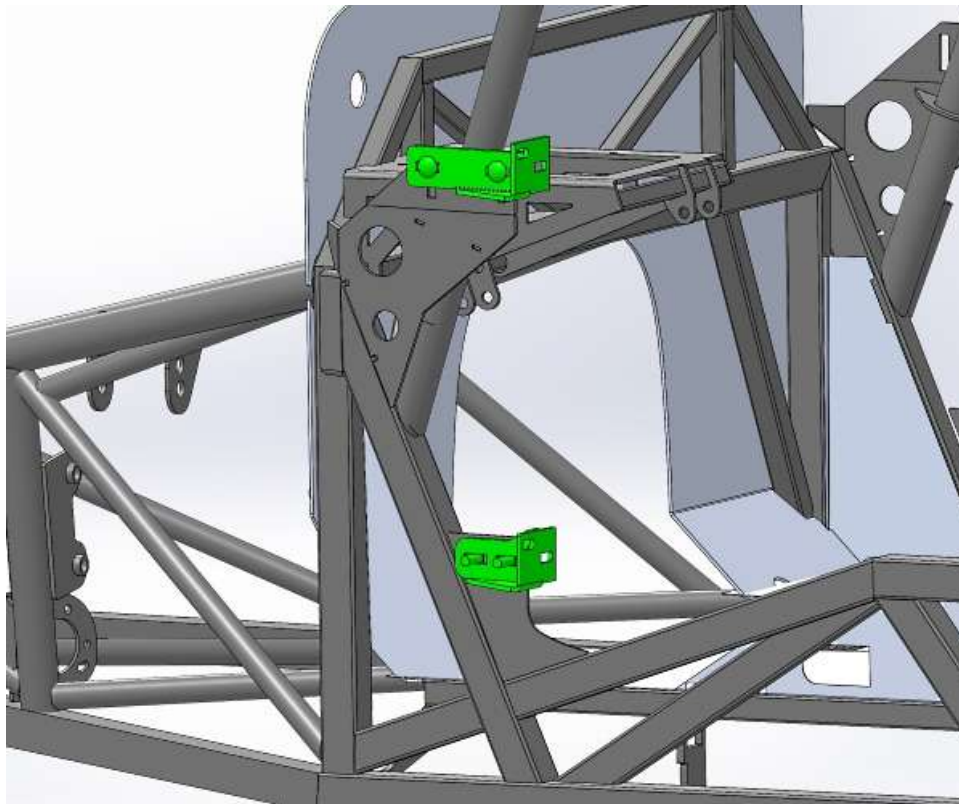
Use a countersink bit to countersink the hole so that the $\frac{5}{16}$ " flat head screws are flush with the surface of the hinge.



Finished hinge parts for the left side. Note that only one hole on the male hinge is tapped.

Frame hinge mounts

- ✂ $\frac{9}{16}$ " socket, ratchet
- 🔧 Door hinge components.



Attach the Hinge “T” mounts to the frame using the $\frac{3}{8}$ " x 1.25" carriage bolts, flange locknuts and $\frac{9}{16}$ " socket. The support gusset goes on the bottom towards the outside. Leave the locknuts slightly loose to allow them to slide. Push them forward for now to prevent body interference when putting the body on.

Body (Temporary)

- ✂ Tape measure, $\frac{5}{16}$ " drill bit, (2) Jack stands, extra person, clamps, $\frac{3}{16}$ " hex key, floor jack
- 🚗 Body, Secondary body fasteners assembly.

Check the location of the jack stands on the frame. The body will come down so that it is flush with the bottom of the frame. If necessary, move the jack stands so they will not hit.

Use two people to mount the body. One person on each side is the easiest way to lift the body. Lift the body over the roll bar and slowly lower it going forward as it goes. Having the body further back on the chassis while it starts to cover the roll cage will help with the install.



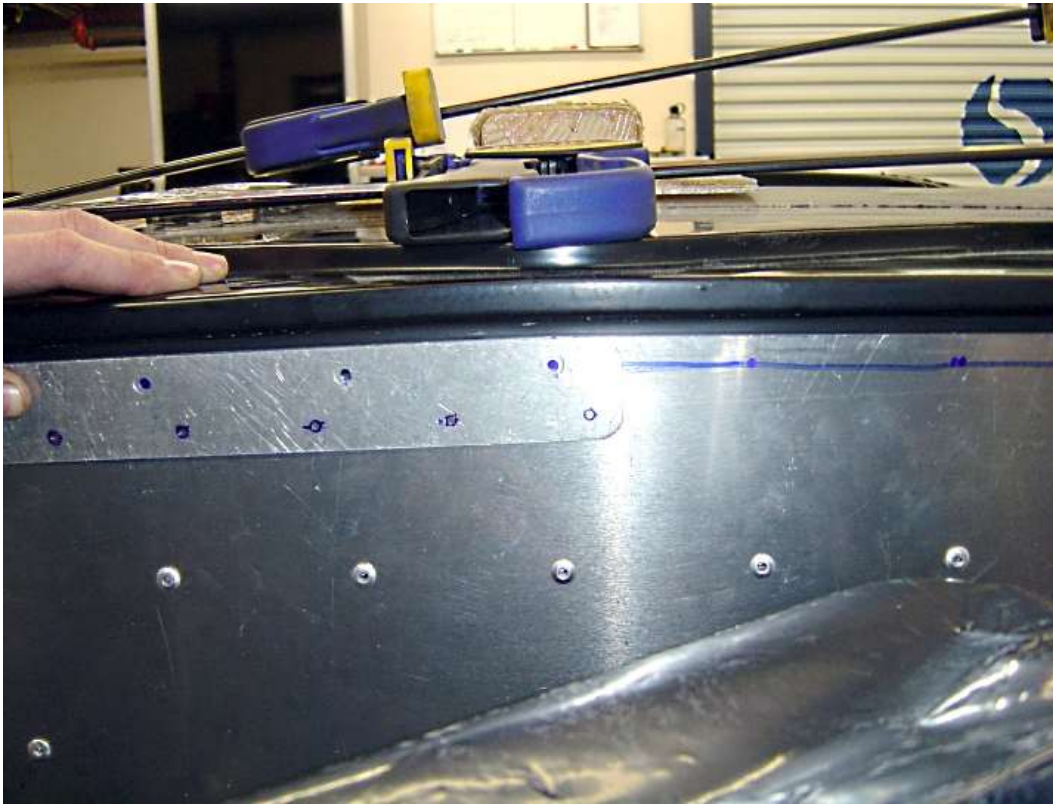
The body will sit down on the tubes under the door as it was when it was shipped.

FIREWALL

- ✂ Marker, square, masking tape, drill, $\frac{3}{16}$ " or $\frac{1}{4}$ " drill bit, Rivet tool or $\frac{5}{32}$ " hex key and $\frac{7}{16}$ " wrench.
- 🚗 Secondary body fasteners

Decide how the firewall will attach to the body, whether $\frac{3}{16}$ " rivets or bolts will be used. Hold the body in place on the firewall, we often use large sliding rail style clamps as in the picture below.

Riveting



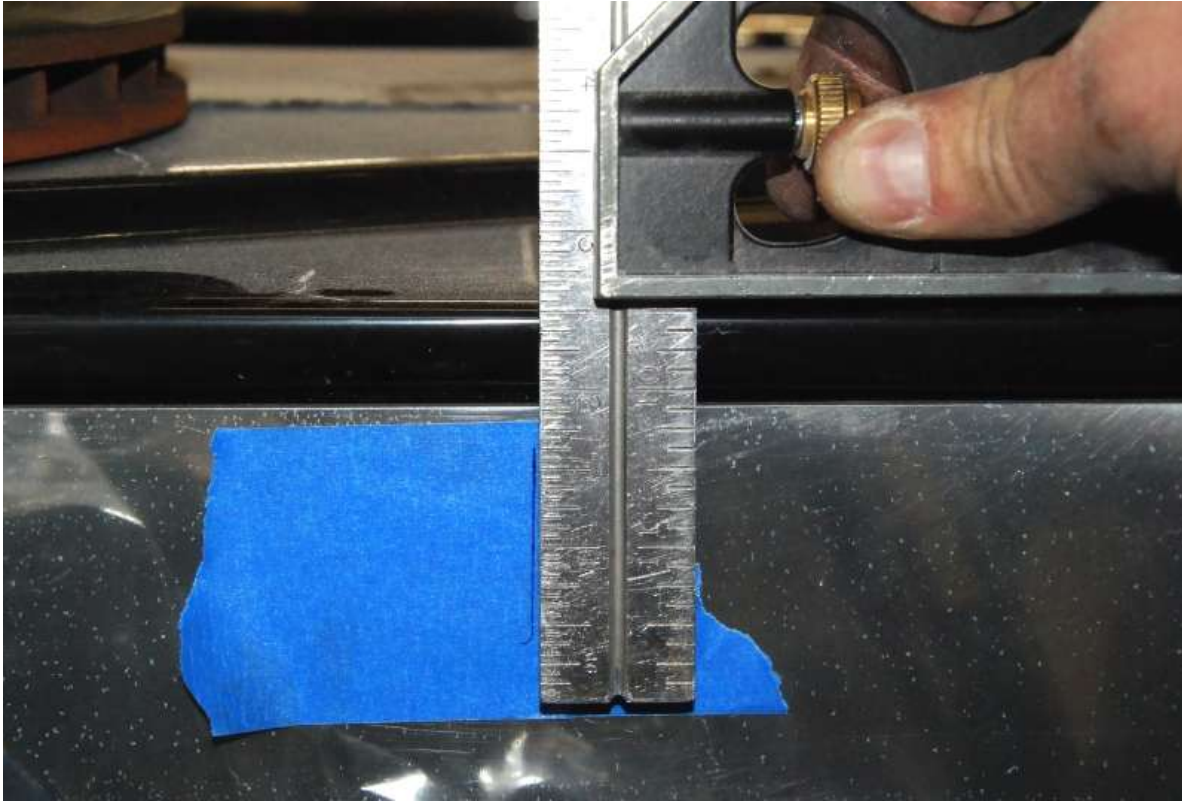
Space and mark the rivet locations around the edge of the firewall using the rivet spacing too.



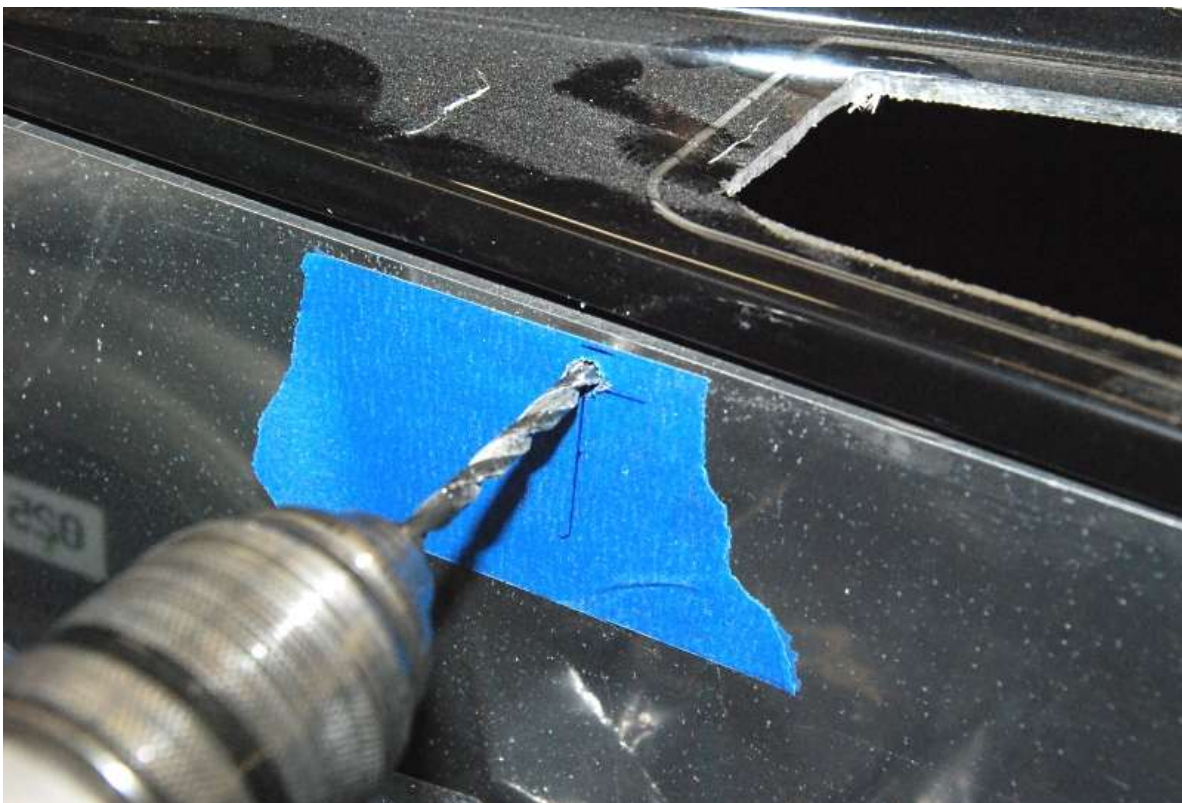
Drill and install a couple of rivets so that the body can get mounted again in the same position.

Bolting

A good place to put a couple of bolts is within reach of the access cover locations.



Put masking tape on the firewall and use a marker and square to mark the locations desired. The pictures show aligning the hole with the edge of the access cover aluminum.



Drill mounting holes for the bolts.



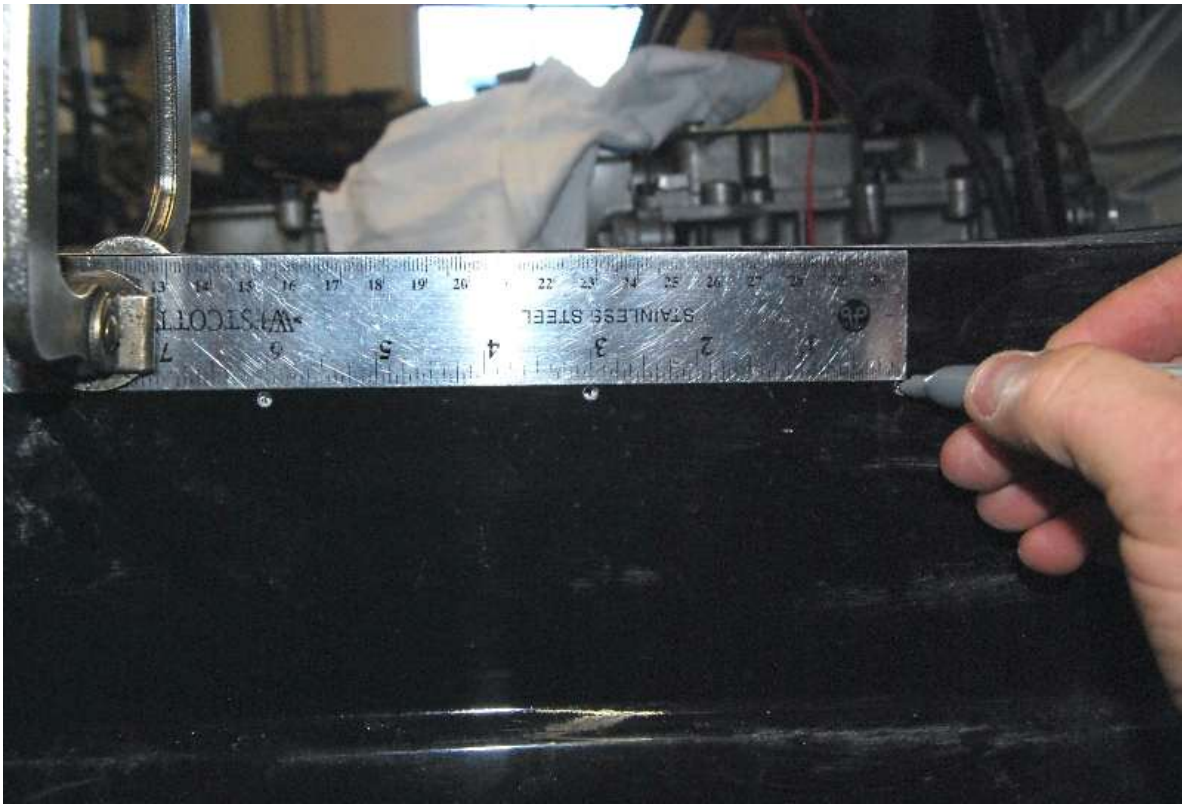
Attach the bolts to the firewall and body.

DOOR SILL BODY MOUNTS

- ✂ 1/8" drill bit, drill, 1/4" nut driver, ruler, marker
- 🚗 Kit aluminum screws



Screw the sides under the door to the frame using the shipping screws.



Use a marker and ruler to mark the under-door body mounts 1" down from the door sill spaced every 3".

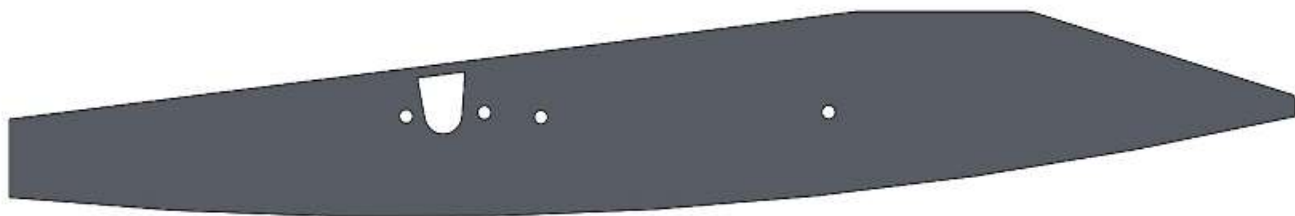


Drill through the remaining marks in the **body** only using an $\frac{1}{8}$ " drill bit.

Door

LATCH HOLES

- 🚗 Packaged aluminum template, doors.
- ✂ Marker, drill, $\frac{1}{8}$ ", $\frac{1}{4}$ " drill bits, air saw, $\frac{3}{4}$ " hole saw, masking tape



Door latch template.



Tape the door latch template to the back side of the door.



Mark the latch cut-out area with a marker.



Drill the four-hole locations using a 1/4" drill bit.



Remove the template and mark the inside of the door where the latch needs to get cut out.

Use a $\frac{3}{4}$ " hole saw or an air saw to cut the circular part of the latch area then the rest of the hole.

HINGE AREA



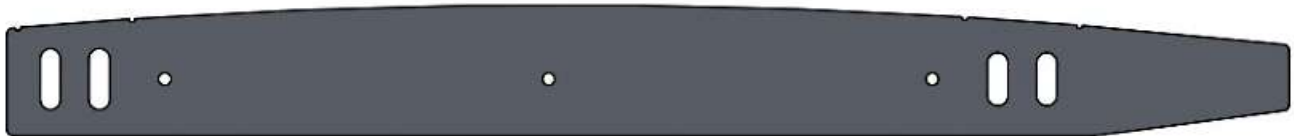
Packaged aluminum template, doors, secondary body fasteners.



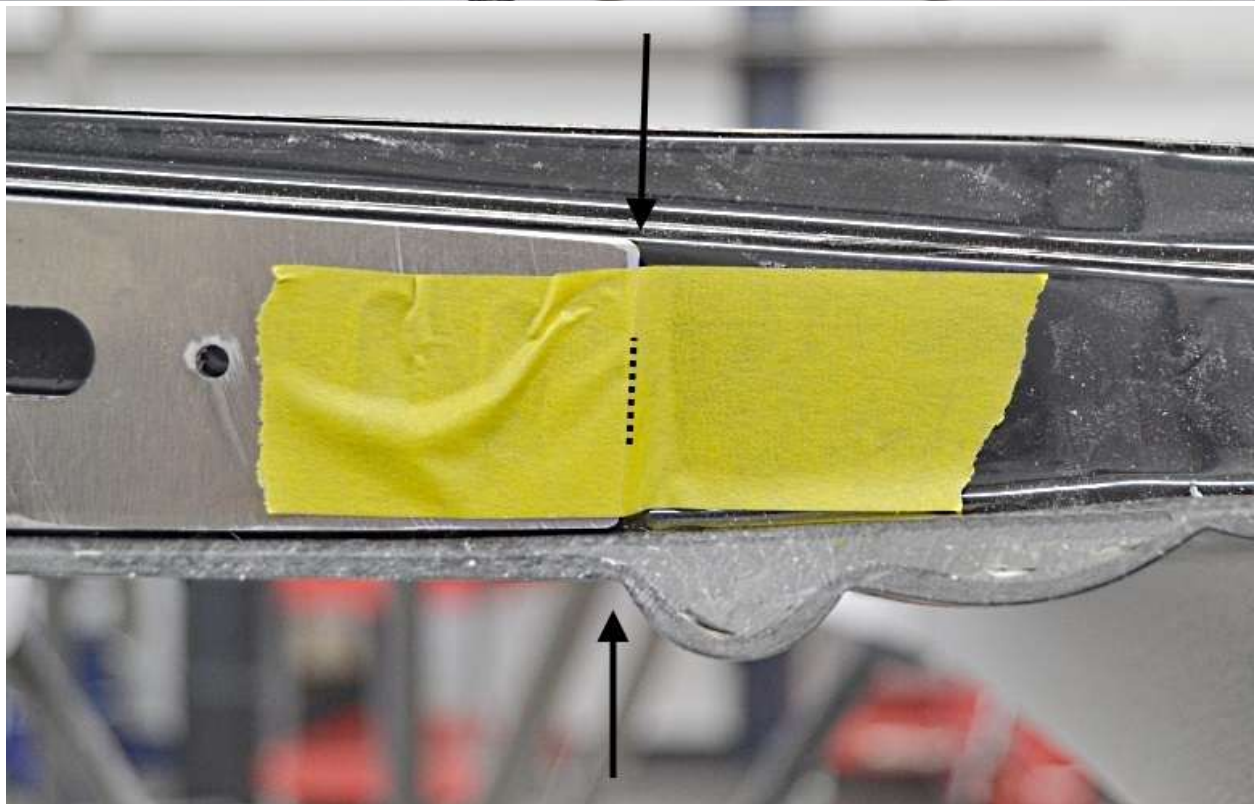
Marker, drill, $\frac{3}{16}$ ", $\frac{5}{16}$ " drill bits, masking tape, rivet tool



Do one door at a time for both the slots and cut out areas in the next section before changing to the other door.



Door hinge template. Your template will be the standard aluminum thickness and not the thicker one shown here but the function is the same.



Tape the door hinge template to the front side of the door so that when it is sitting against the outside of the door the top is even with the bottom edge of the beltline trim on the outside of the door.



Use a $\frac{3}{16}$ " drill bit to drill the two small holes in the door through the template.



Rivet the template to the front of the door using $\frac{3}{16}$ " long rivets through the two small holes.



Use a $\frac{5}{16}$ " drill bit to drill through the center of a slot then at each end of the slot.



Angle and walk the drill bit to each end of the slot.



Repeat the procedure for each of the other slots.



Do not remove the template, continue through the next section.

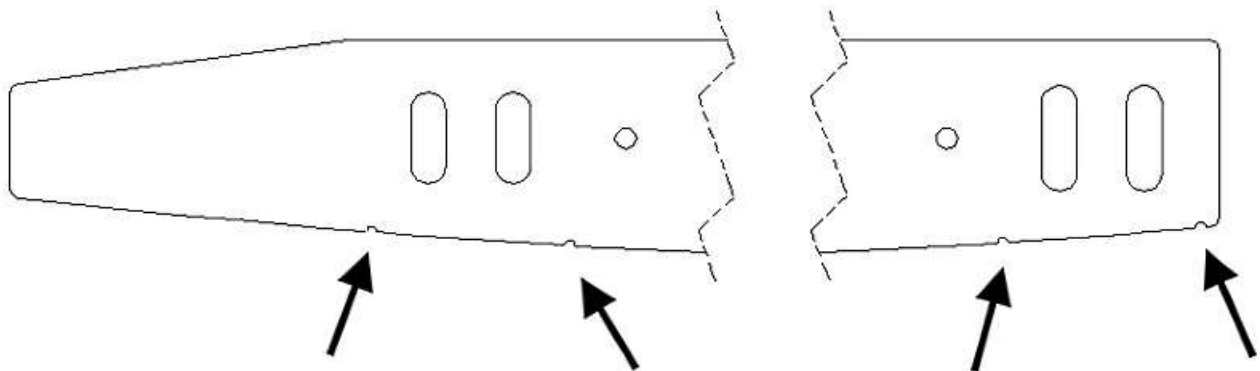
Hinge cut outs



Packaged aluminum template, doors, secondary body fasteners.



Marker, file, saw.



On the hinge template there are some notches cut at the locations shown above.



Use a saw to cut the front of the door straight back to a notch on the template.



Cut the area as shown to remove the area between the notches then cut straight back to the other notch.





Use a file to square off and make sure the area is flush with the template.



Repeat the procedure to the other hinge area.

Remove the template and repeat the hinge area cuts on the other door. The rivet holes can either be filled by your body guy or simply put another rivet in the hole and pull it.

OUTSIDE DOOR HANDLE

-  Packaged aluminum template, doors
-  $\frac{3}{16}$ ", $\frac{13}{64}$ " drill bit, masking tape, drill



Position the door handle template on the outside rear part of the door as shown so the top is against the bottom of the beltline trim.





Tape the template in place and drill the three holes using a $\frac{3}{16}$ " drill bit.

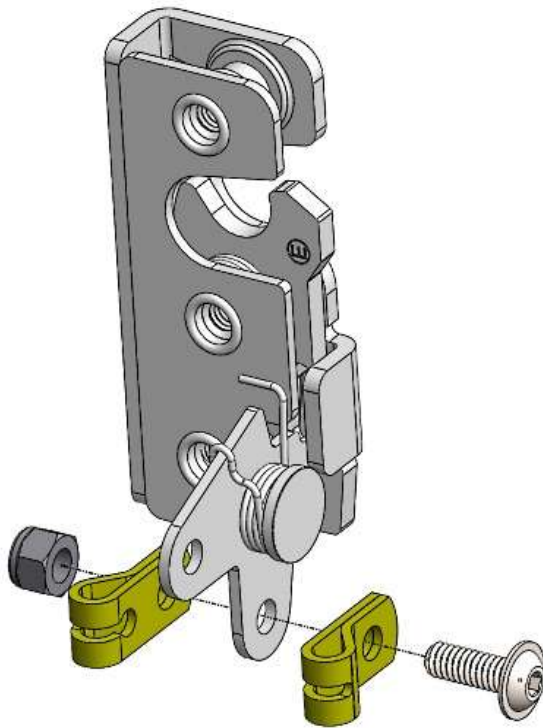
Remove the template.

Use a $\frac{7}{8}$ " hole saw on the outer door skin at the center drill point.

Open the two small holes up to $\frac{13}{64}$ ".



DOOR LATCH PREP

-  Door latch components, exterior door handle components
-  $\frac{7}{16}$ " socket, ratchet, $\frac{5}{32}$ " hex key.



Attach two clevises to the door latches, one on either side of the lever using the $\frac{1}{4}$ " x $\frac{3}{4}$ " Button head washer screws, locknuts, $\frac{7}{16}$ " socket and $\frac{5}{32}$ " hex key.

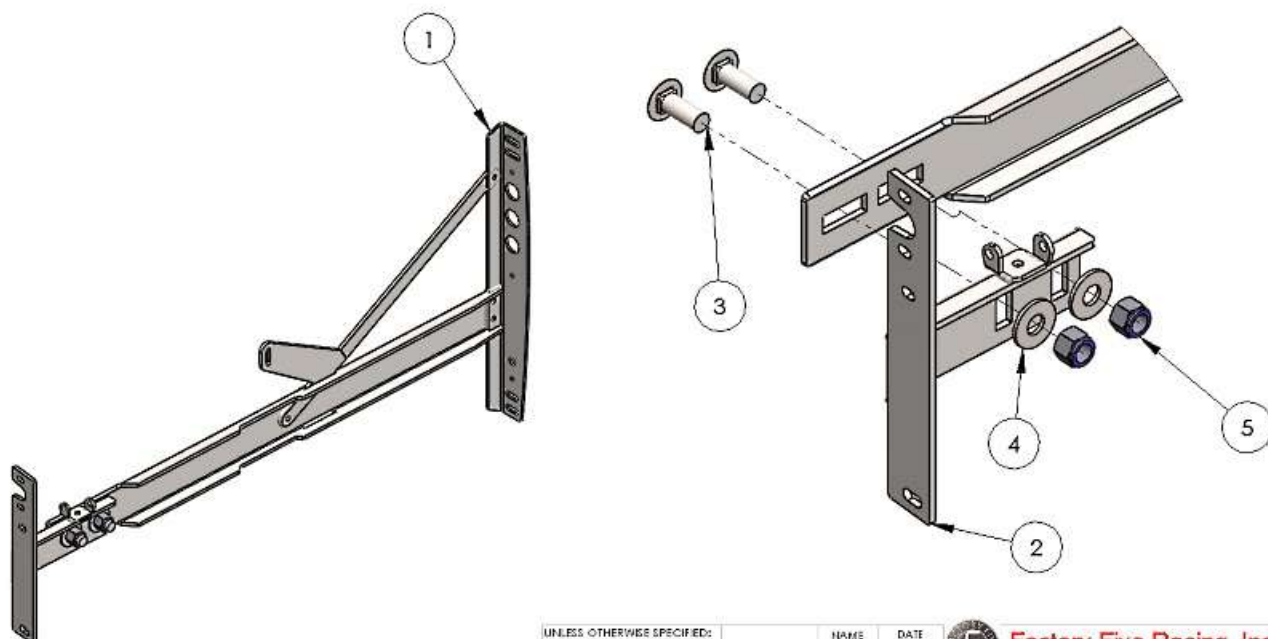
DOOR FRAME

-  Door frame components
-  $\frac{3}{4}$ " socket, ratchet, $\frac{7}{16}$ " socket.

Insert the door frame parts into the door.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34598	RIGHT FRONT DOOR FRAME	1
2	34599	RIGHT REAR DOOR FRAME	1
3	25590	1/2"x 1.25" CARRIAGE BOLT	2
4	13976	1/2" WASHER	2
5	10834	NYLON INSERT LOCKNUT, 1/2-13 UNC	2

REV.	REVISIONS		DATE	APPROVED
	DESCRIPTION			
A	INITIAL RELEASE		4/3/18	



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35 TRUCK		DIMENSIONS ARE IN INCHES TOLERANCES TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001		DRAWN JS	4/3/18			
				COMMENTS		TITLE: RIGHT SIDE		
		MATERIAL STEEL FINISH			SIZE A	DWG. NO. 34569		REV A
USED ON								
APPLICATION		PRINTED		7/10/2018		SCALE: 1:6 WEIGHT:		SHEET 1 OF 1

Attach the two parts of the door frame together leaving the locknuts loose enough to allow the two pieces to slide.

DOOR ASSEMBLY



$\frac{5}{32}$ " hex key, $\frac{1}{2}$ ", ratchet



Door Hinge components, door frame components



The pictures show assembled hinges on the truck, the hinges should not be assembled yet



Attach the door to the back of the door frame with the door latch using the $\frac{1}{4}$ " x 1" flange head bolts. The bolts will go through the body then door frame then into the latch.

Attach the door frame rear lower mount location to the door using a $\frac{1}{4}$ " x $\frac{3}{4}$ " button head flange screw, locknut, $\frac{5}{32}$ " hex key and $\frac{1}{2}$ " socket.



Hinge nut plate



At the front of the door attach the door to the frame using the hinges. Pass the $\frac{5}{16}$ " flat head screws through the female hinge, door, door frame and into the door hinge nut plate. Top hinge shown.



Bottom hinge.

DOOR TO BODY FITMENT



Orbital sander, 80 grit sand paper, masking tape, jig saw or air saw.



Body, doors



The doors are cut oversized at the factory to allow for maximum adjustment and to allow the customer to set their own desired panel gaps.



Hold the door in position and note the areas that need to be trimmed to allow the door to fit in the opening and allow the half-moon trim accent of the door to align with the trim on the body.

Mark the areas with a marker.

Remove the door and cut or sand the marked areas in long smooth movements to prevent notches from occurring using an orbital sander and 80 grit sand paper. Make two or three passes over the areas only. Recheck the door fitment and sand more if necessary.

Tape the door in place once the gap is set.

