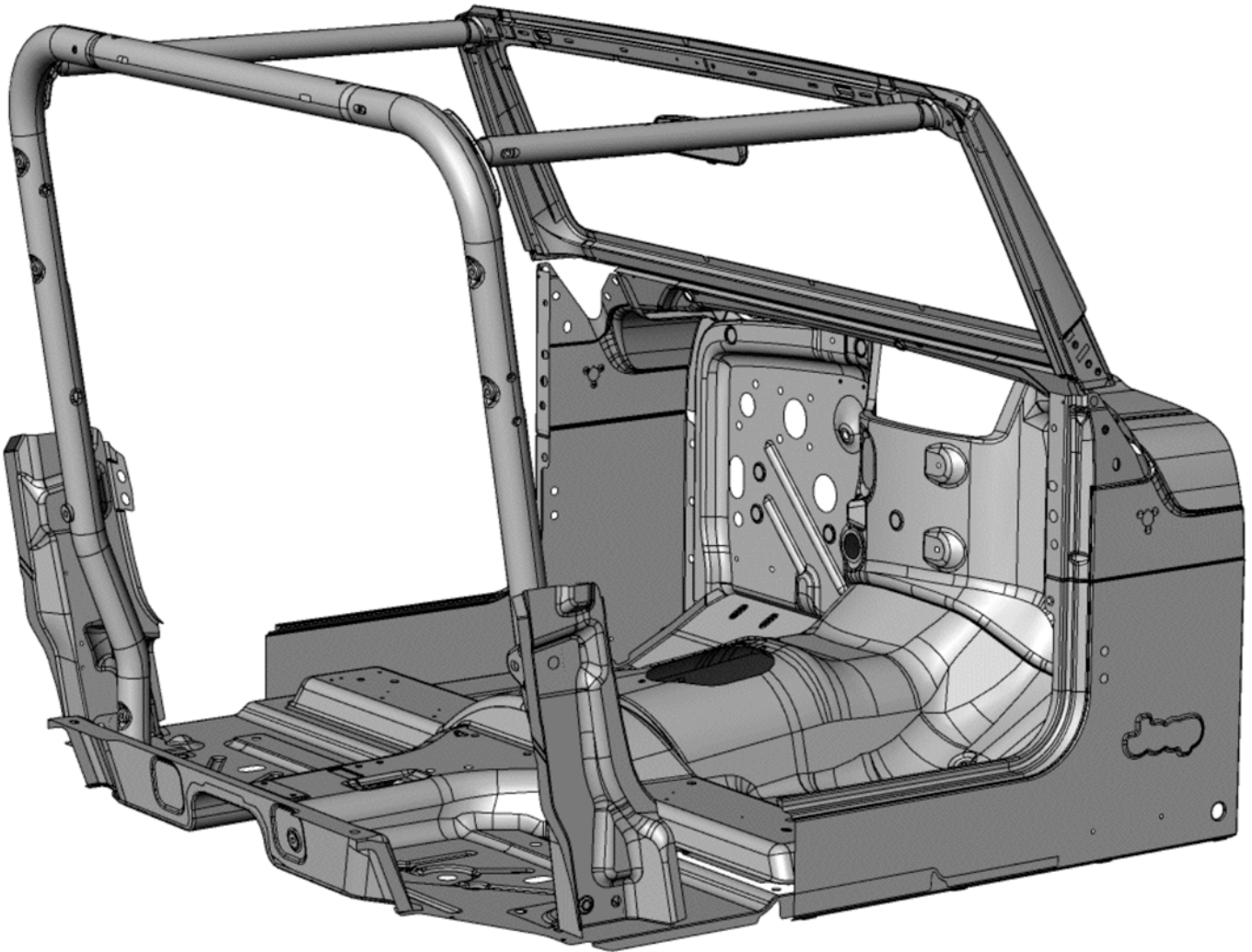




AMERICAN EXPEDITION
VEHICLES

BRUTE KIT

01. Preparation of the Jeep Body Tub



Installation Guide



PLEASE READ BEFORE YOU START

TO GUARANTEE A QUALITY INSTALLATION, WE RECOMMEND READING THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING ANY WORK. THESE INSTRUCTIONS ASSUME A CERTAIN AMOUNT OF MECHANICAL ABILITY AND ARE NOT WRITTEN OR INTENDED FOR SOMEONE NOT FAMILIAR WITH AUTO BODY REPAIR.

Required Tools

4" Grinder w/

- 80 Grit Sanding Discs
- Wire Wheel
- Med ScotchBright Pads (Red)

Sawzall with long metal cutting Blade

Drill Motor

Pilot Point Drill Bit (or) Spot Weld Cutter

we recommend:

- DeWalt 27/64 Pilot Point DW1927

Combination Square and Scribe

Tape Measure

Appropriate Safety Equipment

Common Hand Tools

Spring Loaded Center Punch or Equivalent

Thin Stainless Steel Putty Knife

Hammer and Body Dolly

Transfer Punches

File or Die grinder



OVERVIEW

Preparing the Jeep is one of the most important aspects of the Brute Conversion. Time spent at this stage will make the rest of the conversion process go smoothly and assure your Brute comes out perfect. Take your time and work in a clean efficient manner. If you take the time to clean and organize everything as it comes apart, reassembly will be much easier in the end. We recommend using zip lock bags and labeling everything so that you don't end up short on bolts or worse yet, have extra bolts in the end.

The basic preparation steps are:

- Clean the Jeep underneath, inside and outside. The cleaner it is, the easier the entire conversion will be. You may even think about having the Jeep fully detailed *before* you start.
- Check the alignment of the door gaps and windshield frame. This is the time to adjust anything. What you start with is what you'll end up with.
- Remove the interior and any associated parts.
- Remove the rear of the Jeep body
- Prepare the front half of the Jeep body to accept the Brute closeout.
- Remove the front half of the Jeep body from the frame and set aside.

You'll need to decide now if you're planning on removing the tub (once you cut it in half) to make the frame work more accessible, its not necessary, but it will make the project a little easier overall. The only reason the body wouldn't be removed is on Jeeps that have extensive modifications that make it difficult at best to remove the tub. Examples are where owners have performed an engine conversion improperly without an easy way to disconnect the powertrain from the body, incorrect installation of on-board air systems, etc. Basically you'll need to weigh the alternatives of your particular application to see which way is better. If you choose to remove the body (the way AEV does it) you'll need to have the AC system evacuated and recovered before you start.



A. PREPARATION OF THE JEEP BODY TUB

1. Clean the vehicle thoroughly. You will be spending a lot of time in, around, under and on top of the Jeep. Spend the extra time, you'll appreciate it later.



2. Align the doors, top, and windshield frame. **This is the most important step in the preparation process.** (If you are starting with a tub or a wrecked vehicle, you WILL need to install the sport bar, windshield frame, doors and top at this time.) Start with the top and full doors on (soft top door surrounds are OK if the Jeep started out as a soft top), be sure the sport bar is in the vehicle and everything is tight. What you start with is what you will end up with. Take a measurement across the top of the tub at the front corner using a tape measure and two straight edges. Write this measurement down. Check the door gaps from the door to the body, the door to the windshield frame and the door to the top. If anything is not parallel, flush or even, **NOW** is the time to correct it. Some builders find it is helpful to visit a body shop prior to performing the conversion. This is especially true if the Jeep was ever rebuilt, wrecked or uses doors that did not come with the vehicle originally. This is the first step and perhaps the most tedious but also the most important, do not let your excitement stand in the way of a quality job.
3. Remove the interior and other related parts. Mask the windshield, any sparks that hit the windshield will leave a permanent mark and will ruin the glass. Remove the interior of the vehicle; it's not necessary to remove the instrument panel, shifter assembly or emergency brake lever. Pull the wiring harness inside the body back to where it is located under the driver's door. Remove all the seatbelts and sport bar padding, speakers, rear fender flares, wheel house liners, taillights, fuel filler, and anything else that's in the way like body mounted rocker guards. Remove the door strikers and the nut plates using a small screwdriver, you will be reusing the nut plates later. **DO NOT REMOVE THE SPORT BAR.** It can also make it easier if you can install stock size wheels and tires.



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Your Jeep will look like this:



You should have a pile of parts like this:





4. Remove the seam sealer. Using the four inch angle grinder with a wire wheel (wear some heavy gloves and appropriate safety equipment) remove the seam sealer where the wheel houses join the floor pan and across the Jeep where the rear floor meets the waterfall (the ~4.5" tall piece that runs across the back). Use the wire wheel to remove the paint as well, exposing all of the factory spot welds.



5. Cut the rear seatbelt supports off of the sport bar. Unbolt the rear and discard. Using a grinder, sanding disc and ScotchBright pad, clean up the intersection of the sport bar and rear seatbelt support bar to a polished finish.



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6. Mark all the spot welds to be cut. Use a spring loaded punch, *carefully* mark the center of each spot weld. This is another area where taking your time will save you aggravation later. Precisely marking the center will ensure that you cut the entire spot weld out in step 7. If you do step 6 and 7 accurately, the panels will separate cleanly and easily. Mark the welds in areas A,B,C,D,E.



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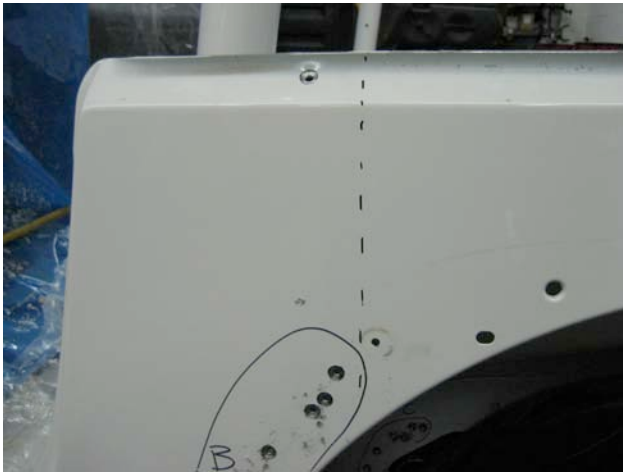
7. You'll be removing the J-Rails (what the soft top slides under) and re-using them later. The other areas that spot welds need to be removed are: A,B,C,D,E. Practice using the bit on a scrap part of the tub. Once you get the hang of it, you can cut through the outer layer without damaging the inner minus a small pilot hole. The cleaner you can perform this task, the easier the install will be in following steps. The J-Rails are a good place to practice. Once all the spot welds have been drilled out, gently use the putty knife to pry the J-rails off (they have a small amount of seam sealer under them that acts a bit like glue) If you are using more than vary moderate pressure on the putty knife or are bending the parts you are trying to remove, you need to re-examine your spot weld cutting. Remove the rest of the spot welds in areas B,C,D,E. You won't be able to separate these just yet, but now is the time to use the putty knife and a small hammer to separate the seam sealer between the rear floor and the waterfall.



8. Remove the rear half of the tub using the Sawzall. You will only *need* to cut the tub in one area under the door with the Sawzall (step 9), however, most builders find it helpful to use the Sawzall on the rear wheel houses as well in order to access the spot welds on the pinchweld located where the wheelhouse meets the floorplan. Using this technique, pick some point on the bodyside and make a cut down to the intersection of the waterfall, rear floor and wheel house. If you did a good job in step 7, you'll now be able to remove the rear half of the tub. Once the rear half is out of the way, you can use the Sawzall to remove what's left of the wheel houses and drill the spot welds out so that you are left with what's shown below.



