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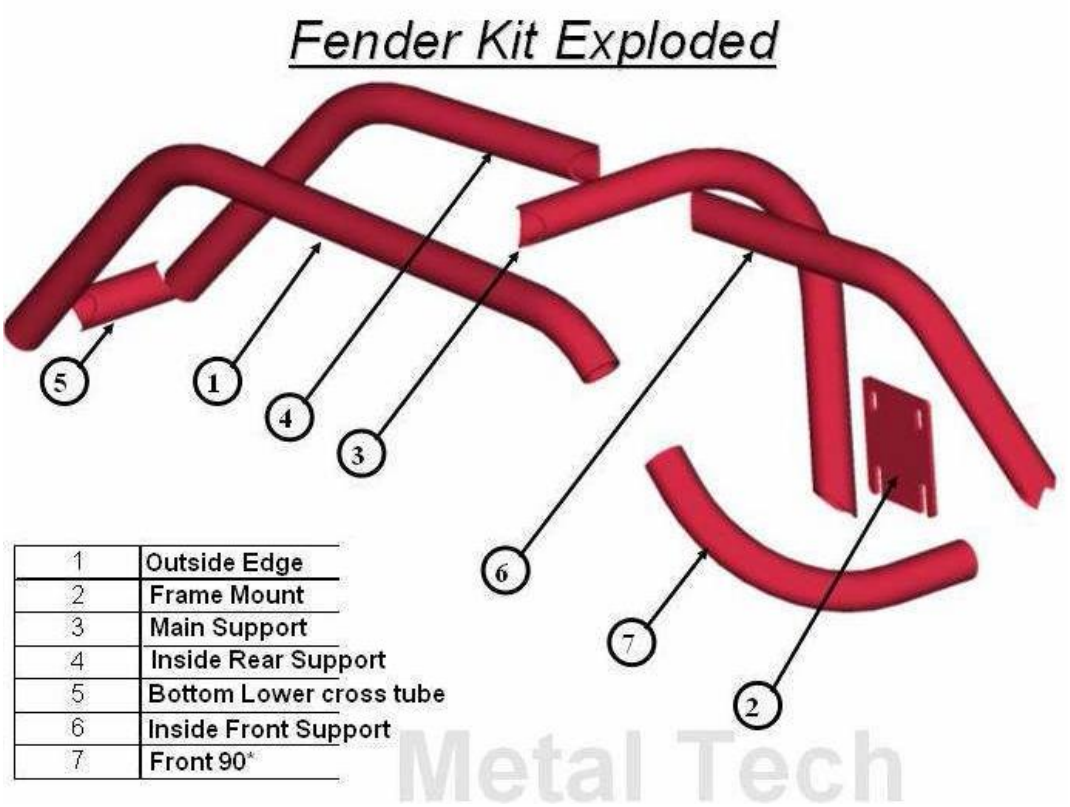
Metal-tech Cage Tube Fender Kit Rev. 3.0



1	Outside Edge
2	Frame Mount
3	Main Support
4	Inside Rear Support
5	Bottom Lower cross tube
6	Inside Front Support
7	Front 90*

Parts list pair of tube fenders:
2 Outside edge (only piece with 2 bends)
2 Inside front support (19”)
2 Inside rear support (updated to 2 bends)
2 Front 90*
2 Bottom lower cross tube (5”)
2 Main support (Large 90* bend)

Finishing kit for a pair of fenders:
2 Front upper mount (10g sheet metal)
2 Main mount (four holes)
2 Lower rear mount (two holes and bent w/ notch)
2 18g Sheet metal skin
2 Welting
6 1.5” tube end plugs

Thank you for your purchase of a Metal -tech tube fender kit. The Metal -tech fender kit is designed with a few key principles in mind. The first is to allow for larger tire clearance with out a body lift. You gain 2.5” of added clearance in the middle and 3.5” of added clearance off the front lip of the fender. The fender is designed to withstand light impacts and support the demands of high performance off road use over the stock sheet metal fender. The combined use of two different wall thickness of tube is to keep the strength up, the weight down and still allow the fender to collapse if sustained a large impact. Your tube fenders are designed for all this and of course to maintain the true Cruiser look! This is only a suggested way to build your new fender kit. This is all part of the fun with a kit like this; you can always build it exactly how you want it for your truck. Everyone has different fabricating skills, you don’t need to be a master welder so take your time read the suggested build below look at the photos and jump in. This kit is easier to build with extra hands so grab a buddy if you can.