DOOR HINGE SLOTS

- ✂ Saw, drill, 1/4" drill bit, Masking tape, marker, 1/2" socket, ratchet.
- 🚗 Body, Hinge template



Tape the door hinge template to the door opening on the body so that the top of the template is even with the bottom of the body trim line and put tape on the stepped down area of the door opening.



Mark on the tape where the notches are located as was done on the door earlier.



Use a ruler or straight edge to draw lines forward to the front of the stepped area.



The area to cut-out will be the rectangle between the hinge template notches on the stepped in area only. Mark a line $\frac{1}{8}$ " in from the side so you do not cut the body thickness.



Use a ¼” drill bit to drill the top and bottom hinge locations centered in the door stepped area then connect the holes with a saw as shown above.

Insert the male door hinge with the tapped hole through the upper slot just made.

Slide the hinge mount “T” back to the hinge and attach the hinge to the “T” using the 5/16” x 3/8” bolt in the tapped hole. Tighten the screw so the plates touch but can still slide.

Attach the other hole and lower male hinge using the 5/16” x 1” carriage bolts



Do not push the hinge pin all the way in in the next step.



Remount the door in the opening putting the female side on the door around the male side on the frame and insert the pin into the hinge from the top leaving it loose for now.



Recheck the door gaps making sure the door is flush with the body then tighten the hinge “T” mounts to the frame carriage bolts with a ½” socket and then tighten the hinge to “T” bracket bolts.

Make sure the door swings open and closed without hitting the body.

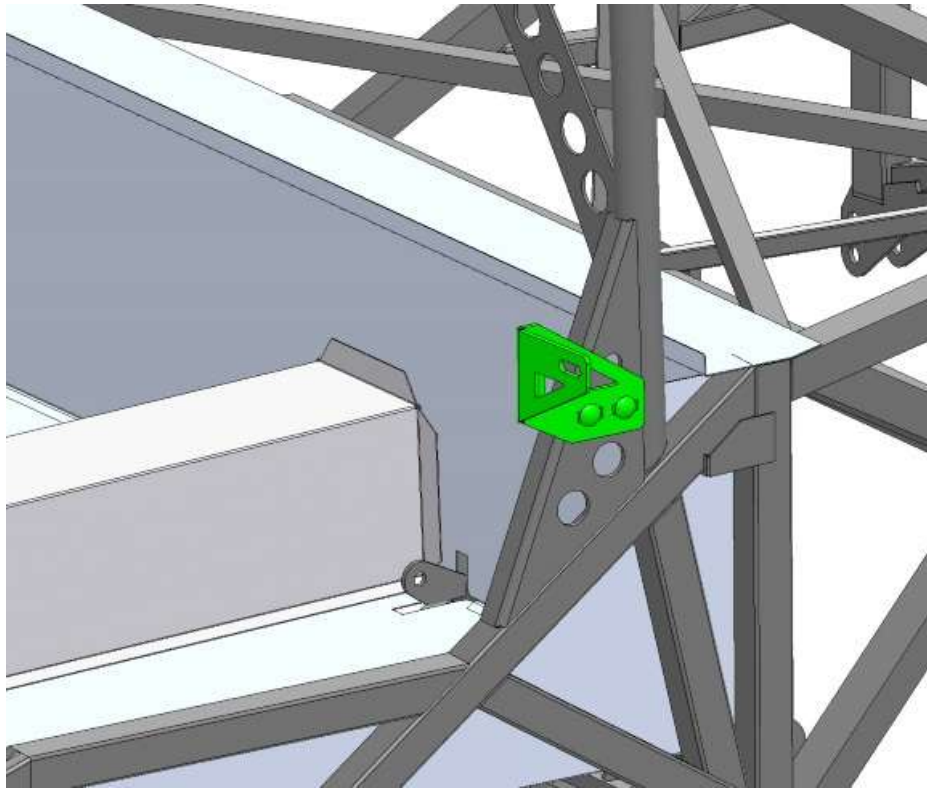
LATCH STRIKER MOUNT

- ✂ Marker, $\frac{1}{4}$ ", $\frac{7}{16}$ " drill bits, drill, $\frac{9}{16}$ ", $\frac{5}{8}$ " socket, $\frac{3}{4}$ " wrench.
- 🚪 Door latch components.



With the latch closed in the locked position, close the door then pass a marker straight through the latch and mark the location on the body.

Drill the striker locating hole in the body out using a $\frac{1}{4}$ " drill bit then enlarge it to $\frac{7}{16}$ ".



Attach the striker frame mount to the outside of the frame using the $\frac{3}{8}$ " x 1.25" carriage bolts, flange nuts and $\frac{9}{16}$ " socket (shown without the body mounted). Pass the carriage bolts in from the outside. Leave the locknuts loose enough so the bracket can slide.



Insert the striker into hole in the body and through the frame mount bracket.

Attach the striker to the striker mount using a $\frac{3}{4}$ " wrench on the outside and $\frac{5}{8}$ " socket on the locknut and washer leaving the locknut loose so the striker can move in the slot.

Tighten the striker mount to the frame using a $\frac{9}{16}$ " socket.

Tighten the striker on the mount using a $\frac{3}{4}$ " wrench and $\frac{5}{8}$ " socket.

EXTERIOR DOOR HANDLE



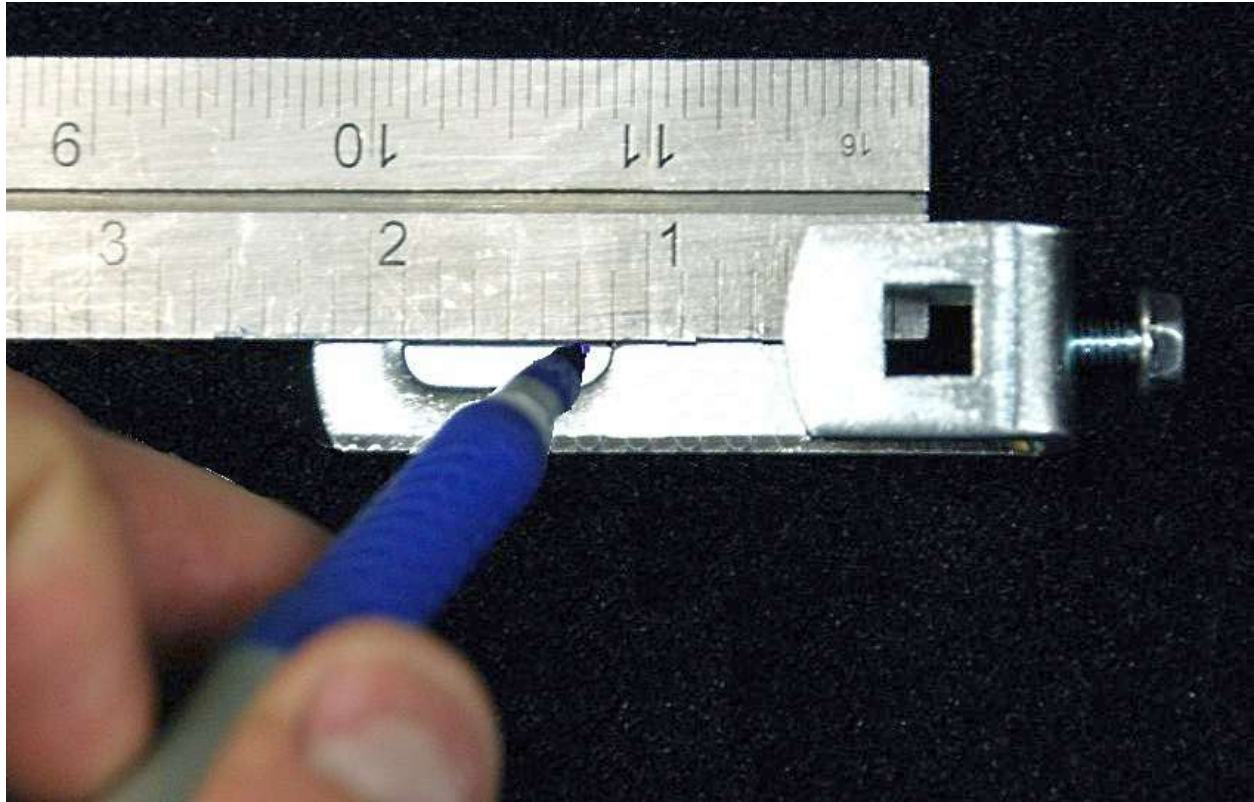
$\frac{13}{64}$ " drill bit, Philips head screwdriver, $\frac{3}{8}$ " socket, $\frac{5}{16}$ " wrench, ratchet, marker, ruler, saw.



Door latch components, exterior door handle components, Box 9 insulated clip hardware.



The right side is shown for this installation.



On the handle control lever measure and mark 1.25" from the center of the $\frac{1}{4}$ " square hole.

With the lever in a vise or drill press, drill a $\frac{13}{64}$ " hole in the center of the lever at the point marked.



Mark the door handle shaft 1.125" from the shoulder.



Cut the door handle at the mark made.



Use Lithium or chassis grease to lubricate the exterior door handle.

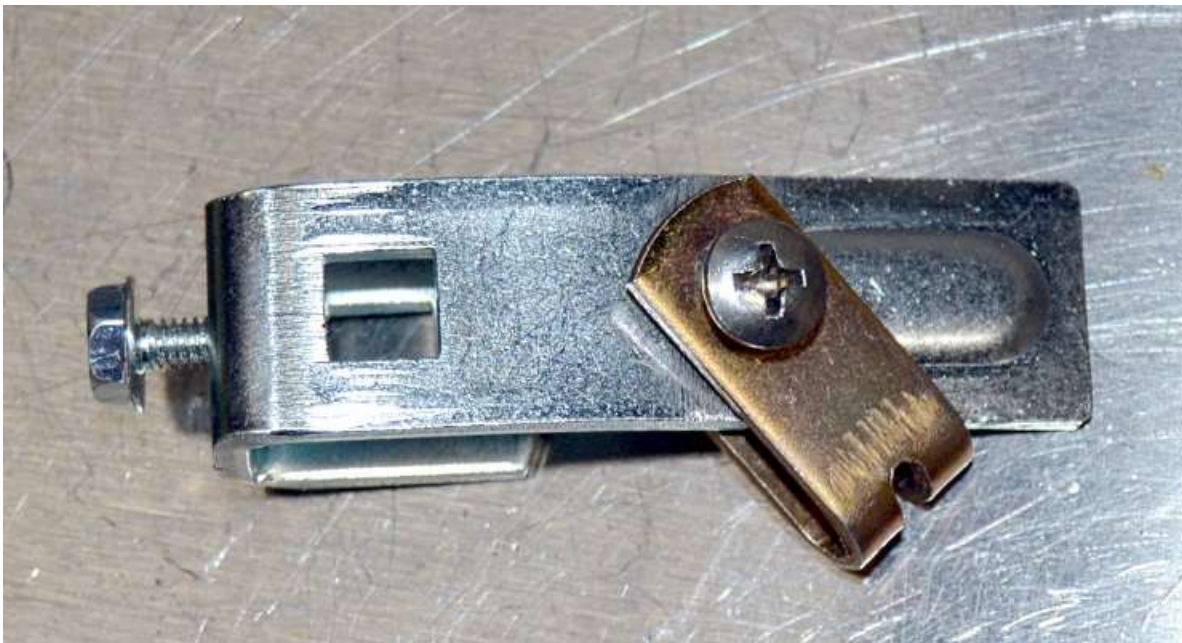


Pass the door handle through the mount gasket, door and Backing plate (bent part down).



This shows the inside of the right door fully assembled.

Attach the handle to the backing plate using the oval head 10-32x 1" screws, locknuts, Philips head screwdriver and $\frac{3}{8}$ " socket.



Attach a clevis to the control lever using one of the oval head 10-32x 1" screws, locknuts, Philips head screwdriver and $\frac{3}{8}$ " socket. Leave the screw loose enough to allow the clevis to pivot. Right side shown, left side would have the clevis going up.

Attach the control lever to the handle small side first and tighten the locking screw in the top of the lever with a $\frac{5}{16}$ " wrench so the lever is flush with the end of the handle shaft.



Put a jam nut from onto the threaded ends of the four control cables.



Insert the plastic end of the control cable sheath into the backing plate slot, push into place then run a zip tie through the hole as shown to prevent the cable sheath from coming out.

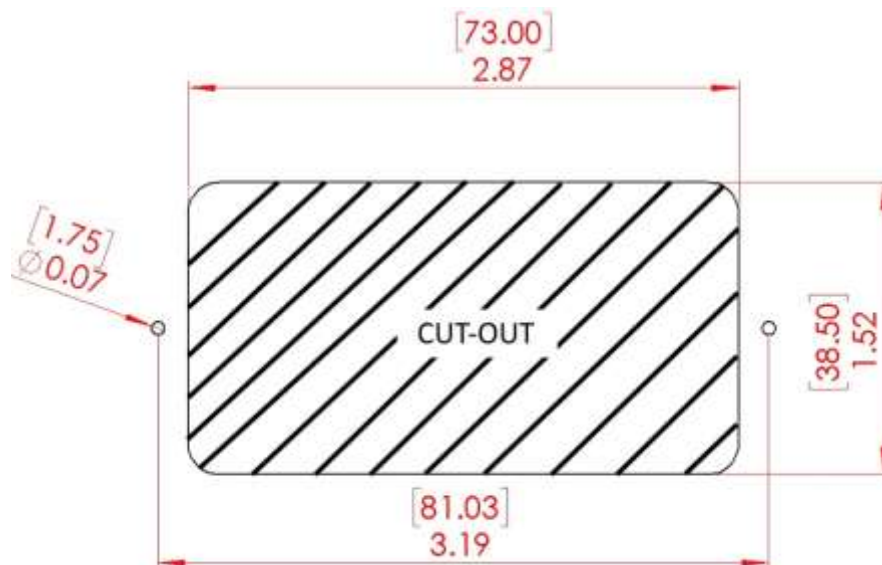
Insert the barrel fitting on the cable into the clevis.



From the handle run the cable down under the door frame, then loop it up and insert the threaded end of the control cable into the outside hole on the door frame followed by another nut.

INTERIOR DOOR HANDLE

Insert another control cable threaded end into the inside door frame hole.



Use the template above to mark the inside area to cut. Use a ruler to check the scale before using.



Attach the plastic end of the inside cable to the inside door handle.

WINDOW WEATHER-STRIPPING



Cat head weatherstrip



Run the ½ moon weatherstrip around the door openings starting at the bottom.



Starting at the top center, push the cat head weatherstrip all the way around on the outside window edge.





Push the felted weatherstrip onto the inside window edge starting where the flange twists in the lower corners and run around the top.

Push cat head onto the lower center part of the inside window edge.

Power windows



Power window components



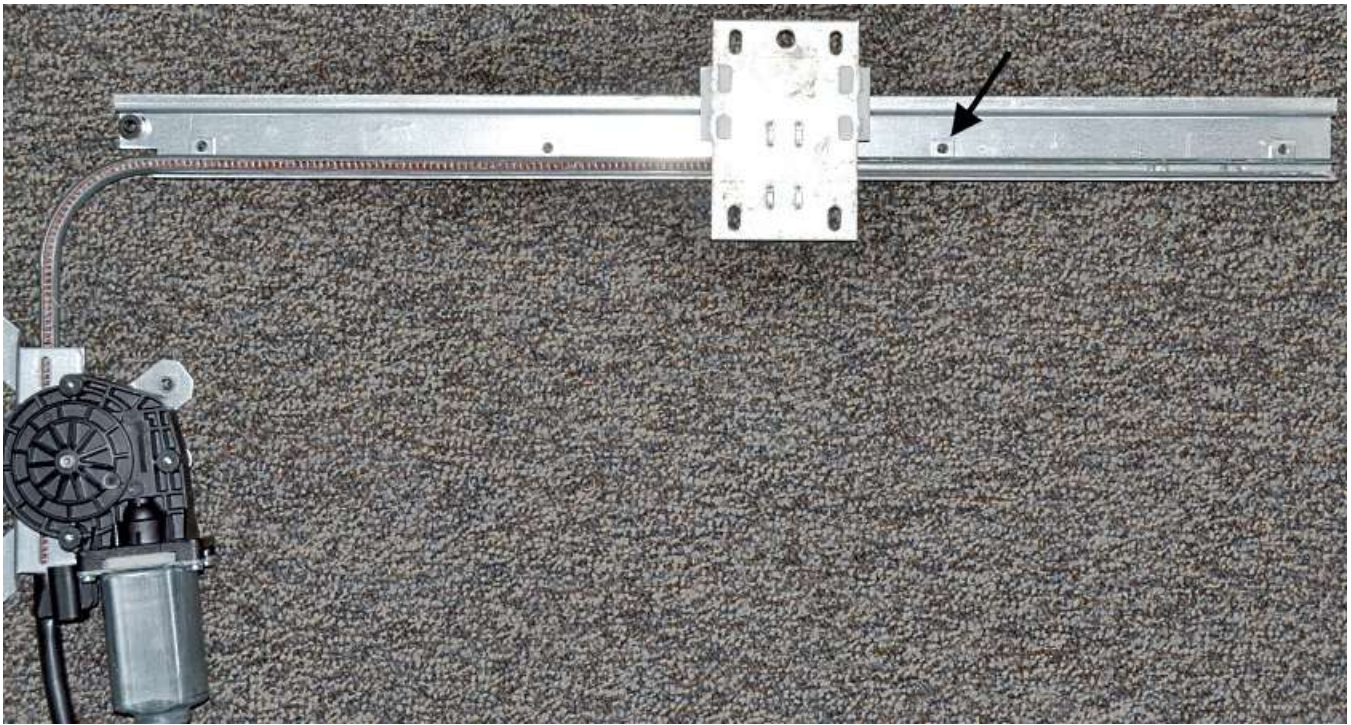
$\frac{5}{32}$ " hex key, $\frac{7}{16}$ " socket, ratchet, hack or metal saw.



If the switches do not fit on the flange with the mounting bracket, the switches can be mounted individually and sideways to the flange



The window glass holder will have to be installed and uninstalled a few times so do not use Loctite on the fasteners until the door is assembled for the last time once the body has been painted.



The window track needs get cut above the third mounting location on the track.



Hold a tape measure above the mounting hole and measure 1". Cut the track at the mark made using a hack saw.



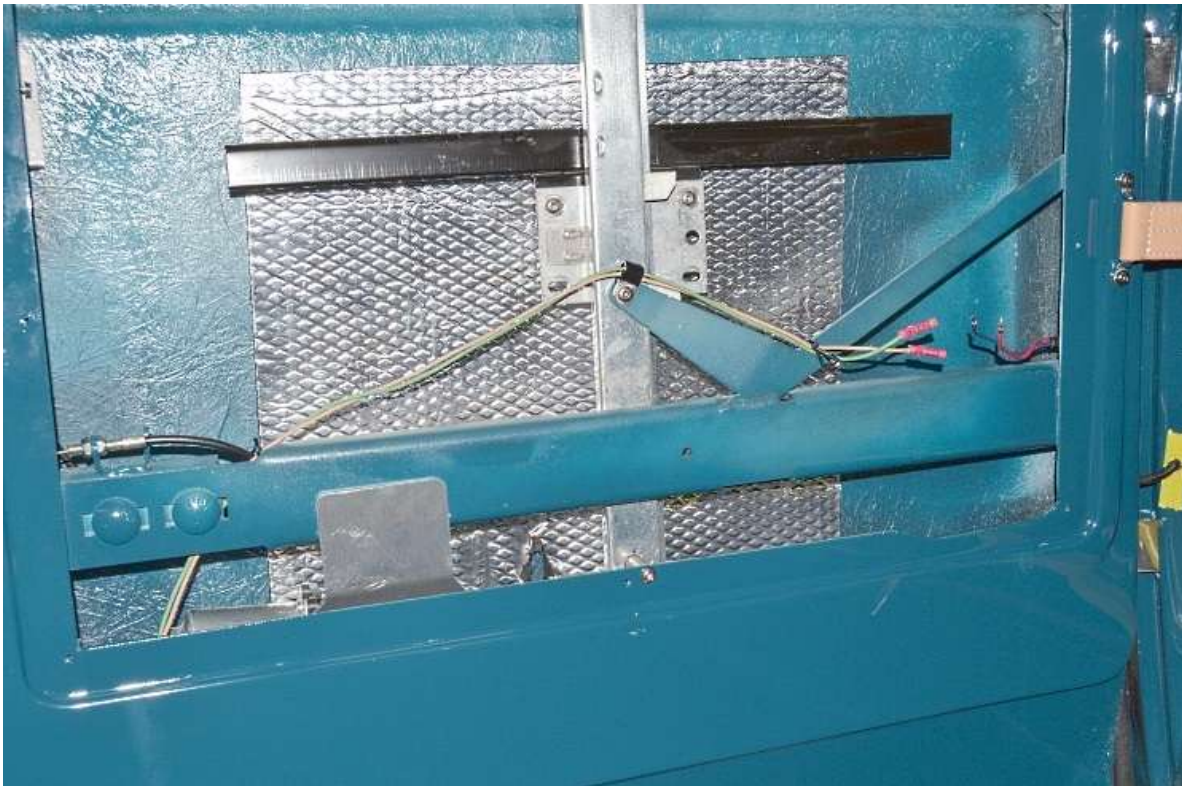
Place the power window bracket on the window motor with the small bent part up. Left side shown.



Attach the bracket to the motor using the $\frac{1}{4}$ " x $\frac{1}{2}$ " Button head washer screws and a $\frac{5}{32}$ " hex key.



Insert the motor/track assembly with bracket into the door. Right side shown.



Attach the window track to the middle of the track using a $\frac{1}{4}$ " x $\frac{1}{2}$ " Button head washer screws and a $\frac{5}{32}$ " hex key, leave the screw loose to allow for positioning.



The window has the most clearance if it slides forward slightly as it goes down, so position the track with a slight tilt with the top tilting toward the rear of the truck. Using the window track as a template (marking a centerline and distance to the hole helps for locating) locate where to drill the holes in the door. The upper mount is directly from the track to the door, the lower one uses the longer bolt and spacer provided. These mounts can be shimmed later to help line up the window.



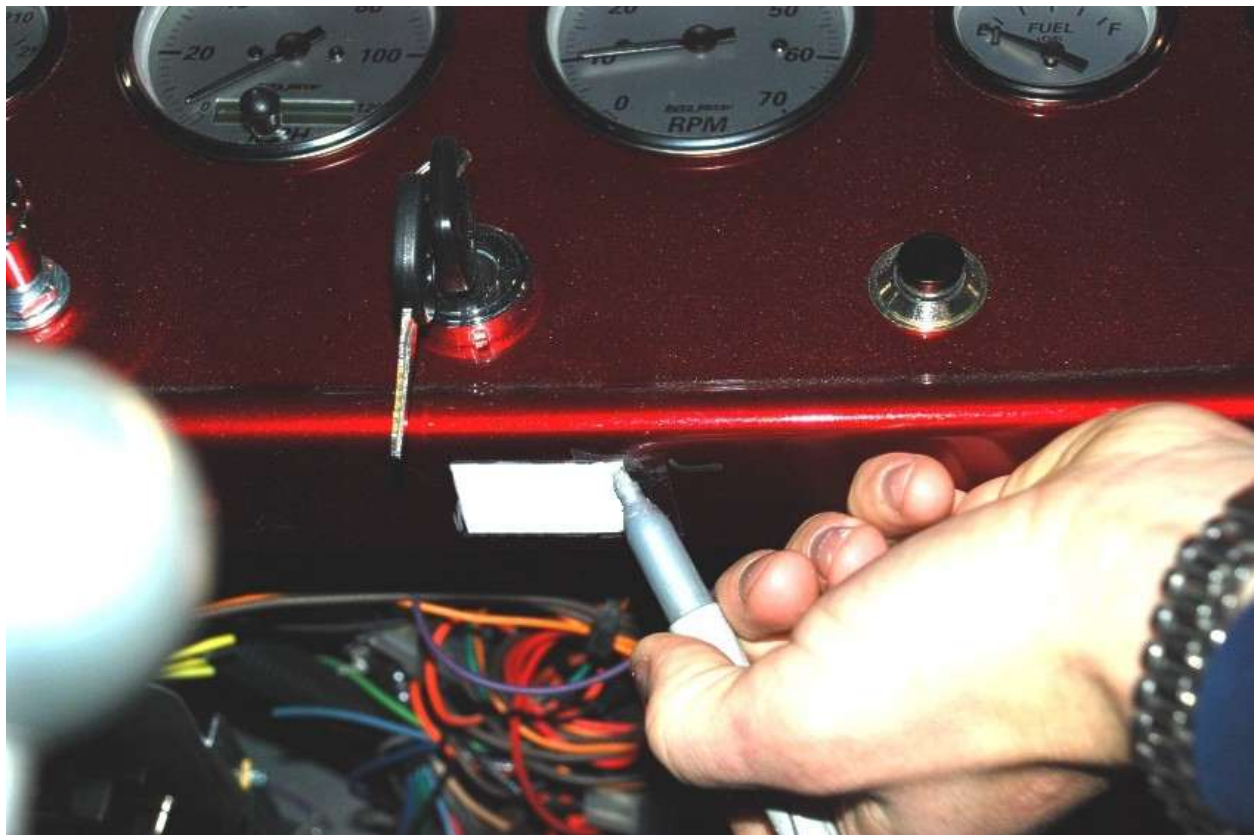
Attach the motor mount bracket to the door frame using $\frac{1}{4}$ " x $\frac{3}{4}$ " Button head washer screws $\frac{7}{16}$ " socket, and $\frac{5}{32}$ " hex key.

WIRING

✂ Electrical tape, wire strippers, wire crimpers, drill, $\frac{3}{8}$ " drill bit

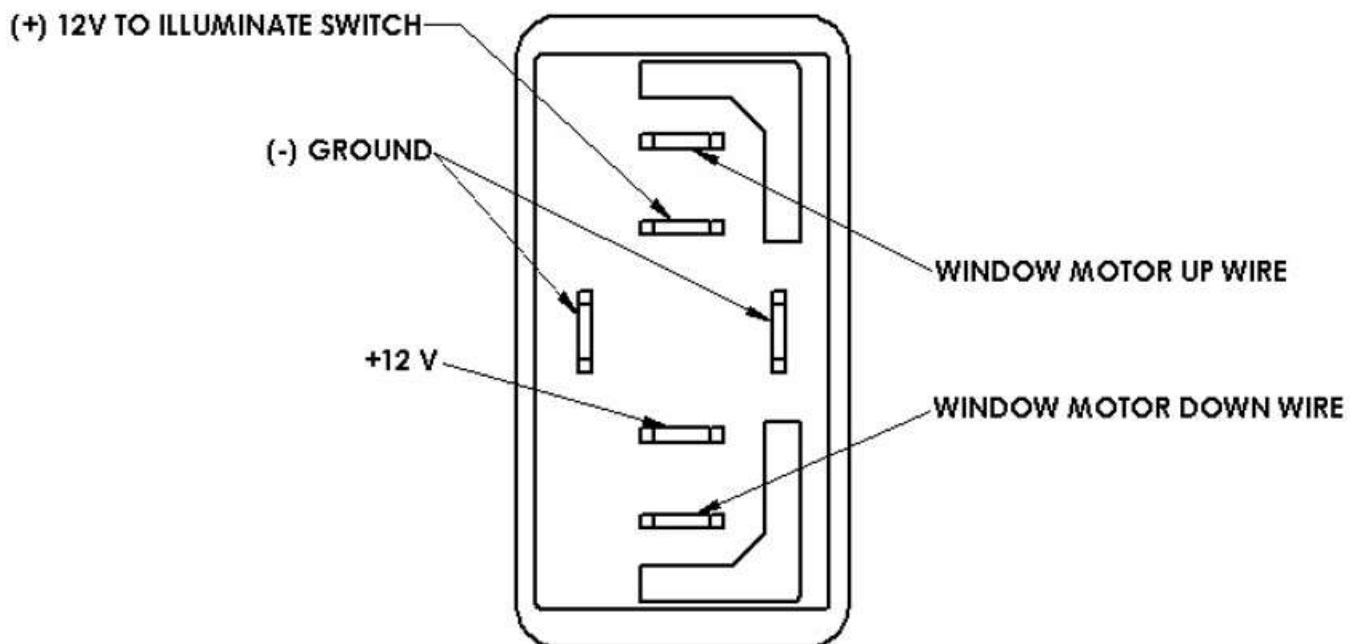


With the door closed, drill a $\frac{3}{8}$ " hole through the bottom front of the door and the cab sill using the $\frac{3}{8}$ " door frame hole as guide. This is for the power window wires.



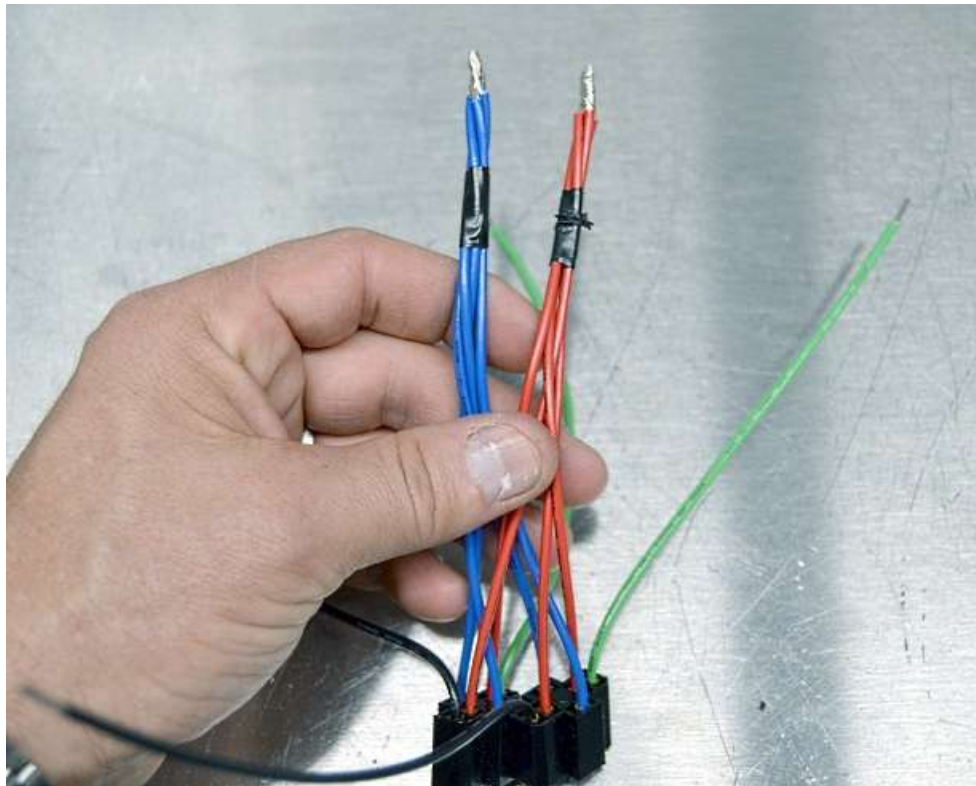
Use the power window switch mount to mount the switches or use it as a template to mark the switch location between the seats on the bottom of the dash so the switches are not visible and can be reached by the driver. Wire has been included for this mounting location.

Cut the hole for the power window switch if mounting in the dash.

