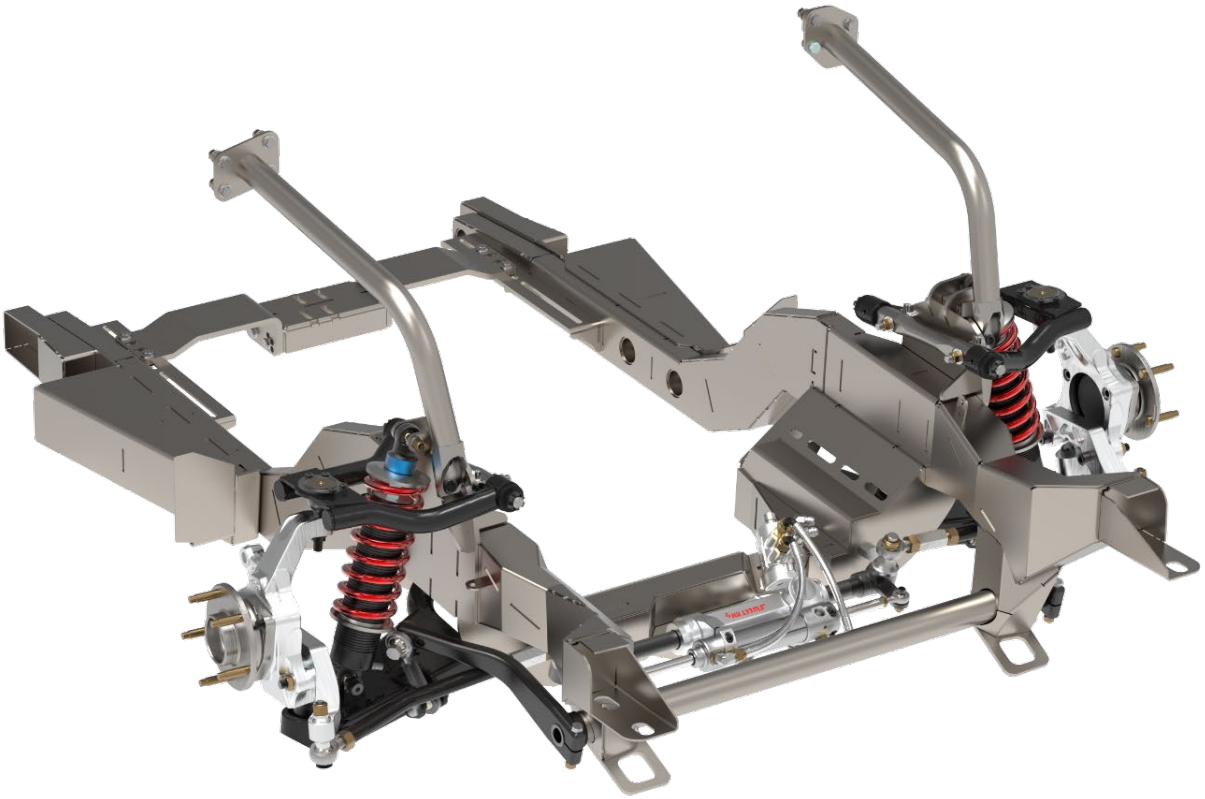
Instruction Guide

ExtReme Front Subframe
68-70 Mopar B-Body



Speedtech PERFORMANCE

CHASSIS - SUSPENSION - PRO TOURING - AUTOCROSS - DRAG RACING - CUSTOM BUILDS

435.628.4300 SPEEDTECHPERFORMANCE.COM

4160 S. RIVER RD, ST. GEORGE, UT 84790

Figure 1: 1969 Plymouth Superbird, features our ExtReme subframe and Torque Arm suspension

Congratulations on the purchase of your new Speedtech Performance ExtReme subframe. Use only approved and appropriately rated jack and jack stands, and be sure to take all safety precautions required to complete the job safely and correctly. If you have uncertainties, seek the assistance of a highly qualified workshop to assist you.

Read and understand all instructions thoroughly before you begin. Your main assembly and set up of your new ExtReme subframe can be done in a home garage with hand tools and basic welding equipment.

Speedtech enjoys seeing the progress our customers are making as they work through their builds. Join the group, Team Speedtech, on Facebook and share your pictures and your story.

Speedtech Performance sends you best wishes for your project!

TABLE OF CONTENTS

1.0 GENERAL INFORMATION

Back to Table of Contents

1.1 THIS GUIDE

Thank you for purchasing your new Speedtech Performance ExtReme subframe. Read through all instructions thoroughly before beginning and take all safety precautions required to do the job carefully and correctly. If you have uncertainty, seek the assistance of a highly qualified workshop.

Installing this product will require the removal of your old suspension, engine, and transmission from your car. You will need a quality torque wrench, anti-seize lubricant, red and blue Loctite, and suspension grease. Use only approved and appropriately rated jack and jack stands.

To install the subframe onto the unibody, body modifications will be required. Portions of the original frame bracing, inner fender, and torsion bar system will need to be removed to prepare the new subframe.

While Speedtech's ExtReme suspension systems are safer and more comfortable compared to factory suspension on the street, it is also designed to meet the needs of those intending to participate in off highway road races and autocross competitions. To achieve maximum benefit from our system, you should anticipate adjusting and tuning of the suspension to achieve optimum performance specific to the vehicle, driver, and type of racing. Some of this, such as tuning sway bars and shock settings, can be done track side through making adjustments and seeing or feeling how the car reacts to these changes. Speedtech recommends that a tire probe pyrometer and an air pressure gauge be in your track side kit.

Other adjustments, such as tuning a bump steer and caster may require specialized equipment and professional help. Speedtech's technical department can share insight on making these adjustments to help get you started.

NOTE: This kit requires approximately 30 minutes of welding time to install. The frame boxes and frame rail caps are permanently welded to the unibody. We highly recommend after trimming and fitment of the various components, and before welding, that you protect all surfaces with primer.

IMPORTANT: Take extra care when making final cuts and welds on the vehicle. Ensure that everything is lined up and the wheels are in the desired location. There is some adjustment in the removable subframe for the final assembly, but it is limited.

WARNING: Once assembled you will need a professional wheel alignment performed. Driving a vehicle without a proper alignment can be dangerous. Towing is recommended to transport the car prior to the alignment being performed. For basic rough alignment settings refer to the ExtReme IFS instruction guide.

1.2 OVERVIEW

These instructions outline the ExtReme subframe. Photos in the instruction process may vary slightly from your exact operation.

Take necessary precautions when welding the inside of your vehicle and remove any close-by flammable materials including the seats, carpet, inner heater box, and insulation padding before performing this instruction. Be sure to wear proper protective gear when using power tools and keep sparks away from glass and other interior components when grinding and welding.

1.3 TOOLS

Installation of the Speedtech Performance ExtReme subframe can be done on the floor with a cut off wheel, basic welder, and simple hand tools.