SAFETY! Always wear the proper safety gear. Double eye protection when welding and grinding is a must. (Eye's don't grow back) This is face shields and safety glasses. Always ware hearing protection when grinding and inner ear protection when welding. Make sure all shields are in place on equipment and equipment is in good working order. If you have any doubts as to your safety gear stop now. SAFETY!

Required tools:
- Welder (w/ proper safety gear)
- 4 or 4.5" hand grinder
- Cut off wheel
- Grinding wheel
- Clamps
- Square

Recommended tools:
- Two 4" or 4.5" hand grinders one with cut off wheel other with grinding wheel
- Flap sanding disks for grinder 40,80,120 grit
- Blending disks for grinder (like scotch-brite)
- More clamps!

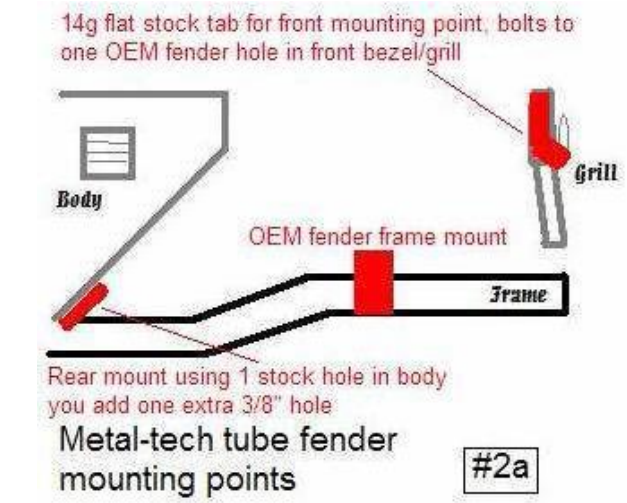
Building the frame:

Tip: Remove only one fender and side apron at a time as you build your tube fenders. The body and front head light apron will be providing alignment for the assembly. If both fenders are off, the front head light apron will not be in the right position to the front hood line!

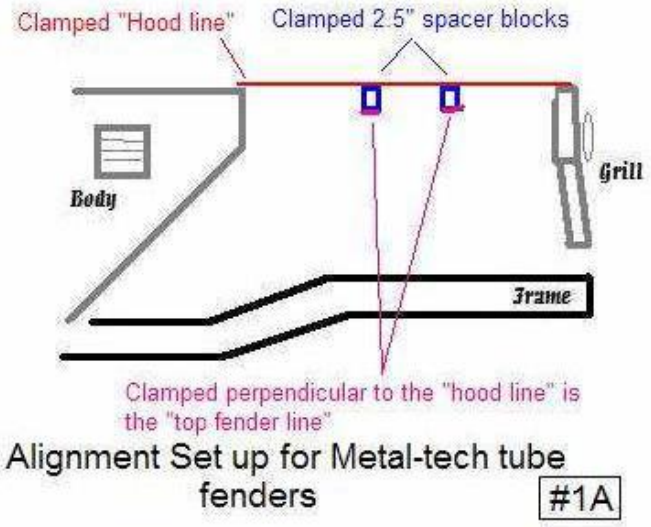
Parts needed: Main mount, rear mount and front upper mount

A. Bolt or clamp all three mounts. For the front upper mount, square the top part to the side of the head light apron. The foot of the mount should be to the front of the truck. (See drawing)

Tip: Once the mounting points are on the truck you build out from there. The most time consuming things are just aliening up everything and fitting the tubes. To help with the alignment with building the fenders right on the truck, I clamp a piece of stock across the top area of where the fender apron would be. This is the same line as where the hood line is and helps as a reference point for keeping the top of the fender parallel to the hood. (we will call this the "hood line" Off the "hood line" stock I clamp two pieces of flat stock (like ¾" wide 1/8" thick steel aprox 12" long, we will call this the "top fender plain") with 2.5" spacing between the "hood line" and the "top fender line". The "top fender plain" should be perpendicular to the hood line and point away from the engine bay. Fig. #1A