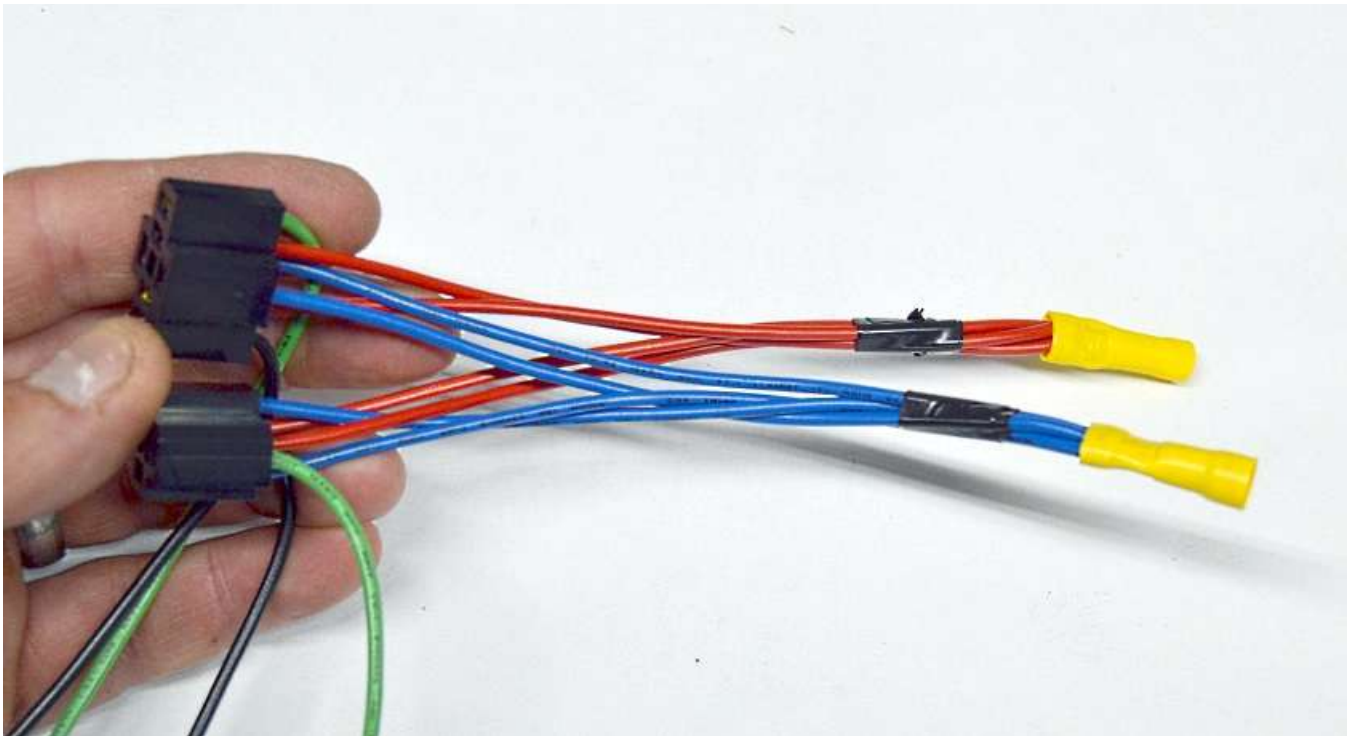


BACK OF SWITCH

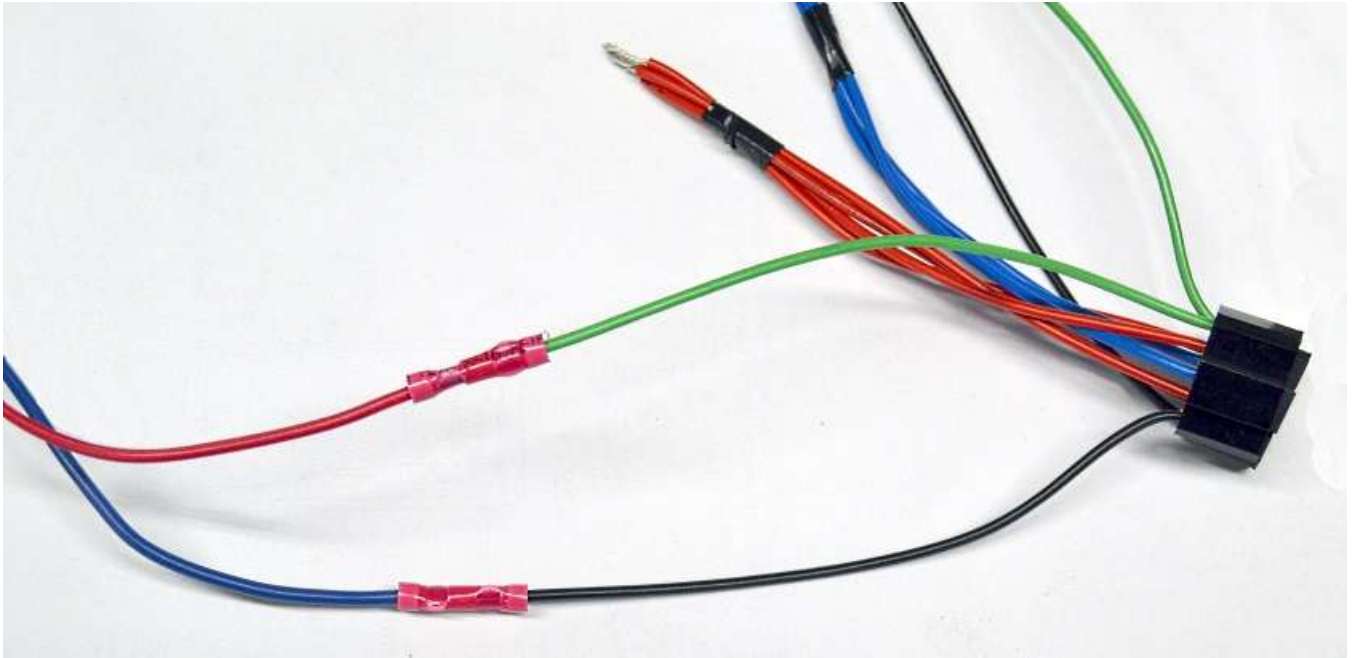
Use the diagram above to connect the power window switches to the chassis harness.



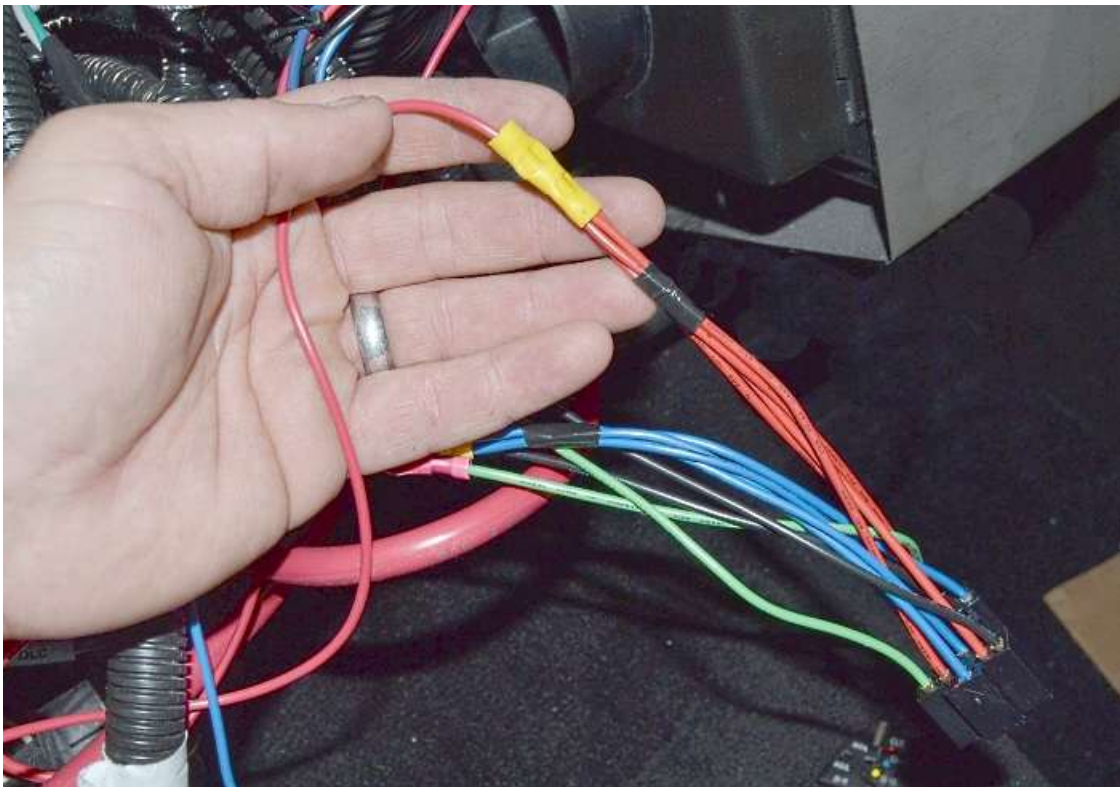
Strip ½" off the end of all of the wires on the switch plugs then use electrical tape to tape all of the red wires together and all of the blue wires together. Twist the wire ends together.



Crimp the red and blue wires with the yellow butt connectors.

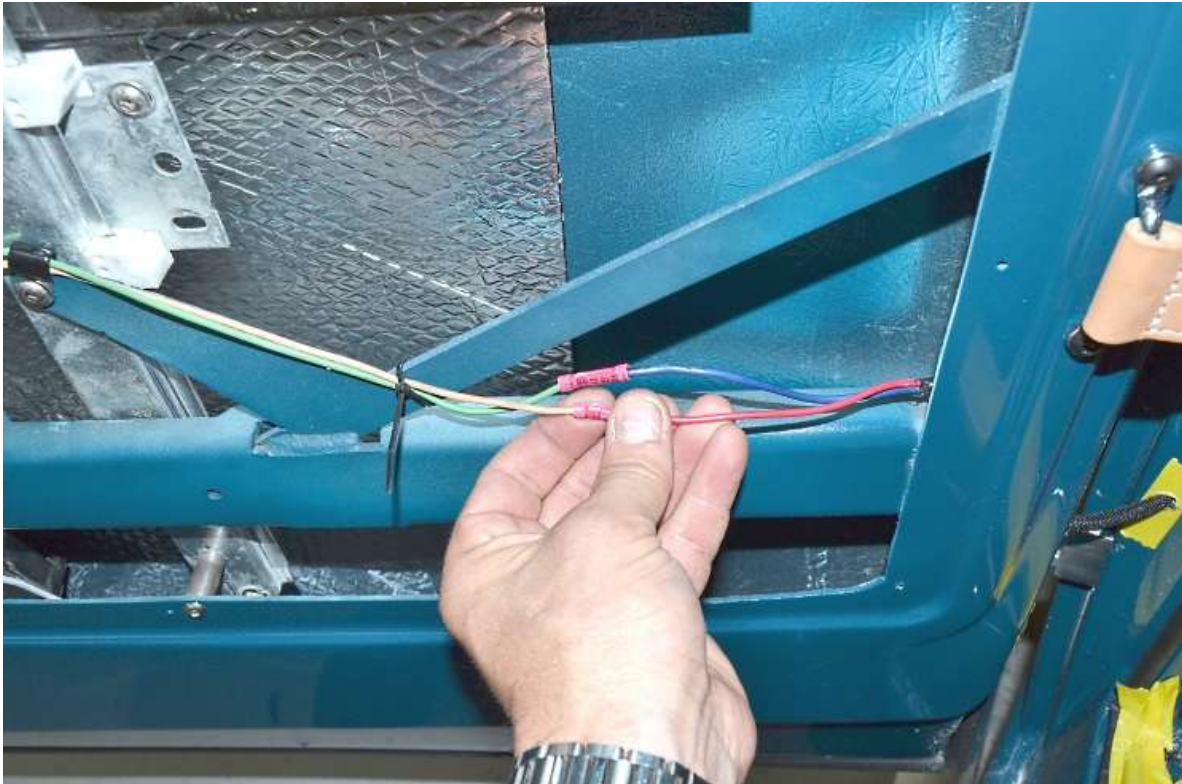


On each of the connectors use red butt connectors to connect the red wire to the green wire and blue to the black wire on the plug.



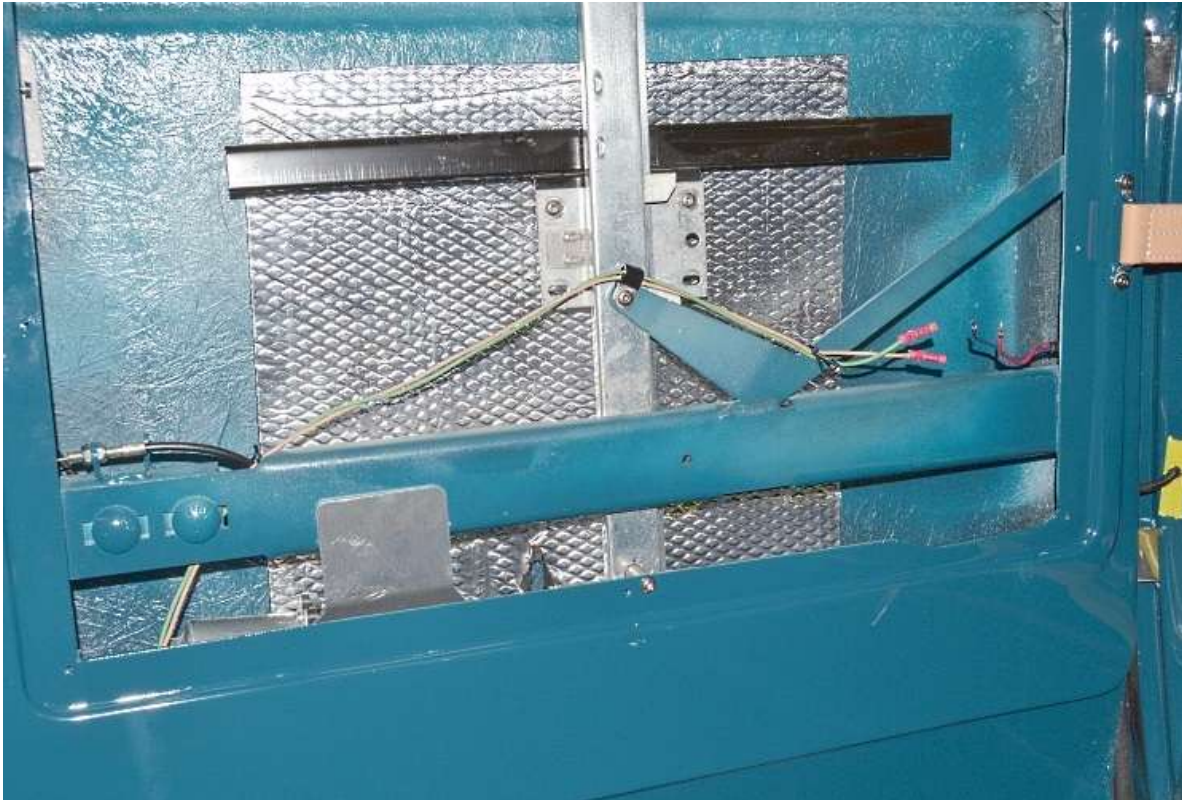
Connect the 5' red wire to the red connector wires then run the wire to the electric choke or Fuel injection chassis harness wires for the power.

Connect the 5' black wire to the blue connector wires then ground the wire using the ring terminal and #14 screw if you do not have a ground post set-up.



Do not butt connect the wires to the window motor until after the body is painted. For now, twist the red wire to the brown motor plug wire and the blue to the green motor wire.

GLASS HOLDER AND STOPS



Attach the window glass holder to the upper holes on the track bracket. Center the bolts in the holes.



Slide the glass back and forth in the glass holder so that the gaps on each end are the same.



Close the door, and raise the window up to where you would like it to stop. Be careful doing this. Once this position is found, open the door and mark the window track where the bottom of the plastic guide is.

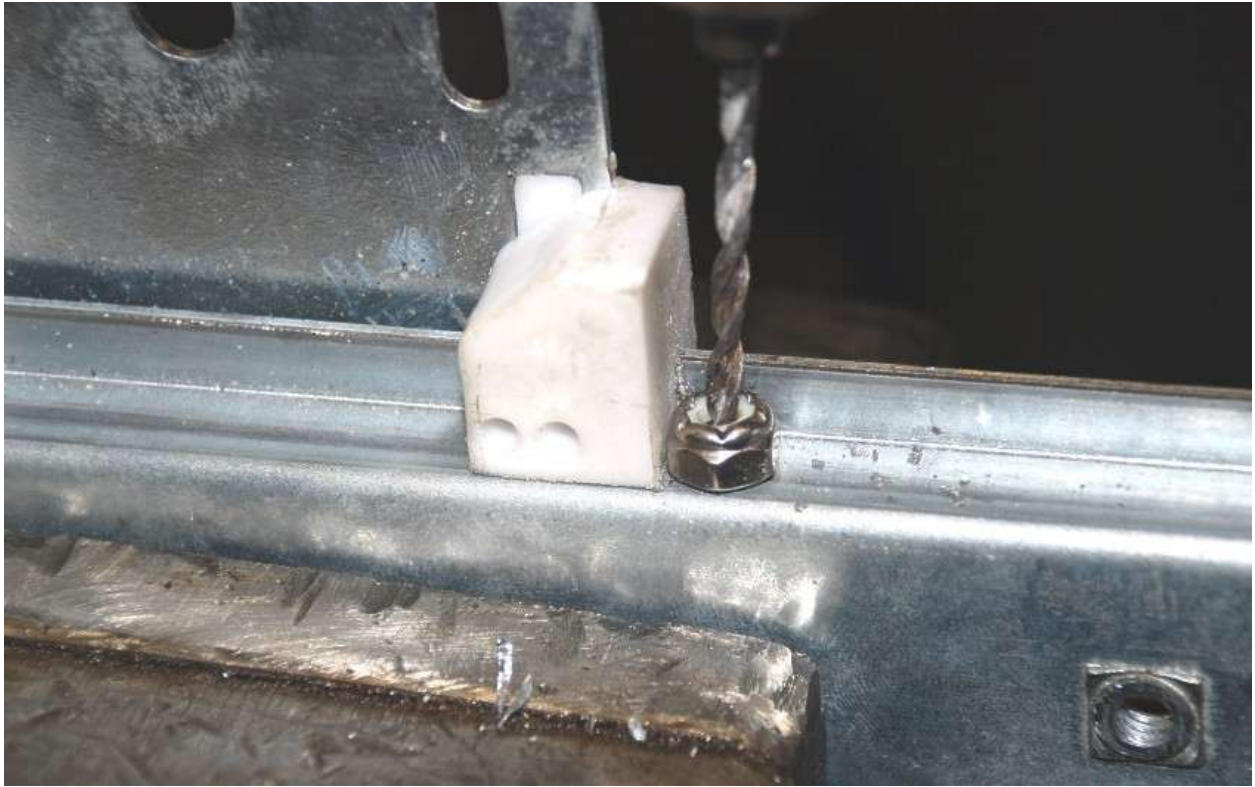
Lower the window so that the top of the glass is just above the top of the door. Leaving just a little glass here will help prevent the window from rattling when it is all the way down.



Mark the window track where the top of the plastic guide is.



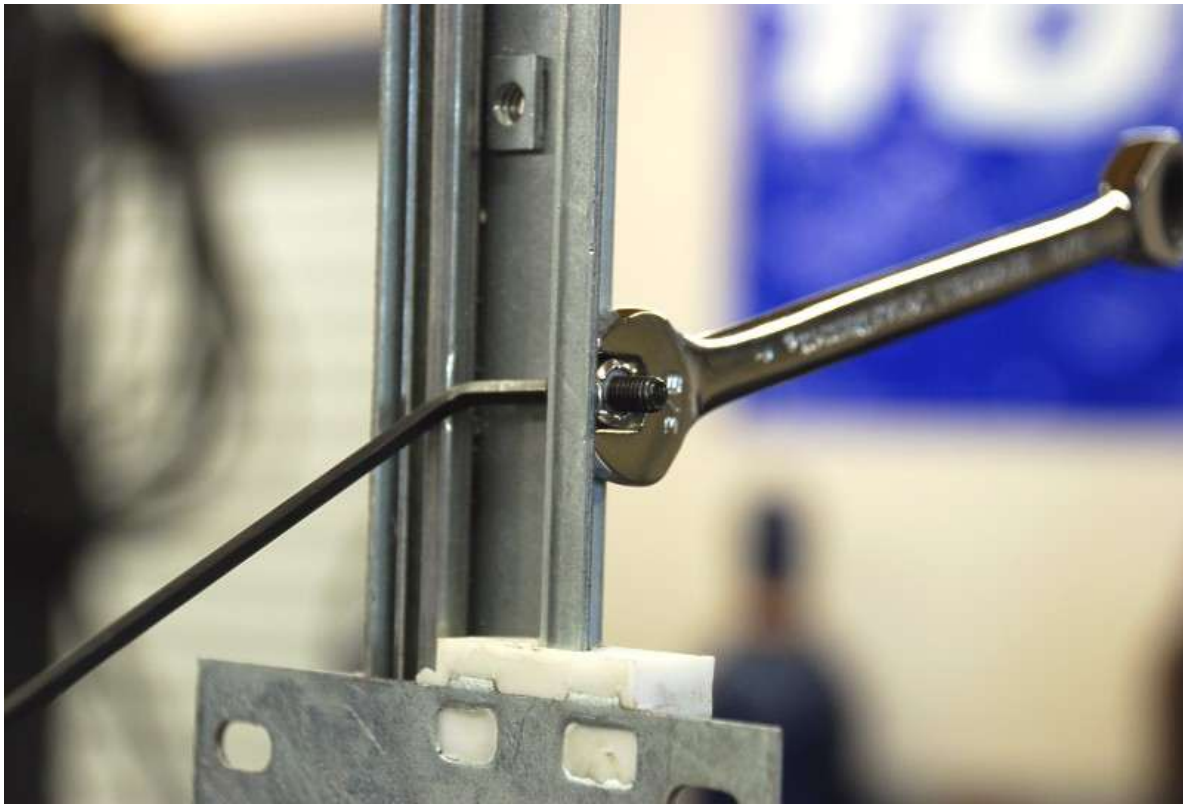
Align the track bracket with the mark made for the up stop position.



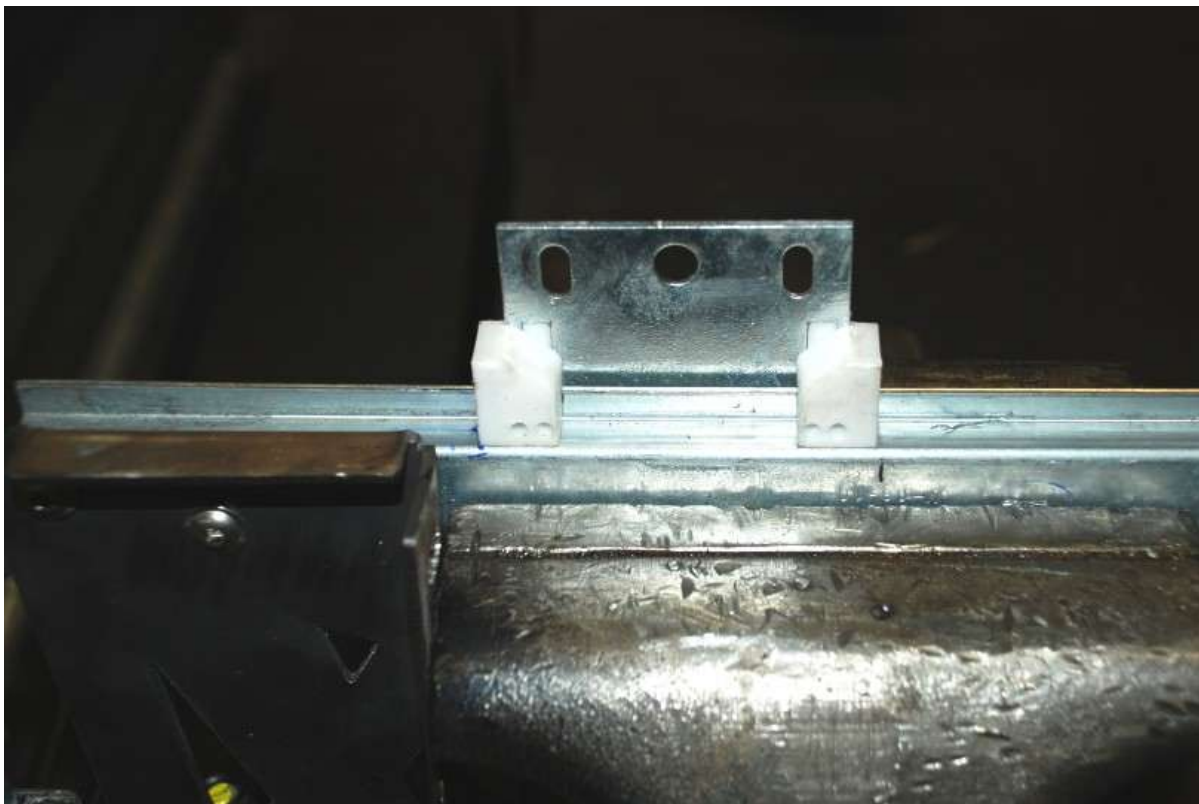
Place one of the 10-32 locknuts on top of the plastic guide on the window track then use a $\frac{5}{32}$ " drill bit (the same size as the nylon locknut opening) and using the lock nut as a locator, drill through one side of the window track.



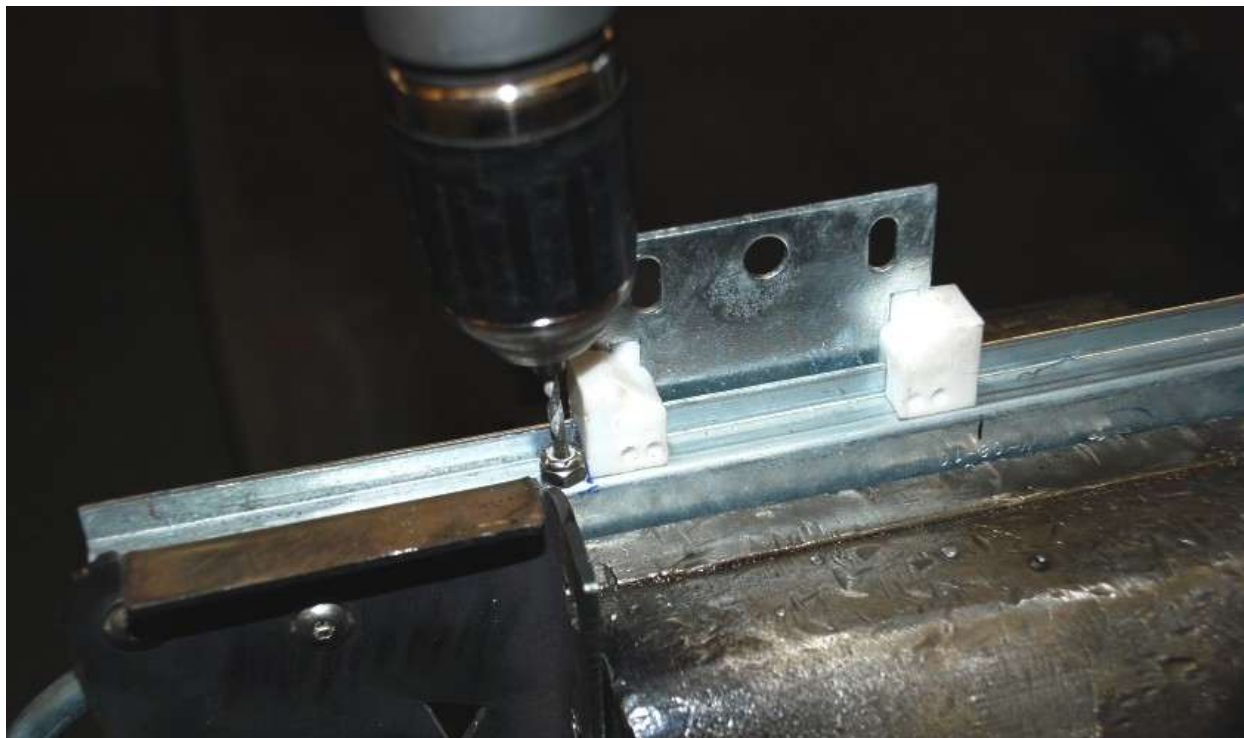
Remove the locknut and open the hole up to $\frac{13}{64}$ ".



Move the track bracket down and attach the 10-32 x $\frac{5}{8}$ " stop bolt using a $\frac{1}{8}$ " Hex key and $\frac{3}{8}$ " wrench.



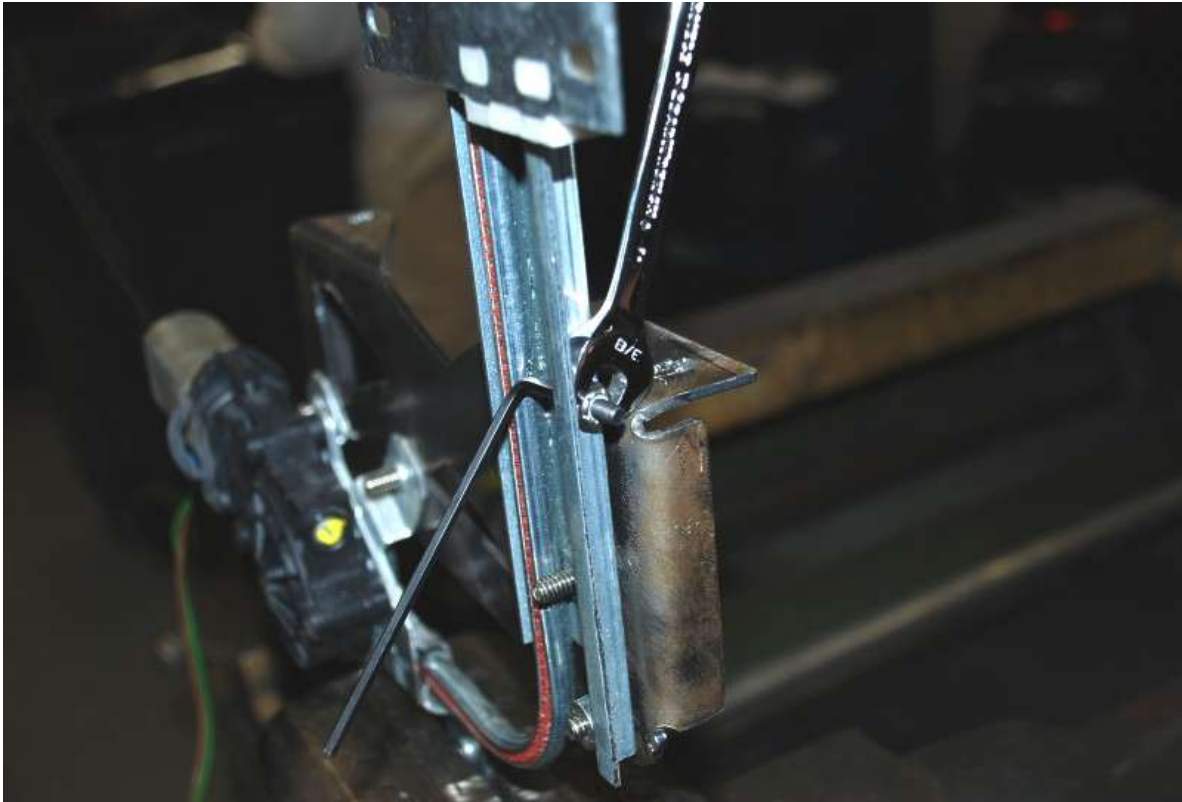
Align the track bracket with the lower stop mark made previously.



As done with the top stop hole, place one of the 10-32 locknuts under the bottom of the plastic guide on the window track and use a $\frac{5}{32}$ " drill bit to drill through one side of the window track.



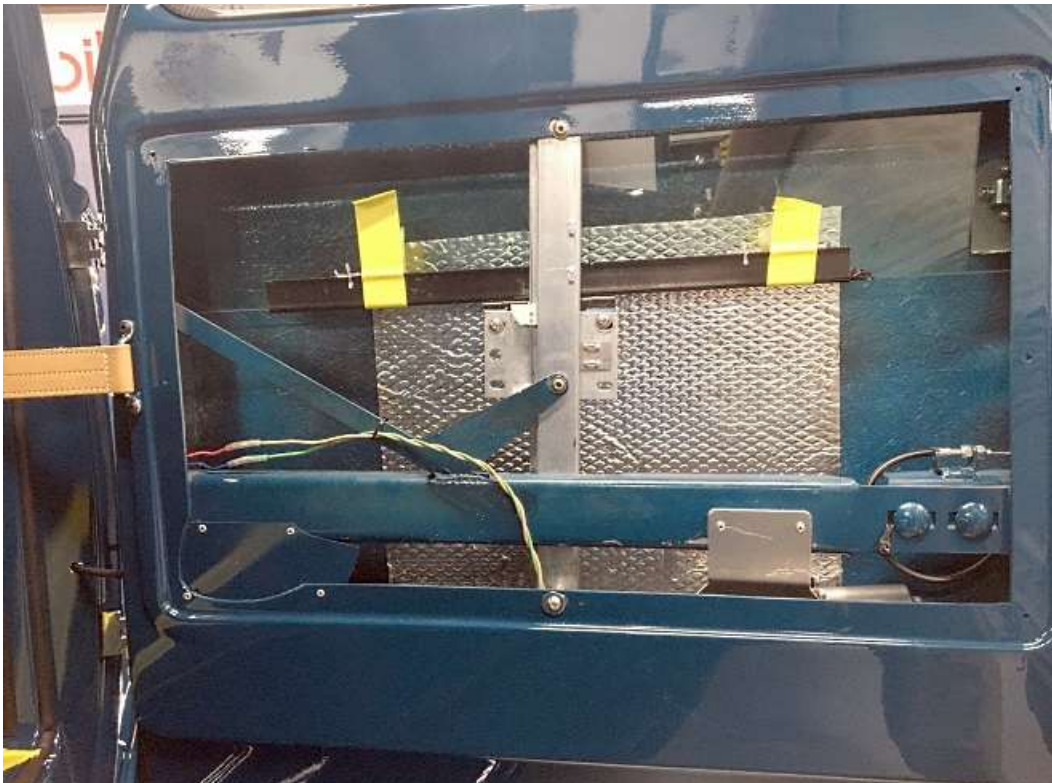
Remove the locknut and open the hole up to $\frac{13}{64}$ ".