Additional things to have before you start:

- Grinder
- Floor Stands
- Floor Jack
- Welder
- Drill / Bits

1.4 ADDITIONAL PARTS / ENGINE COMPATIBILITIES

This ExtReme subframe has been designed to accept the following engines: All 3rd Gen Hemi engines. Some details related to installing the Hellcat/Hell crate supercharged engine may differ. Your representative will need to be informed of the engine the car is planned to receive. There may be other possible combinations not yet verified by our technical team. Speedtech's team members are available for any compatibility questions pertaining to your unique build.

Additional parts you will need:

- Frame Compatible Oil Pan
- Engine Starter Motor
- Headers and Exhaust
- Transmission Mount
- Engine Adapter Plates
- Engine to Frame Stands
- Fuel Tank
- Steering Shaft Kit
- Steering Column
- Custom Brake Lines
- Lug Nuts
- Drive Shaft

2.0 CHECK IN PARTS AND HARDWARE

Back to Table of Contents

2.1 CHECKING IN THE ORDER

Check in your order as soon as possible. To check in the order, Speedtech has provided tables which can be used as check lists, as displayed in figure 3. All bolts and nuts are NF unless otherwise noted. Hardware comes in several boxes. If you discover anything missing from your order, call your authorized dealer as soon as possible.

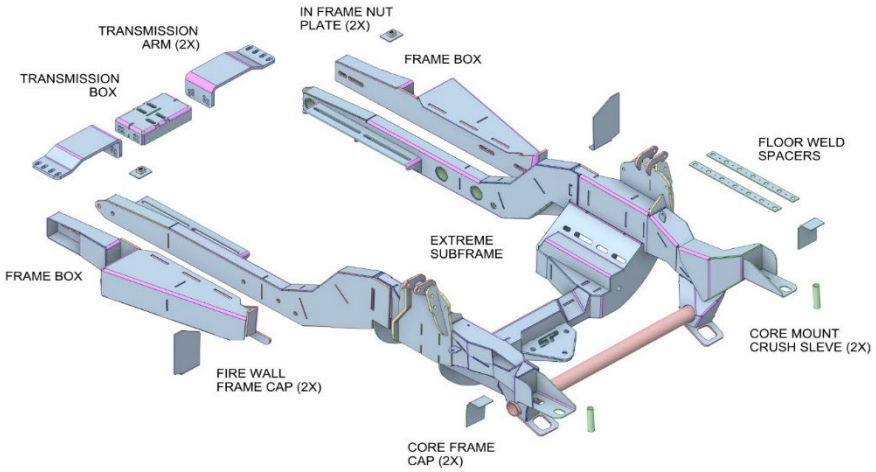


Figure 2: Numerous individual parts and hardware

2.2 CHECK IN TABLES

SUBFRAME

X	#	Description	Size
	1	ExtReme Subframe	Welded Frame
	2	Core Support Frame Cap (Square w/ Bent Leg)	1/8” Plate
	2	Frame Rail Crush Sleeve	3/4” x 3” Tube
	6	Subframe Rail Bolts	1/2” x 1-1/2”
	2	Core Support Bolts Long	1/2” x 4”
	8	Nylock Nuts	1/2”
	16	Large Plate Washers	1/2”
	2	K Member Bolt	5/8” x 2” NC
	2	K Member Lock Washer	5/8”
	2	K Member Washer	5/8”

FRAME BOX

	2	Frame Mounting Boxes (Mirrored)	Welded Box
	2	Fire Wall Frame Cap (Trapezoidal w/ Bent Leg Mirrored)	1/8” Plate
	2	In Frame Nut Plates	Welded Nut Plate
	2	Floor Weld Spacers (Strip with Holes)	1/8” Strip
	2	Box Mount Bolts	1/2” x 1-1/2”
	2	Box Mount Lock Washers	1/2”
	2	Box Mount Plate Washers	1/2”

TRANSMISSION CROSSMEMBER

	1	Transmission Mount Box	Welded Box
	2	Transmission Arms	3/8” Formed Plate
	8	Transmission Arm Bolts	3/8” x 1”
	8	Transmission Arm Nylock Nuts	3/8”
	16	Transmission Arm Washers	3/8”

DOWN TUBE

	2	Down Tubes	1-1/2” Formed Tube
	2	Fire Wall Mounting Plates (Driver and Passenger)	3/16” Plate
	2	Subframe Mounting Bung	Machined Steel
	8	Fire Wall Button Head Bolts	3/8” x 1”
	8	Fire Wall Stainless Washers (Engine Bay)	3/8”
	8	Fire Wall Washers (Cowl)	3/8”
	8	Fire Wall Nylock Nuts	3/8”
	4	Subframe Socket Head Bolt	7/16” x 1” NC
	4	Subframe Nylock	7/16” NC

INNER FENDER TUB

	2	Core Support Sheets	Sheet Metal
	2	Fender Tub Sheets	Sheet Metal
	2	Fire Wall Transition Sheets	Sheet Metal
	2	Upper Control Arm Cover Plates	Sheet Metal

Figure 3: Check in tables including amounts, description, and sizes

2.3 ASSEMBLY OVERVIEW

Two images depict an overview of all items to be assembled.