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9. Cut the bodyside using the Sawzall. If they are not already removed, loosen the front fenders from the firewall enough that you can slip a tape measure in the gap and hook it to the front of the Jeep tub. Carefully mark and scribe a vertical line exactly 35" from the front of the cab. Measure at the bottom and the top to be sure your line is vertical. Using the combination square, transfer the vertical line up through the door opening. Use the Sawzall to carefully cut along this line. Do not cut into the Floor Pan. Once this is complete, you may carefully remove what is left of the bodyside. Sometimes a razor blade is helpful here to cut through any excess seam sealer. If the bodyside is not easy to remove, something is wrong, go back and check all your spot weld cuts.





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10. Clean up the tub. Using a hammer and dolly along with the wire brush and sanding discs, clean up all the separated areas. Remove all paint and excess seam sealer. Straighten any bent edges and remove any burs leftover from drilling the spot welds out. You are now done with the Body tub preparation.





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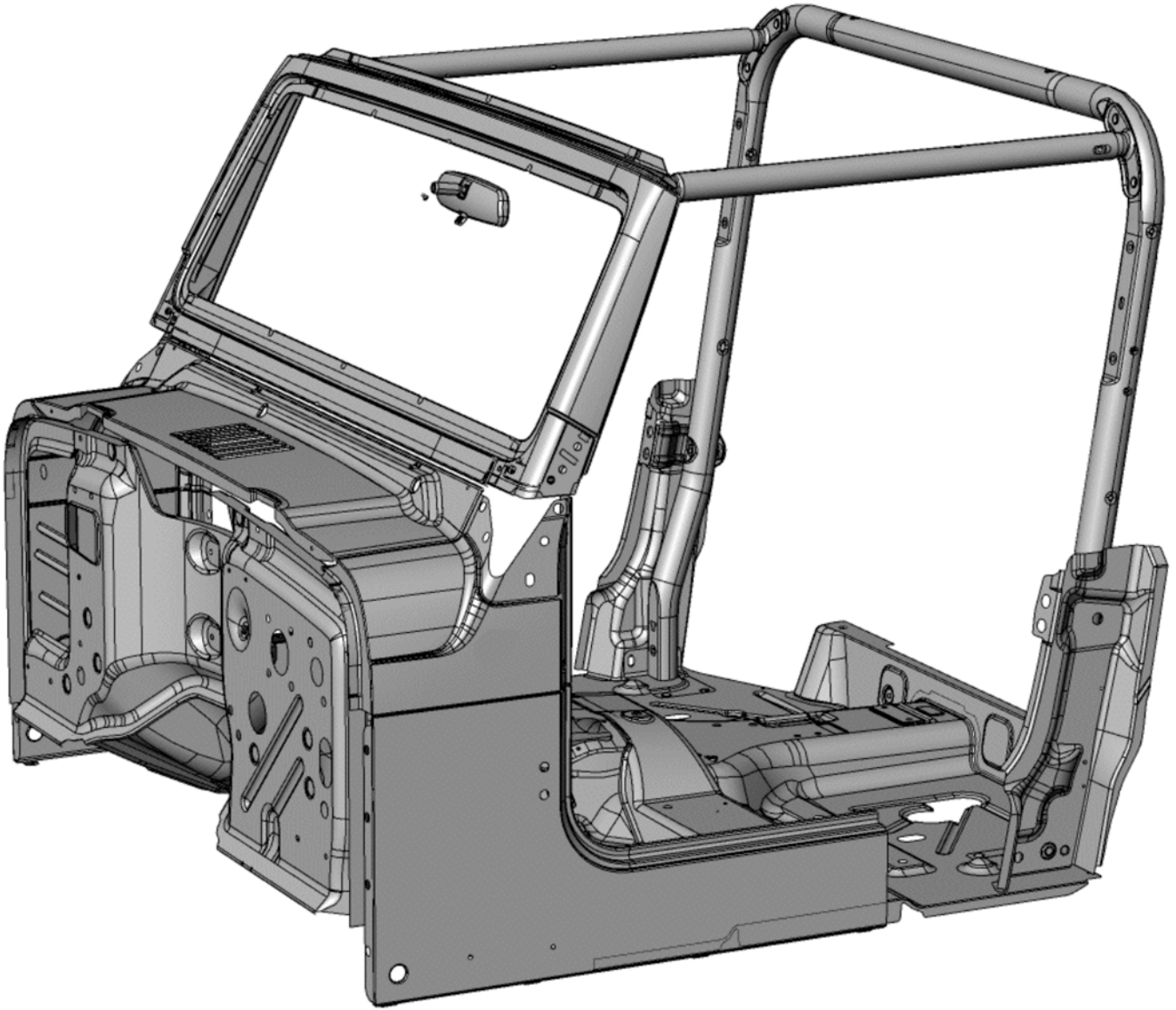


11. Remove the front half of the Jeep body from the frame and set it aside. Its time to prepare the frame.





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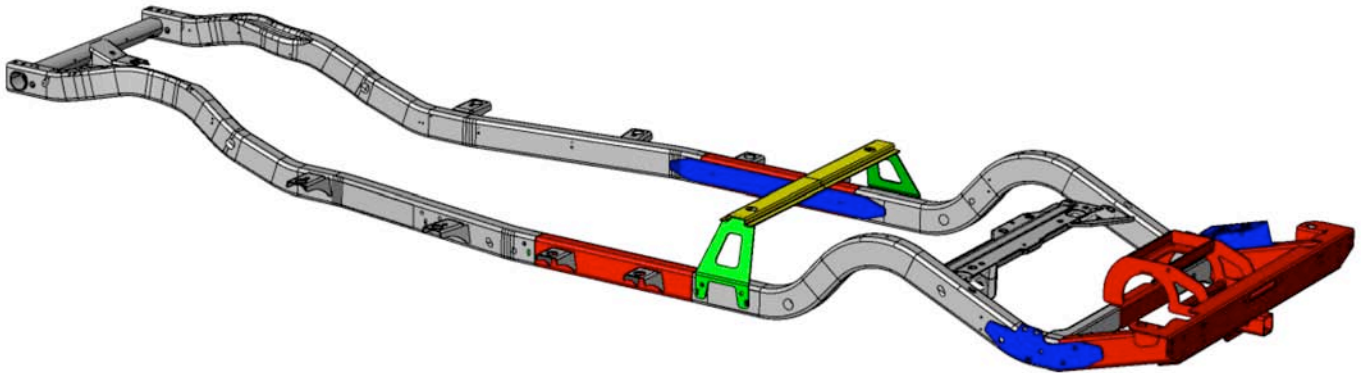
Email: tech@aev-conversions.com

Website: <http://www.aev-conversions.com>



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BRUTE KIT 02. The Brute Frame



Installation Guide



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Required Tools

4" Grinder w/

- 80 Grit Sanding Discs
- Med ScotchBright Pads (Red)

Sawzall with long metal cutting Blade

Drill Motor

R Drill Bit (21/64)(8.5mm)

Combination Square and Scribe

Tape Measure

Appropriate Safety Equipment

Common Hand Tools

Spring Loaded Center Punch or Equivalent

Transfer Punches

File or Die grinder

220V Wire Feed Welding Machine



A. PREPARATION OF THE JEEP FRAME

OVERVIEW

Preparation of the Jeep frame is a simple task that most builders can perform easily. Preparing the frame to be stretched consists of:

- Removing the fuel system. (Fuel and evaporative emission lines and fuel tank)
- Removing the brake line along the frame.
- Cleaning the frame assembly in the areas to be modified.
- Mounting the cutting jig to the frame and cutting the frame in half.

INSTRUCTIONS

1. Remove the fuel tank assembly. Use the quick disconnect fittings properly.
2. Cut the exhaust. Normally this is done behind the muffler.



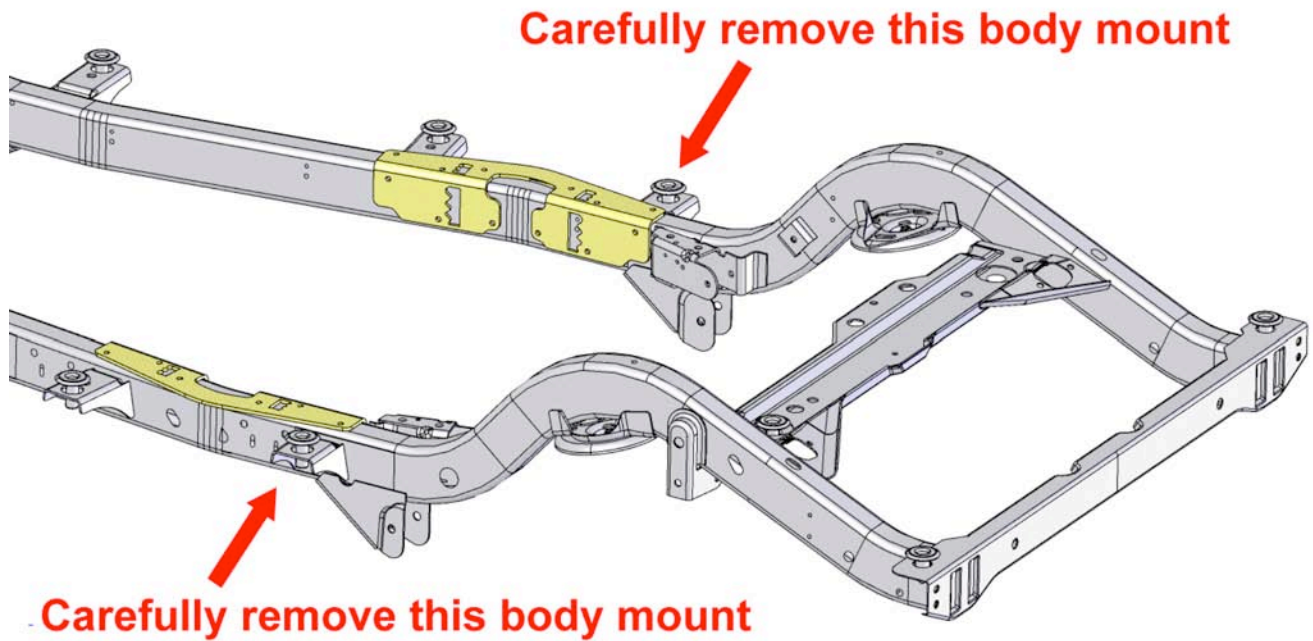
3. At this point many builders find it helpful to remove the tub from the frame. You can leave the fenders, grill and hood in place simply by unbolting them. The wiring harness can be unplugged in the left-hand foot well from the instrument panel. Pull the harness through the large grommet in the firewall. Undo any other connected items and remove the body mounts so that you may remove the tub and windshield frame. You may remove the doors at this point to make it lighter. The emergency brake lines can be disconnected at the bracket located under the tub. If you don't have the proper tool, one can be made using a 1/2" 12 point closed end wrench with a 1/8" slot cut in it so that you can slip it over the cable.