Move the track bracket up and attach the 10-32 x $\frac{5}{8}$ " stop bolt using a $\frac{1}{8}$ " Hex key and $\frac{3}{8}$ " wrench.



Slowly close the door checking the clearance of the glass at the front and back near the top then raise the window up and have a friend push the glass against the weatherstrip.

Lower the glass all the way.



Lower and tape the glass in the window track. The glass will get glued after the body is painted.

Side mirror

-  Truck mirror assembly
-  Drill, $\frac{13}{64}$ ", $\frac{5}{16}$ " drill bits, marker





Decide where the mirror is going to get mounted by holding it in place with the gasket.

Remove the mirror leaving the gasket then mark the mounting holes through the gasket.

Drill the $\frac{13}{64}$ " and $\frac{5}{16}$ " mounting holes.

Check the fitment of the mirror.

Door panel

-  Upholstered interior parts, Secondary chassis components, door latch components.
-  Drill, Philips head screwdriver, $\frac{7}{64}$ ", $\frac{1}{8}$ ", $\frac{5}{32}$ " drill bits, drill.



Locate the door panels and pockets.



Attach the armrest to the door panel.



Look at the door mounting flange size where the mounting screws will go and the location of the power window mounts.

Mark the eight mounting screw holes $\frac{1}{2}$ " from the edge so there are 3 along the top, bottom and two on the sides in the middle. The middle upper screw hole needs to be off center so that it will not hit the power window track.

Drill $\frac{7}{64}$ " holes through the panel and the door mounting flange.

Remove the door panel

Open the holes up on the door panel to $\frac{3}{16}$ ". **Do not open the holes up on the door!**

Decide if or where you want the door pockets.

Attach the door pockets to the door panel.

DOOR HANDLE



Pass the inside door latch handle through the hole in the door panel.



Use the handle as a guide to drill $\frac{1}{8}$ " holes through the door panel then screw it to the panel using the #8 chrome oval head screws.



Screw the panel to the door using the black screws with countersunk washers.

Dash

PREP





Hold the dash in place, there should be about a ½” gap between the dash and the windshield (not the body).

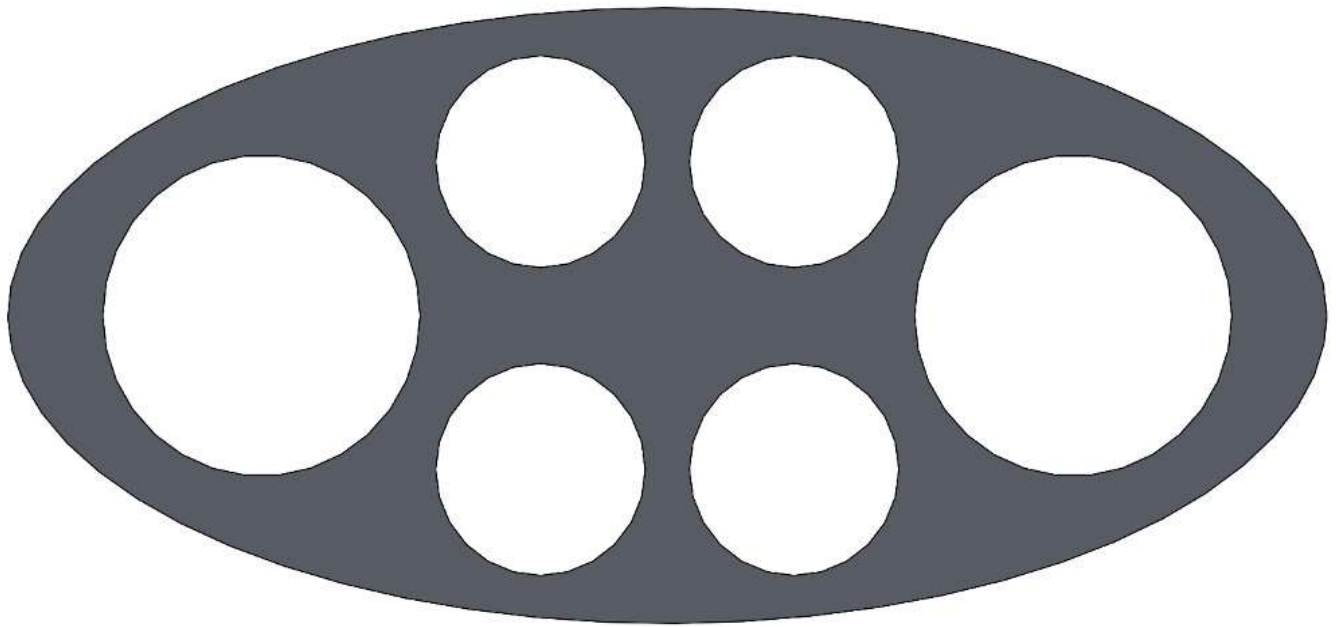
Trim the dash if necessary.



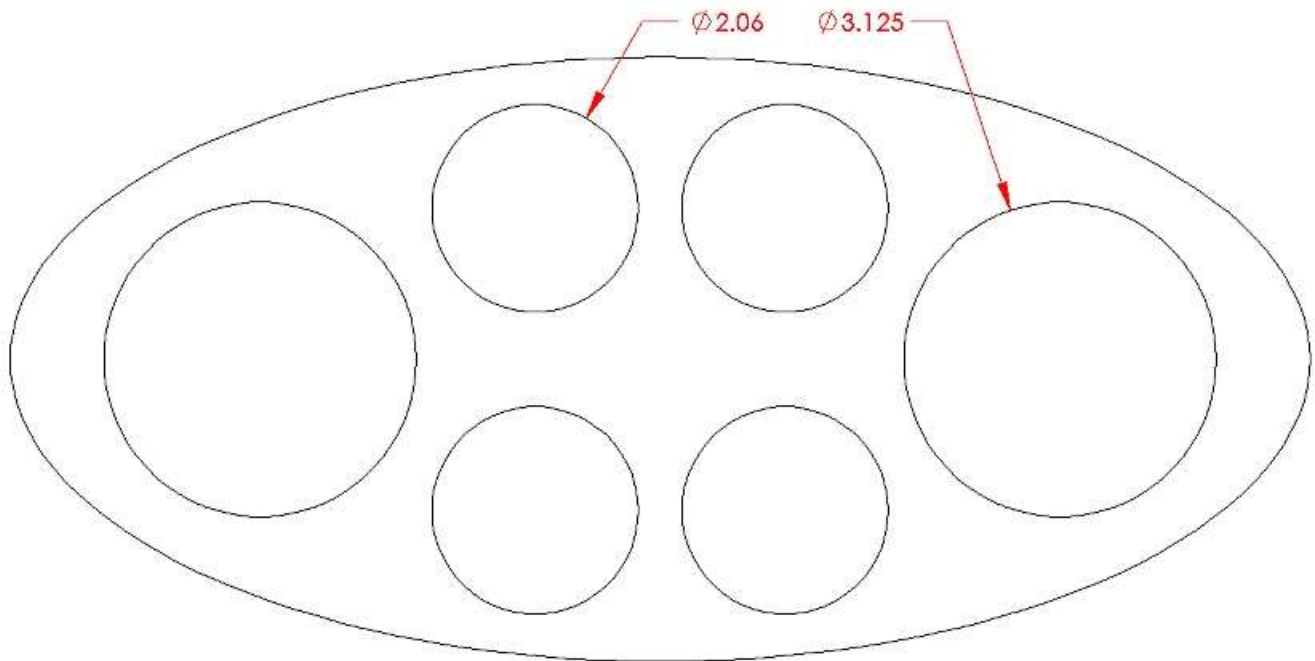
Push the weatherstrip shown in the picture onto the edge of the dash bending it carefully and test fit.

GAUGE AND SWITCH HOLES

-  $\frac{15}{16}$ ", $2\frac{1}{16}$ ", $3\frac{1}{4}$ " hole saws, drill, $\frac{5}{32}$ ", $\frac{7}{16}$ " drill bits, marker, file, masking tape
-  Packaged aluminum gauge panel, Gauge set, dash.



The gauge template is the FFR proposed center dash gauge layout and can also get used as a gauge trim plate if desired.



Center the gauge panel in the dash area, tape it in place and mark the gauge holes through the panel.

Use the gauge panel as a guide and cut the gauge holes (small ones first) using hole saws

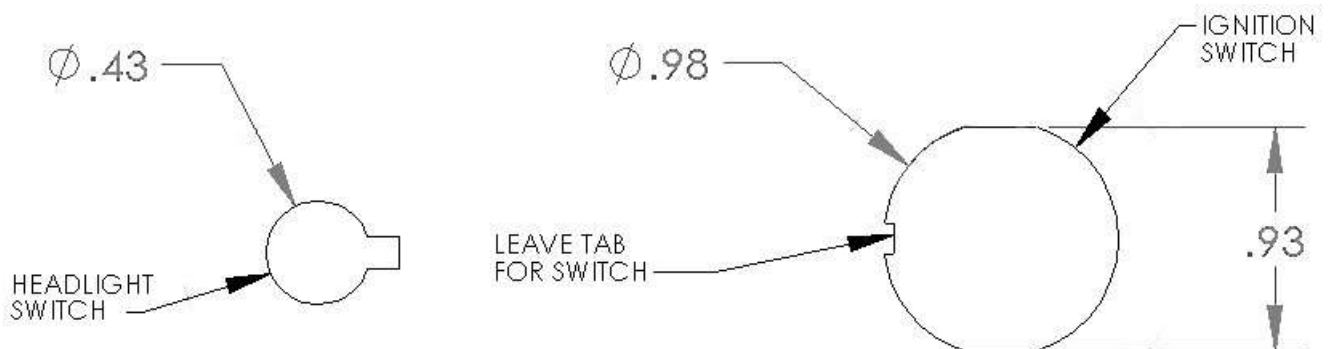


If you would like to put the small green (turn signal) and blue (high beam) LED's on the panel as shown, use a $\frac{5}{32}$ " drill bit.

Hold the gauge panel in place and test fit with the gauges. File the holes in the body if necessary. The mounting brackets for the gauges will hold the panel and gauges in place.



Decide where you would like the ignition switch, headlight switch and headlight high/low beam switch.



Drill the dash for the ignition, headlight and headlight high/low beam. The high/low beam switch is $\frac{7}{16}$ ".



Test fit the ignition switch. If necessary, remove material on the back side of the dash area to allow more than two threads to engage.

Test fit the headlight switch and high/low beam switch.

OPTIONAL A/C VENT HOLES

- ✂ 2.50" hole saw, air saw, marker
- 🚗 A/C components



If installing A/C, decide where you would like the dash vents to get located, either in the dash as shown; mounted under the dash or, in the center of the dash.

Use a 2.50" hole saw for the dash vent holes.

Test fit the A/C vents.

STEERING COLUMN CUTOUT

- 🚗 Steering column dash cut template
- ✂ Marker, scissors, air saw

Cut out the dash cut template from the appendix.



Position the template on the dash and tape it in place.



Mark the cutout area with a marker.

Cut the area out with a saw.



MOUNTING

✂ ¼" drill bit, drill



Put the dash in the cab and drill two $\frac{1}{4}$ " mounting holes through the side of the dash and cab on each side of the cab.

Check strap

-  Door hinge components
-  $\frac{3}{16}$ " drill bit, drill, marker



Open the door and drill $\frac{3}{16}$ " mounting holes through the cab under the dash using a check strap as a guide.



Hold the check strap up to the door just in front of the door panel and drill $\frac{3}{16}$ " mounting holes through the door using a check strap as a guide.

Grill Cowl



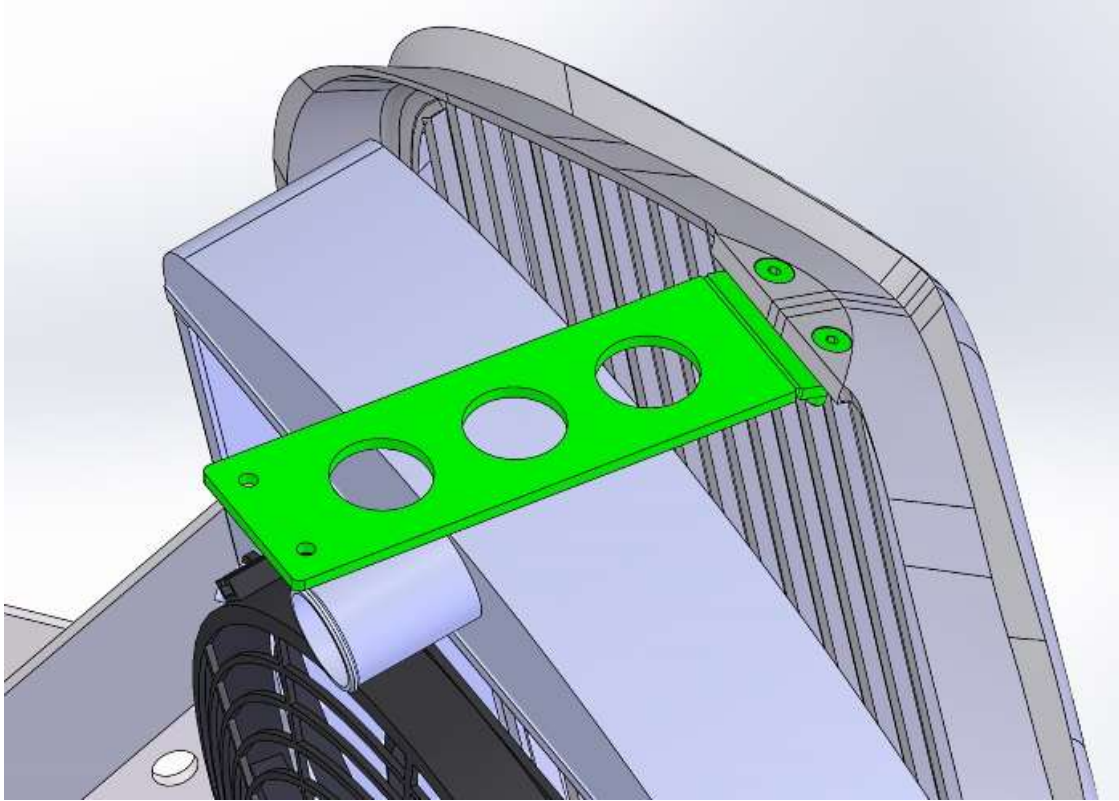
$\frac{5}{32}$ " hex key, $\frac{1}{2}$ " wrench, clamp, Orbital sander, 80 grit sand paper, masking tape, jig saw or air saw, marker, drill, $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ " drill bits.



Radiator cowl, Nose mount components, packaged aluminum, Secondary chassis components.



The panels are cut oversized at the factory to allow for maximum adjustment and to allow the customer to set their own desired panel gaps.



Attach the top cowl mount to the top of the grill using the $\frac{1}{4}$ " x 1" socket flat head screws, $\frac{5}{32}$ " hex key, and $\frac{1}{2}$ " wrench.



Put a few of the large bumpers across the top of the grill.



Put the cowl around the grill and clamp the bottom parts together.



Unpack the two sides of the lower cowl mount.



Mark the sides for riveting together, the two curved sections sit flush with one another to form a shield shaped section that mounts the cowl and fills in the empty space beneath the radiator.



Drill the sections using a $\frac{1}{8}$ " drill bit while holding them together with clamps or a vice.



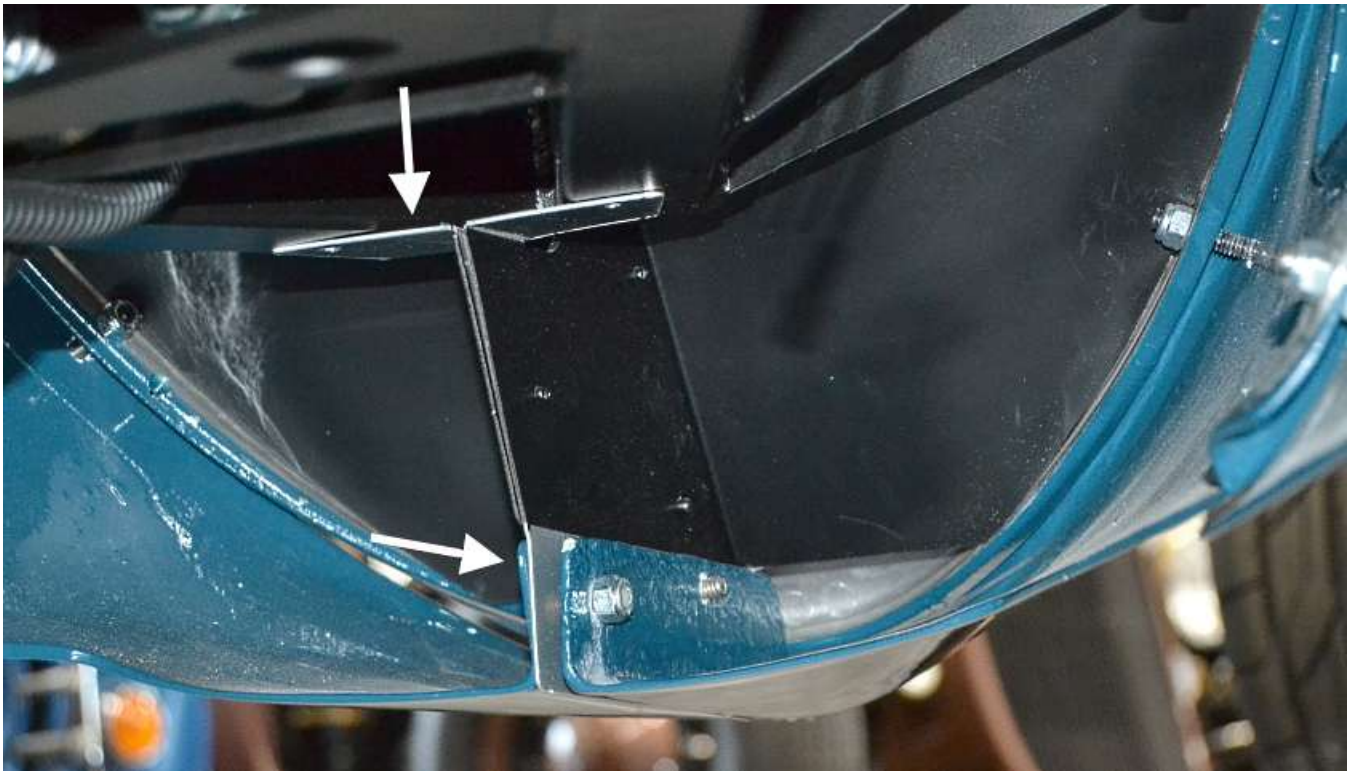
Rivet the two panels together with $\frac{1}{8}$ " rivets.



The finished piece forms a section the same shape as the bottom section of the grill.



If desired, the aluminum panel can be painted or powder coated black so it disappears.



Sandwich the lower cowl panel between the two cowl flanges and span the mount across to the bottom of the frame and clamp the cowl and aluminum together.

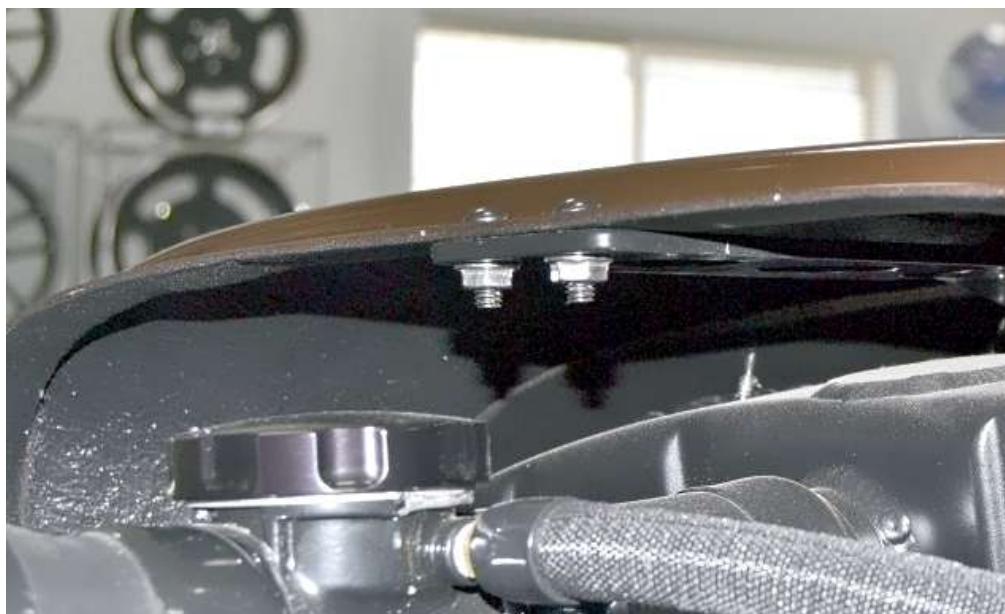
Drill $\frac{3}{16}$ " holes through the cowl mount flange and the frame if painting the panel, remove and coat then reinstall and rivet the flange to the bottom of the frame.



Trim the cowl around the grill a little at a time if necessary so it just fits.



Drill $\frac{1}{4}$ " mounting holes through the cowl flange and cowl mount.

Attach the cowl pieces and aluminum together using the black ¼"x ¾" button head screws.



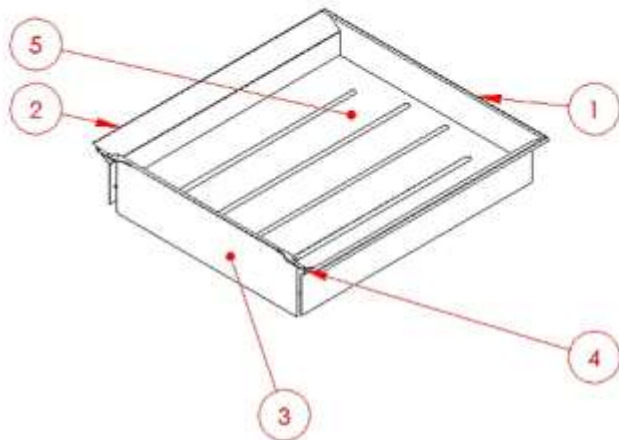
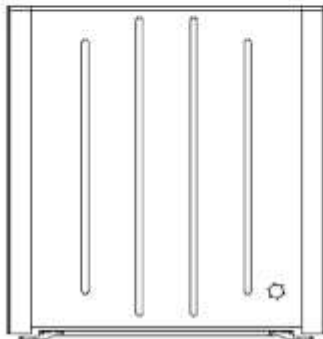
Attach the top of the cowl to the top mount using the black ¼"x ¾" button head screws.

Truck Bed

-  Truck bed body components, bed fasteners
-  ½" wrench, ⅝" hex key, ¼" drill bit, drill

ITEM NO.	PART NUMBER	DESCRIPTION	Qty mat/QTY.
1	34341	35 TRUCK, TRUCK BED LINER FRONT	1
2	34335	TRUCK BED LINER SIDE	2
3	34337	35 TRUCK, TAILGATE LINER	1
4	34339	TAILGATE TOP BAR	2
5	34430	TRUCK BED FLOOR	1

REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE		INITIAL RELEASE



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35 TRUCK	DIMENSIONS ARE IN INCHES TOLERANCES TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.008 FOUR PLACE DECIMAL ±0.001	JS	2/8/18
	MATERIAL		
	FINISH		
USED ON			
APPLICATION		PRINTED	7/11/2018
		SCALE: 1:24 WEIGHT:	SHEET 1 OF 1



Factory Five Racing, Inc.

TITLE:
35 TRUCK BED BODY COMPONENTS

SIZE
A

DWG. NO.
34342

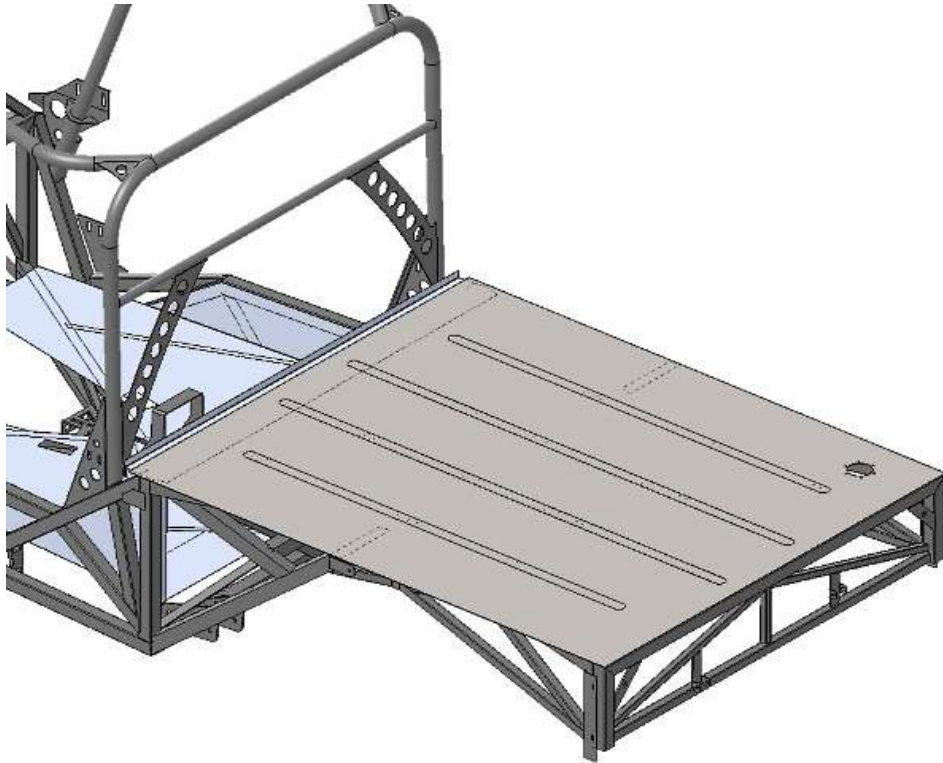
REV
A

STAINLESS FLOOR

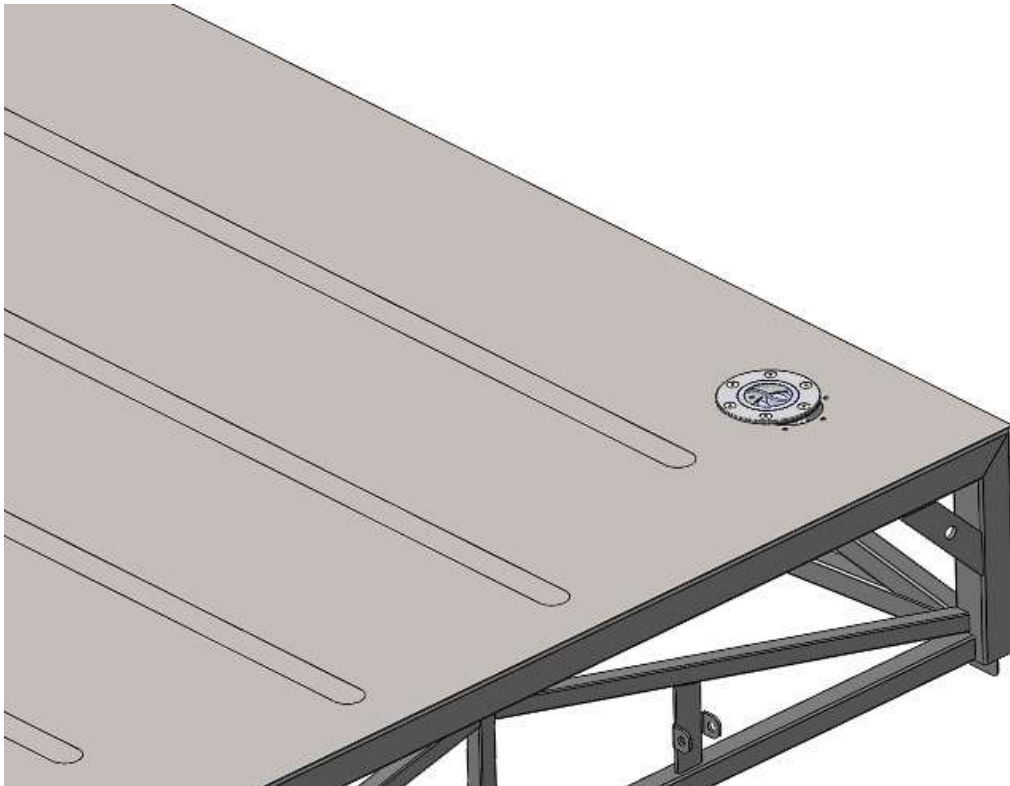
Fuel filler



Fuel line components, truck filler neck components, fuel filler components.



Place the stainless bed floor panel on the frame.



Attach the gas cap to the fuel filler neck with a hose clamp then to the panel along with the ground strap.

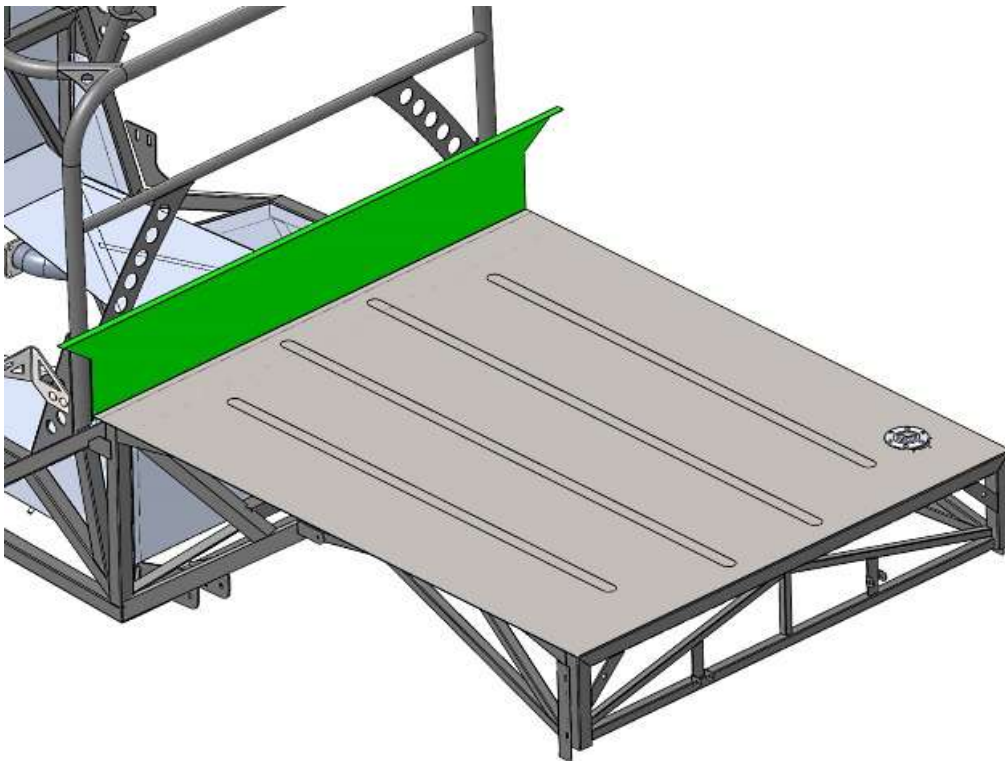
Attach the ground strap to the frame with a #14 x ½" screw making sure to remove any coating that may prevent grounding.