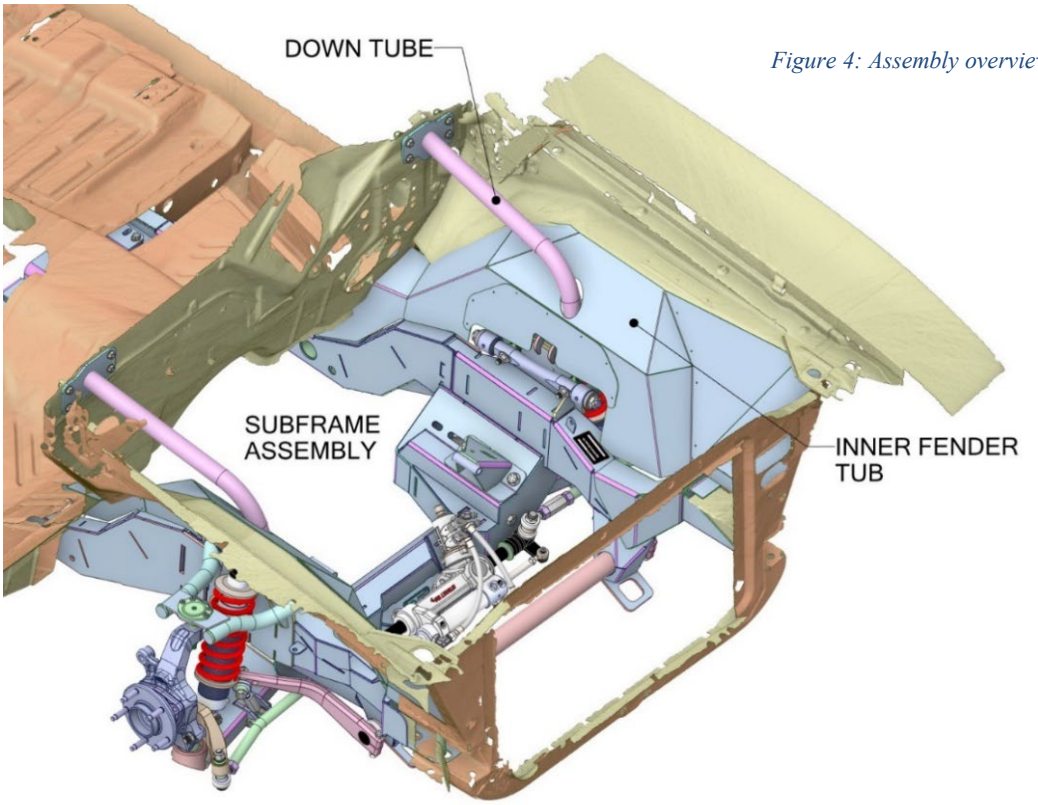


Figure 4: Assembly overview; impression one

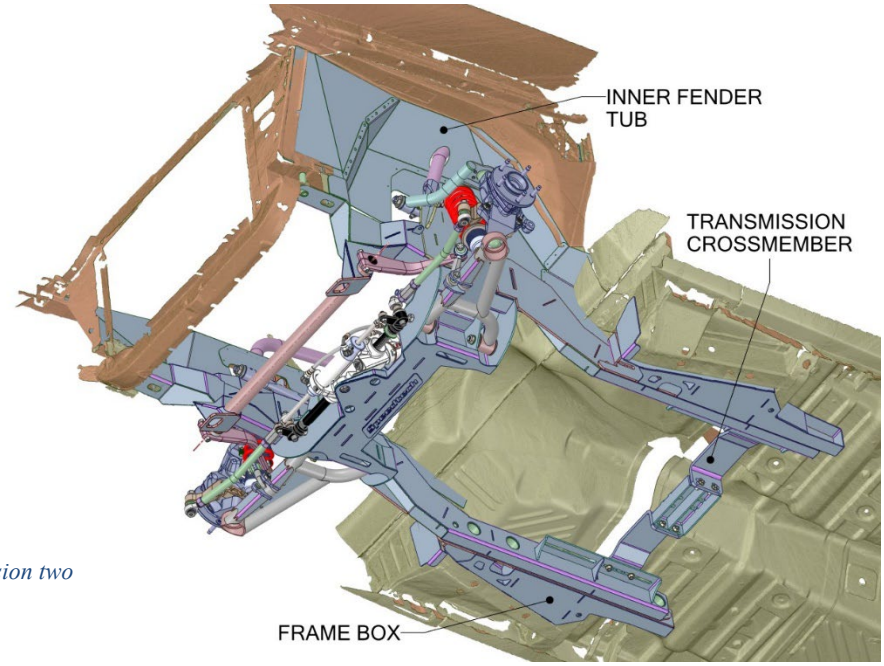


Figure 5: Assembly overview; impression two

3.0 GETTING STARTED

Back to Table of Contents

3.1 LEVELING AND SUPPORT

WARNING: The vehicle should be on a level surface before you start.

First, jack up and properly support the vehicle's frame. The suspension should be at drive height when installing the bar. If the car is on a lift and the suspension is in droop when you install the kit, it will not line up properly when back on the ground. The sway bar brackets will all need to be testfit into place before final installation to achieve proper alignment of the bar and that no binding is experienced during the suspension's travel.

3.2 BODY PREPERATION / CUTTING

Next, disassemble the entire front half of the car. Remove the engine, transmission, radiators, peddle assemblies, electrics, front suspension arms, torsion bar, steering assembly, column, front seats, and flooring.
Measure and mark cut lines on the portions of frame being removed. Refer to the next two diagrams, figures 6 and 7.

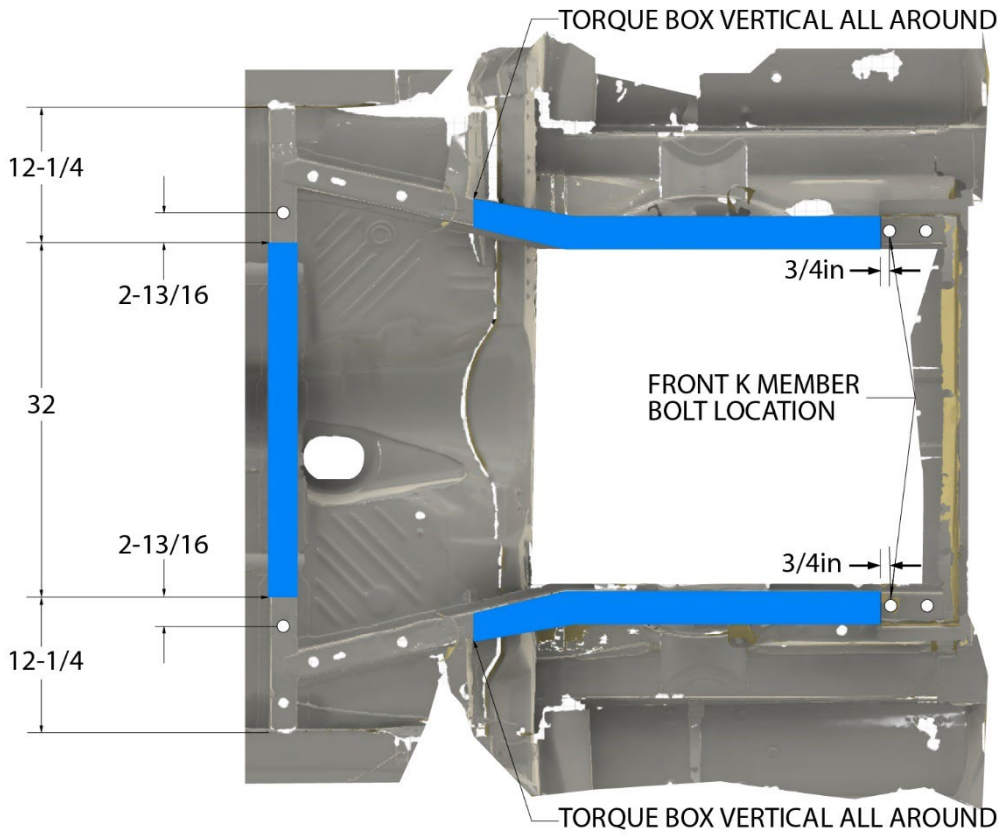


Figure 6: The blue lines on the frame present where the rails are being removed and where the cut lines must be made

The center 32” of frame channel that crosses over the transmission tunnel area. This will include the torsion bar mounting locations.

- The frame rail from the fire wall up to the front K member bolt location.
  - Mark just above the double plate on the inner fender well.
  - Around the shock tower, mark out some extra clearance for the new subframe, up to about an inch below the shock mount.
  - Back down to the double plate behind the shock mount structure.
  - Back to where the frame rail is attached to the fire wall and outside torque box.
  - Around the frame rail in line with the face of the torque box. Match the cut line angle around the frame rail to the face of the torque box.
  - Once cut, the plate to cover the opened frame rail will be in line with the torque box, making it one continuous face.