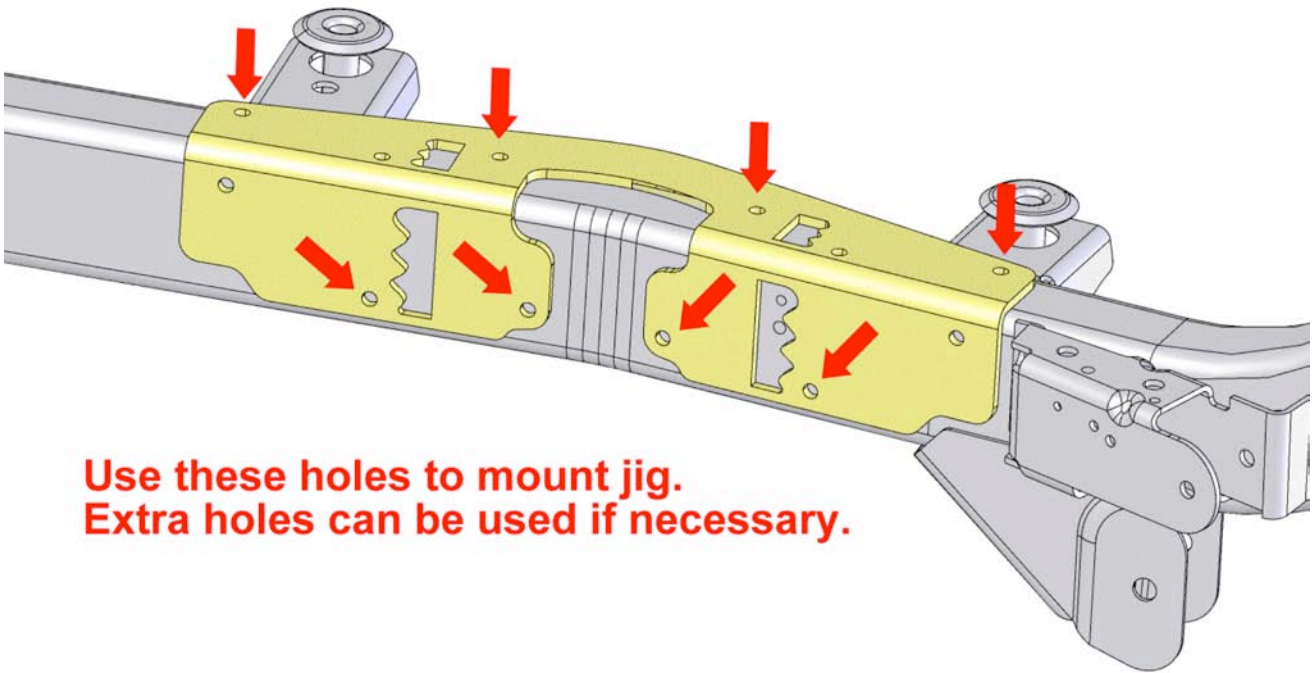
4. Remove the brake and fuel line bundle. Rubicon Locker Pump hose and any vapor lines on your particular year Wrangler will be lengthened with rubber hose available at any auto parts store. Be sure to get hose that is not affected by gasoline fumes for any vapor lines.



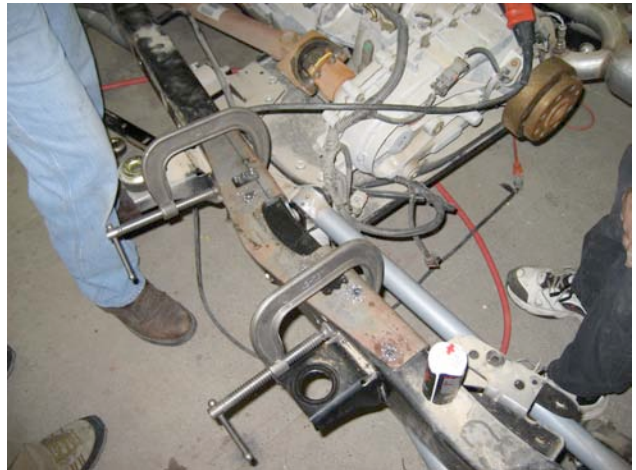
5. Clean the frame. A good job will require the area to be stretched to be free of any dirt or rust.
6. Remove the rear driveshaft. This will need to be re-tubed for the new length. We recommend waiting till you have your vehicle sitting at ride height before taking a measurement and sending the shaft to your local driveshaft shop.
7. Remove the body mounts located directly in front of the rear wheels. Take your time cutting, you will be reusing these later.

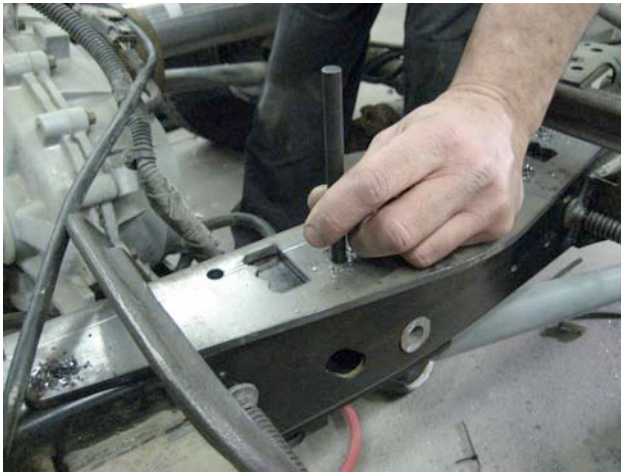


8. Fit the cutting jig to the frame and mark all critical locations. The cutting jig is symmetrical and designed to be used on both sides of the vehicle to locate the holes that mount the extension jigs and also to locate the cut line. Start by locating the cutting jig on the frame using C-clamps. It's not critical where the jig lies exactly, just that it fits on the frame as best as possible. Once you are satisfied with the location, FIRMLY clamp it to the frame. Scribe the cut line on the inside of the frame rail and along the top. Using your transfer punch, locate the center of the holes shown in the following diagram.



**Use these holes to mount jig.
Extra holes can be used if necessary.**





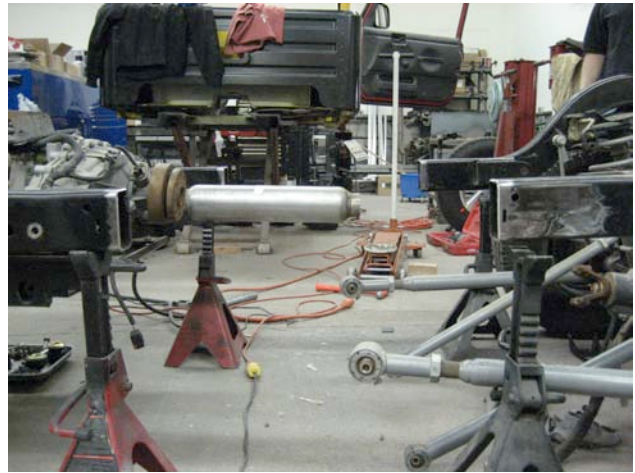
9. Drill and tap the extension jig mounting holes. With the cutting jig still firmly clamped in place, use a 3/16" pilot bit and carefully locate the tip in the center punch mark and drill. Step up to a 1/4" bit next and finally your R Bit (21/64)(8.5mm). Take the self tapping bolts supplied in the Brute hardware Pack and carefully run them into the holes with an impact wrench. DO NOT TIGHTEN; the point of this step is to thread the holes. Repeat the procedure for the opposite frame rail.
10. Cut the frame in half. Remove the cutting jig and using the combination square, transfer the scribe line around the frame. Support either side of the frame with jack stands and carefully cut along the line. Use a Sawzall, plasma torch or gas torch. We use a Sawzall because it does the cleanest job.



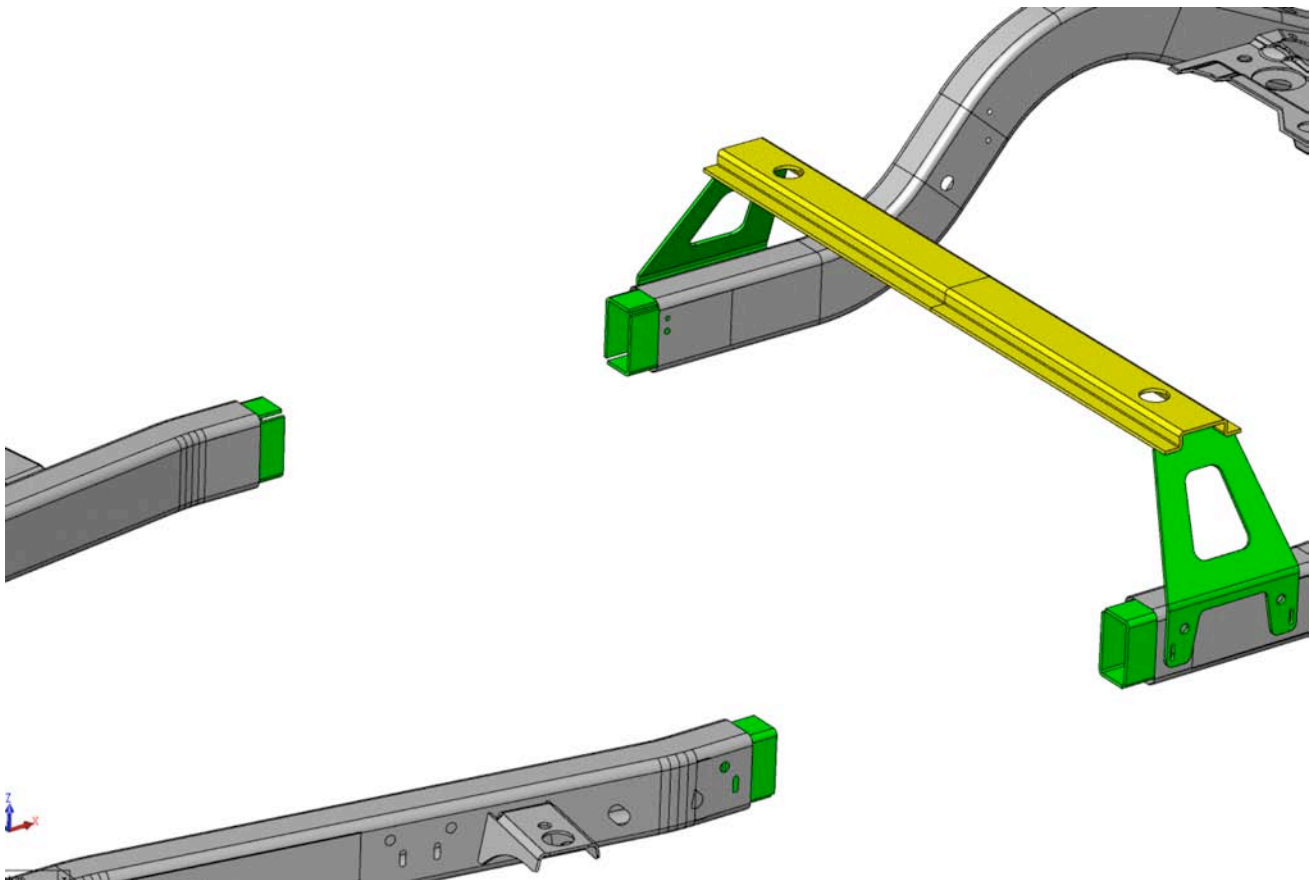
11. Prep the frame ends for welding. Carefully clean all slag or burrs from inside the frame rails with a file or die grinder. Using the four inch angle grinder bevel the edges of the frame rails with a 45 degree angle.