OPTIONAL ALUMINUM FLOOR

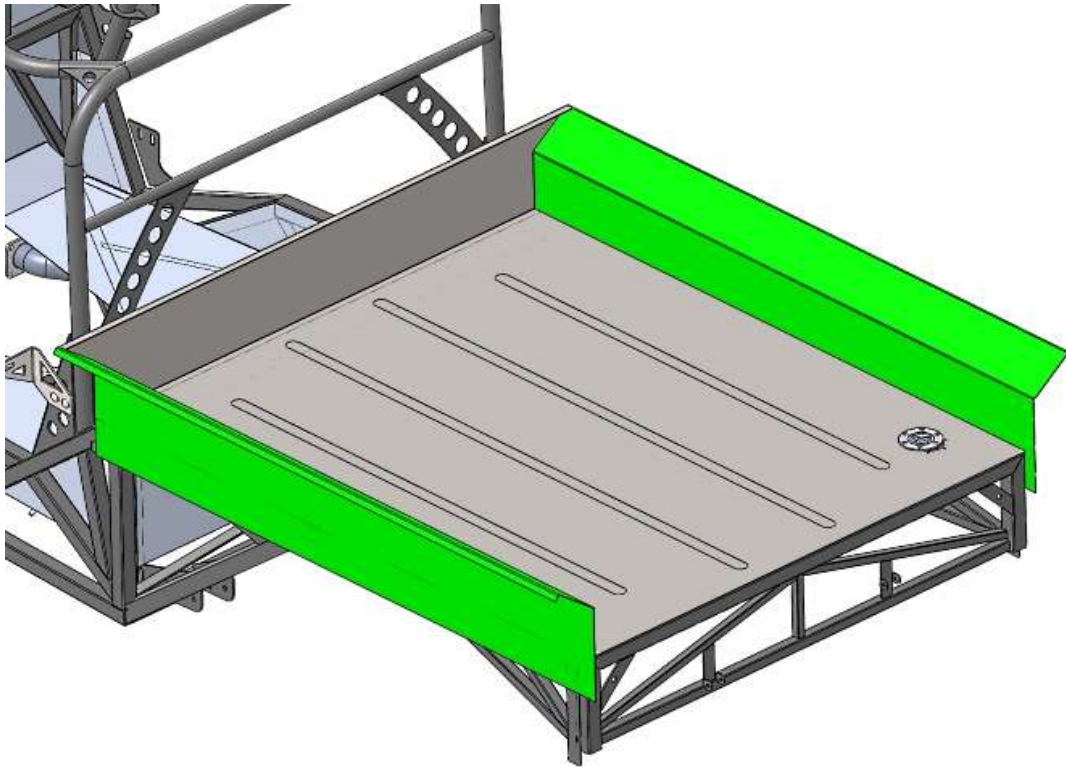


See the online instructions for installing the aluminum bed kit.

FRONT AND SIDES



Place the bed liner front panel under the bed floor.



Clamp the bed sides (shown without fiberglass panels) to the side of the frame.

Clamp the back under tailgate panel to the two sides.

Make sure the gaps around the floor are even.

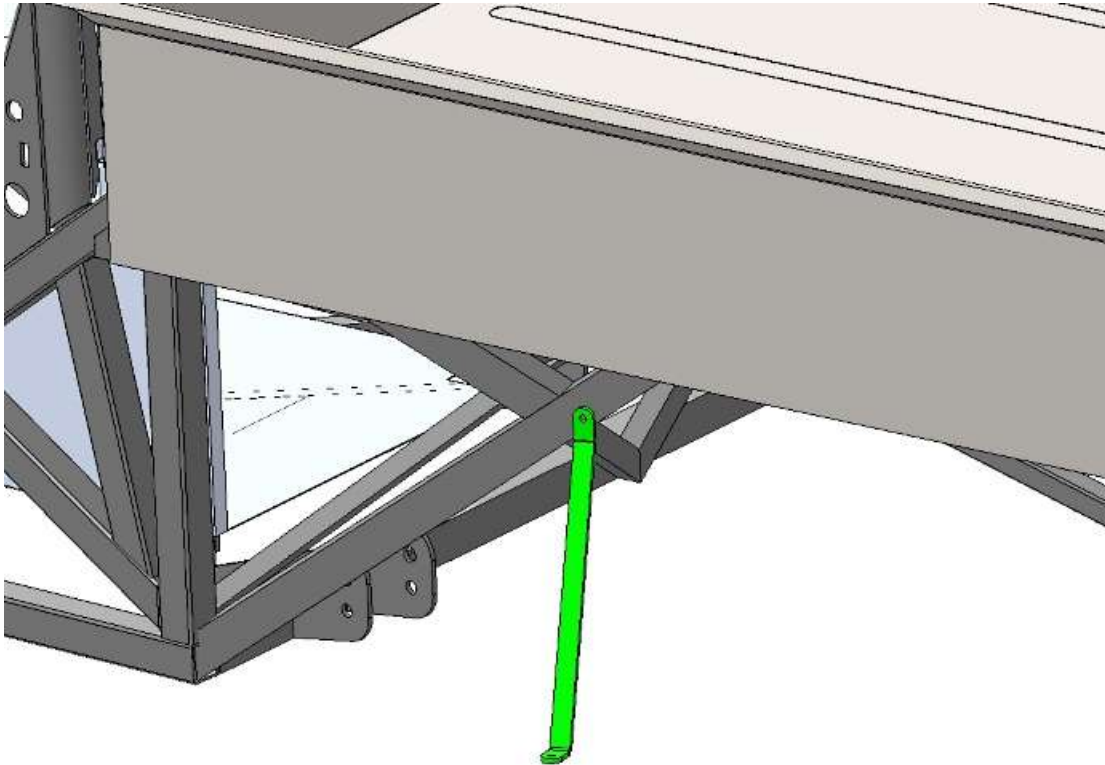
If you are using the stake pocket panels then you will want to share hardware that hold the bed on and the pocket, hold off on drilling these holes until you are mounting the pockets.



Drill $\frac{1}{4}$ " holes and attach the bed sides to the frame using the nylon spacers, $\frac{1}{4}$ " black Button head screws and acorn nuts where the nut is visible and the flanged nuts or locknuts where the nuts are not visible. Use a $\frac{5}{32}$ " hex key and $\frac{1}{2}$ " wrench.



If using fenders do not attach the longer kit bed supports, use the short supports included with the fenders.



Hold the kit rear fender mount up to the side of the 1.50" angled frame tube so that it can reach over to the bed side lower flange. Mark the frame and bed side.

Use a drill tap or riv-nut at the point marked on the frame.

Drill the lower bed side flange with a 1/4" drill bit.

Attach the fender mounts to the frame using a 5/32" hex key, 1/2" wrench, 1/4" black Button head screws.

TAILGATE HINGE STRAP

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34267	TAILGATE HINGE MOUNT	1
2	34264	TAILGATE HINGE STRAP	1
3	BRONZE BUSHING	HINGE BUSHING	2
4	34270	5/8" x 1.75" SHOULDER BOLT	1
5	10834	NYLON INSERT LOCKNUT, 1/2-13 UNC	1
6	34364	1/4"-20 x 3/4" BLACK BUTTON HEAD BOLT	6

REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	2/27/16	

35 TRUCK

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES

TWO PLACE DECIMAL ±0.01

THREE PLACE DECIMAL ±0.005

FOUR PLACE DECIMAL ±0.001

MATERIAL

FINISH

USED ON

APPLICATION

NAME

DATE

DRAWN

COMMENTS

PRINTED

Factory Five Racing, Inc.

TITLE:

TAILGATE HINGE COMPONENTS

SIZE DWG. NO. REV

A 34268 A

SCALE: 1:5 WEIGHT: SHEET 1 OF 1

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Push the bushings into the tailgate hinge strap.

OPTIONAL STAKE POCKETS

- Stake pocket components
- 1/2" wrench, 5/32" hex key, 1/4" drill bit, drill



For the rear pockets hold the pocket up to the bed side so that the pocket is up against the angle and sits between the raised trim areas.



Mark, drill and attach the rear pockets to the bed side using the black button head screws, acorn nuts, $\frac{5}{32}$ " hex key and $\frac{1}{2}$ " wrench.

TAILGATE/ROLLPAN

 Truck bed body components, tailgate hinge components

✂ ½" wrench, ⅝" hex key, ¼" drill bit, drill, marker, ruler.



Remove the rear fasteners from one bed side then slide the Rollpan underneath far enough so it can fit under both side panels.



Clamp the panel in place making sure the curves of both pieces match up and the gap is as tight as possible. If there are any high spots mark them and remove the panel to grind them flush for the best fit. This panel seam is visible below the tailgate so pay extra attention to the fit here.



Drill and bolt the lower edge of the Rollpan and bedside together. Make sure your edge stays straight from the top of the panel all the way down.



Drill and countersink the fasteners between the bedside and the Rollpan, these need to sit flush so the tailgate doesn't interfere when it is shut.



Draw a line centered in the recessed area on each side of the center trim rectangle.



Center the tailgate hinge strap on the line so you can see the line through the mounting holes and lower it so that it sits on the bottom raised area.

Mark, drill and attach the tailgate strap to the tailgate using the 1/4" x 1" black button head screws, acorn nuts, 5/32" hex key and 1/2" wrench.

Tape a paint stick as a spacer on the top of each side of the under-tailgate panel.

Clamp the tailgate to the bed so it is sitting on the paint sticks.

Hold the tailgate hinge mount up to the hinge strap and put the shoulder bolt through the assembly.

Mark the hinge mount holes on the under-tailgate panel.

Remove the tailgate.

Remove the paint sticks.



Use a 1/4" drill bit to drill the mounting holes then attach the hinge mount to the under-tailgate panel using the backing plate, 1/4" black button head screws, 5/32" hex key and 1/2" wrench.





Attach the Tailgate Chain Mount to the tailgate by drilling 1/4" holes through the tailgate using the holes in the stainless as a guide then using the black 1/4" button head screws and acorn nuts 5/32" hex key and 1/2" wrench.



Remount the tailgate to the hinge mount using the shoulder bolts.

TAILGATE STRAP

-  Tailgate hinge components
-  $\frac{1}{2}$ " wrenches, $\frac{1}{4}$ " drill bit, drill, marker



Remove and discard the nuts from the U-bolts and place it through the small hole in the top link.



Place a flanged nut on each of the legs of the U-bolt.



Put the large part of the top link over the end of the strap mount and clip the strap in the end hole of the chain mount.



Hold the U-bolt up to the bed side in behind the stake pockets if used so that the tailgate is closed and not loose then mark the location of the U-bolt legs.

Drill $\frac{1}{4}$ " holes at the marked locations.



Attach the U-bolts to the bed sides using the acorn nuts and $\frac{1}{2}$ " wrenches.

Optional Hood/ Hinge

- ✂ Orbital sander, 80 grit sand paper, masking tape, jig saw or air saw, marker, $\frac{3}{16}$ " hex key, $\frac{1}{2}$ " wrench.
- 🚗 Hood, engine side covers, secondary body fasteners, Hood hinge components
- 👤 The panels are cut oversized at the factory to allow for maximum adjustment and to allow the customer to set their own desired panel gaps.
- 👤 Read all instructions and try readjusting the grill before trimming too much.

Put a few of the small bumpers across the cowl on the car and tape to the body.

Set the hood in place for initial fitment so that the front is down in the grill recess. Trim the hood around the grill a little at a time if necessary so it just fits.

Trim the rear edge of the hood so that the hood just sits down in the opening.



Bumpers from the nose mount fasteners can be used to space the hood up so that it is flush with the body.

REV. NO.		DESCRIPTION		DATE		APPROVED	
A		INITIAL RELEASE		4/17/18			

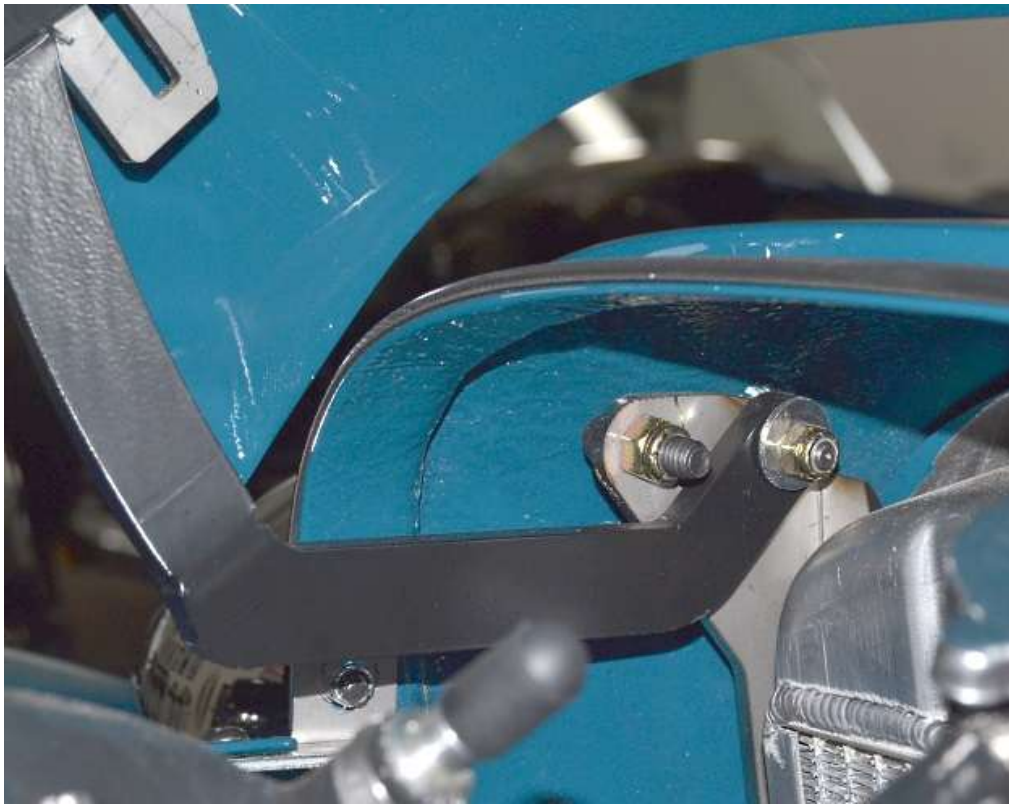
ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	34505	34507 - RIGHT 35 TRUCK HOOD HINGE BRACKET	1
2	34508	34510 - RIGHT 35 TRUCK HOOD HINGE ARM	1
3	13183	Bronze flange bearing	6
4	34533	3/8\"-16 x 0.75\" SOCKET HEAD CAP SCREW	2
5	34512	34514 - RIGHT 35 TRUCK HOOD HINGE BRACKET	1
6	34505	34506 - LEFT 35 TRUCK HOOD HINGE BRACKET	1
7	34508	34509 - LEFT 35 TRUCK HOOD HINGE ARM	1
8	34512	34513 - LEFT 35 TRUCK HOOD HINGE BRACKET	1
9	13964	NYLON INSERT LOCKNUT, 3/8\"-16 UNC.	2
10	15392	5/16\"-18 x 1\" CARRIAGE BOLT	4
11	34526	5/16\"-18 FLANGED NYLON LOCK NUT	6
12	34364	1/4\"-20 x 3/4\" BLACK BUTTON HEAD BOLT	10
13	15235	0.625\" LONG SHOULDER BOLT	2
14	15165	NYLON BUSHING	2

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
35 TRUCK	DIMENSIONS ARE IN INCHES TOLERANCES TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001		4/6/18
	MATERIAL		
	FINISH		
USED ON	APPLICATION	PRINTED	8/1/2018

Factory Five Racing, Inc.		TITLE:	
		35 TRUCK HOOD HINGE COMPONENTS	
SIZE	DWG. NO.	REV	
A	34315	A	
SCALE: 1:4		WEIGHT:	
		SHEET 1 OF 1	

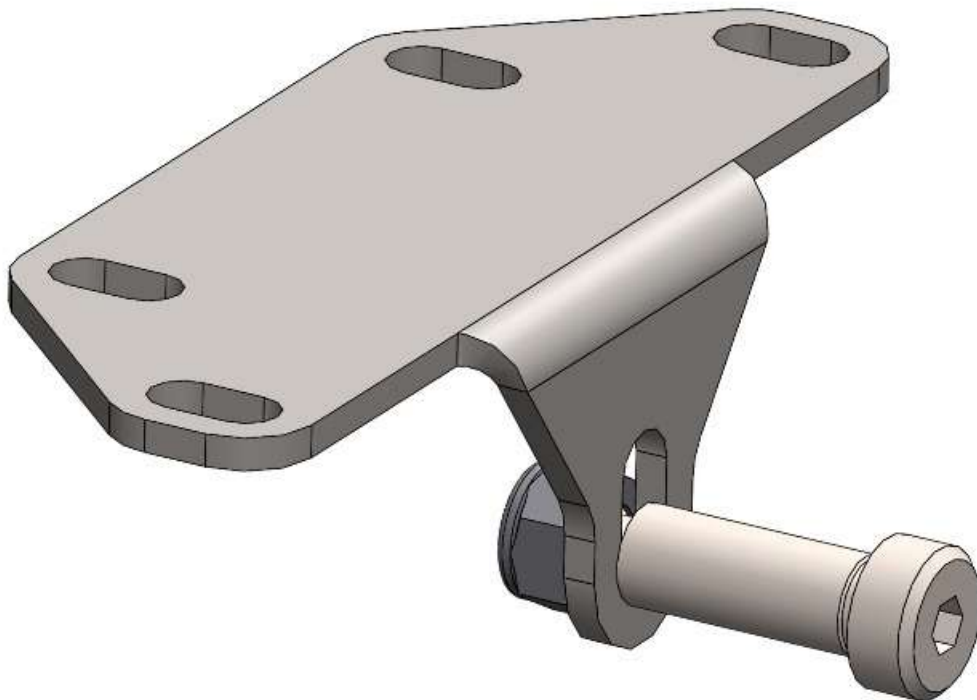
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Assemble the hood hinge as shown to the hood hinge bracket.



Mount the hinge bracket to the top radiator mount bolts.

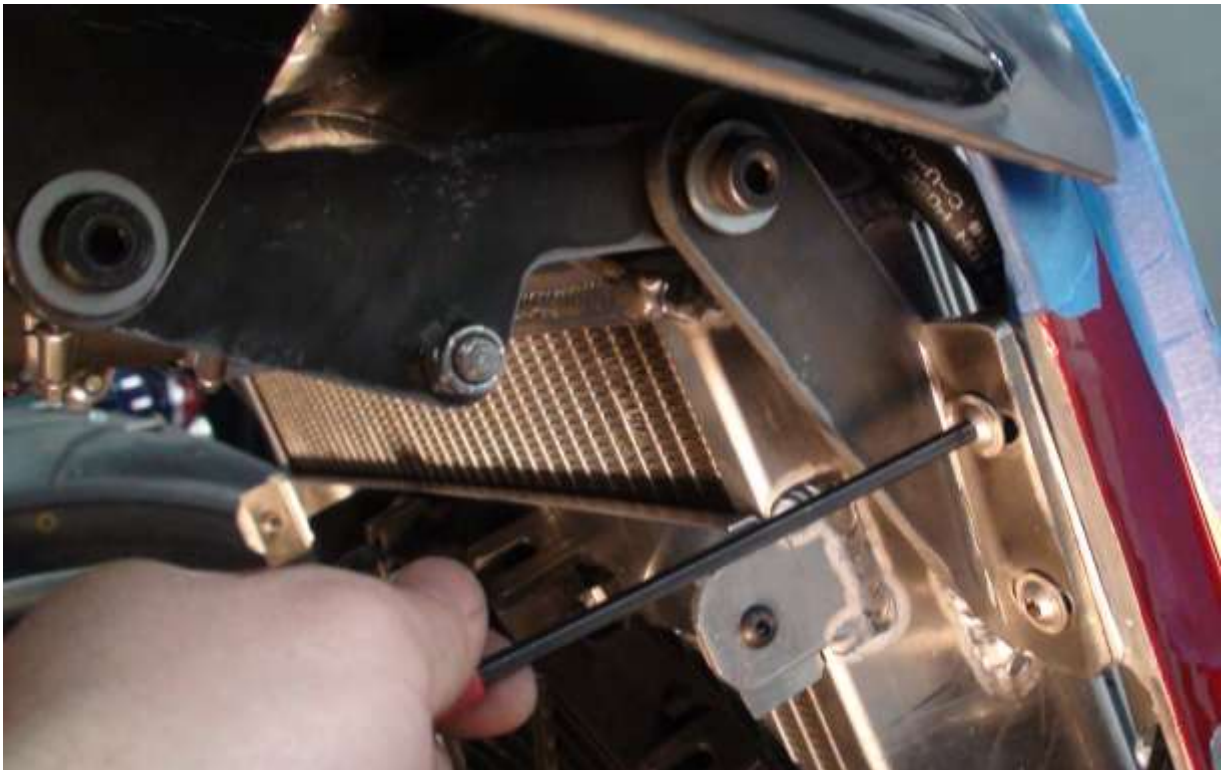
STRIKER



Mount the striker to the bracket.



Place the hood on the car and attach the hood mount to the hood finger tight to allow for adjustment.



Properly align hood and then tighten up the mounting bolts starting with the Radiator mounts first then the hood mounts.



Remove both upper hinge pins and remove the hood.



At the back of the hood, drill the hood striker bracket holes and install (4) $\frac{1}{4}$ "-20 riv-nuts in the hood.

Mount the hood striker bracket to the hood loosely to allow for adjustment.

HOOD LATCH

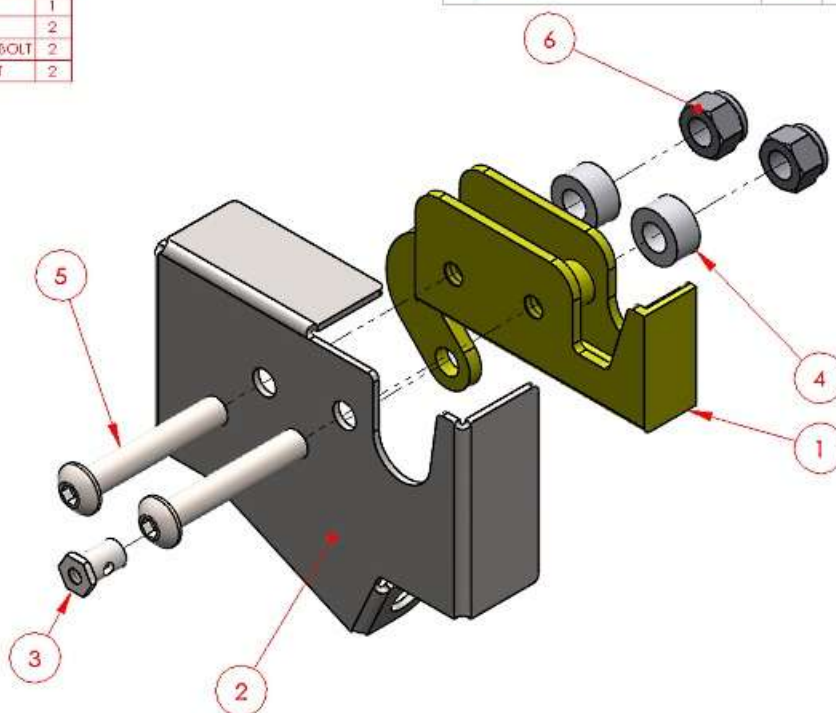
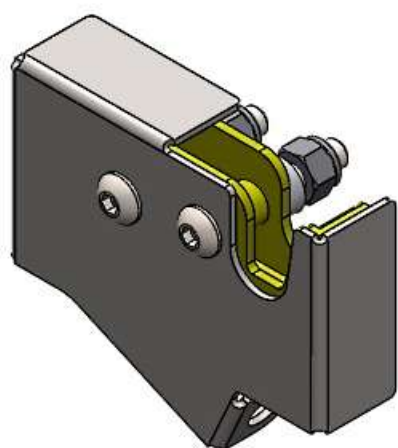
✂ $\frac{5}{32}$ " hex key, $\frac{7}{16}$ " wrench, grinder, measuring tape, marker, square



Hood hinge components

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	33734 - ROTARY LATCH	TWO STAGE LATCH	1
2	34500	HOOD LATCH COVER	1
3	33736 - SWIVEL WIRE STOP		1
4	34501	.2500" SPACER	2
5	25862	1/4"-20 X 1.5" BUTTON HEAD BOLT	2
6	10502	NYLON INSERT LOCKNUT	2

REV	REVISION	DATE	APPROVED
A	INITIAL RELEASE	7/20/18	



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TOLERANCES
TWO PLACE DECIMAL ± 0.01
THREE PLACE DECIMAL ± 0.005
FOUR PLACE DECIMAL ± 0.001

MATERIAL

FINISH

USED ON

APPLICATION

NAME DATE

DRAWN

COMMENTS

PRINTED

7/20/2018



Factory Five Racing, Inc.

TITLE:

HOOD LATCH

SIZE

A

DWG. NO.

HOOD LATCH

REV

A

SCALE: 1:1

WEIGHT:

SHEET 1 OF 1

Insert the hood latch cable into the latch spacer bracket hole.



Insert the wire stop into the latch.

Attach the hood latch to the cover.

Insert the wire end through the wire stop.

Use needle nose pliers to pull the cable tight then screw the wire stop screw down.

Use a $\frac{5}{16}$ " wrench and screw driver to tighten the screw more.

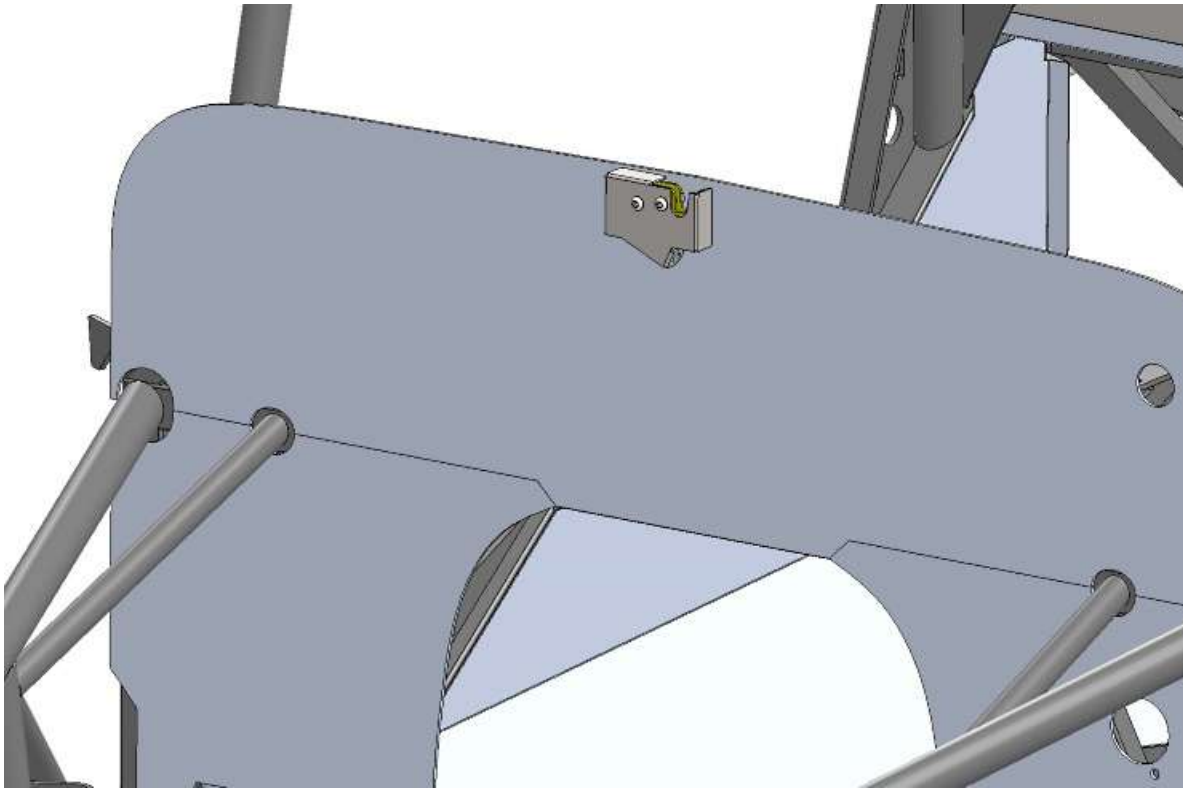


Check that the pull handle releases the latch by adjusting the cable stop before mounting the latch assembly.

Connect the latch to the striker on the hood and close the hood.

Mark the hole location of the latch bolts on the firewall.

Open the hood and drill $\frac{1}{4}$ " mounting holes through the firewall at the points marked.



Mount the bracket/latch assembly using 1/4" locknuts on the backside of the firewall.

Place hood back on car and reattach the hinge pins. Check that the latch properly engages and disengages.

HOOD SUPPORT ROD



Mock up the Prop Rod to find the desired mount placement, either on the hood or the engine side cover.

HOOD MOUNTED SUPPORT



Mark the holes on the underside of the hood for the ball stud bracket on the raised surface at rear of hood.



Drill and install $\frac{3}{16}$ " rivets. Snap the Prop Rod onto the ball stud.



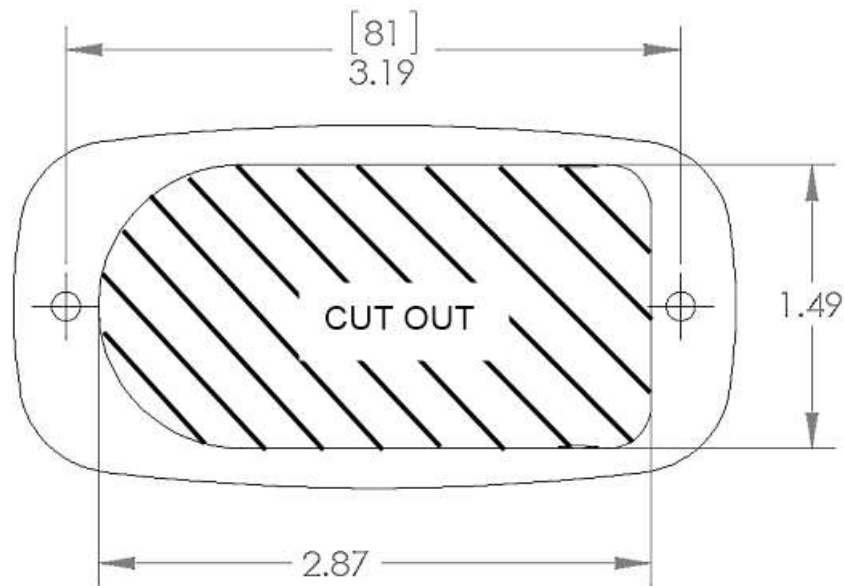
Snap the Prop Rod clip to the rod and mark the hood for desired placement.



Drill a $\frac{3}{32}$ " pilot hole and use a self-tap mounting screw into fiberglass.

HOOD CABLE RELEASE

- ✂ Drill, $\frac{3}{32}$ ", $\frac{3}{16}$ ", $\frac{11}{32}$ " drill bits, drill, rivet tool, air saw or jig saw, Philips screwdriver, marker, scissors.
- 🚗 Hood hinge components, insulated line clips, secondary body fasteners.
- 👉 Make sure to leave clearance for the door when the door is shut.
- 👉 Brushed aluminum handles also available online.