NOTE: There are two different cut steps on the inner fender. Since structure is being taken out, the nose will drupe out of positions, making all the measurements and gaps off. During the first cut step, keep as much material in place as possible, once the subframe is in place later in the process, the remaining fender that needs to be removed can safely be done.

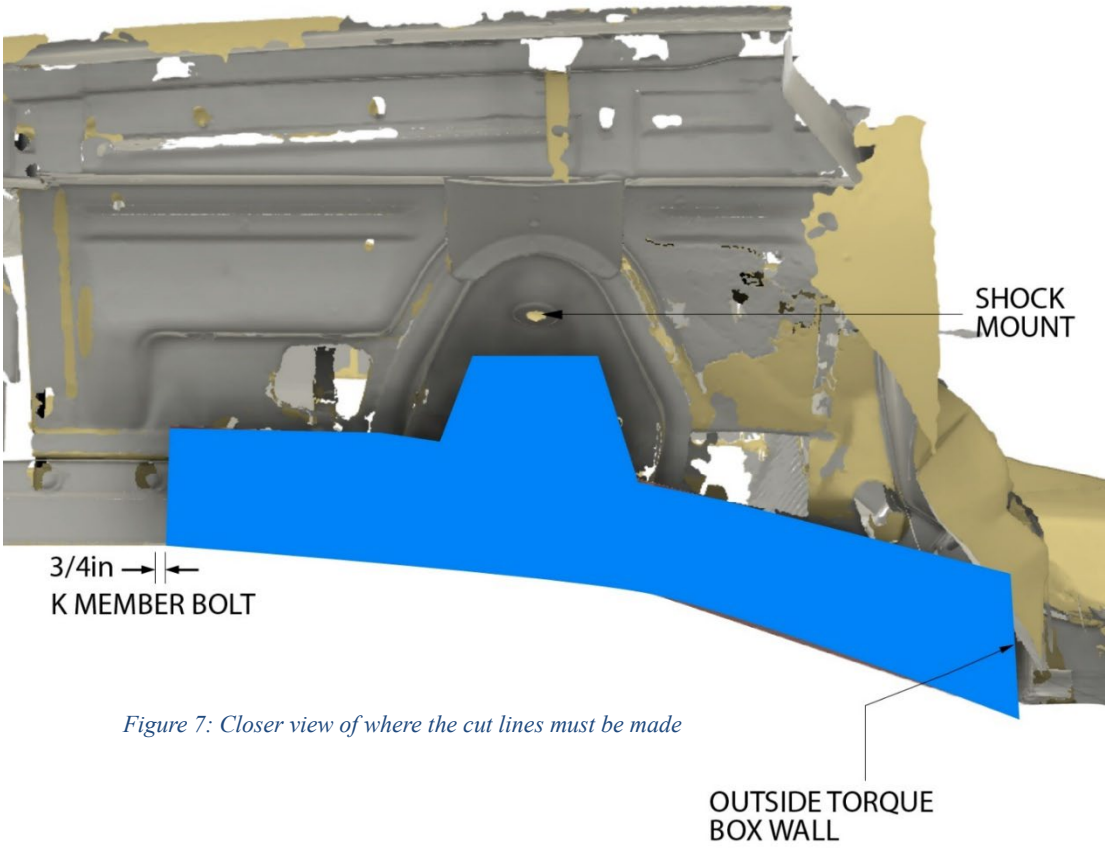


Figure 7: Closer view of where the cut lines must be made

3.3 REMOVE TRANSMISSION FRAME RAIL

- Remove the frame rail around the transmission tunnel only.
  - Cut the frame box on the marked lines.
  - Separate the frame channel from the floor.
  - Clean and protect the intact floor inside of the frame rail.
- Prep the welding areas for the frame boxes.
  - Slide the nut plates into the frame cavity through the newly made hole. Line up the plates over the gauge holes in the frame rail.
  - Lift the frame boxes into their position under the car.
    - The boxes wedge inside the corner, wrapping around the open end of the frame rail, and extending backwards.
    - Bolt into place using the nut plate in the frame rail.
  - Mark the outside edge of the box where it interacts with the floor and frame rail.
    - The boxes will be welded to the floor from the fire wall to the back side of the cutout frame rail. Also weld on the edges of the box up and around the remaining frame rail.

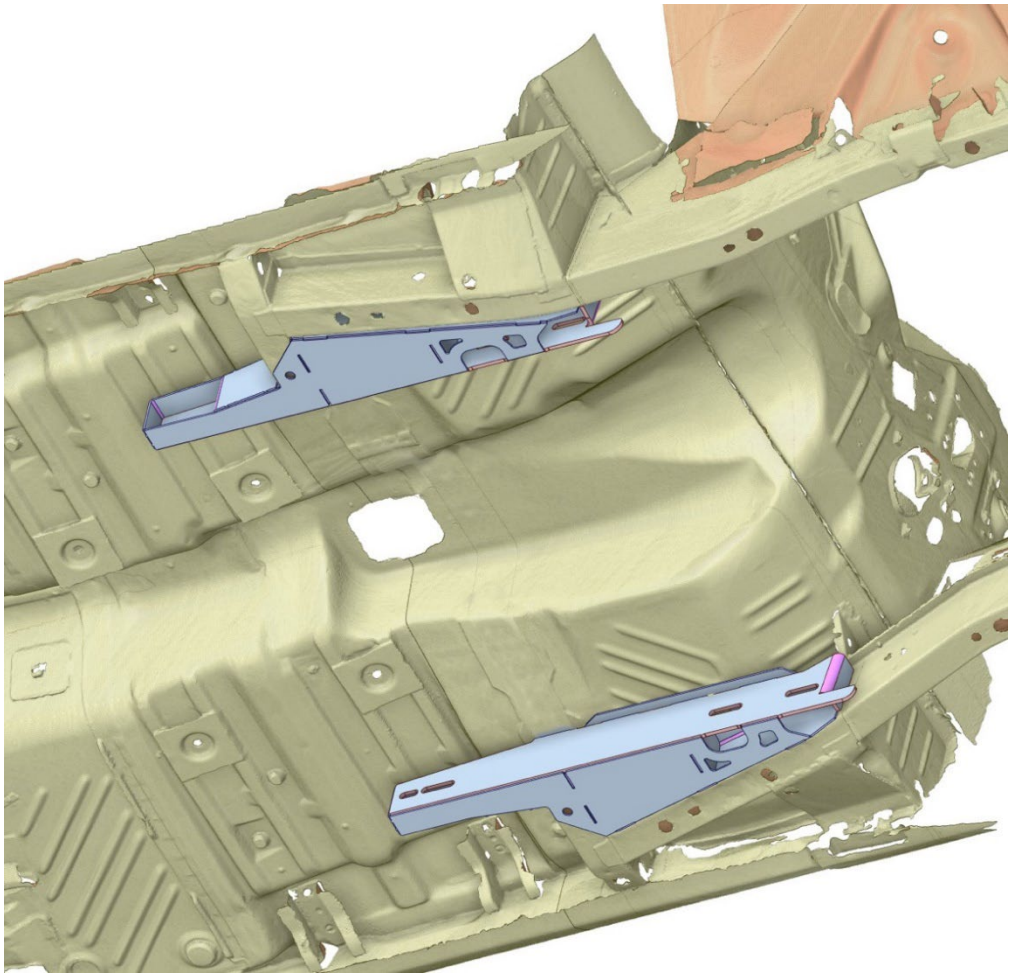


Figure 8: Location of where to add the frame boxes

NOTE: The front of the box should correlate with the frame rail cut line.
Remove the frame boxes from the car.