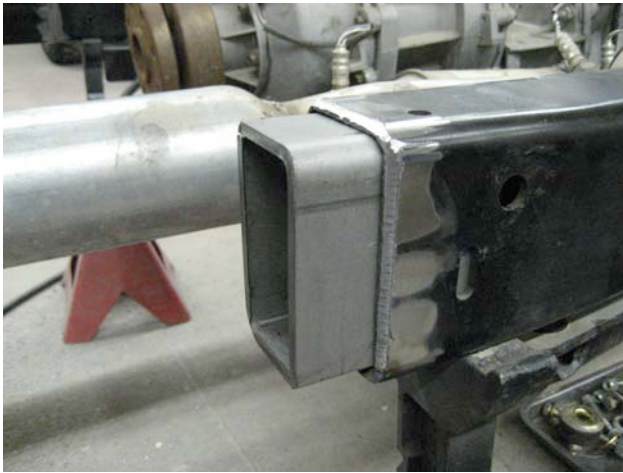


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12. Locate the frame sleeves. Use a small tack weld to locate the frame sleeves half way into the frame openings. Remove any E-coating where the sleeves will be welded or tack welded prior to placing them into the frame.





13. Prepare the frame extension pieces. The extensions come E-coated to prevent corrosion. This is the same coating the rest of the frame comes with from the factory. Grind the edges with a 45 degree bevel and remove any excess paint. Using the tape measure, combination square and scribe, mark the inside center of each extension with the tube seam to the inside of the frame. You'll use this to help align the fishplates later on.

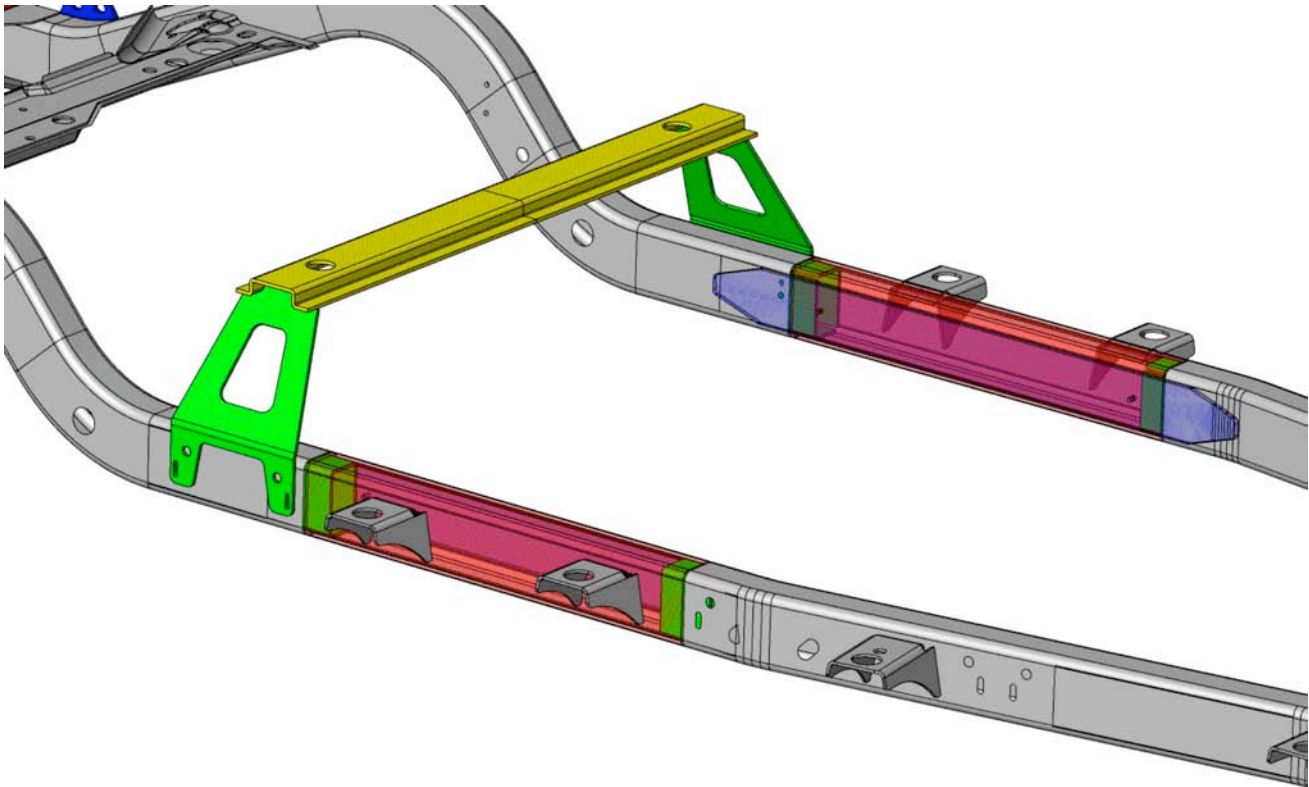




A. STRETCHING THE JEEP FRAME

OVERVIEW

Although some people find the prospect of modifying the frame a daunting task, in reality it is a very simple procedure made even easier with the supplied jigs and frame assemblies provided with your Brute kit. This procedure should only be performed by an experienced, certified welder. Welding is a skill that requires constant practice and general knowledge. Many successful Brute builders do not possess these skills and therefore find a person qualified to perform these modifications. Some builders choose to tow the rolling chassis to a shop to perform the necessary welding or by bringing in a knowledgeable welder to do the actual welding of the frame. Most of the prep work can be handled by the builder, including cutting the frame, prep work on the pieces being welded and all the finish work. The chassis can actually be moved short distances with the mid frame extensions in place and the extension jigs holding everything together to transport the chassis from shop to shop.



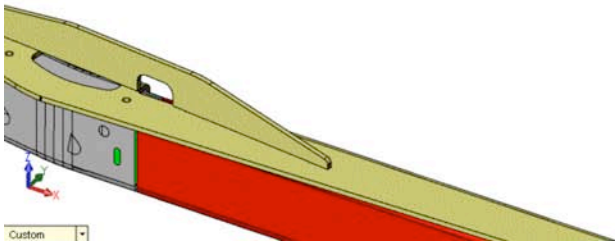
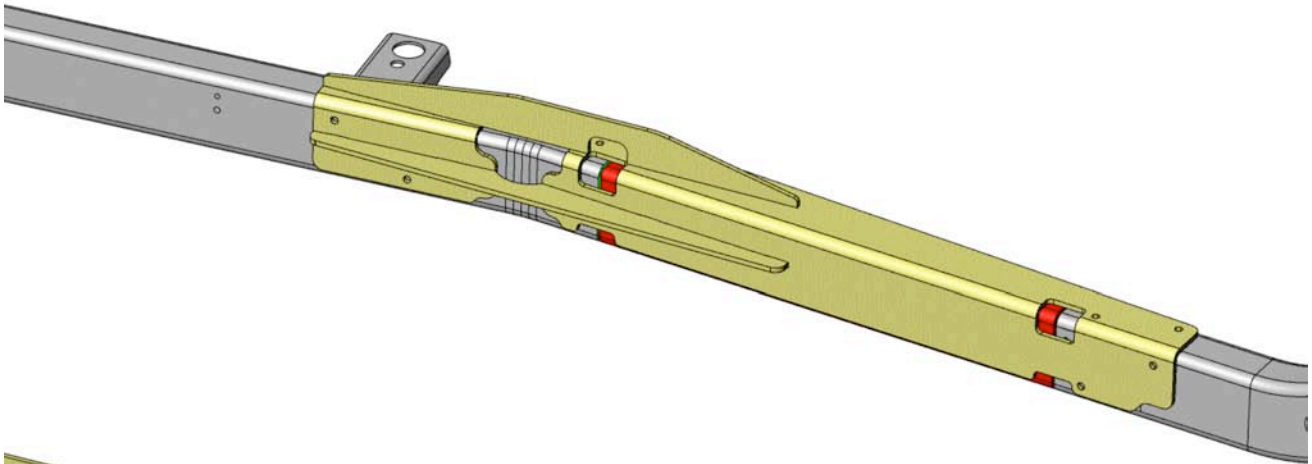
INSTRUCTIONS

1. Install the frame extensions and extension jigs. Install the extensions with the tube seam to



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the inside. Using the 3/8" self tapping bolts, install the frame extension jigs over the extensions. Tighten by hand and adjust the frame extensions for and aft so that the gap is even. The extensions are designed to leave a gap for welding to ensure full penetration of the weld. Tighten the bolts and clamp as necessary to take up any gaps near the weld area.





2. Check frame dimensions. The frame jigs are a proven way to stretch the frame with minimal hassle but it's still necessary to double check the frame dimensions.
3. Weld the frame. Once you're satisfied with the frame dimensions put a heavy tack weld approximately 1/2 to 5/8" on all four corners of each frame seam. Once the frame is tack welded you can weld outside and underneath the frame. Remove the extension jigs and finish welding the frame. Use appropriate welding standards for chassis modifications. Use at least two full passes and fill the gap ensuring an even, full penetration weld. Repeat for all seams.



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4. Install the Fishplates. Begin by grinding the inside welds smooth so that the fishplates can sit flush to the frame rail. Position each fishplate on the frame, centered vertically and horizontally on the frame extension center mark you made earlier. C-clamp the fishplate



firmly in place and mark the weld areas as shown on the extension and frame. Remove the fishplate and prepare the areas to be welded by removing the e-coat on both the frame and the fishplate. Weld in the positions shown. Using the fishplate as a drill guide, drill the fuel rail bundle clip holes through the frame.

Weld around ends and make stitch weld approx. 3" to 4" in length



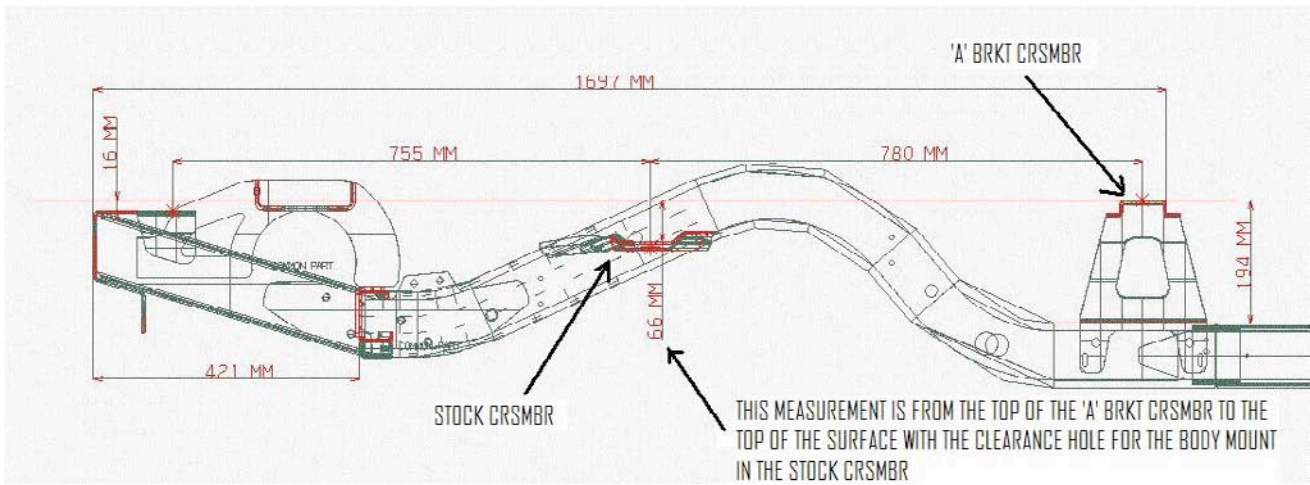
5. Prime and paint the frame. Use high quality primer and chassis paint. We recommend always using a catalyzed primer and paint.
6. Install the fuel rail bundle. Use the new fuel and brake line provided in the kit. Use high quality tubing for any vapor or air lines.