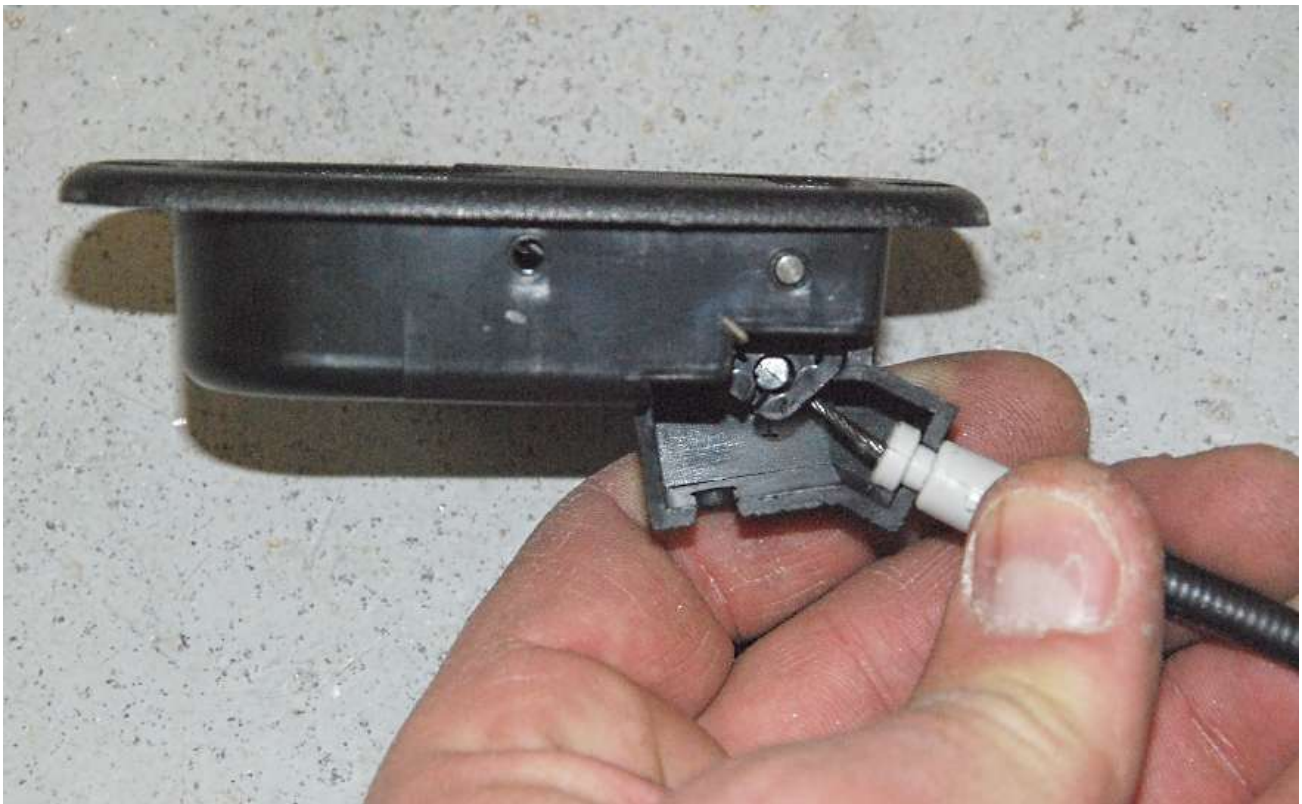


Use this template to mark the inside area to cut and to drill the $\frac{3}{32}$ " mounting screw holes. Use a ruler to check the scale before using.

Pull the cable so that it just comes through the hole.



Attach the cable to the handle the same way as was done for the trunk handle. At the handle end of the cable push the barrel end of the cable into the handle so that the wire can go into the slot and swing forward.



Push the cable sheath into the handle.



Mount the handle below the left side door using the #8 sheet metal screws.

Route the cable into the engine bay so that the end will be in the middle of the firewall.

Optional Side covers

- ✂ Ruler, marker, saw, Orbital sander, 80 grit sand paper, masking tape, jig saw or air saw, marker, razor knife, large kit box, ruler, $\frac{5}{32}$ " hex key, $\frac{7}{16}$ " wrench drill, $\frac{1}{4}$ " drill bit.
- 🚗 Engine cover kit.



Tape the engine side covers to the body and the radiator cowl.



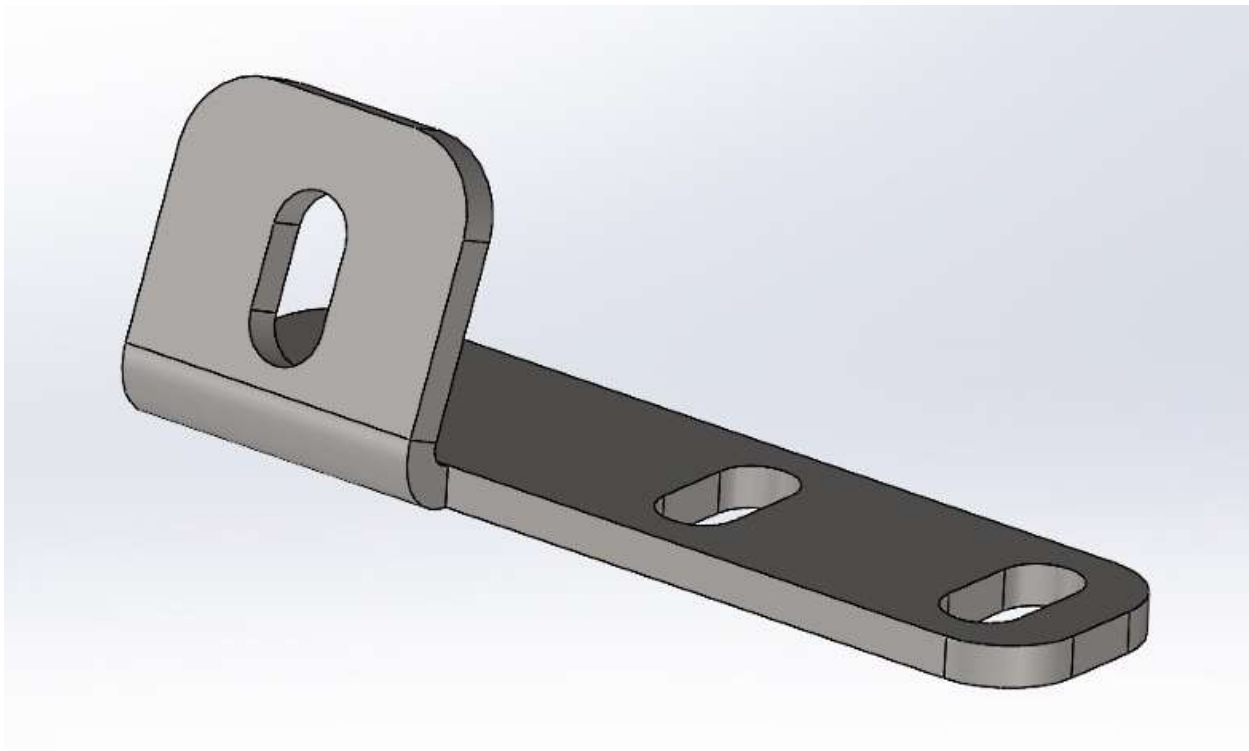


Mark the side cover where it needs to get trimmed then sand or use a saw to trim the side cover. Trim the side cover a little at a time so that there is a $\frac{1}{8}$ " gap at the back of the cover against the body and at the front next to the cowl.

Tape the engine side covers to the body.

Put the hood on the body.

If necessary, mark and trim the bottom edge of the hood so that there is a $\frac{1}{8}$ " - $\frac{3}{16}$ " gap between the hood and top of the side cover.

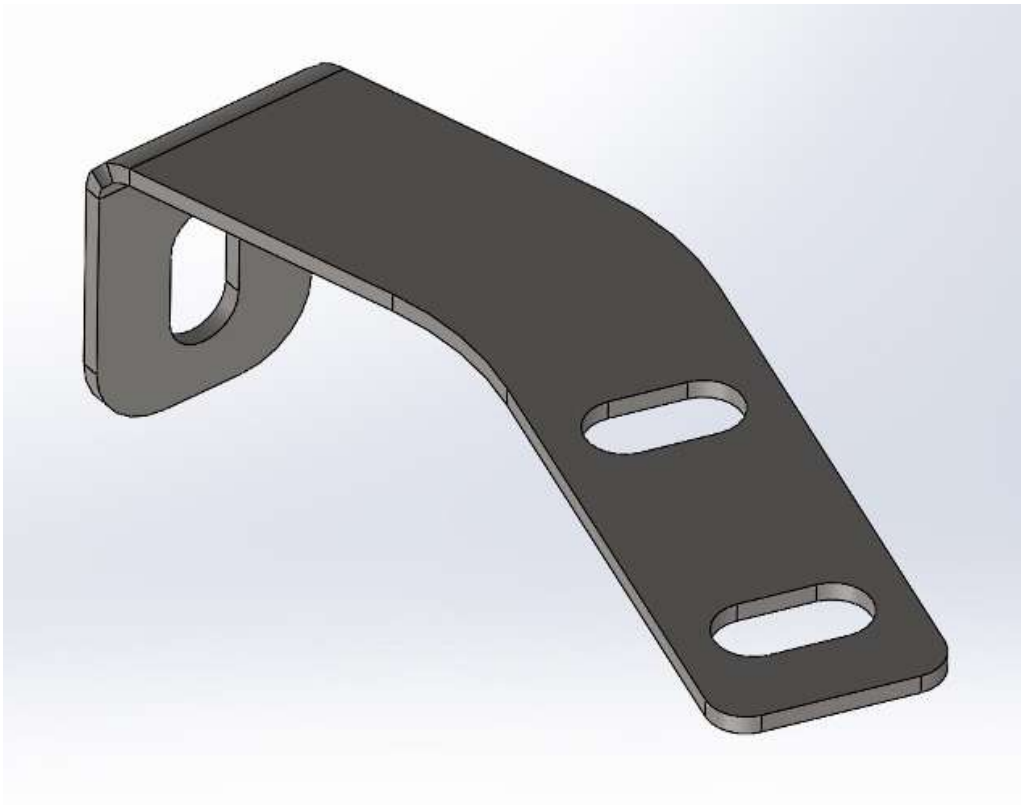


Left front side cover mount.

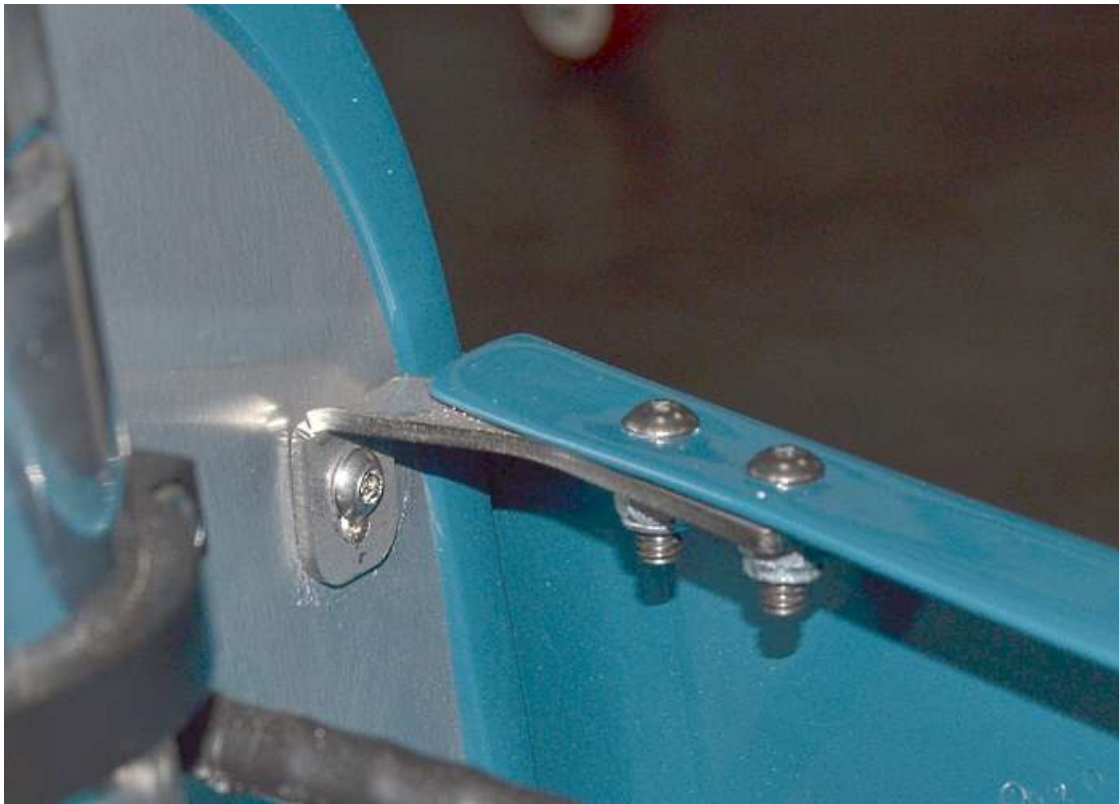


Use the front side cover mount as a template to drill $\frac{1}{4}$ " holes through the engine side panel mount flange so that the front bent tab will attach to the cowl flange.

For the front holes use $\frac{1}{4}$ " black bolt and locknuts to fasten the mount to the side cover and cowl.



Left rear side cover mount.



Use the rear side cover mount as a template to drill $\frac{1}{4}$ " holes through the engine side panel mount flange so that the rear bent tab will attach to the firewall.

For the rear body mount holes, drill the firewall hole out to $\frac{25}{64}$ " and install a $\frac{1}{4}$ " riv-nut. Use $\frac{1}{4}$ " black bolt and locknuts to fasten the mount to the side cover and a bolt for the firewall.

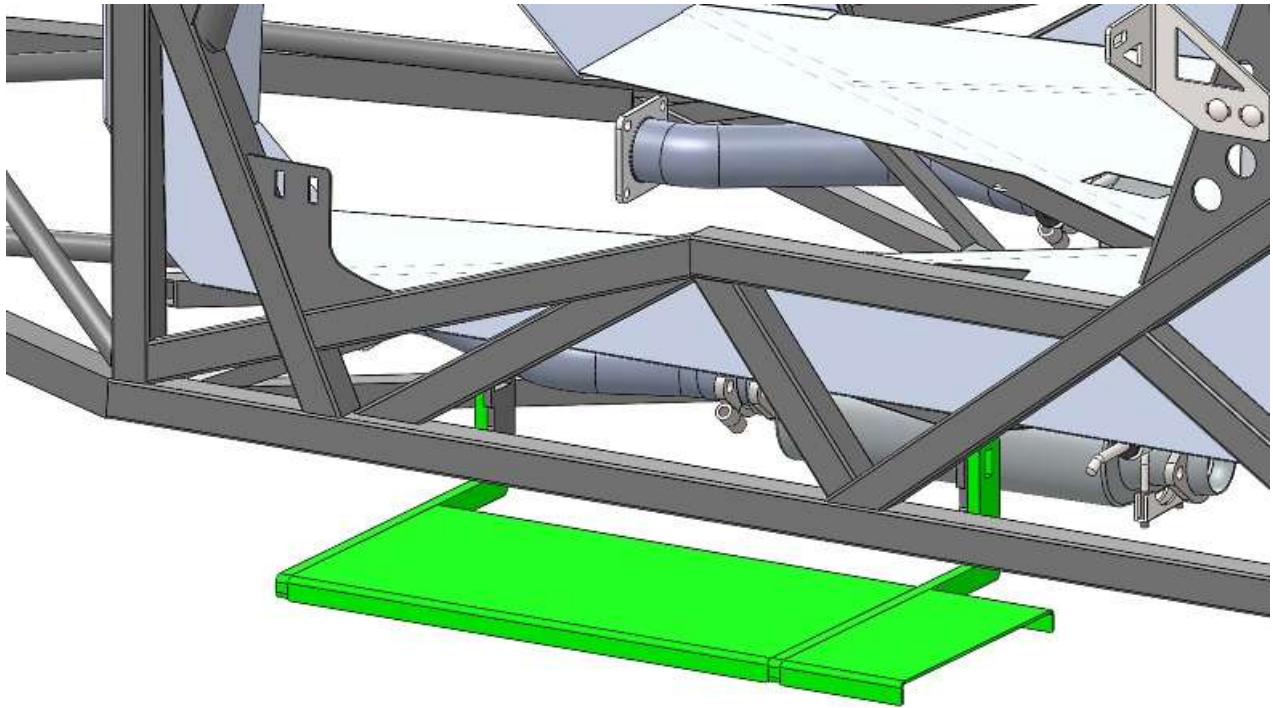
Optional fenders

✂ Orbital sander, 80 grit sand paper, masking tape, jig saw or air saw, marker

RUNNING BOARDS

✂ $\frac{3}{4}$ " socket, ratchet

🛠 Full Fender Kit



Attach the running board mounts to the frame using the ½” carriage bolts and ¾” socket. Left side shown.



Mark the truck bed side 13” back from the back of the Cab, this is where the running boards stop.

Align the back edge of the running board with the mark made and clamp the running boards to the supports.

REAR FENDER

✂ ¼" drill bit, ½" socket, ratchet, ⅝" hex key, clamps

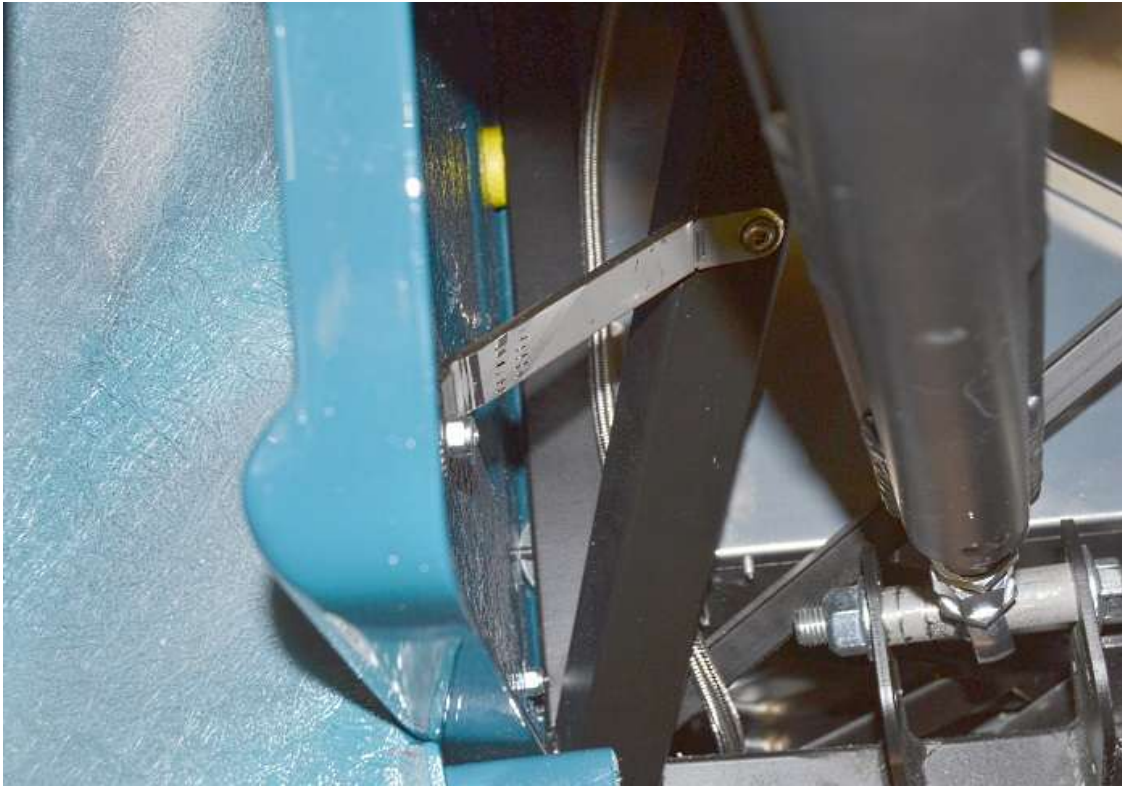
Clamp the bottom front of the rear fender to the back of the running board.



The back of the fender lines up or sticks slightly back from the rear of the bed.



Mark and cut around the truck bed trim lines so the fender sits tight against the body.



Hold the short rear fender mount up to the bottom of the 1.50" angled frame tube so that it can reach over to the bed side and the mounting screw can also get used as a fender mount hole. Mark the frame and bed side.

Use a drill tap or riv-nut at the point marked on the frame.



Drill $\frac{1}{4}$ " holes mounting through the fender flange and the side of the bed.

Attach the fender to the bed using the 1/4" x 3/4" black button head screws, fender washers, locknuts, 1/2" socket, and 5/32" hex key.

FRONT FENDER



Clamp the back of the front fender to the front of the running board and through the control arm holes.



Mark and cut the front mounting flange on the fender so that it is not visible from outside the truck.



The front of the fenders should sit nicely against the radiator cowl. Adjust if necessary.



Drill $\frac{1}{4}$ " holes through the fender flange and the engine side covers.



Attach the fender to the side covers, and radiator cowl using the 1/4" x 3/4" black button head screws, fender washers, locknuts, 1/2" socket, and 5/32" hex key.

Headlights

- 🚗 Headlight components
- 🔧 3/4" wrench, drill, 3/8", 1/2" drill bit, drill, marker saw, tin snips, pliers.

WITH FENDERS

- 👤 If not running engine side covers and fenders skip this section.



Position the headlight bucket left to right on the front fender so that the bucket is about 2.75" away from the cowl.



Front to back the front of the trim ring is even with the edge of the grill and the back is even with the back of the cowl.

Use a marker and tape to mark the position of the bucket stud.

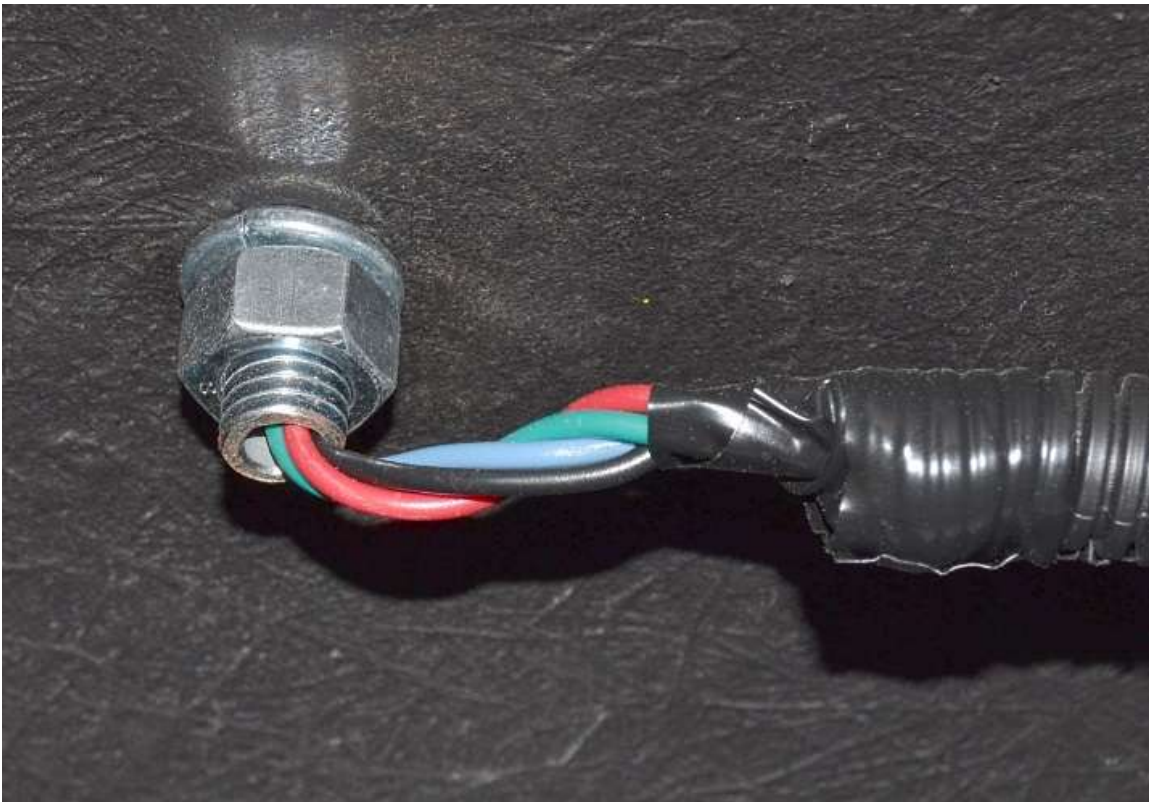
Use a ¼" drill bit then open it up to ½" for the mounting stud.
Remove the trim ring from the bucket.
Test fit the bucket by fastening it to the fender with the nut.



Hold the headlight up to the mounted bucket so that the center bar is horizontal and the bulb is the correct way up so the writing on the bulb is at the top.



Use a marker to mark the side of the bucket if the locating bulges on the side of the bulb do not line up with the notches in the bucket.



On the underside of the fender, mark the stud two or three threads past the end of the nut.

Remove the bucket from the fender and the stud from the bucket.

Cut the stud on the mark made to ensure that the tire does not hit the stud. Use a file on the outside to take the sharp edge off and a $\frac{3}{8}$ " drill bit to chamfer the inside so that the wires do not get cut.



Use tin snips to cut the marked areas on the front face of the bucket for the bulb.



Use pliers to metal fatigue the small rectangle and remove them.




Test fit the bulb and then check the fit of the locking ring, it may be necessary to cut some off the ends so that the ring holds the bulb tight.



Check the fit/look of the lights and buckets on the body.

Taillights

 Taillight components



¼" drill bit, drill, ⅝" hex key, ⅞" socket, ratchet
The forward hole is used for wiring not mounting.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34413	34414 - LEFT TAILLIGHT BRACKET	1
2	License plate		1
3	34373	RED LED TAILLIGHT RIGHT SIDE	1
4	34476	LICENSE PLATE BRACKET	1
5	10802	NYLON INSERT LOCKNUT	5
6	97654A264	FLANGE BUTTON HEAD SCREW, 1/4"-20 X 3/4"	3
7	34364	1/4"-20 x 3/4" BLACK BUTTON HEAD BOLT	4

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/3/18	

Factory Five Racing, Inc.

5 TITLE: TAILLIGHT COMPONENTS

DATE: 8/3/18

NAME: JI

DRAWN: COMMENTS:

35 TRUCK

MATERIAL:

FINISH:

USED ON:

APPLICATION:

PRINTED: 8/3/2018

SCALE: 1:4

WEIGHT:

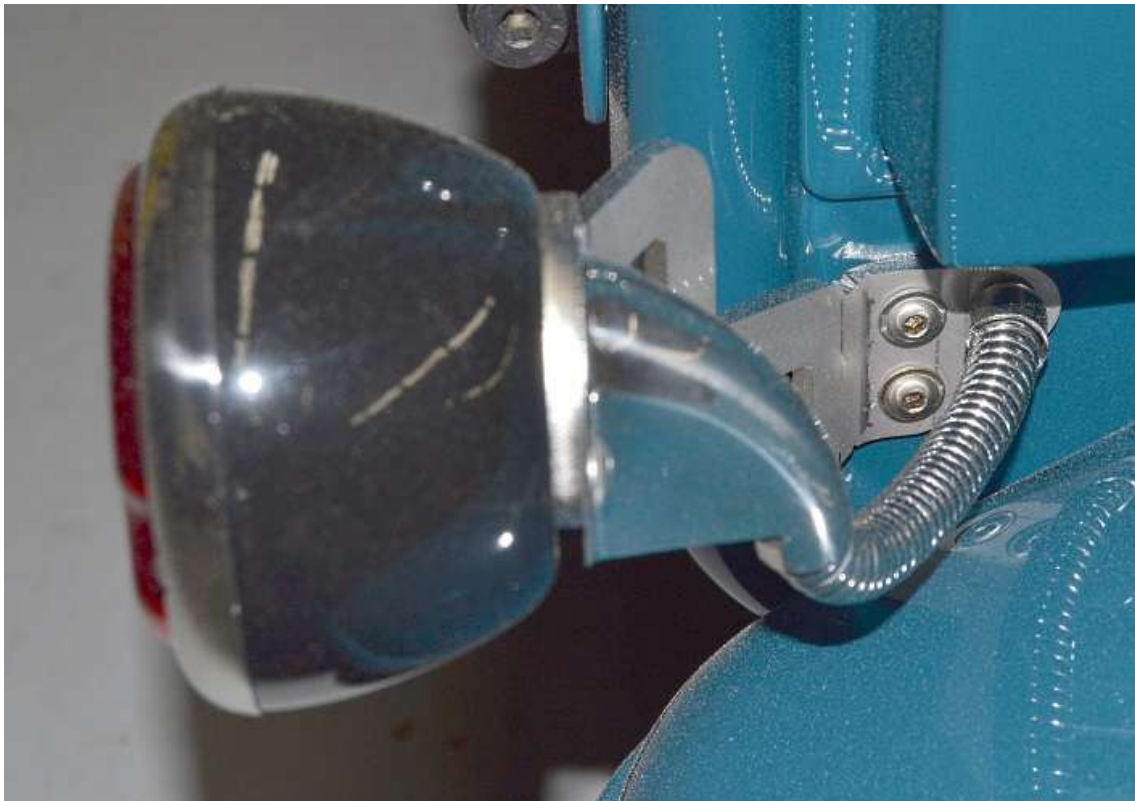
SHEET 1 OF 1

SIZE DWG. NO. **A** 34370

REV **A**

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Attach the taillights to the mounting brackets. Left side taillight assembly with license plate bracket and light.



The taillights should get mounted on the side of the bed at the back where the round trim starts to curve.

Use masking tape and a marker to mark all three hole locations on the taillight bracket.

Remove and use a 1/4" bit to drill all three hole locations.

Check the fit of the bracket using the mounting bolts.

Final Prep



Sand paper

If using fenders, now is a good time to fit and prep them. Make sure the car is aligned before cutting if doing bike fenders.

All of the exterior body accessories; lights, fenders, etc... must get mounted to the car to obtain the correct body location in order to create the correct gaps and door opening sizes before it is painted.

One of the most important details in the bodywork is the finish on all the edges and openings. All of the following edges are visible on the finished car and need to be evened out and have a small radius sanded in for a good looking finish.

- Doors
- Hood (if used)
- Engine side covers
- Door openings
- Cockpit edges

Mark the door hinges before removing the last time so that you can bolt them back together in the same position that they came off. They may still need minor adjusting during final body installation but this will get you much closer.

Body Painting

- Remove all trim, doors, etc. before beginning body work
- The primer gel coat sands easily, and is a forgiving material to work with.
- The body comes out of the mold with a wax release compound and a thorough cleaning with a wax remover is the best way to begin this job.
- A lot of time and energy was spent on the mold so that the body work can be kept to a minimum.
- Allow the bodywork or repairs performed to sit for several days outside in the sun or at elevated temperatures to allow the repair materials to cure before final paint.



While the body is being painted there are parts that can be assembled.

Final body and finish assembly

Pre-Body Mounting Steps

INSIDE HEADLINER FLOCKING



masking tape, towels or something soft to put the hardtop on.

Hardtop flocking kit

Do not place the hardtop upside down on a fresh paint or the fabric that you are placing it on may imprint into the paint.

With the help of a friend, turn the hardtop upside down and place it on towels or something to protect the paint.

Mask the areas off that you do not want flocking on.

Follow the directions with the Flock-it kit.

Final Body Install

- ✎ Once the body comes back from paint, we recommend you to tape the panel openings with masking tape to prevent scratches.
- ✎ It is helpful to have a friend or two when mounting the painted body. One person on each side pulling out slightly and one in the rear is the easiest way to do this.
- ✎ If running A/C, make sure that the hoses do not get crushed when putting the body on.

Run a bead of silicone along the underside of the cab rear bottom flange that will sit on the aluminum. Use two people to mount the body. One person on each side is the easiest way to lift the body. Lift the body over the roll bar and slowly lower it going forward as it goes. Having the body further back on the chassis while it starts to cover the roll cage will help with the install.

FIREWALL

Attach the aluminum firewall to the body using either $\frac{3}{16}$ " rivets or screws.

BODY SIDES



Drill and rivet the sides of the body to the frame using the screws used before paint as a guide for locating.

REAR BODY

Rivet the cab rear bottom flange into the cab rear to bed aluminum with $\frac{3}{16}$ " rivets.

OPTIONAL HOOD

Mount a few rubber bumpers on radiator cowl. Use the small and large bumpers included with the kit to set the height of the panel so that they are flush with the body. If necessary, cut the large bumpers to the correct height if the small ones are too small.

DOORS

Reattach the door hinges to the frame.



Reattach the hinge to the door.

Tape around the body opening then carefully put the door in position.