- Prep, clean, and protect the marked areas for welding.
- Fill the floor ripples with the stripped pieces of metal with holes.
  Cut to size the strips to fill the valleys in the floor inside the marked frame box areas as presented in figure 9.
    - The strips will be used to fill the gaps and be a spot weld guide for the frame boxes inside the cab on the floor.
    - Prep, clean, and protect the areas being covered up by the strips and the strips themselves.
    - Using the small holes in the strip, tack them to the floor.
- Drill holes in the floor, preparing for through floor spot welding.
    - Use the large holes as guides. Open up the holes in the floor to 1/2".
- Prep, clean, and protect the area that will be covered by the frame boxes.

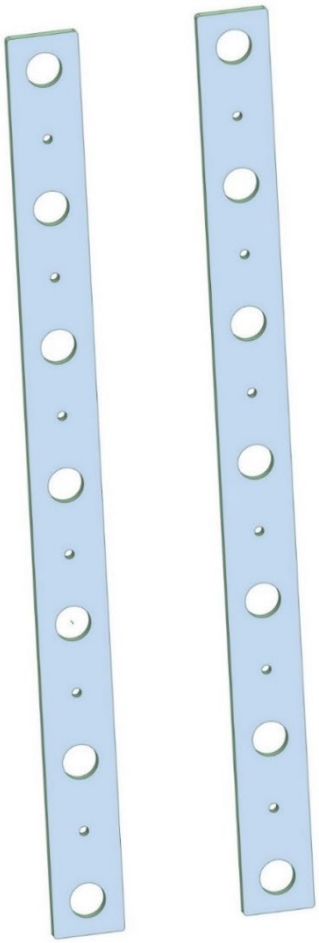


Figure 9: Stripped pieces of metal with holes

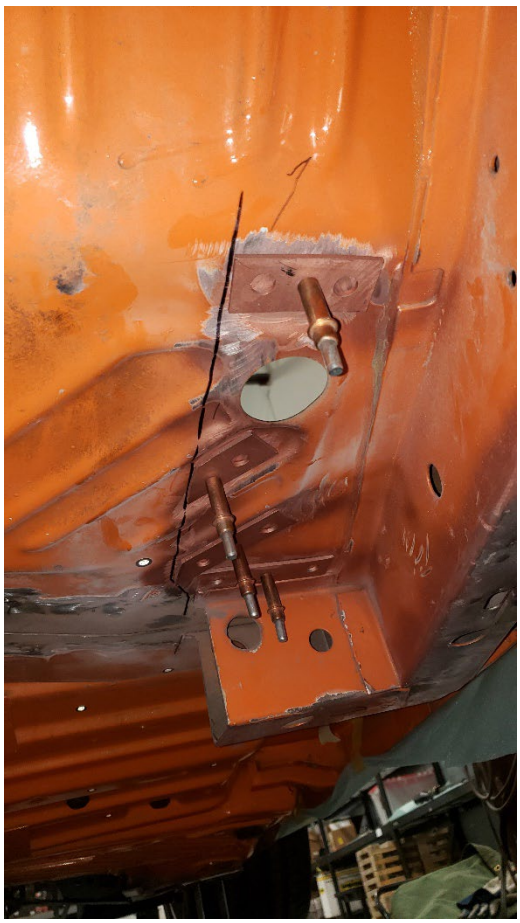


Figure 10: Valleys in floor where the strips can be tacked

3.4 REMOVE FRONT FRAME RAIL

NOTE: Removing the front frame rails will allow the front core support to drop. Check that all points are securely supported and heights are documented so when it is time to install the subframe, there is a height target to set the car back to.

- Lift and level the cars frame rails.
  - The frame rails in the crux where the frame boxes go and the frame rails in the rear of the car in front of the axle need to be the same height off the ground. The best way is to lift and tie the car down onto a frame table. It can also be done on a car lift with careful measurements and adjustments to the lift arms. Symmetrical jack stands in the four corners will also work well.
  - Measure and record the frame rail height in all corners. Make adjustments as needed to achieve level.