7. Install the E-brake cables. Install Jeep Unlimited E-brake cables; part #52013455AB & #52013457AB for disk brakes. For drum brakes and custom applications we have found the Lokar Universal Emergency Brake cable to be easy to adapt to the Wrangler's bracket and lever.

B. INSTALL THE FORWARD BED MOUNT

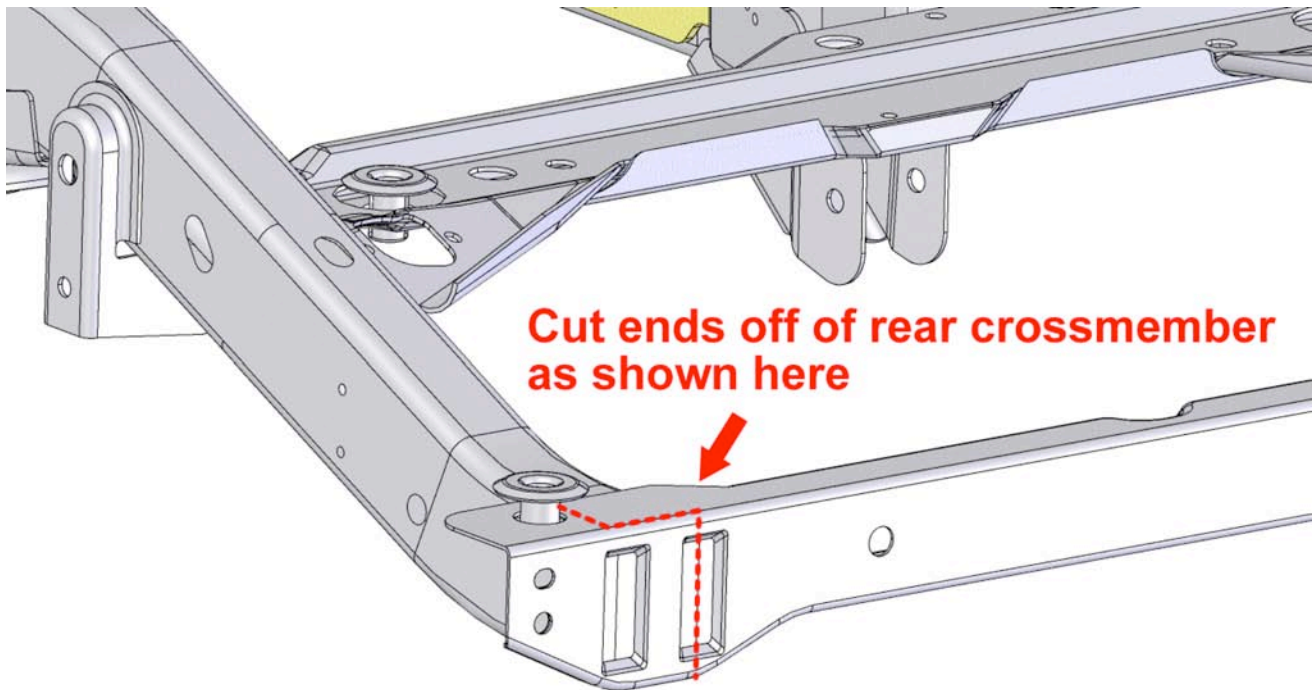
1. Locate the Forward Bed Mount using the measurements shown below. The holes on the "A" bracket of the forward Bed Mount may or may not line up with the holes in the frame depending on what year the vehicle is. USE THESE HOLES FOR REFERENCE ONLY. Loosely clamp the bracket in place and locate the height and the distance from the reference points in the frame.



2. Leave the Forward Bed Mount clamped or tacked in place until the Rear Frame Extension has been located. Finish welding of both pieces will take place once the Rear Frame Extension and the Forward bed mount are in place.

C. INSTALL THE REAR FRAME EXTENSION

1. Prepare the rear crossmember, Rear Frame Extension and frame rails. Begin by cutting the crossmember as shown. Do not remove the center portion of the crossmember. Using a grinder, clean, straighten and bevel (45) the rear of the frame rails and the front of the extensions on the Rear Frame Extension in preparation for welding the Rear Frame Extension permanently onto the frame. Clean off the paint on the crossmember where the winch mount welds to.



2. Temporarily mount the rear frame extension to check fit. Using eight 1/2" bolts and the fishplates, bolt the rear frame assembly to the frame. Using C-Clamps, adjust the Rear Frame Extension so that the measurements are as shown in the frame measurement diagram above. Clamp the Rear Frame Extension at the winch mount to the crossmember.

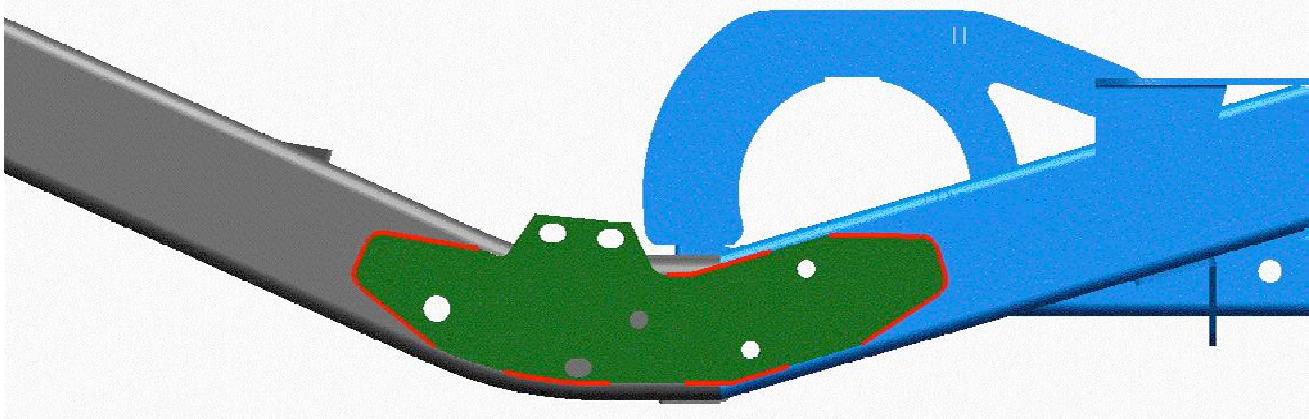


3. Check the location. Using a long straight edge, check the height locations of the body mount surfaces as shown. Check for squareness and overall length. Once you are satisfied with the position of the Rear Frame Extension, clamp everything down tightly and re-check all your measurements.

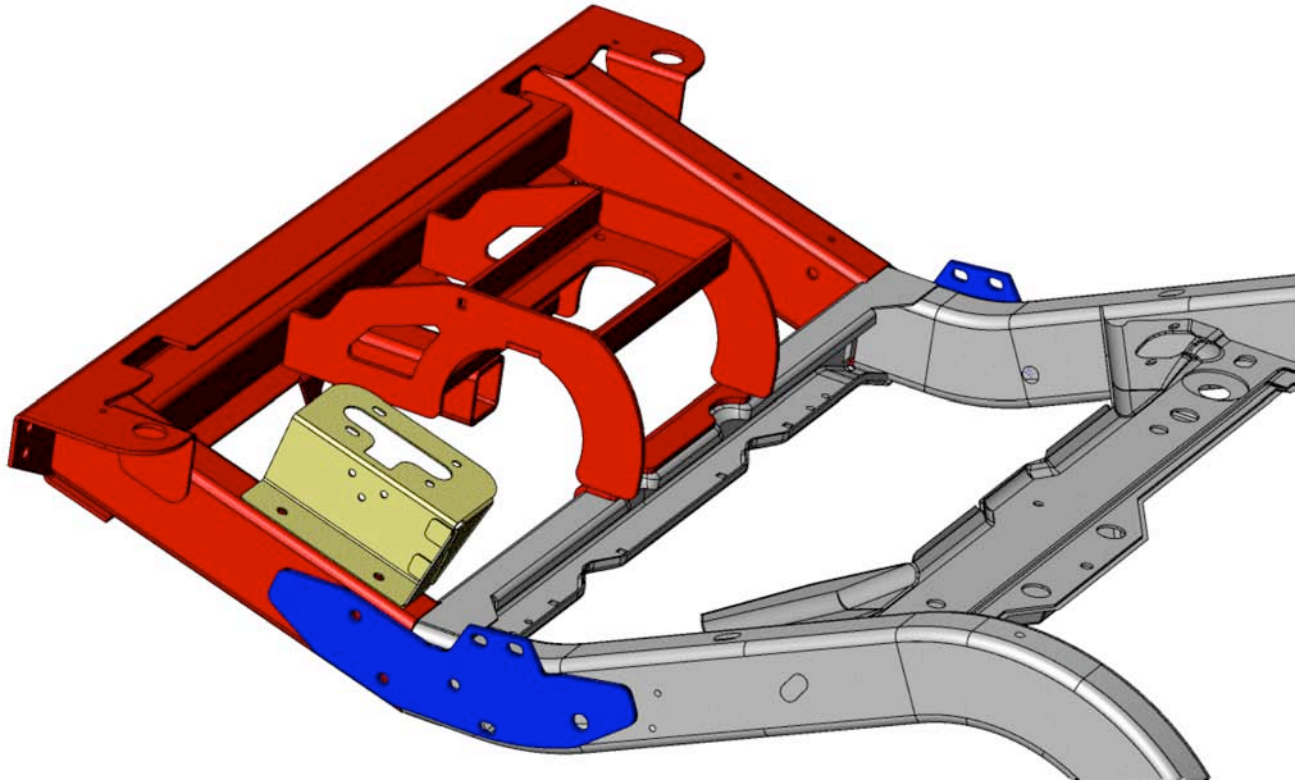


4. Weld the Rear Frame Extension to the frame. Tack weld the four corners at each frame joint and the winch mount to crossmember. **DO NOT TACK THE FISHPLATES ON AT THIS TIME.** Remove the clamps and fishplates. Weld the joints thoroughly with at least 2 passes as per welding specifications for chassis modifications. Weld the winch mount as shown.
5. Install the Rear Fishplates. Grind the outside of the Rear Frame Extension joint flush and locate the fishplates using the holes located on all the parts. Mark the weld pattern shown on both the fishplates and the frame rails. Remove the fishplates and sand the paint off of all weld areas. Relocate the fishplates and weld as shown.

Weld locations for rear frame extension fishplates



6. Finish weld the Forward Bed Mount to the frame.
7. If your Brute is a 2003-2006, install the NVLD Bracket as shown below.