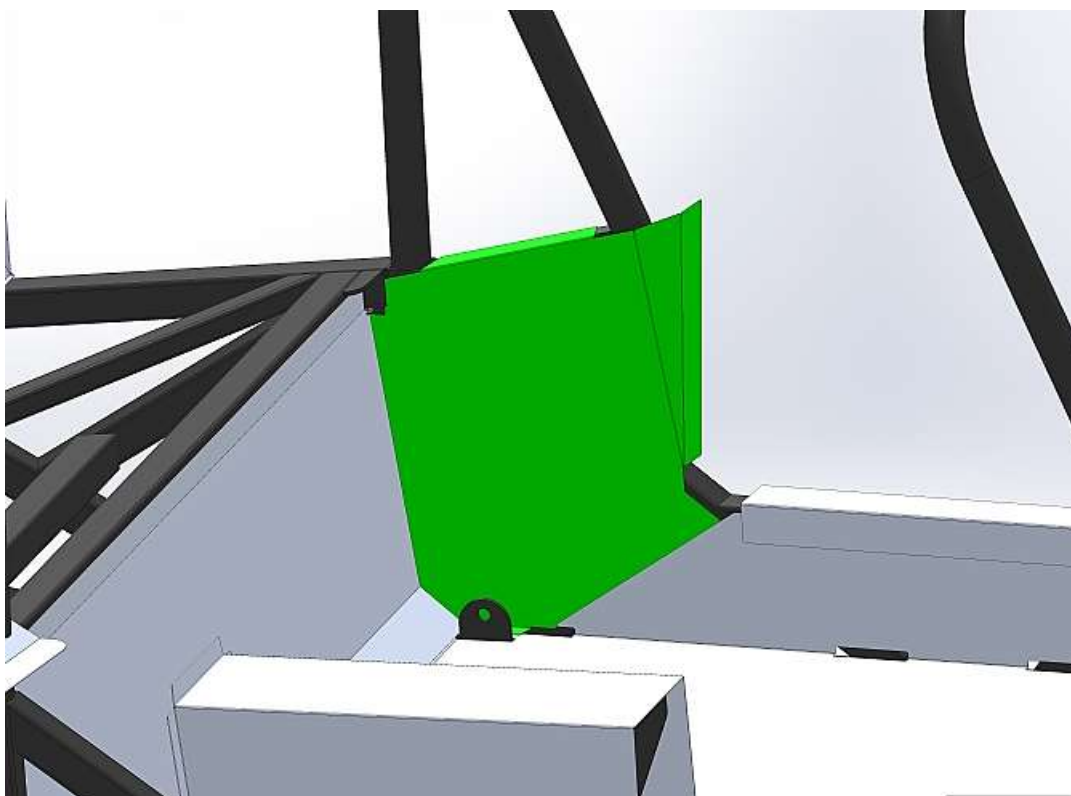
Tap the hinge pins back into the hinge.

TRUCK BED

-  1/8" drill bit, drill, rivet tool, silicone
-  35 truck bed body components, Box 13 Bed fasteners.

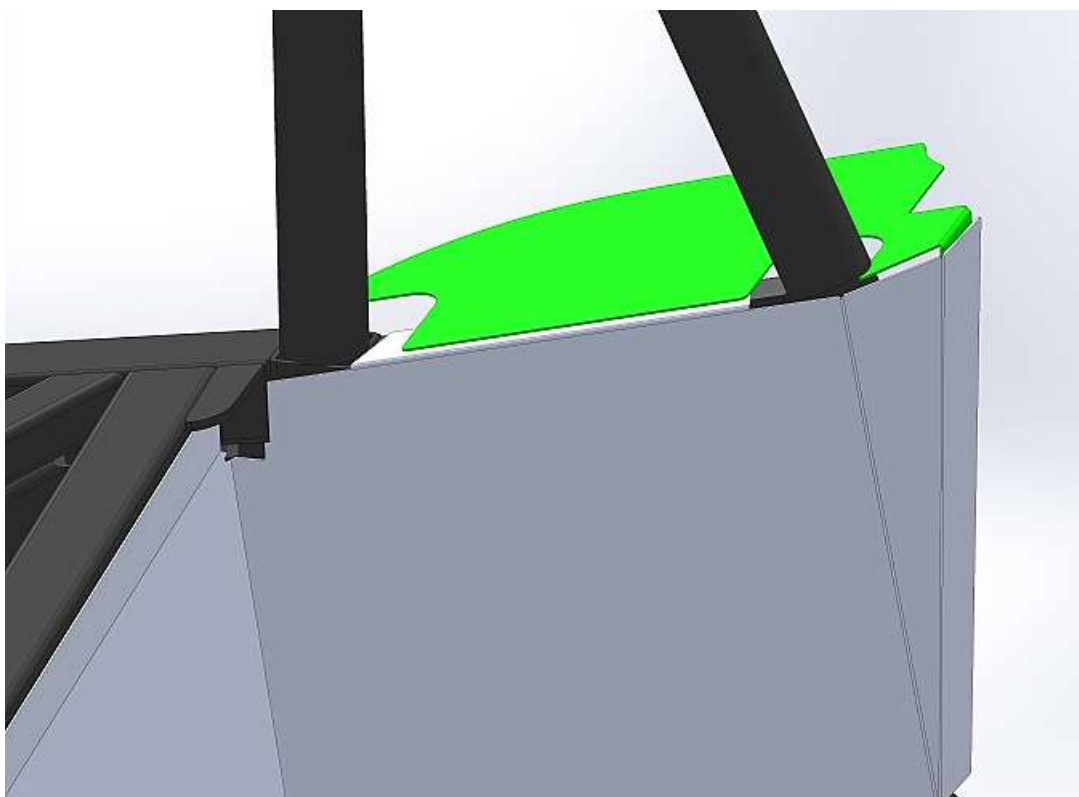
Reattach the bed and bed supports as installed earlier

Inside rear corner aluminum



Silicone, drill and rivet the cockpit rear inside lower cover in place.

Run weatherstrip around the outer edge of the top rear corner piece.



Silicone and rivet the rear inside upper cover in place.

Weather-stripping



Run the ½ moon weatherstrip around the door openings starting at the bottom.



Push the cat head weatherstrip all the way around on the outside window edge.





Push the felted weatherstrip onto the inside window edge starting where the flange twists in the lower corners and run around the top.

Push cat head onto the lower center part of the inside window edge.

Windshield/Rear window



Front/rear glass set.



Handle the windshield with care and store in a safe place.



We highly recommend having a professional windshield installation shop do this installation. Most glass shops prefer to use their own weather strip and materials to install the glass since they warranty the installation.



There are two ways to install the windshield, with weatherstrip around the edge of the windshield or without weatherstrip. We prefer without.

Have the installer put 1" of primer around the windshield and rear window flange.

Apply urethane around the windshield and rear window flange.



Push the windshield into place. Tape it if necessary so that it will not slip down.



Push the rear window into place. Tape it if necessary so that it will not slip down.

Do not move/touch the glass for 24 hours.

Carpet

✂ Razor knife, spray adhesive (we recommend using 3M® Super 77 or Super 90 spray adhesive)



Carpet

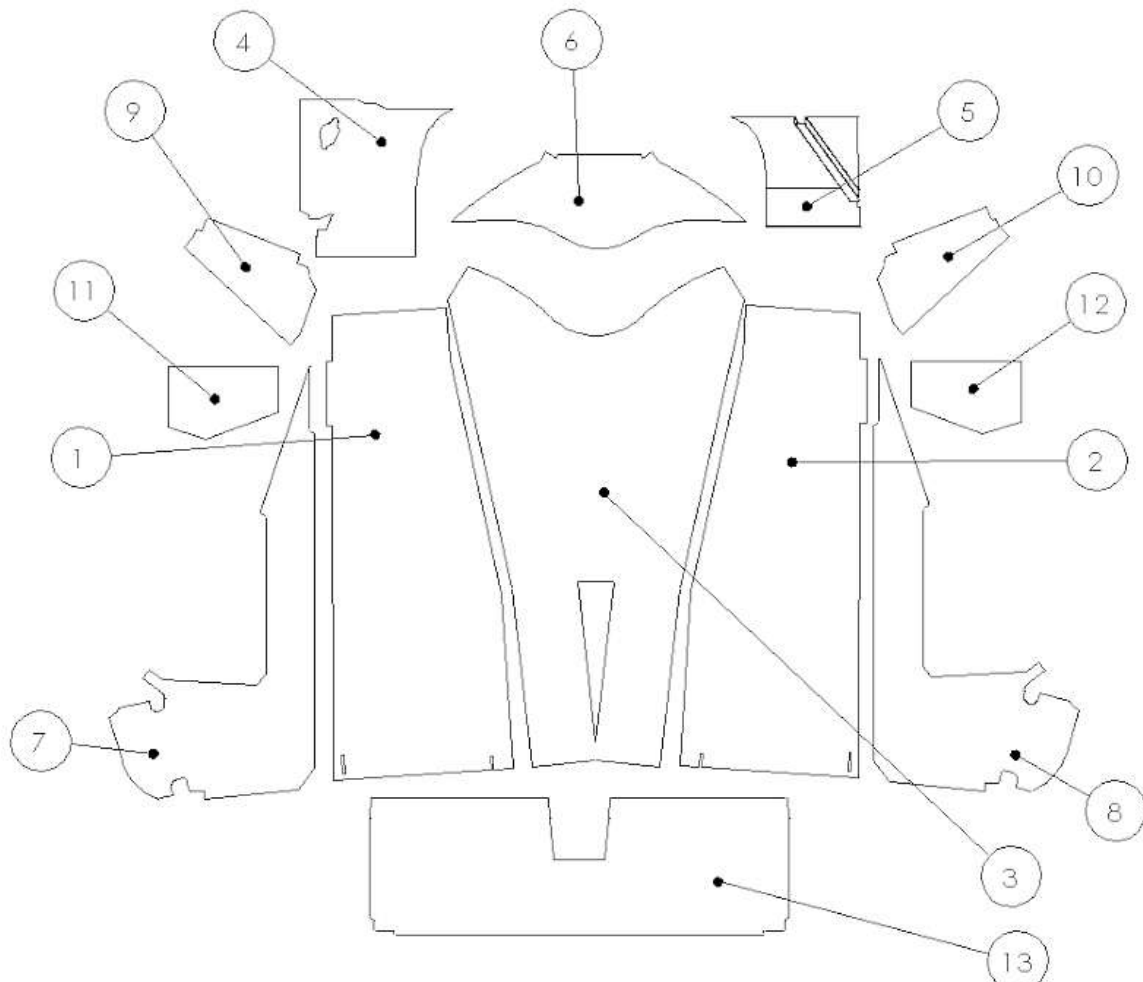


Test fit the carpet before gluing.



Clean/vacuum the surface of aluminum where the carpet will be installed so there are no aluminum shavings or other material or liquid on it.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34887	LEFT COCKPIT FLOOR CARPET	1
2	34888	RIGHT SIDE COCKPIT FLOOR CARPET	1
3	33929	REAR TRANSUNNEL COVER CARPET	1
4	34890	LEFT FRONT FOOTBOX CARPET	1
5	34891	RIGHT FRONT FOOTBOX CARPET	1
6	33930	FRONT TRANS COVER CARPET	1
7	35279	LEFT SIDE UNDER DOOR CARPET	1
8	35280	RIGHT SIDE UNDER DOOR CARPET	1
9	34889	LEFT FRONT COCKPIT CORNER CARPET	1
10	34893	RIGHT FRONT COCKPIT CORNER CARPET	1
11	34548	LEFT LOWER DOOR HINGE COVER	1
12	34549	RIGHT LOWER DOOR HINGE COVER	1
13	34892	COCKPIT REAR WALL CARPET	1



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35 TRUCK	DIMENSIONS ARE IN INCHES TOLERANCES: TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001
	MATERIAL 0.040" 6061-T6 ALUM.
USED ON	FINISH
APPLICATION COCKPIT ALUM	PRINTED 4/9/2024



Factory Five Racing, Inc.

35 TRUCK CARPET

NAME	DATE
JL	

DRAWN
COMMENTS:

SIZE DWG. NO.
A 35281

SCALE: 1:12

WEIGHT:

SHEET 1 OF 1

REV.
A



Start with the Front transmission tunnel cover. If you cannot get it to sit on the curve correctly you can make very narrow pie cuts at the front edge to help it lie flat. Start very small with one or two.



Next do the rear transmission tunnel cover. Cut a hole for the shifter if needed depending on the transmission used. Glue the center of the carpet first then work your way around to the base of the tunnel in a few steps gluing a few inches at a time.



Install the rear cockpit wall carpet.





Install the front footbox wall carpet. This wraps around the down tube at the front of the panel. Cut any holes made for mounting the accelerator pedal so they are easy to find. The pedal will cover the holes.



Install the under-door carpet and then the floors last. Cut holes where the seat mounting bolt holes are make install easier later. The seats will cover them so it is ok to go larger.

Shifter, boot and trim ring

-  Philips head screwdriver, 1/8" drill bit, drill, razor knife
-  Shifter boot components



Once the carpet is installed install the shifter handle, boot and trim ring. We suggest you bend and form the trim ring to the contour of the tunnel.

E-brake boot



Push the emergency brake boot over the handle.



Look at the boot and floor and decide where to bend the wire in the boot so that it will sit flat.



Drill and mount one screw at a time





Hold the cover in place and drill a $\frac{3}{32}$ " hole through the cover near the ring that is captured in the boot and the cockpit aluminum.



Attach the boot to the cockpit aluminum using the screws provided.

Accelerator Pedal

-  Wire cutters, $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " wrenches, $\frac{5}{32}$ " hex key
-  Accelerator pedal components, secondary body fasteners



Mount the accelerator pedal to the aluminum footbox using two 1/4"-20 x 3/4" flange head screws in the secondary body fasteners. We like to install these fasteners from the engine side of the firewall for a cleaner look.



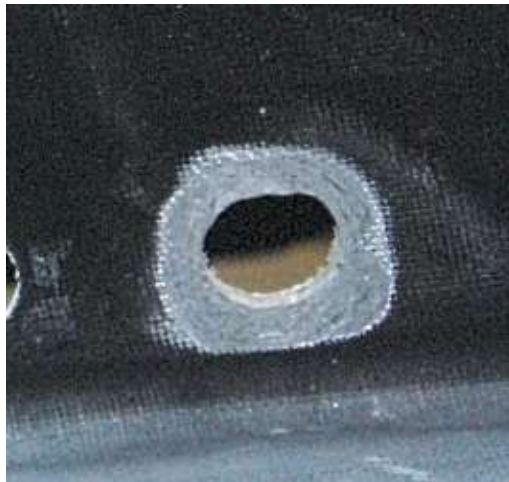
Attach the mount portion of the throttle pedal in place over the carpet.



Attach the pedal arms to the mount bushing.

Dash/gauges

- ✂ Pliers, wire cutters, wire crimpers, $\frac{5}{32}$ " drill bit, $\frac{5}{32}$ " hex key, $\frac{7}{16}$ " socket, ratchet, tin snips.
- 🛠 Gauge assembly, dash harness, Hot rod electrical system components, dash install components.



If the dash area where the ignition or headlight switches will mount is over $\frac{1}{8}$ " thick, sand the back of the dash area to $\frac{1}{8}$ " so there is enough thread engagement for the switch bezels.



Install the gauges, toggle switches and headlight switch in the dash.



Optional gauge cluster mounted.

WIRING



Use a pair of pliers to turn the bulbs in the gauges so that they are fully seated and will not pop out.



If not already done, in the dash harness, cut the rear turn signal light wires off the back of the connectors that are for the dash turn signal switch so that the turn signal lights do not send the brake light signal to the front lights.

Wire the gauges in the dash using the chassis harness dash harness. Use the connection instructions provided with the gauges.

Decide where you want to place your LED indicators. We suggest you place these on the lip on the top of the dash facing down, they are bright at night or use a black marker on the blue light to dim it down some.

OPTIONAL A/C VENTS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	DUCT BOTTOM		1
2	ADAPTER	2.50" HOSE ADAPTER WITH FLANGE	1
3	DUCT TOP		1
4	14831	DEFROSTER VENT	2
5	25799	3/16" SHORT RIVET	4
6	12780	#6 x 1/2" TRUSS HEAD TAPPING SCREW	4

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/30/18	

UNLESS OTHERWISE SPECIFIED:

HOT ROD

35 TRUCK

DIMENSIONS ARE IN INCHES

TOLERANCES:

TWO PLACE DECIMAL ±.001

THREE PLACE DECIMAL ±.005

FOUR PLACE DECIMAL ±.001

MATERIAL

FINISH

USED ON

APPLICATION

NAME

DATE

DRAWN

COMMENTS

5 Factory Five Racing, Inc.

TITLE:

DEFROSTER VENT DUCT

SIZE DWG. NO. REV

A **DEFROSTER DUCT** **A**

SCALE: 1/4 WEIGHT: SHEET 1 OF 1

PRINTED

8/30/2018

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👉 If installing A/C, now is a good time to install the defroster vents



Install the dash vents if desired.

INSTALLATION

If using a tilt column, drop it to the lowest point; if not it may be necessary to remove the steering wheel.



Carefully push the rubber seal weatherstrip across the front of the dash.



Attach the ignition switch to the dash.

Connect the headlight switch plug to the headlight switch

Connect the dash harness to the chassis harness.

Connect the defroster vent hose to the defroster vents if used.

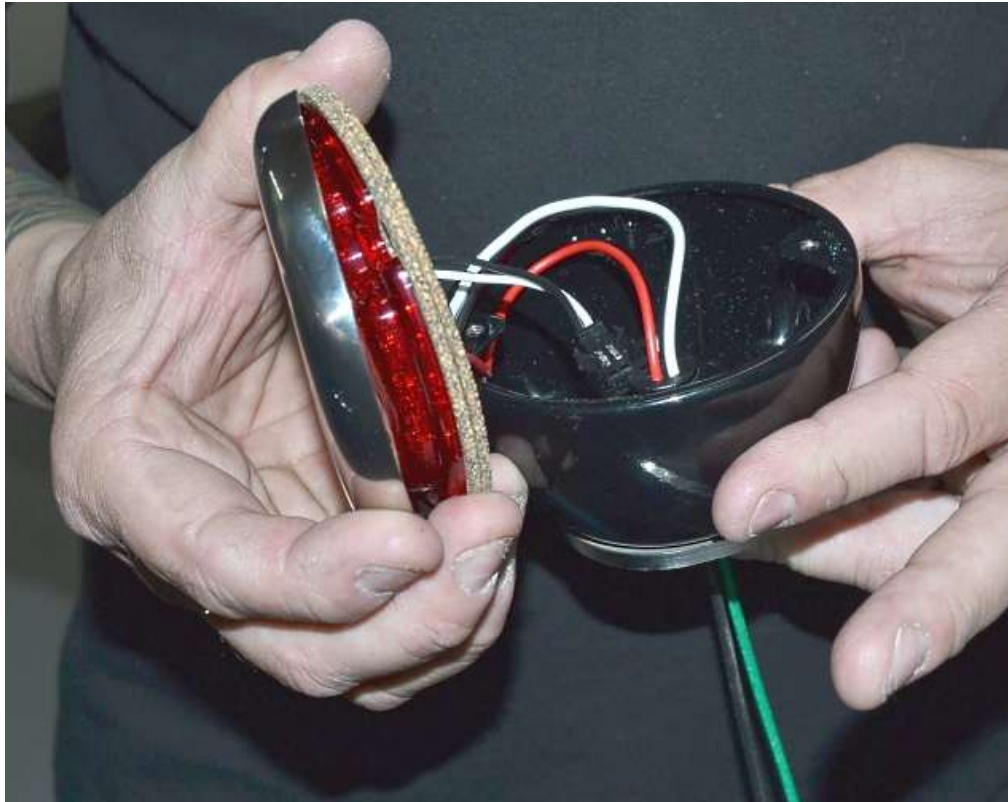


Push the dash into place and attach to the body near the door with (2) $\frac{1}{4}$ " black bolts per side using a $\frac{5}{32}$ " hex key and $\frac{7}{16}$ " socket.

Tail light components

- ✂ Flathead screwdriver, Wire strippers, wire cutters, soldering iron, electrical tape, drill, $\frac{1}{8}$ ", $\frac{1}{4}$ " drill bits, ruler, marker, $\frac{5}{32}$ " Hex key, $\frac{7}{16}$ " socket, ratchet, pliers.
- 🚚 35 Truck Tail light components.

Cut the 8' white wire in half.



Remove the trim ring and lift the LED using a flathead screwdriver.



Remove the plug from the housing then cut all of the wires near the plug. The plug is not used.



In the housing, push the green and black wires through the plastic disc.



Cut the ends off the wires.



Drill an $\frac{1}{8}$ " hole through the plastic so that the white wire can go through the hole.

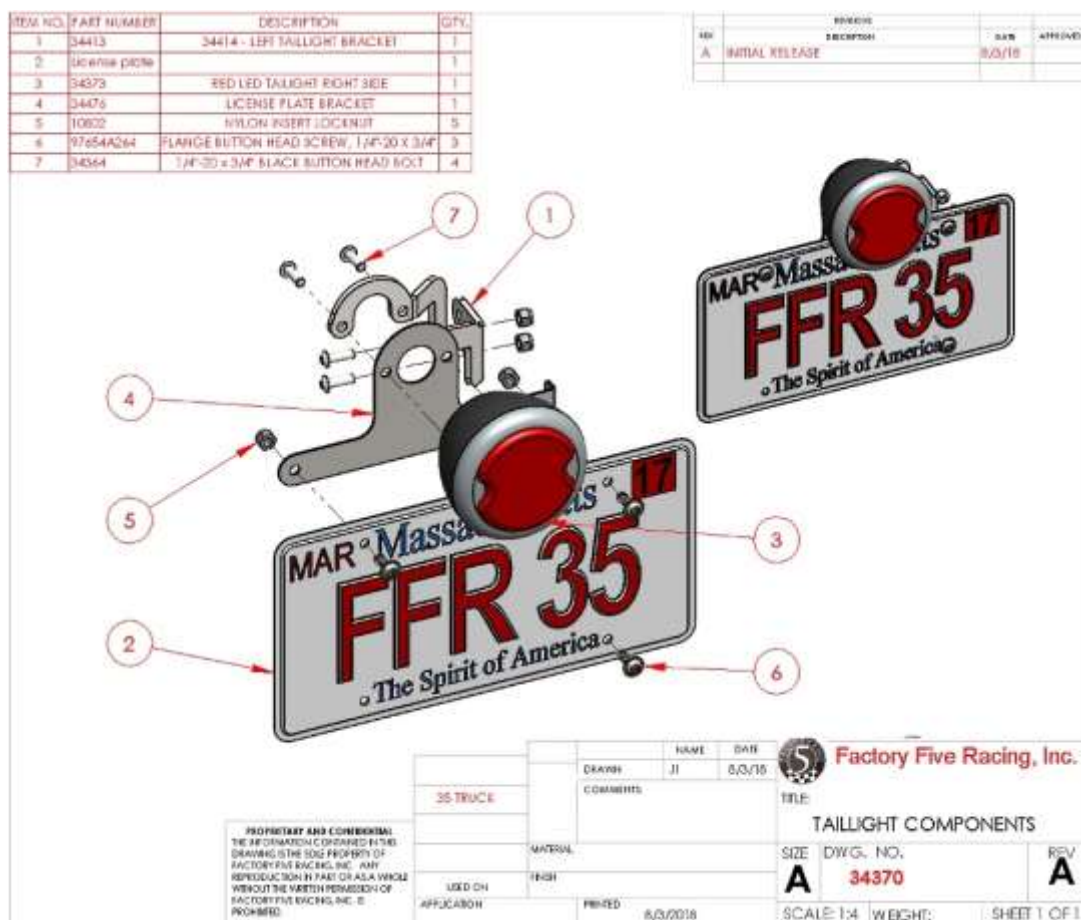
Strip and solder the **green** wire to the light **red** wire and tape it.

Strip and solder the **black** wire to the light **black** wire and tape it.

Strip and solder the **white** wire to the light **white** wire and tape it.

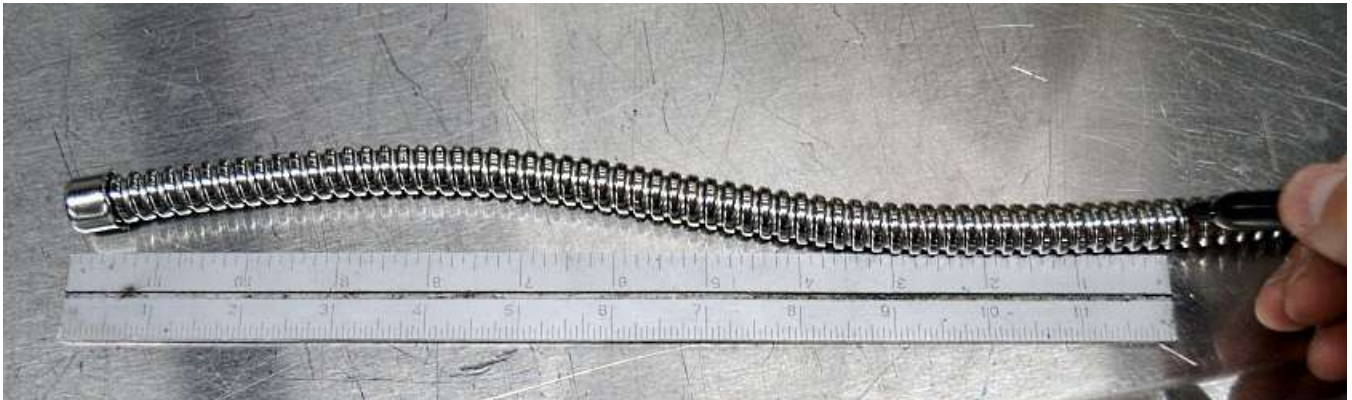


Run the 1/4" black mounting bolts through the wire shield and taillight bracket.





Attach the license plate bracket (left side only, leg towards the inside) and light housing to the wire shield and taillight bracket using a $\frac{5}{32}$ " hex key, $\frac{7}{16}$ " socket and lock nuts.



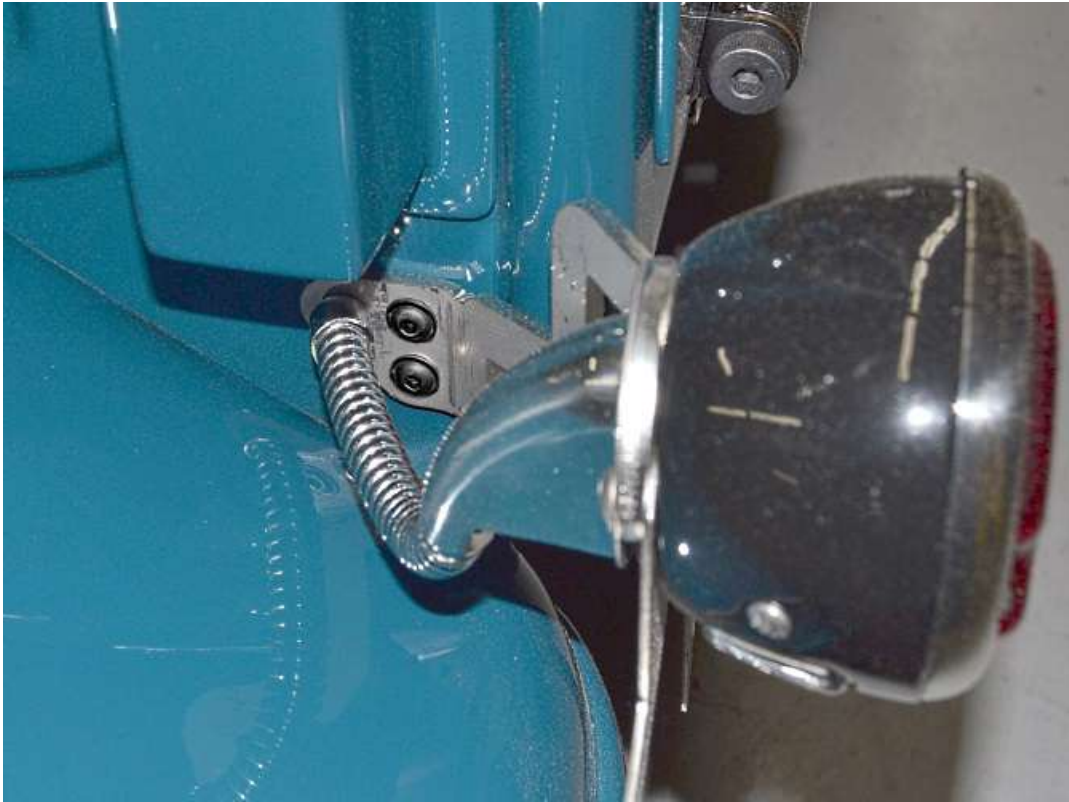
Use a ruler and marker to mark the wire conduit 12" from the end glued on the conduit.



Cut the conduit carefully with a cut-off wheel, hack saw or band saw so that the end doesn't come apart too much like this picture.



Push the wires through the cut end of the conduit then attach the conduit to the wire shield by bending over the tabs on the bottom.



Attach the taillight bracket to the bed side using the black 1/4" screws through the rear most holes along with the 1/4" washers and locknuts.

Pass the wires through the front hole so that the conduit is tight against the bracket.



On the backside of the bed side use a zip tie against the body to keep the conduit tight.

TAIL LIGHT CONNECTIONS

✎ The lights **DO NOT** get wired to the Brake light purple wire

Function	Harness wire color	Tail light wire color
Ground	Black	White
Turn/brake	Turn signal wires	Red
Parking light	Tan	Black

Attach the taillight wires to the correct chassis harness wires.

LICENSE PLATE BRACKET

Use the three stainless 1/4" screws to attach a license plate to the license plate mount.

Inner Door Panels

- ✎ Marker, razor knife, 1/8", 3/16" drill bits, drill, Philips head screwdriver, masking tape
- 🚗 Upholstered interior parts, door handle components

Pass the door handle through the door panel.





Screw the door panel to the door.



screw the handle on.

Door check straps

-  Door hinge components.
-  Rivet tool, $\frac{3}{16}$ " drill bit, drill.



Hold the check strap up to the body below the dash then mark and drill $\frac{3}{16}$ " holes at the points marked.



Hold the check strap up the back side of the body on the holes and use $\frac{3}{16}$ " rivets to attach the check strap to the body.



Hold the check strap across to the door so that it is straight and will attach to the side of the door panel.

Drill the top $\frac{3}{16}$ " mounting hole using the check strap as a guide then attach using a $\frac{3}{16}$ " rivet.

Drill the bottom $\frac{3}{16}$ " mounting hole using the check strap as a guide then attach using a $\frac{3}{16}$ " rivet.

Seat Belts

- ✂ ¾" socket, Ratchet, ¾" wrench, 5mm Socket Hex key, Torque wrench
- 🚗 3-Point seat belt components





Loosely locate the upper seat belt mount so that it is above the shoulder when seated in the car, it will be final mounted after the seat install using a 5mm hex socket.



Attach the short release portion of the belt to the tunnel side of the inner mounts on the chassis with the supplied hardware and torque to **67 Nm (50 lb-ft)**.



Attach the reel and end to the outside mount on the chassis so the belt will go straight up to the shoulder mount without curling. Torque to **67 Nm (50 lb-ft)**

Seat Final Installation



Reposition the seats in the cockpit.



Pull the seat buckle through the seat if using a bench.

Reattach the seat in the holes drilled before using the fasteners provided.

Seat Belt upper installation

✖ $\frac{3}{4}$ " socket, Ratchet, 5mm Socket Hex key, Torque wrench

Reattach the seat in the holes drilled before using the fasteners provided.

Sit in the seat and adjust the upper shoulder mount so that it is at a comfortable point, roughly ear level.



With the upper seat belt mount bolt pointed across the car, torque the socket head cap screws on the clamp mount to **14 Nm (10 lb-ft)** using a 5mm hex socket.

Pop the plastic cover off the upper shoulder seat belt mount.



Make sure the seat belt is not twisted then screw the short ½” bolt through the upper belt mount into the tube clamp. The bolt will bottom on the tube.



The upper seat belt bracket is meant to be able to rotate.



Torque the 1/2" bolt to **67 Nm (50 lb-ft)** using a 3/4" socket.



Push the plastic cover onto the bracket.

Headlights

- ✂ Wire cutters, soldering iron, wire strippers, ruler, electrical tape, 1/8" drill bit, drill, tin snips, file.
- 🚗 Headlight assembly, extra harness wires.