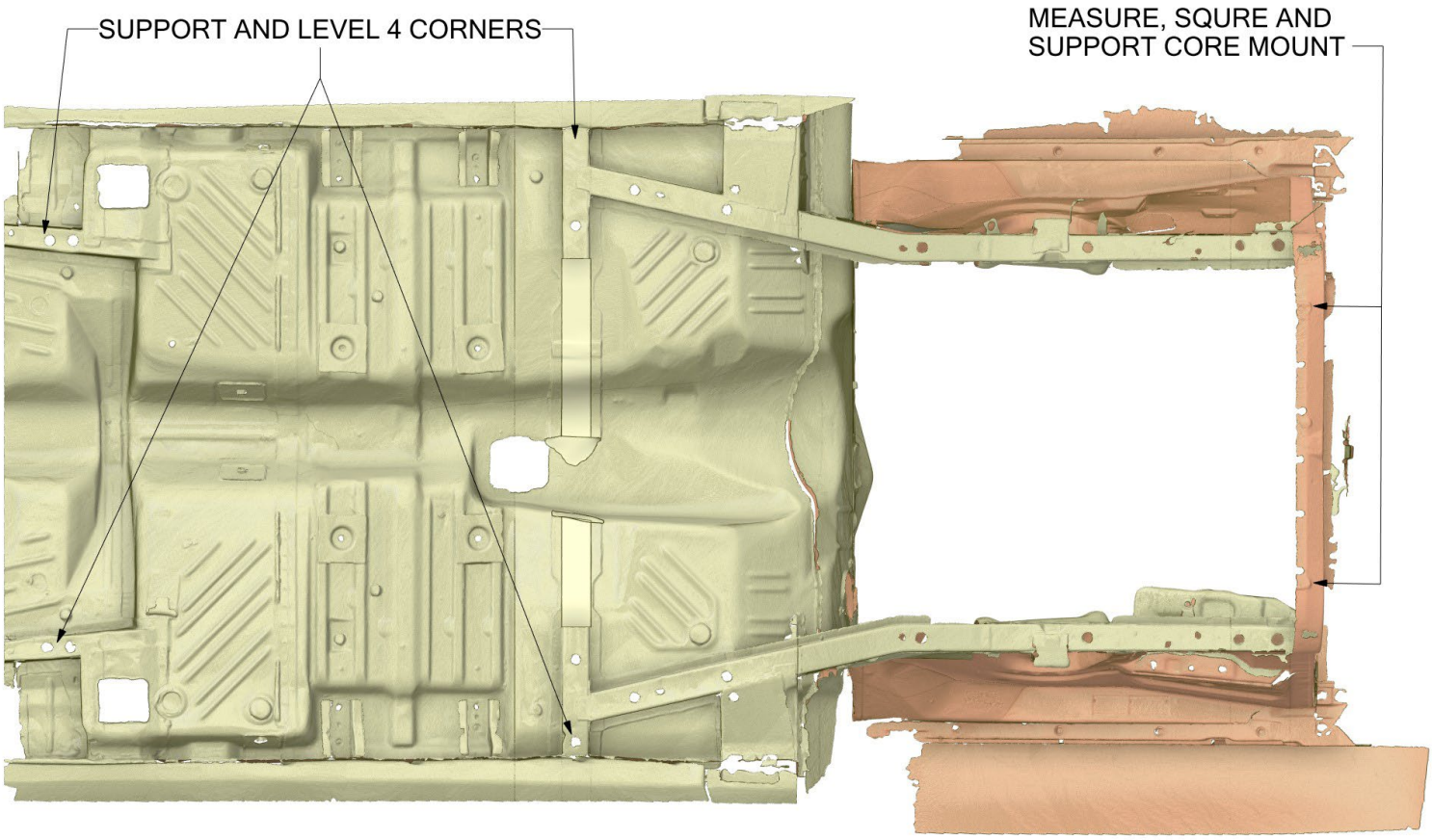


Figure 11: Where to support and level all corners to install the subframe

NOTE: These cars are long and have a rich history. They may not be square and the frame rails may have hits and dings which deforms the height of the rails. Use your best judgement to make adjustments to the supports to level the car as if it were in new condition.

- Square and support the core mount and nose.
    - Now that the car is supported and level, measure and document the core support.
        - This includes measuring if it is square to the car.
    - Add supports and braces to the core and nose of the car. Holding its height and keeping it square.
        - Hold it in places clear of the cut lines and clear of the incoming subframe.
- Cut and remove the frame rail.
    - Follow the predetermined lines and cut out the front frame rail, as presented in figure 6 and 7.
        - **NOTE:** It is better to go back and cut more if needed rather than cutting too much.

Figure 12: The floor of the driver's side of the vehicle

4.0 INSTALLATION

Back to Table of Contents

4.1 SUBFRAME AND SUSPENSION MOCKUP

NOTE: This next step involves a lot of measuring, adjusting, and assessing that the subframe structure is in the right position in the car. Take extra care that the parts do not get preloaded or in bind with each other as things are being fitted to the car and permanently attached.

- Drill out the second mounting bolt in the front frame rail.
  - Locate the gauge hole in front of the K member bolt location.
  - Using the crush sleeve as a guide, insert the crush sleeve into the hole and drill out a 1/2” hole on the top side of the frame rail.
    - Take care that the bolt sleeve is square with the frame rail.
- Prepare the subframe for installation.
  - Use the 6 1/2” bolts to loosely bolt the frame boxes onto the subframe tails.

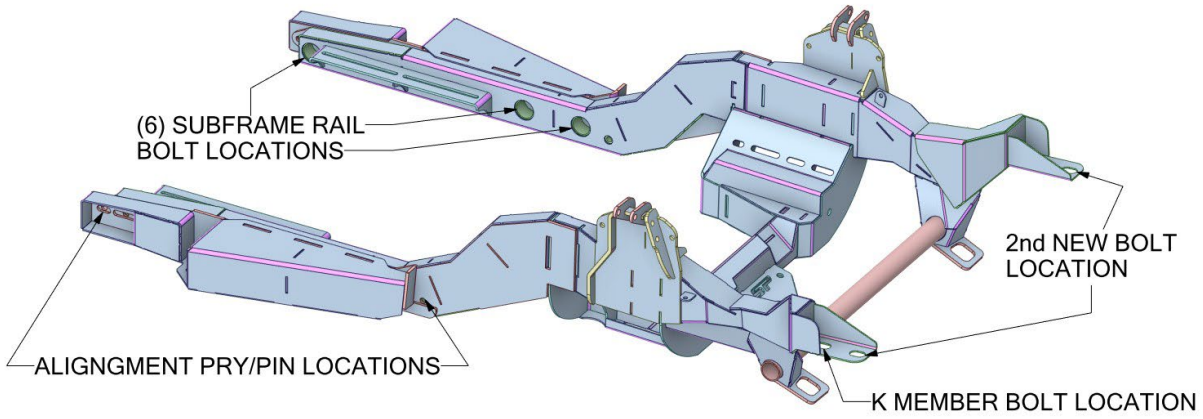


Figure 13: Location of parts within the subframe

- Lift the subframe up into position.
  - Line up the following few key areas on the subframe with the car before lifting.
    - The channel in the frame box that covers the remaining transmission frame rail.
    - The front K member bolt hole and frame rail saddle.
  - Lift the subframe up into the car.
    - Make contact between the frame box and the floor with its preinstalled filler strips.
    - Saddle in the K member frame rails into the front subframe horns.
    - Loosely bolt into location using the front K member 5/8” bolts and washers, and the 1/2” bolt and washers on the frame boxes into the nut plate used an earlier mockup.
    - Firmly clamp the front of the frame box to the frame rail.

- Measure and square subframe into position.
    - Verify that the subframe is square in the car and lines up with the previously squared up core support.
    - Check the core support height and verify that it is in the same position as previously recorded.