8. Prime and paint all weld areas and the rest of the frame extension parts. E-coat will not hold up to UV radiation and must be painted. Use high quality primer and chassis paint. We recommend always using a catalyzed primer and paint.



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COMMENTS OR QUESTIONS?

American Expedition Vehicles

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Email: tech@aev-conversions.com

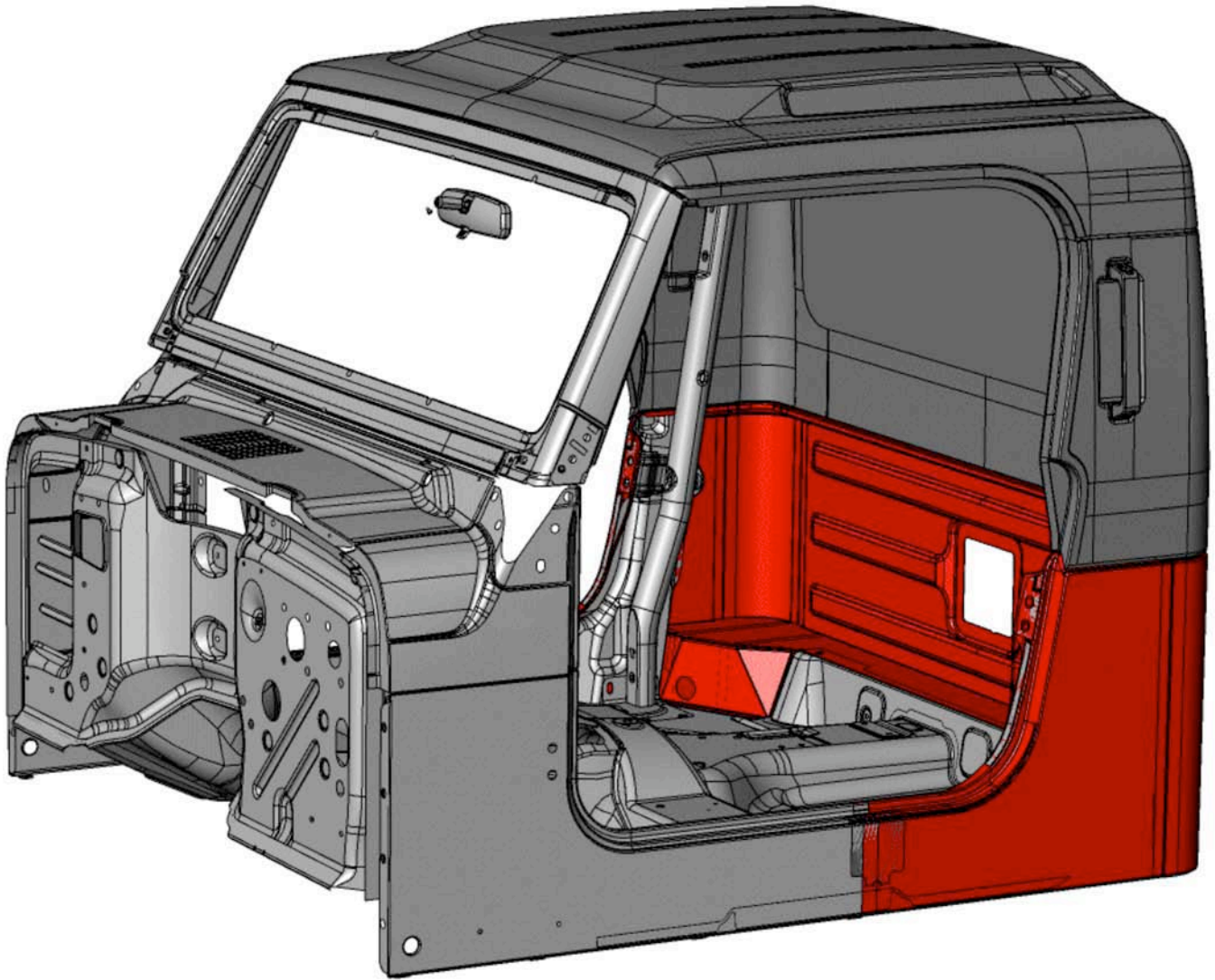
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BRUTE KIT

03. Installation of the Cab Closeout



Installation Guide



PLEASE READ BEFORE YOU START

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Required Tools

4" Grinder w/

- 80 Grit Sanding Discs
- Med ScotchBright Pads (Red)

Drill Motor

Pilot Point Drill Bit (or) Spot Weld Cutter

we recommend:

- DeWalt 27/64 Pilot Point DW1927

Combination Square and Scribe

Tape Measure

Hammer and Block of Wood

Appropriate Safety Equipment

Common Hand Tools

Spring Loaded Center Punch or Equivalent

Hammer and Body Dolly

Transfer Punches

File or Die grinder

220V Wire Feed Welding Machine



A. INSTALLING THE CAB CLOSEOUT

OVERVIEW

Installation of the cab closeout is the most time consuming and technical part of the Brute build. AEV has carefully designed the cab closeout into one piece so that it can easily be installed by the average fabricator or hobbyist with minor welding experience. Some builders lack the skills to do this part of the conversion and instead choose to have a body shop install the cab closeout by taking the Jeep tub and closeout to the body shop. The process involves installing the closeout and re-welding the unit back together. The most time consuming aspect of this part of your Brute build is positioning the closeout before welding.

INSTRUCTIONS

1. Place the tub back on the frame. Use the front four body mounts to hold the tub down. No need to center everything at this point, just install snug the bolts.
2. Test fit the Closeout. With two people test fit the Closeout Assembly. The Closeout door latch areas must be carefully fitted around the sport bar, do one side then the other, **DO NOT SPREAD THE CLOSEOUT OVER THE SPORT BAR**. The Closeout must be tipped forward in order to slip it down into place. Be sure the flange on the Pork Chop slips between the bodyside and Closeout floor on each side. Sometimes it is necessary to tap the floor down with a block of wood to fit the Closeout properly.
3. Align the Closeout in the cross car dimension. Once the Closeout is fitted, align the four-way and two-way jiggling hole in the Waterfall with the Closeout floor. Once these holes are lined up, tack weld the Waterfall to the Closeout.
4. Install the Seam Doubler Plates onto the tub. Drill three 3/8" holes in both the body side and the Closeout as shown. Remove the paint in preparation for welding. Fit the Seam Doubler plates inside the body and mark the center. The Doubler Plates are made from Galvanneal Steel so the outside coating will need to be sanded along the centerline to remove the coating for a good seam weld. Plug weld the three 3/8" holes on the Tub to the Doubler Plate once you are satisfied with the fit. **DO NOT WELD THE CLOSEOUT TO THE DOUBLER PLATE YET.**
5. Align the Doors and bodysides. Time spent here is critical. We find that this process normally takes between 45min to 3 hours to get everything perfect. Reinstall the door strikers and nut plates. Check the fit of the doors. Adjust the door strikers so that the



doors close easily and sit flush in the opening. Sight down the side of the vehicle and be sure that the doors aren't sticking out at the top or the bottom indicating that the closeout is racked to one side, or spread out at the top (two very common issues at this point). Compare the cross car measurement to your initial measurement before the tub was cut. Use a straight edge to be sure the doors are level with the body side, check in several locations. Align the Closeout in the for/aft dimension. Clamp a straight edge across the back of the Closeout assembly and check for an overall cab dimension of 61" from the front of the cab (where the fender bolts on) to the back of the cab. Check that the door sill is parallel at the seam and that there is an even parallel gap all along the bottom of the door. Clamp the bodyside to the downward facing flange on the floorpan under the doors to set the angle of the closeout.

6. Attach the J-Rails. Cut and reuse the J-rails removed earlier. Drill the hardtop mounting holes as shown and plug weld the J-rail to the Closeout using the holes drilled earlier to remove the factory spot welds. Weld the seams carefully so as not to get weld in the groove underneath where a soft top would slide in. Finish out the welds with the sander and ScotchBright pad.
7. At this point you may choose to test fit the Brute Hardtop. Install the header latches and hardware from the factory hardtop. **DO NOT USE SOFT TOP OR AFTERMARKET LATCHES.** Test fit and check gaps between the doors and the hard top.
8. Lock down the closeout. Once you are satisfied with the door gaps and all critical measurements:
 - Tack weld the three holes in the Closeout bodyside to the Doubler plate.
 - Tack weld the floorpan to the outside Waterfall sections of the closeout.
 - Tack weld the Longitudinal Strainer of the tub and Closeout.
 - Once everything is tacked in place, MIG weld the areas shown.
 - Weld the Bodyside to the Floorpan.
 - Weld the Door Opening and Latch area to the Porkchop.
9. Weld and blend the door sill return flange. Use the hammer to lightly bend the return flange on the Closeout to the return flange on the tub under the door, once its bent in, run a small MIG weld on that area.
10. Finish the seams out. Using the 80 Grit sanding disks and ScotchBright pads, finish your seam welds out as best as possible.
11. **DO NOT WELD ON THE REAR CAB BODY MOUNTS AT THIS TIME.**



B. PREP AND PAINTING THE BRUTE CAB

OVERVIEW

Painting your Brute is one of the most important parts of the build; after all, it's the first thing everyone notices. We recommend that a professional autobody repair facility paint your Brute. Insist on high quality paint and a two part system (base coat / clearcoat). There are several ways to locate a quality shop:

- You ask any shop that builds custom cars or hotrods.
- If the paint shop you choose does not have a downdraft spray booth and oven in their facility, we suggest you look elsewhere for a professional painter.
- Are they a member of any national organizations such as ICAR?
- Are they approved by insurance companies to do repair work

INSTRUCTIONS

1. Use Structural Adhesive and Seam Sealer on joints and seams. Use structural adhesive such as FUSOR 480 or equivalent structural adhesive on the rear Pork Chop flange to bodyside to prevent rattles. Use FUSOR 123 or equivalent catalyzed seam sealer on all exterior joints. Tape off both sides of the seams and apply the seam sealer, once cured this seam sealer can be sanded so that the end product looks just like the factory seams.
2. Prepare the exterior spot welds and welded areas for a skim coat of autobody filler under the door and up onto the bodyside as required. Block, prime, seal and paint per autobody collision repair standards.



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COMMENTS OR QUESTIONS?