There are two ways to wire the center bar on the headlight. The center bar can be a white Daytime Running Light (DRL) and also the orange turn signal. The kit includes wire for the use of the turn signal function only.

HEADLIGHT CONNECTIONS

	Chassis harness	Headlight plug pigtail
Ground	Black	Black
High Beam	Brown	Red
Low Beam	Red	Green
Park	Tan	Red
Left Turn	Dark Green	Blue wire
Right Turn	Light Blue	Blue wire

Bulb extra wires	Function
Red	DRL – Daytime Running Light
Red + Green	Turn signal



Remove the headlight mounting nut, lock washer and base.



If included, remove and discard the small adapter harness, it is not used for our application.

Cut the 4' blue wire in half.

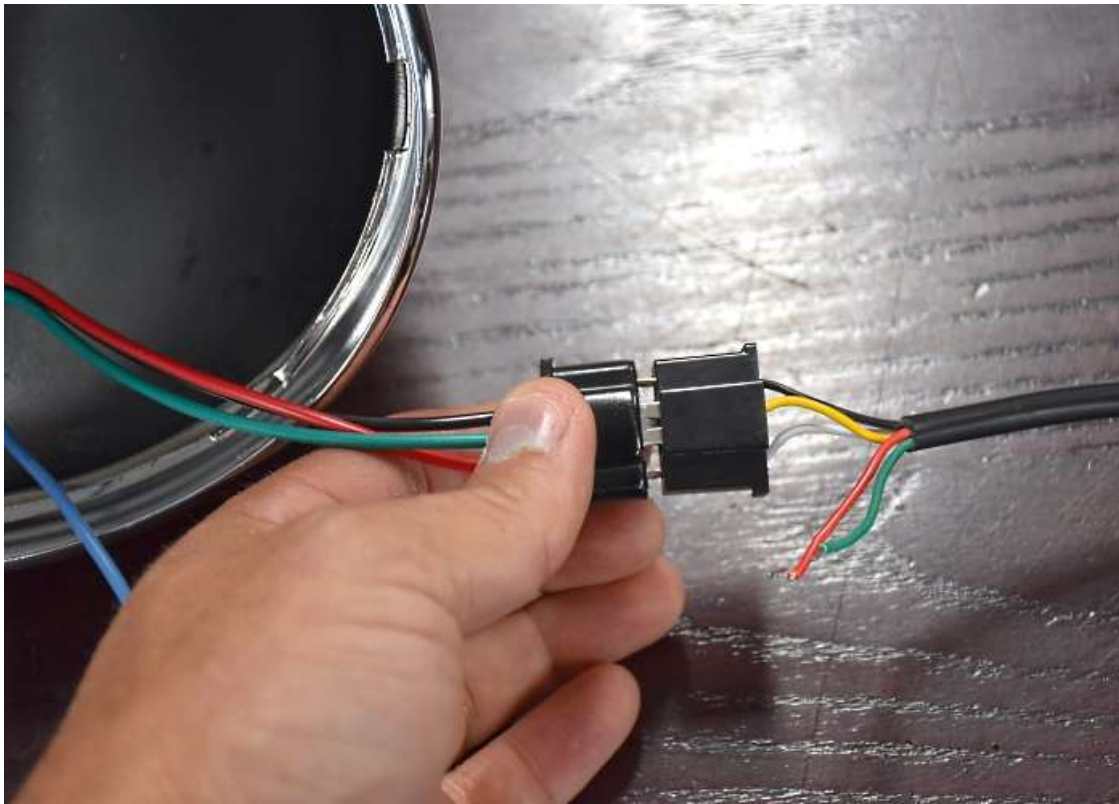
DRL AND TURN SIGNAL



If not running both DRL and turn signals, skip to the next section.

If you want to use the DRL function, two wires need to get added to the wires going through the mounting bolt. The kit included blue wire for the turn signal and an additional 16 ga wire that must get wired to key on +12V.

Push one of the blue wires and a longer wire through the headlight bolt together.



Connect the headlight pigtail to the bulb.

Solder and tape the blue wire to the green headlight wire.

Solder and tape the additional wire to the red DRL wire.

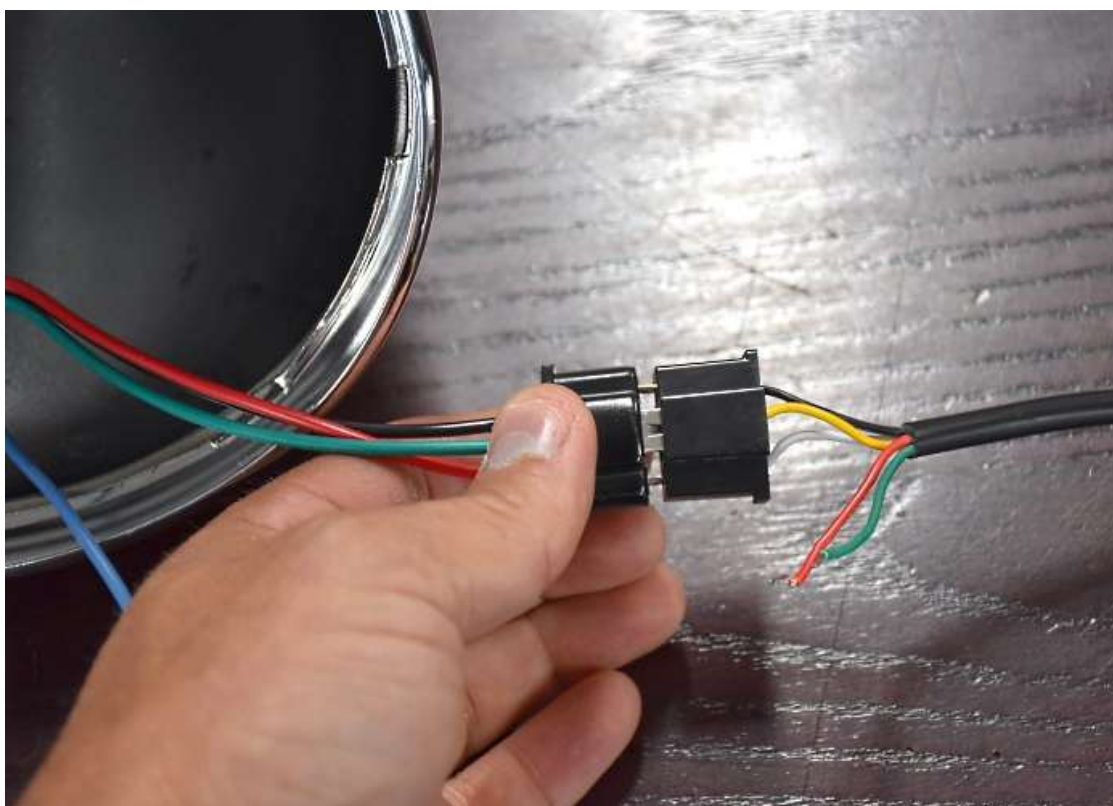
Once the headlight is attached to the body, the additional wire must get run to key on power in the fuse panel such as the choke wire if not being used.

Skip to the installation section.

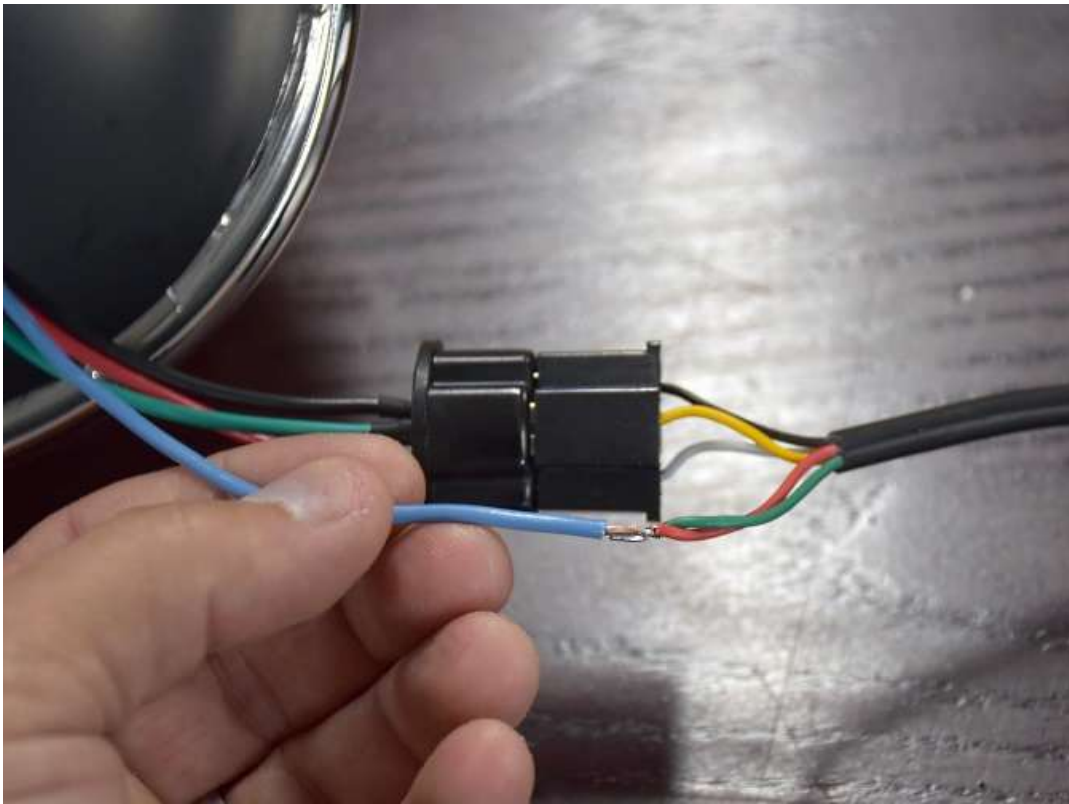
TURN SIGNAL ONLY



Push one of the blue wires through the mounting bolt.



Connect the headlight pigtail to the bulb.



Solder the green and red light wires to the blue wire.

Electrical tape the soldered wires.

INSTALLATION

Place the headlight into the housing and attach the locking ring to the bucket.



Pass the wires through the fender and attach using the fender washer, lock washer and nut included.

NO ENGINE SIDE COVERS OR FENDERS



Headlights are bolted directly to the radiator mount.

Solder the wires from the headlight to the chassis harness using the following chart as a reference:

	Chassis harness	Headlight plug pigtail
Ground	Black	Black
High Beam	Brown	Red
Low Beam	Red	Green
Park	Tan	Red
Left Turn	Dark Green	Blue wire
Right Turn	Light Blue	Blue wire

If running the DRL, the additional wire must get run to key on power in the fuse panel such as the choke wire if not being used.

Congratulations

We would like to congratulate you on finishing your 35 Truck.

Recheck the ride height of the frame. Weight has been added since initially done.

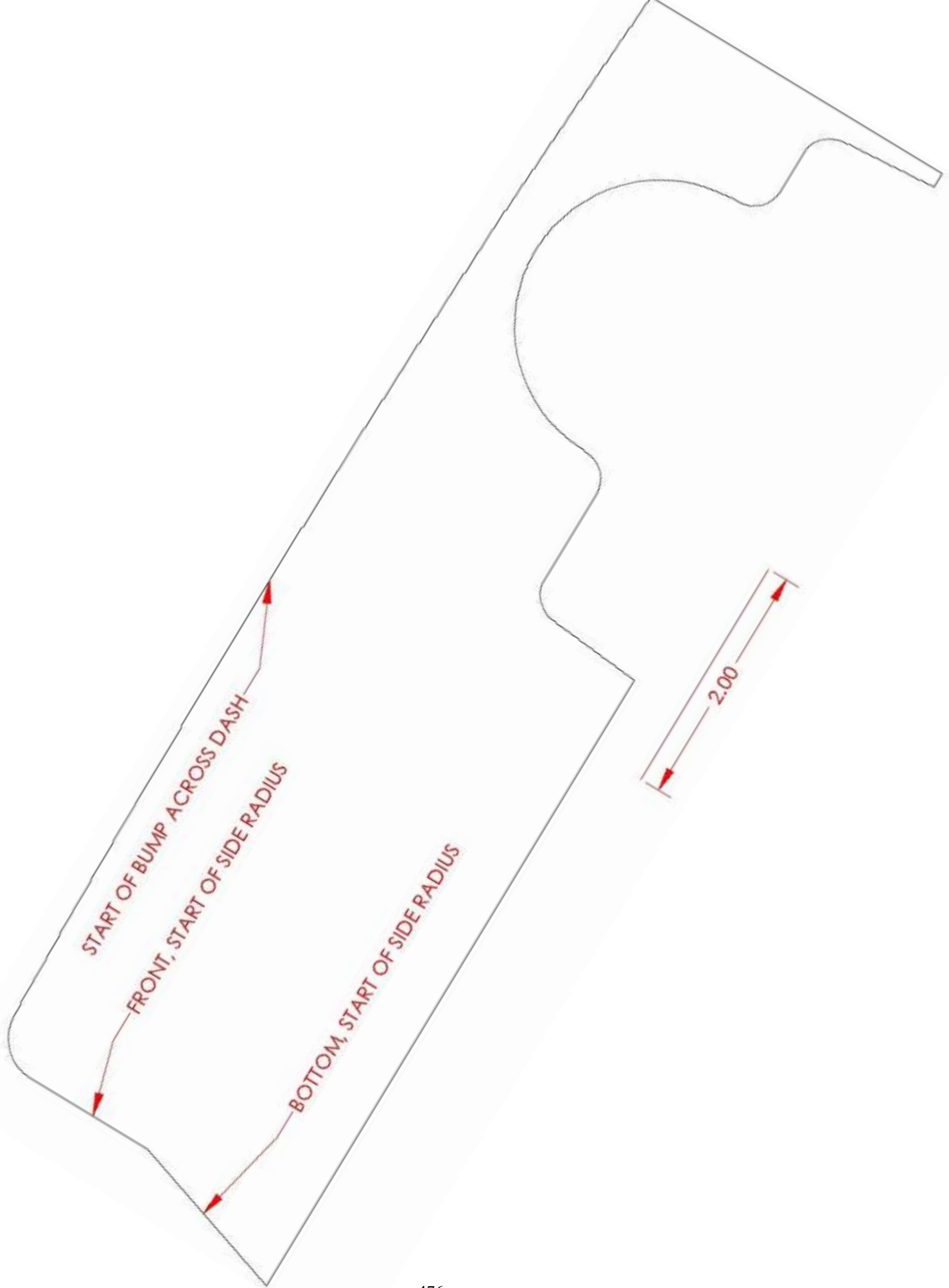


Check the Appendix for alignment, ride height and headlight alignment specs and procedures.



Recheck the car using the suggested “Final check” sheet in the appendix

Appendix A: Templates



Appendix B: Alignment and Ride Height

Alignment Specifications

	Total Toe In (inches)	Camber (deg)	Caster (deg)
Manual steering	$\frac{1}{16}$	-0.5	3-4
Power steering	$\frac{1}{16}$	-0.5-0.75	6-7

Ride Height

UPPER SUSPENSION HOLES

Front	4.5"
Rear	5"

Measured from the ground to the bottom of the frame.

LOWER SUSPENSION HOLES

Front	5.5"
Rear	6"

Measured from the ground to the bottom of the frame.

Appendix C: Headlight Alignment



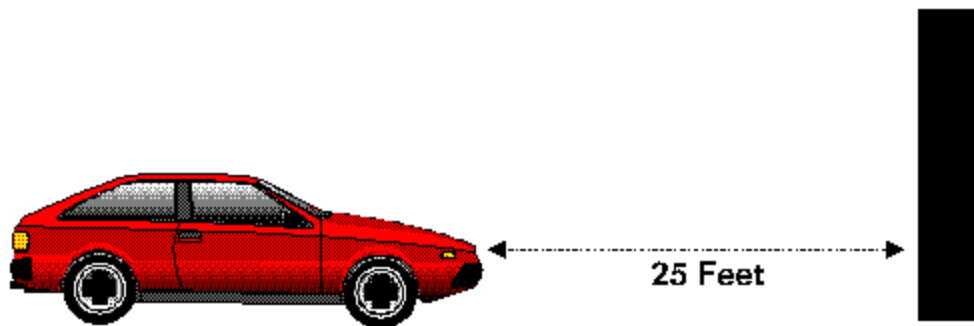
Make sure that the truck is at the correct ride height before the alignment procedure is done. It is important that the headlights are aimed properly in order for it to perform at their best. Lights that are aimed incorrectly will not only perform poorly but may also offend oncoming traffic. When replacing bulbs, it is a good idea to verify that your lights are properly aimed. Slight variances in filament position can translate to large variances in beam pattern. The following procedure does not require special aiming equipment and ensures proper aim.

Find a flat level surface next to a vertical white wall where the truck can be parked (a garage door is an ideal location at home).

Pull the car straight up to the wall as close as possible.

Using masking tape and a marker, draw a vertical line on the wall corresponding to the centerline of the vehicle.

Pull the truck straight back until the headlights are 25 feet from the wall.



Headlight distance from wall

Make the following two measurements:

Measurement A: From the ground to the geometric center of one of the headlight lenses

Measurement B: From one of the low beam headlights to the vehicle centerline.

(Also measure from high beam center to vehicle centerline for 4 headlight systems)

Note these measurements.

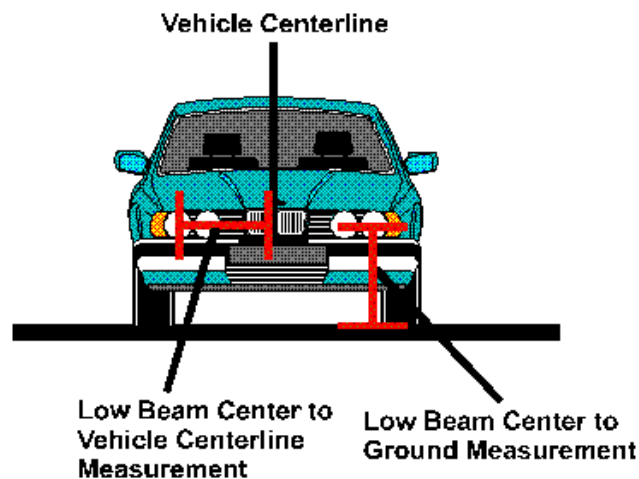


Figure 1: Headlight alignment (centerline)

On a piece of masking tape, draw one horizontal line on the wall at a height exactly 2 inches lower than Measurement A.

On the line, make vertical marks both to the right and left of the vehicle centerline mark at the distance of Measurement B from the vehicle centerline vertical line.

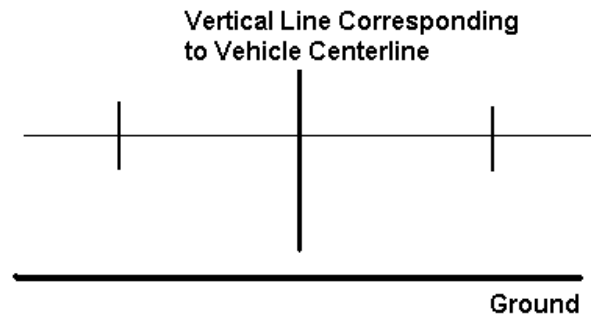


Figure 2: Headlight alignment

Turn the headlights on and adjust the vertical aim of the headlights so that the top horizontal cutoff of each of the beams is located along the horizontal line drawn on the wall.

Adjust the horizontal aim of the low beam headlights so that the point at which the top cutoff of the beam begins to slope upwards is located at the vertical marks.

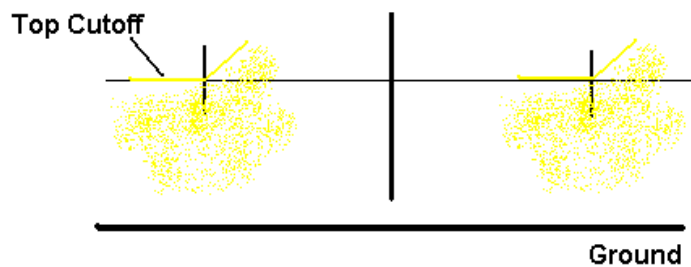


Figure 3: Headlight alignment aim

Appendix D: Final Check

The following are general guidelines we when we are finished building a vehicle. It is by no means to be considered a complete list but gives a good starting point for anyone checking over their own car before leaving the garage bay. It is also a good idea to check these items on a yearly basis or sooner depending on how hard the car is driven.

Steering

Steering wheel tight	_____
Universal joint set screws tight	_____
Rack mount bolts tight	_____
Tie rod ends tight	_____
Tie rod to spindle bolts tight	_____
Steering free lock to lock	_____

Suspension

Front wheel bearings tight	_____
Upper and lower ball joints tight with cotter pins	_____
Upper control arm bolts tight	_____
Lower control arm jam nuts and clevis nuts tight	_____
Lower control arm bolts tight	_____
Shock mounting bolts tight	_____
Spring collars tight	_____
Air pressure set	_____
Lug nuts tight	_____

Brakes

Front Caliper bolts tight	_____
Rear caliper bolts tight	_____
Rotors clean no cracks or groves	_____
Brakes bled/bleeders tight	_____
No leaks under pressure	_____
Master cylinder bolts tight	_____
Reservoir full	_____
Flexible lines tied up	_____

Cockpit

Seat securely bolted	_____
Belts/Harnesses securely bolted	_____
Pedals travel freely and bolts secure	_____
Throttle return spring hooked up	_____
Interior wiring tight	_____
Shifter tight and free	_____
Mirrors tight and adjusted	_____

Electrical

Battery charged	_____
-----------------	-------

Battery mount and connections secure	_____
Brake lights functioning	_____
All wires free and clear of moving or hot parts	_____
Rear Suspension	
Shock mounting bolts tight	_____
Spring collars tight	_____
Axles free play checked	_____
Air pressure set	_____
Lug nuts torqued	_____
Transmission	
Clutch height /free play adjusted	_____
No leaks	_____
Universal joints no bind or wear	_____
Output shaft snug no bind	_____
Drive shaft bolts tight	_____
Transmission mount bolts tight	_____
Bell housing bolts tight	_____
Starter tight	_____
Engine	
Oil level checked/cap tight	_____
Water level checked	_____
Plug wires tight including coil	_____
Belts tight	_____
Engine mount nuts tight	_____
Fuel lines no leaks under pressure	_____
No coolant or oil leaks	_____
Exhaust tight	_____
Fuel level checked	_____

Appendix E: Technical Support

Our success depends on you being able to build your kit without problems or frustration. We are counting on you to build and drive this car and in so doing, provide us with the most important advertising of all.

If you have purchased a kit, we want to make sure that you know that you are not alone. Although we know our kit is the most straight forward assembly around, there may be a time when you need to speak to us. We will be there for you to make sure you are successful. No question is too simple. We are easily reached in a number of ways.

The Web: www.factoryfive.com
 www.thefactoryfiveforum.com
Phone: 508-291-3443
Fax: 508-291-3883
E-mail: Tech@factoryfive.com
Mail: 9 Tow Rd, Wareham, MA 02571

Appendix F: Registration and Titling

If you choose to use this vehicle on a public road, you are responsible for complying with all State and Federal regulations governing Home-built vehicles.

Regulations vary from state-to-state. Your best source of information about titling and registration is from your State Department of Motor Vehicles. Most of these agencies have specific regulations and steps for you to complete when seeking registration of your vehicle.

Provided with your Factory Five Racing kit is a Manufacturer's Certificate of Origin. This document records the origin of the kit and is not a vehicle title. **The component kit that we manufacture has no VIN number.** The number stamped on the frame matches the Certificate of Origin and is the kit serial number.

In most States, upon completion of your kit, you need to bring this certificate along with receipts for any parts used on your car and a copy of our invoice to your State DMV. Some states like Massachusetts have a separate vehicle inspection division for specialty cars and custom built cars that assigns the VIN numbers. Often times this division handles "salvage" vehicles as well.

Appendix G: Wheel/Tire Specifications



These values represent wheels and tires used by Factory Five on the 35 Truck. Anyone referencing this information can be confident that using a wheel of the size listed below will work, but that other sizes may also fit.

35 Truck without Fenders



Billet Aluminum Artillery Wheels - www.thewheelsmith.net
Front: 16x5
600R16 Excelsior Stahl Sport Radial with inner tube
Rear: 16x6
750R16 Excelsior Stahl Sport Radial with inner tube

35 Truck With Fenders

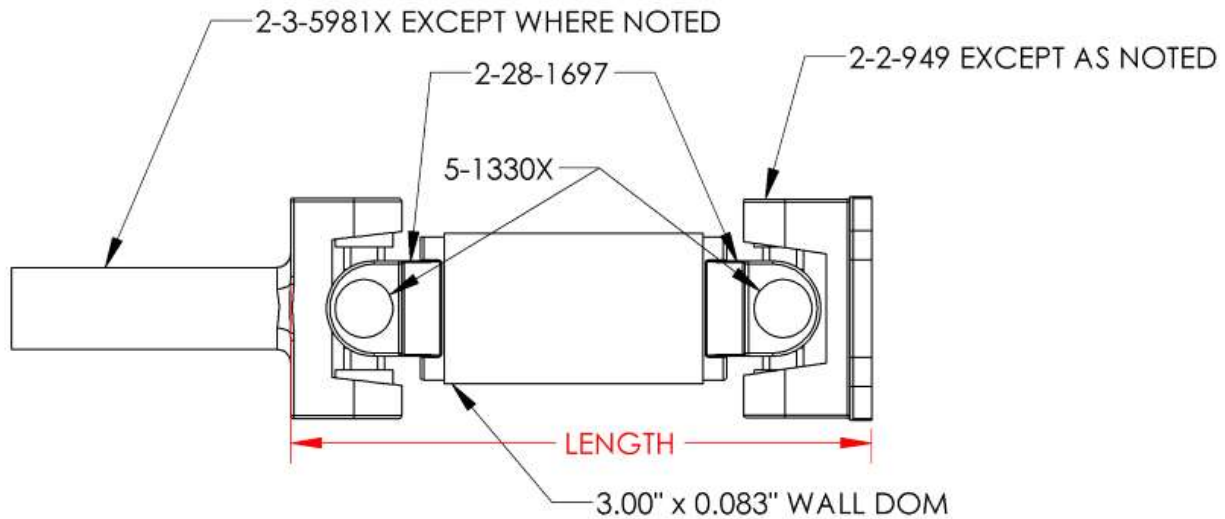
The following wheel and Tire recommendations will allow the wheels and tires to fit under the optional Fenders:



Hot Rod WireWheels - www.thewheelsmith.net	
Rear:	18x8
Toyo Proxes T1 Sport 245/45 R18	
Front:	18x8
Toyo Proxes T1 Sport 245/45 R18	

Appendix H: Driveshaft lengths

MODEL	FFR#	SPLINE	DESCRIPTION	LENGTH
COUPE	60375	31	COYOTE w/2015 IRS, 6SPD MAGNUM, 2-3-6041X YOKE, 2-2-489 FLG	9.75
COUPE	60453	28	302/351 w/2015 IRS, T-5/AOD, 2-2-489 FLG	10.50
COUPE	60450	31	302/351 6 SPD MAGNUM, 2-3-6041X YOKE	10.50
COUPE	60175	31	302/351 w/2015 IRS, TKO, 4.6L/COYOTE TKO ROADSTER, 2-3-6041X YOKE, 2-2-489 FLG	10.50
COUPE	60455	31	COYOTE 6 SPD MAGNUM, 2-3-6041X YOKE	12.75
COUPE	60376	31	COYOTE w/2015 IRS, TKO, 2-3-6041X YOKE, 2-2-489 FLG	12.75
COUPE	60454	28	302/351 T-5/AOD	13.50
COUPE	16349	31	302/351 TKO, 2-3-6041X YOKE	13.50
COUPE	60452	31	COYOTE TKO, 2-3-6041X YOKE	15.75
HOT ROD	34048	27	CHEVY w/2015 IRS, 700R4/4L60/4L65E (EXCEPT VETTE), 2-3-12051X YOKE, 2-2-489 FLG	31.00
HOT ROD	34049	31	302/351/4.6L/COYOTE/HEMI w/2015 IRS, TKO, 2-3-6041X YOKE, 2-2-489 FLG	31.25
HOT ROD	34050	28	302/351/4.6L/COYOTE w/2015 IRS, T-5/AOD, 2-2-489 FLG	31.25
HOT ROD	34046	31	CHEVY w/2015 IRS, TKO, 2-3-6041X YOKE, 2-2-489 FLG	32.1875
HOT ROD	34880	27	CHEVY 700R4/4L60/4L65E (EXCEPT CORVETTE), 2-3-12051X YOKE	35.00
HOT ROD	34881	28	302/351/4.6L/COYOTE T-5/AOD	35.25
HOT ROD	34882	31	302/351/4.6L/COYOTE/HEMI TKO, 2-3-6041X YOKE	35.25
HOT ROD	34883	27	CHEVY 4L60/4L65E, 2-3-12051X YOKE	35.75
HOT ROD	34884	31	CHEVY TKO, 2-3-6041X YOKE	36.1875
ROADSTER	15956	28	302/351 w/2015 IRS, T-5/AOD, 2-2-489 FLG	8.375
ROADSTER	16038	31	302/351 w/2015 IRS, TKO, COYOTE/LS T-56, 2-3-6041X YOKE, 2-2-489 FLG	8.375
ROADSTER	16348	28	302/351 T-5/AOD	11.25
ROADSTER	16350	31	302/351 TKO, 2-3-6041X YOKE	11.25
ROADSTER	16349	31	4.6L/COYOTE/LS TKO/T-45/3650, BIG BLOCK TKO, 302/351 TKO COUPE, 2-3-6041X YOKE	13.50
35 TRUCK	35201	28	302/351/4.6L/COYOTE USING T-5/AOD, USE 2-2-489 FLG	42.50
35 TRUCK	35202	31	302/351/4.6L/COYOTE/HEMI USING TKO, USE 2-3-6041X YOKE AND 2-2-489 FLG	42.50
35 TRUCK	35203	27	CHEVY USING 4L60/4L65E (1998+), USE 2-3-12051X YOKE AND 2-2-489 FLG	42.50
35 TRUCK	35204	27	CHEVY USING 700R4/4L60 (93-97 EXCEPT VETTE), USE 2-3-12051X YOKE AND 2-2-489 FLG	43.00
35 TRUCK	35205	31	CHEVY USING TREMEC TRANS. 2-3-6041X YOKE AND 2-2-489 FLG	43.4375



NOTE: 1. FOR ALL OTHER TRANSMISSIONS, INSTALL TRANS. AND MEASURE.
2. 94-95 BELLHOUSING AND T-5 TRANS ARE LONGER SO SHORTEN DRIVESHAFT BY 0.75\".

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	COUPE	TOLERANCES:				
	HOT ROD	TWO PLACE DECIMAL ±0.01				
	35 TRUCK	THREE PLACE DECIMAL ±0.005				
		FOUR PLACE DECIMAL ±0.001				
	USED ON	MATERIAL			NAME	DATE
	APPLICATION	FINISH			JL	12/18/03
		PRINTED			COMMENTS: 2015 IRS USE SPICER 2-2-489 PINION FLANGE	
		11/11/2022			SIZE	DWG. NO.
					A	13023
					SCALE:1:3	WEIGHT:
					REV. X	
					SHEET 1 OF 1	

Appendix I: Additional Torque Specifications

General Bolt torque specifications (standard)

Thread	SAE English
	Zinc Plated
	lb-ft
1/4 -20	8
1/4 -28	10
5/16 -18	17
5/16 -24	19
3/8 -16	30
3/8 -24	34
7/16 -14	48
7/16 -24	54
1/2 -13	75
1/2 -20	83
9/16 -12	100
9/16 -18	100
5/8 -11	100
5/8 -14	100

General Bolt torque specifications (metric)

Thread	SAE Metric
	Zinc Plated
	lb-ft
M8	18
M10	33
M12	61
M14	98
M16	120

Appendix J: Fluid Specifications and Capacities

Engine		
	Oil Type	Capacity
302	10W-30	5.0 qts.
Coyote	5W-50	8.0 qts.

Transmission			
Oil Type	T-5	TKO/TKX*	T-56
Mercon/Dexron III Trans. Fluid	2.8 qts.	2.64 qts.	4.0 qts

* Recommended fluid is Pennzoil Synchronesh

8.8 Solid Rear Axle		
Oil Type	Capacity	Friction Modifier
80W-90 Gear oil	1.875 qts.	4 oz.