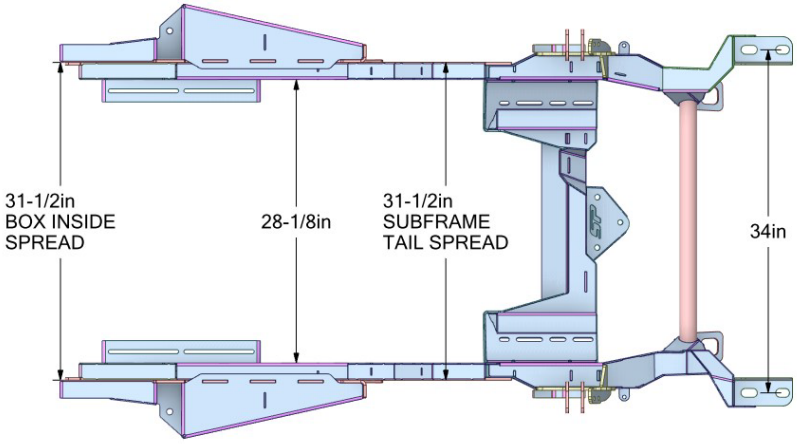


Figure 14: Finished look of subframe

        - If needed, jack only the front of the subframe, lifting the core up into position.
    - Check that the six subframe bolts are close to center in the slots.
    - Use careful measurements of the subframe tails so that they are level front to back, side to side, and at the same height as the level frame rails of the car.
    - Look over all the contact areas the subframe and frame boxes have with the car.
        - Make sure there are no hang-ups preventing full contact with the stock chassis. If needed, manipulate the floor and frame rails so it is in total contact while the frame is at the correct height.
- Mockup front suspension.
    - Use the ExtReme independent front suspension instruction (found in the lower control arm package) to install the front suspension arms and upright.
    - Install a wheel onto the hub. (Preferably the one that will be used as the part of the final build.)
    - Use a mock shock or rachet strap to lift the lower control arm to ride height.
        - Ride height shock length is 13-7/8” eye to eye.
    - Check the wheel location inside the wheel well.
        - Make any adjustments, if needed, to the subframe to locate the wheel front to back and to the desired location.
- Lock in the subframe.
    - Tighten all the bolts and secure the clamps holding the frame box.
        - On final assembly, use blue Loctite with lock washers.
    - Tighten all the bolts on the subframe.
        - 6 1/2" bolts with 2 washers each and nylocks on the tails.
        - 2 1/2-4” bolts with the crush sleeve, 2 washers each, and nylock.
        - 2 5/8” K member bolts with a washer and lock washer.
            - On final assembly, use blue Loctite.
    - Double-check that all the measuring points are correct and square.
    - Double-check all the welding contact points are in full contact.
    - Double-check that there is enough adjustment in the subframe mounting locations for fine tuning on the final build.
- Heavy tack the frame boxes into the car.
    - Tack in a few places around the perimeter of the frame boxes to hold and prepare for welding.

4.2 WELDING

- Disassemble the front suspension.
- Unbolt the subframe from the car.
    - Take note of any potential binding movement as the subframe is unbolted.
        - Make any adjustments to the car or frame box locations to remove any preloading on the subframe.

NOTE: Preloading the subframe makes it very difficult to install, especially as it will be loaded up with motor, transmission, and suspension prior to final installation as part of the final build.

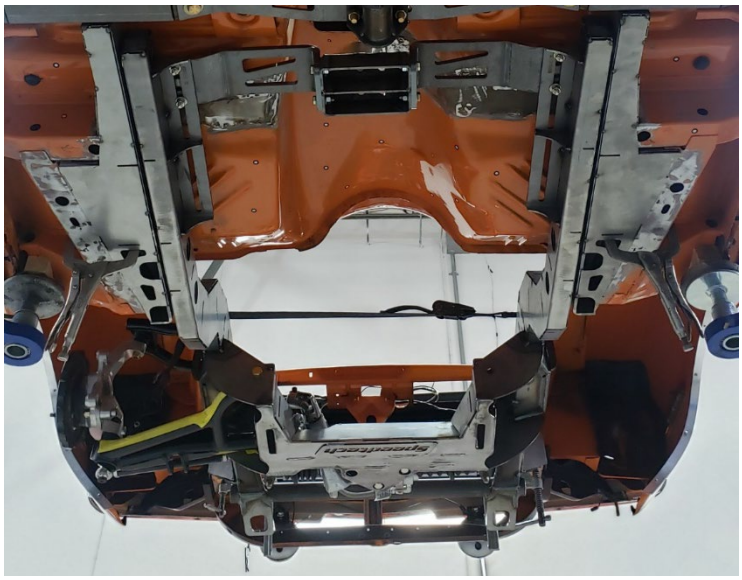


Figure 15: Loading the subframe into the vehicle

- Check for preloading by installing the frame again.
    - Use the alignment holes and shelves on the front and rear of the lower tail to lift the subframe into location.
    - Check that the bolt holes are easy to install a bolt onto both sides.
    - Check that the frame boxes will hold the subframe level.

- If everything checks out, remove the subframe and weld in the frame boxes.
    - Recommend that 2” stitches are made on the perimeter of the boxes, on the floor and up around the frame rails.
    - Spot weld inside the cab, through the floor, and to the box.

Figure 16: Where spot welding in the cab must be completed

4.3 TRANSMISSION CROSSMEMBER INSTALL

NOTE: The transmission crossmember is designed to be adjustable. They have many holes on the sides of the box to lift and lower the mount. This is to help catch all the many different transmission mounts, motor placement, and driveline working angle. Measure your truck carefully and make the necessary adjustments to the crossmember.

- Assemble the crossmember.
  - Check and cut out all the holes on the box and the arms to fit a 3/8” bolt.
  - Bolt the box to the arms using 4 3/8” x 1-1/4” bolts, nylocks, and 8 washers. Making sure that the same holes are used on both sides.
- Install the crossmember onto the frame, as depicted in figure 18.

Figure 17: Image of the crossmember

  - Use 4 3/8” x 1-1/4” bolts, nylocks, and 8 washers to bolt the arms on top of the adjustable rails.
  - **NOTE:** The off-center slots are biased towards the passenger side.
  - Torque all bolts to 40 ft.lb. to finish the assembly.

Figure 18: Installing the crossmember onto the frame

4.4 INNER FENDERS

NOTE: To allow the extra-large tires on the subframe, extra clearance is needed on the inside. Although not required to use the Speedtech performance kit, it is required that the inside fender is removed and the structure is replaced to maintain body rigidity and wheel clearance.

WARNING: Locate the subframe to the desired front wheel location. Tighten all bolts.

Install the subframe into the car:

- Add extra support under the core support to prevent it from sagging.
- Mark the first cut line on the inner fender.
    - On the shelf below the fender mount, where the serial plate is mounted, mark about 1/4" below that crease from the core support back to where the corners crease.
    - From there, mark down the fender behind the double seal with the shock mount. All the way to the bottom edge.