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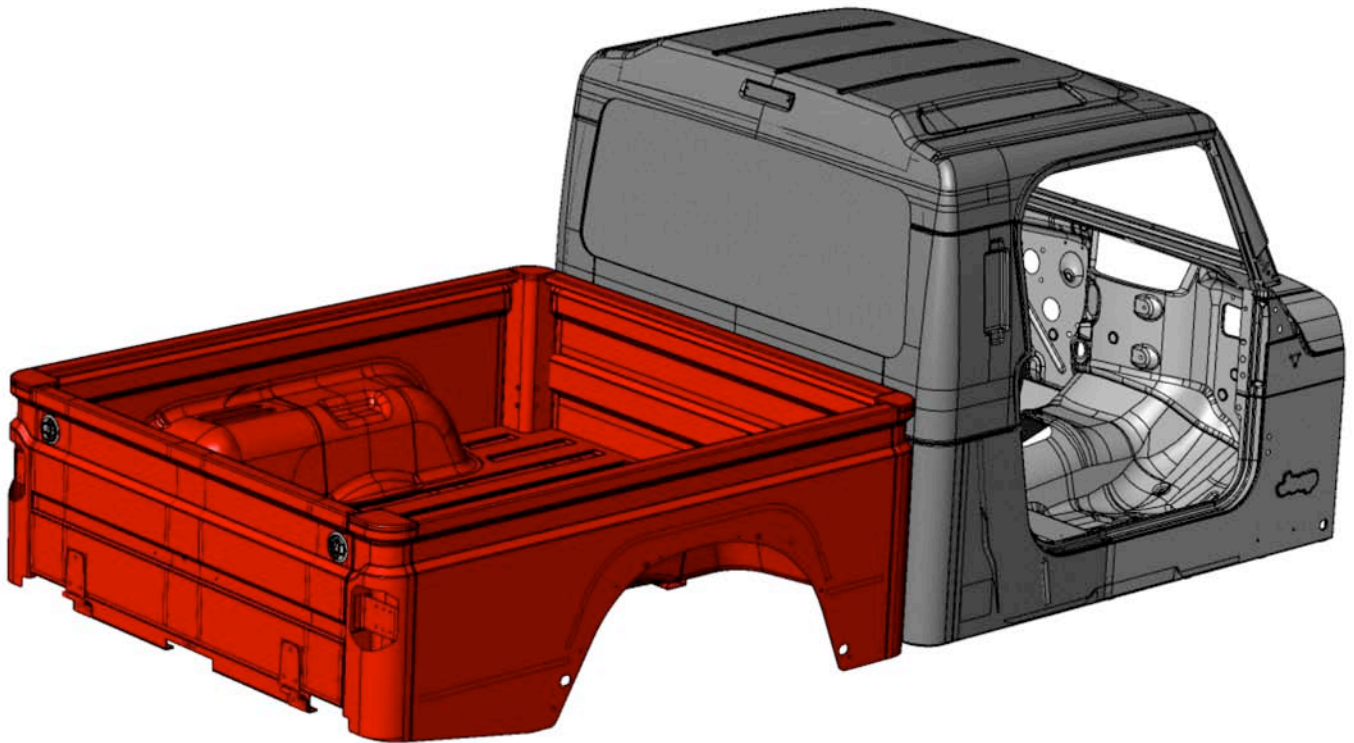
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BRUTE KIT

04. The Brute Bed



Installation Guide



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PLEASE READ BEFORE YOU START

TO GUARANTEE A QUALITY INSTALLATION, WE RECOMMEND READING THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING ANY WORK. THESE INSTRUCTIONS ASSUME A CERTAIN AMOUNT OF MECHANICAL ABILITY AND ARE NOT WRITTEN OR INTENDED FOR SOMEONE NOT FAMILIAR WITH AUTO BODY REPAIR.

Required Tools

Drill Motor

4" Angle Grinder

Tape Measure

Appropriate Safety Equipment

Common Hand Tools

Spring Loaded Center Punch or Equivalent

File or Die Grinder



A. PAINTING THE BED AND TAILGATE ASSEMBLIES

OVERVIEW

The Brute bed is delivered as an assembled unit requiring no fabrication. The bed will need to be prepared and painted. Preparation of the bed includes smoothing exterior spot welds and seam sealing all the seams.

Minor assembly of the bed consists of:

- Installation of the fender flares
- Installation of the ground strap
- Installation of an optional spray-in urethane bed liner.
- Installation of the stock taillights.

Minor assembly of the tailgate is required and involves:

- Bolting the tailgate to the bed.
- Installation the tailgate latches and bed support cables.
- Installation of the license plate bracket.

The Bed assembly, once painted will be mounted to the frame and aligned with the rest of the body. This process is easy but can be time consuming to achieve a perfect fit. We generally allow two hours for alignment and any shimming if required.

INSTRUCTIONS

1. Install the hinges to the tailgate using the supplied hinges and hardware provided in the Brute Hardware pack. The tailgate is now ready for paint prep and paint.
2. Drill any required holes. If you are planning on drilling any holes and or trimming the wheel openings for the AEV Highline Body Kit, bed tie downs, or any other accessory, now is the time.
3. Using the FUSOR 123 or equivalent catalyzed seam sealer, tape, seal and sand all exterior seams.
4. Prepare all spot welded areas for a light skim coat of autobody filler. Block, prime, seal and paint per autobody collision repair standards. If you are planning on using a spray-in bed liner, there is no reason to paint the inside. We recommend bringing the spray-in



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liner up over the rails and down the outside approximately 5/8 to 3/4 inches to line up with the horizontal exterior seam in the corners of the bed.

5. It is acceptable to seam seal the exterior seams on the front of the bed and not finish out the spot welds.



B. INSTALLATION OF THE BRUTE BED

OVERVIEW

DO NOT MOUNT THE TAILGATE TO THE BED UNTIL THE BED HAS BEEN MOUNTED, AND THE ENTIRE BODY ALIGNED AND BOLTED DOWN INTO FINAL POSITION.

INSTRUCTIONS

1. Insert the six rubber bed mounts. Use the two supplied in the Brute Hardware pack along with the four rear most stock body mounts as shown.
2. Place the bed onto the frame, be especially careful at the rear of the bed where it fits around the rear crossmember. Roughly align the unit by eye.
3. Run a piece of heavy utility string along the bodyline on both sides of the vehicle from the rear corner of the bed onto the door line and up as far as the cowl. This will allow you to stand at the front of the vehicle and “Gunsight” the bodyline down the side to align the cab and bed. This is a time consuming process as you will have to adjust the bed and the closeout separately to achieve perfect results. We typically allow for two hours for this process. Use a jack and block of wood to lift the rear of the cab if necessary. You may have to use large washers between the body mounts and the body in order to level everything out.
4. Once you have everything in alignment, weld the rear body mounts to the cab. Bolt the body mount and isolator to the body and weld in place.
5. Install the 3” spacers into the middle body mounts. Tighten all body mounts.
6. Install the Ground strap from the exhaust hanger bolt to the bed crossmember directly above the middle exhaust hanger.
7. Install the latches and cables onto the tailgate. The inside portion of the latch must be trimmed approximately 0.5” in order to fit into the inner portion of the tailgate. Bolt the cables on so that the “ear” on the cable ends directs the cable to fold downward when the gate is closed. **DO NOT OVERTIGHTEN THE CABLE BOLTS. THEY MUST BE ABLE TO SWING FREELY.**
8. Install the rubber bumpers into the tailgate tabs on the bed.



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9. Bolt the tailgate to the bed using the supplied hardware and nut plates. Center the tailgate so that the gaps are even on both sides and the gate is level at the bodylines with the bed. Design gap on either side is 0.2”.

10. Install the license plate bracket. Wire the LED light to the stock tailgate connectors from the CHMSL in the donor vehicle.

11. Install the flares and taillights from the donor vehicle.



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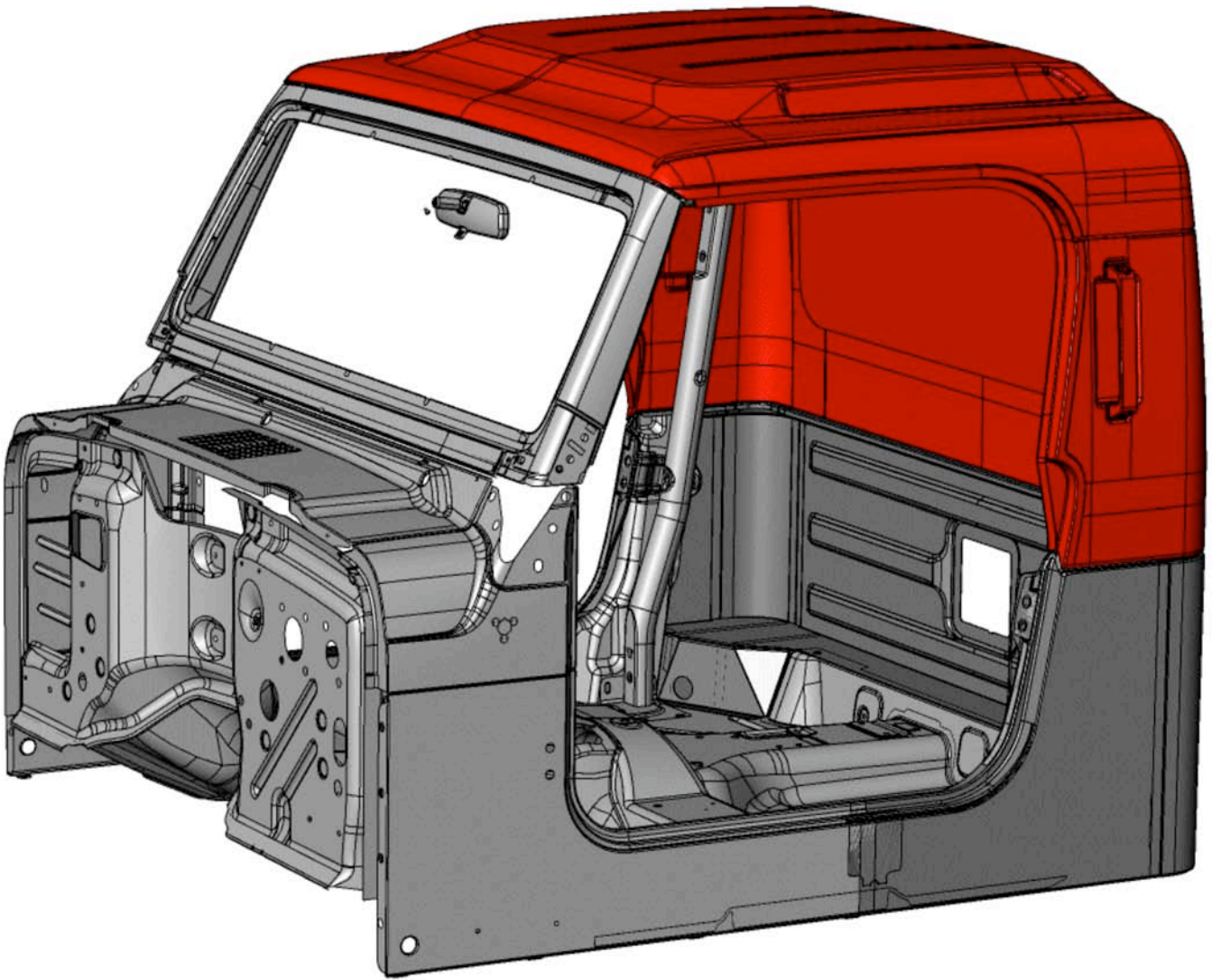
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VEHICLES

BRUTE KIT

05. Installation of the Brute Hardtop



Installation Guide



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PLEASE READ BEFORE YOU START

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Required Tools

Drill Motor

1/2" Step Drill Bit

5/16" Drill Bit

Sanding Supplies

Urethane Glass Installation Tools

Wiring Tools

Painting Tools and Supplies

Medium Clamps



A. FITTING THE TOP TO THE VEHICLE

OVERVIEW

The Brute Hardtop comes as an assembled unit with the exterior portion of the top finished in a grey sanding gel coat, while the interior of the top is left in a white natural resin finish. Installing the hardtop is generally a relatively easy task that consists of only a few steps.

The hardtop must:

- be fit to the vehicle.
- be painted.
- have the glass installed.
- have all the hardware put on.
- have the interior lights and CHMSL installed.

INSTRUCTIONS

1. Once your cab closeout is fully welded out and finished, install the hard doors, door striker plates and header seal. Begin by temporarily installing the header latches (do not cross thread the bolts nor over tighten them) to the hardtop and test fit the top. At this point, check to be sure the top is sitting down on the J-rails all around the side and back of the top. Temporarily clamp the sides of the top into position. Clamp the header down, not to worry if it makes some cracking noises on this first clamp down, it's just everything settling in and will do no damage. Check the fit around the doors, windshield frame and the rear of the vehicle. The doors and windshield frame can be adjusted, but do everything in a slow meticulous fashion. Often times the top might look high initially, but tends to settle in once it's bolted into position and the seals take a set. Once you are satisfied with the fit of the top, mark the bolt hole locations and drill the J-rail in the hardtop out to 1/2".
2. Prior to painting the top you may wish to "dry" fit any accessories you plan to mount to the center console like radios, additional lighting, switches, etc.



B. PAINTING THE TOP

OVERVIEW

The Brute's hardtop can be painted in a number of ways and the builder has many options. AEV typically recommends using a medium to course spray texture and base coat on the outside with or without a clearcoat. The inside is typically sprayed with a fine texture and painted with a base coat only, however some builders have successfully used other methods such as spray in urethane bed liner or carpet like found in many pickup canopies and speaker boxes although the carpet can be a little trickier to trim the edges properly. Common questions regarding the Brute top involve painting; one common question is if the top can be left smooth and painted to match the vehicle's base coat / clear coat finish. The answer is yes it can be painted smooth to match the vehicle but it can't simply be scuffed and painted. The painter will need to sand and block so that flow marks from the manufacturing process and wows in the composite surface do not show through. This type of finish is often best left for professional body shops that specialize in painting composite components. Another common question is if one can paint the Brute top black on a colored vehicle like the factory does. Of course it can be painted black, however it is generally concurred that it doesn't look very good because it is distracting to the lines of the Brute. The top of the bed was intentionally raised to trick ones eye into believing the vehicle is shorter than it really is. By painting the top black, visually you are splitting the car up and it will cause the illusion that the vehicle is "bent" in the middle or just not proportioned correctly. Regardless of how and what color the top is painted, be sure to lightly sand or scuff the entire top to ensure the paint adheres properly. Its not required, but for a tidier appearance all seams, including the inside seams can be sealed with a high quality sealer such as FUSOR 123 but should not be filled and sanded smooth.

INSTRUCTIONS

1. Prepare the top for paint. Lightly sand the exterior of the top with a 320-400 grit Dual Action Sander (DA). If you plan on painting the interior, use a good wax and degreaser and a red ScotchBright Pad to lightly scuff the interior (if there is any shine to the surface the interior paint will not stick.)
2. Texture the top if desired. For an OE look textured top, use Standox Stone Chip Primer (Part #11344) or equivalent and apply per instructions to achieve a similar texture to the OE top. Textured tops tend to be much more durable and show less surface irregularities (which is why they are textured from the factory). If you are looking for a smooth finish, we recommend bolting the top down, aligning the seams and checking for wows in the surface. Any wows must be filled and blocked to provide a quality finish.



3. Paint the exterior using the same catalyzed base coat as the body uses. You can leave it this way for easy repairs and a flat finish, you can clear coat it with a flattening agent, or you can clear coat it with the texture. Most paint shops will spray various test cards so that you can achieve the finish you are looking for.
4. Painting the interior. The interior can be painted the same color as the dash board (use the interior paint code located on the door or upper front door sill). The interior can be left the neutral composite color or even carpeted with speaker carpet.

C. INSTALLATION OF THE GLASS

Installation of the glass is straightforward. Most builders take the painted top to a qualified auto glass installation specialist to have the glass installed. Often this is the best solution because most builders lack the specialized urethane guns and trim equipment required.

The top lites are designed to be installed with high quality, quick set urethane without any trim. Use a urethane primer on the frit (the black baked on coating on the glass) designed to work with the urethane you plan to use. The rear window is designed to have a molding placed around the glass with the seam located at the bottom, center of the rear glass. Again, be sure to use a matched primer and urethane. After applying the urethane, use high quality glass tape (designed not to take the paint off) to tape the windows in place until cured. The top lites are slightly curved and will flex into position once the windows are taped into place.

D. TOP HARDWARE

Installation of the top hardware consists of the latches and handles. Install the OE header latches using the bolts from the donor vehicle. Install the handles in the side by locating the (4) 1/4-20 countersunk stainless hex head bolts, nuts and washers in the Brute hardware pack. Use the supplied hardware to bolt the handles in place. Do not over tighten.

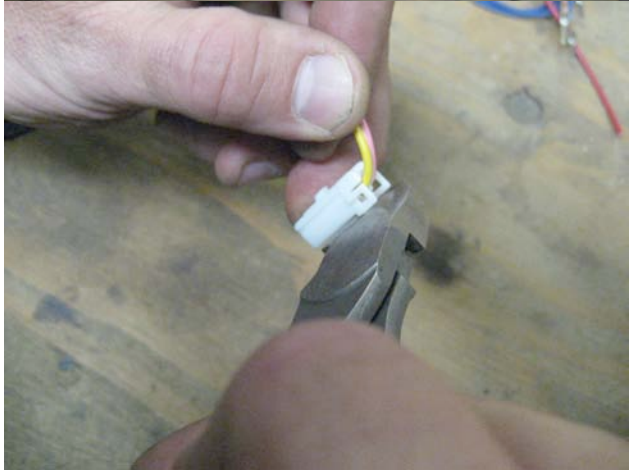
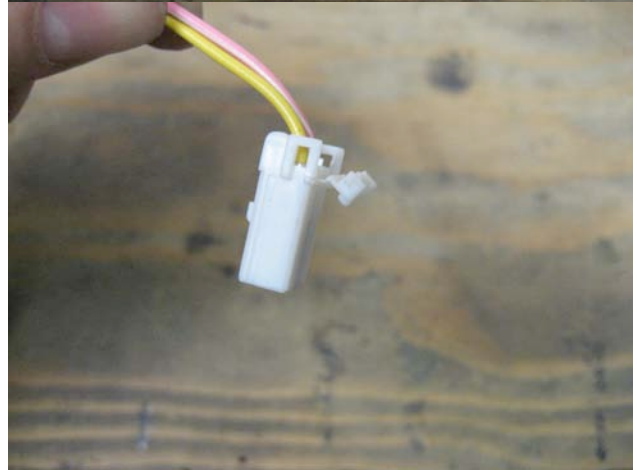
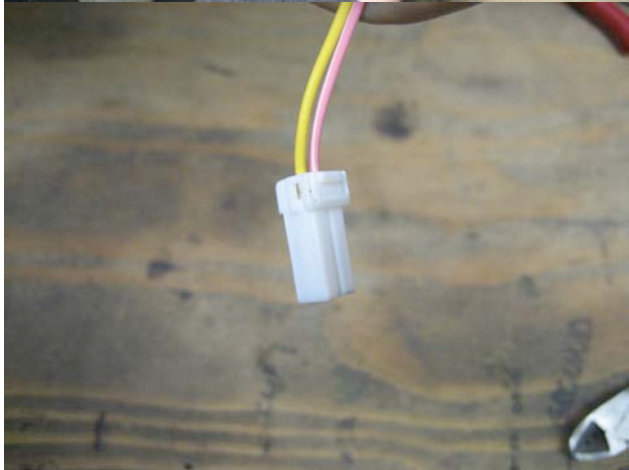
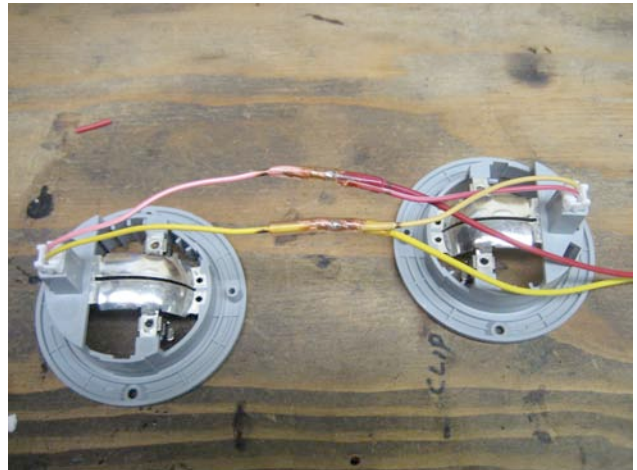
E. WIRING THE TOP AND INSTALLING THE CHMSL

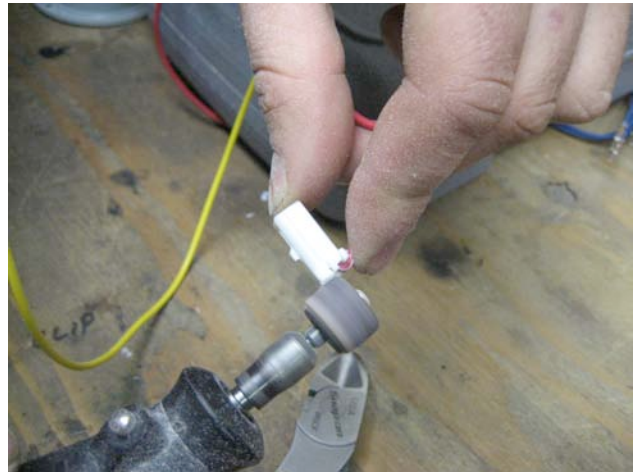
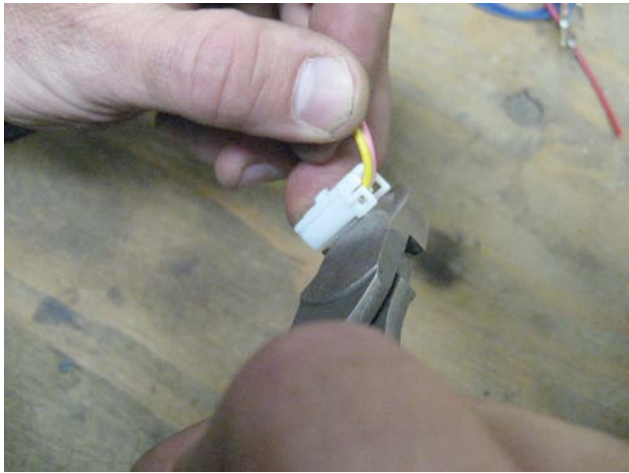
The Brute top is designed to use the overhead lights from the “sound-pods” that come standard in 2003-2006 Jeep Wranglers. If your donor vehicle is an older unit, you will need to order the lens part #56047115AA (lens) and part #56047114AD (lamp). You’ll need to strip the light and the wiring from the “sound-pod” and connect the wires as shown below. Remove the lights and modify the connector as also shown below and reuse the existing screws from the donor. The



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CHMSL (Center High Mount Stop Lamp) is reused from the donor vehicle. Unscrew the unit from the stock spare tire carrier assembly and remove the socket with as much wiring as possible from the stock tire carrier. Run the wiring through the top and then mount the CHMSL to the Brute top. Use a connector such as Mopar part #5013957AA and mating connector Mopar part #5017115AA to route all connections for the interior lights, CHMSL and any other accessories through so that the top can be removed easily.







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