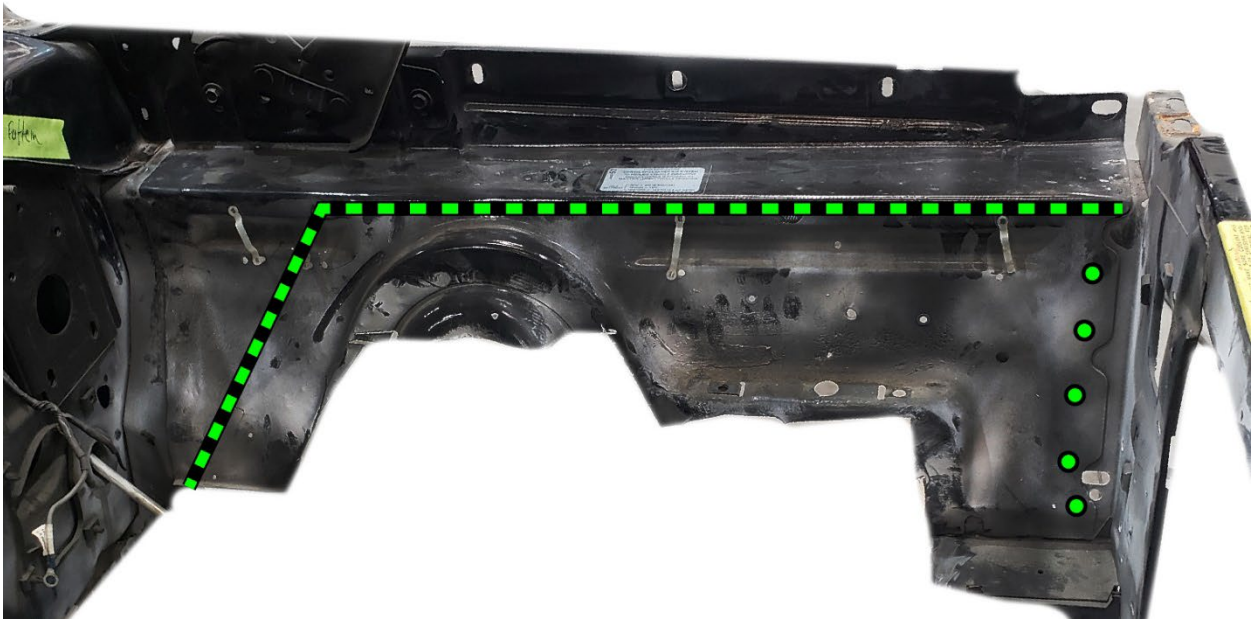


Figure 19: Marked crease where the inner fender can be removed

- Drill out spot welds on the core support.
    - Drill to separate the inner fender from the lower frame rail and up along the core support to the marked crease.
- Cut out the inner fender.
    - Follow the marked line and remove the inner fender from the core support back around the shock mount.

- Mockup new inner fender panels.
    - Drill and screw/cleco the front panel into the drilled-out core support flange and lower frame rail. Lay the top along the cut line and down and back on the stock fender well.
    - Screw/cleco the premade holes connecting the front panel to the tub. Lay the top along the cutline leaving about a 1/4" overlap.
    - Attach the cover plate to the tub to test tub fitment.
        - Make adjustments to the tub location:
            - Center the cutout for the shock tabs.
            - Even out the gap on the lower edge with the installed subframe. The gap should be roughly 1/4"-1/2".

Figure 20: Adding the rear tub to the old fender

- Trim and fit rear tub to the old fender.
    - Mark and trim the old fender, leaving about 1/2" of material to work and overlap the new fender panels.
    - Metal work the old fender, flare up the edge to be in full contact with the new panel.
    - Drill spot weld holes in the old fender for attachment.
- Weld the new fender into place.
    - Seem weld all joint areas and open corners.
    - Spot weld the new hole in the rear of the fender and the drilled-out spot weld holes in the core support.

Figure 21: Location of where the new fender must be welded into place.

Figure 22: Installing the mounting plates

4.5 DOWNTUBE

- Using the template on the back of these instructions, center the hole over the marked line and draw your cutout hole.
    - The template top and bottom lines will line up, but the back crease line is just a reference to get it in the general area.
    - The exact location of the hole varies from car to car, so take extra care to properly mark the center, even drilling a center hole from the underside, to locate the template.
- Cut out the marked hole.
- Mark on the firewall where the mounting plates will be installed.
    - The plates are unique from side to side and are shaped to fit snugly on the top edge of the firewall.
- Roughly trim and fit the tube into location.
    - The included tube is made to be long so it can be fitted into each unique build. Adjust each end to fit snugly on the firewall and the installed bung. Using the marked firewall as a target for the long end of the tube.
- Finalize the trimming by fitting the firewall plate between the tube and the firewall.
- The fitment between all the parts should be tight, as things tend to shrink after welding.
    - Double-check that the firewall plates are in the right location.
- Tack weld the pieces together in the car.
- Unbolt the subframe bung and remove the whole tube assembly.

Figure 23: Three images portraying how to move the tube assembly

5.0 FINAL STEPS

Back to Table of Contents

5.1 FINAL PREPERATION BEFORE DRIVING

The following needs to be performed before you hit the road. It also needs to be checked after the first five hundred miles to ensure safety. It will also be a quick reference for a routine maintenance schedule.

Be sure that all measurements are correct and double-check that all components have proper clearance throughout your suspension's travel range. Install chassis into the vehicle. Torque all bolts to speck. Tighten all loose suspension bolts and double-check all bolts to ensure they are all tight. (Follow the torque checklist found in the instructions.) It is recommended you fill all grease fittings at this time. Speedtech suggests using Permatex Ultra Slick Synthetic Grease, but any high-quality chassis grease will do. For your Sweet power rack and pinion we recommend using Sweet or Jones brand full synthetic power steering fluid for best performance and to avoid overheating standard type fluids during performance driving situations.

This concludes the ExtReme front subframe installation for the Cuda. Now is a good time to tub the rear wheel wells, work on fitting the transmission and driveline under a new tunnel, and upgrade the rear suspension. Speedtech Performance offers two different rear suspension options and a new tunnel to match your ExtReme subframe. Refer to our proven torque arm and our new ExtReme independent rear suspension to take your Cuda to the next level.

Bolt	Location	Torque	1st Check	500mi Check
1/2”	Subframe Mount Back	120 ft.lb.		
1/2”	Subframe Mount Front	120 ft.lb.		
5/8”	K Member Front Mount	180 ft.lb.		
3/8”	Transmission X Member	35 ft.lb.		
7/16”	Down Tube Subframe	65 ft.lb.		

Figure 24: Chart created to double-check proper clearance and a routine maintenance schedule

Tires	255/35R18 - 325/30R19	
Wheels	Ø18” minimum w/ 8” maximum back space	
Brakes	Corvette C6, C7 OEM and Aftermarket	
Wheel Bolt Spacing	5x4-3/4 (Corvette C6, C7) M12x1.5 thread	
Hub to Hub Spacing	63”	
Sway Bar	Adjustable 3 Piece	
Coil Overs	15.2” extended with 4” of travel	
Ride Adjustment	2”-3” adjustable (JRI Hydraulic Compatible)	
Spring Rate	450lb 2.5” I.D.	
Motion Ratio	78%	
Kingpin Angle	7.5°	
Caster Angle	6°-8°	
Camber Angle	-0.5° to -2.5	
Camber Gain	-0.3° @ 1”	-0.9° @ 2”
Caster Gain	0.7° @ 1”	1.3° @ 2”
Toe-In Gain	0.0° @ 1”	0.0° @ 2”
Ackermann Error Inside	0.3° @ 16°	0.8° @ 32°
Ackermann Error Outside	0.1° @ 14°	0.0° @ 25.5°
Tire Size	315/30R18 (Ø25.5in)	325/30R19 (Ø26.7”)
Roll Center	1.3” Off Ground	2” Off Ground

Figure 25: ExtReme Front Suspension Specs (at static ride height)

6.0 CONGRATULATIONS

Back to Table of Contents

Congratulations on completing your project! We know you will get many years of enjoyment from your project. Please join the group, Team Speedtech, on Facebook. Team Speedtech is a community of customers, dealers, and factory employers that have a passion for pro touring muscle cars and are using Speedtech Performance products. You can ask questions and get advice from the group members and share your experience. Everyone enjoys seeing the videos and pictures during the progress of your project and Speedtech encourages you to share them!

Thank you for choosing Speedtech Performance and entrusting us with your subframe for your custom muscle car.

Speedtech Performance, LLC
4160 S. River Rd.
St George UT, 84770
(435) 628-4300