Metal-tech tube fender mounting points #2a



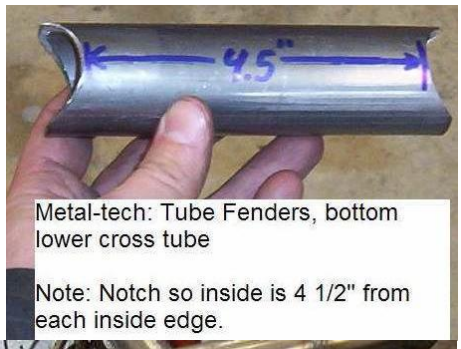
Alignment Set up for Metal-tech tube fenders #1A

Parts needed: Main Support

A. Notch the outside edge of Main support for the outer edge of the fender. Square up main support in both directions and tack to the main mounting plate. Tip: Where the Main Support attaches to the mounting plate, notch the end of the main support by the mounting plate. Cut a 1 ¾" stub of 1.5" tubing and once the main support is in place set it into the notch on the main support. This makes for a clean look for the base of the main mount and considerably stronger with more weld surface distributed. If you have the finishing kit an extra tube plug is included to cap this stub if you chose to add it in.

Parts needed: Rear lower cross support

B. Notch the Bottom lower cross tube as in the photo below: Once notched tack the bottom lower cross tube into the lower body mount that is bolted to the body. Give yourself about 1/8" of space from the base of the inner notch and the mount on the inside of the truck. Make sure the notches are facing the right direction. (Light tack so you can make any adjustments to the alignment.)



Metal-tech: Tube Fenders, bottom lower cross tube

Note: Notch so inside is 4 1/2" from each inside edge.

Parts needed: Outside edge

C. Install outside edge tube by adjusting the notch on the main support tube for alignment between the two. Next align the bottom lower cross tube to the outside edge, tack in place. Use a square for alignment on the inner part of the outside edge tube to the main support, tack in place. (Note: This is a good step to have an extra set of hands!)

Parts needed: Front 90*

D. Trim Front 90* for fit as shown in photos. You will also need to trim the Outside Edge tube for proper fit of the Front 90*.

Tip: Welding. When you do the butt weld between the Outside Edge and the Front 90, make sure you bevel both edges to be joined. This will help with achieving a full penetration weld and allow the weld to be polished out yet keep the strength. As you probably know a properly done weld is stronger than the parent materials.*

Tip: Polishing weld. Wait until the entire fender is framed before polishing this weld. When you grind down and polish out the weld use sanding flap disks. Start with a 40 grit and build up to a 120 grit. Be careful to keep the grinder moving to not grind facets like the face of a diamond. Finish the area by using a blending disk, blending the outer and weld area to look like one piece of metal. I chose to leave the inside edge of the weld bead in place since this are is not visible, less grinding!

Metal-tech: Front 90* final fit

tab, lower mount and main suport locations.

Parts Needed: Inside Front support

E. Trim and notch Inside Front support tube to final fit between the Front 90* and the Main Support tube. Tack in place. (Note: You may find it easier to install this part by cutting the tacks on the 90* tube, then install the front inner support tube and tack everything back up.) See Photo:

Parts Needed: Inside Rear Support

F. Trim and notch upper end to fit main support tube. Tack to Bottom lower cross tube and Main Support.

G. Confirm everything is aligned and the way you want them to be, weld everything up!

Parts needed: Skin

H. Clamp down the skin to the fender frame and check for a slight taper on the outside edge going from the top of the fender down. This is normal and good, just mark the start and end of the center of the tube on the skin. Run a straight line between the two points and cut the line, removing the part that hung past the fender frame. Clamp the skin to the frame again and work front to back tacking the outer edge and underside of the INSIDE fender support. I don't recommend nor-do I tack the underside of the fender that will be seen. The sheet metal will "oil can" from the heat of the weld and is plenty strong with just the inside tacks and final outside weld. As you work your way back keep the skin tight and keep repositioning your clamps most concentrated in the areas you are welding. You can chose to leave a nice skip weld on the outside edge or weld a light full bead joining the skip welds. Just be careful of putting to much heat into the sheet metal with each weld. Short and sweet is good, long welds will warp the skin. I chose to grind down the welds and blend the skin to the frame making the look you see on my web site. But at the same time nothing is wrong with leaving the full welds.

Tip: If you plan to polish the outside edge weld try this. Increase the amperage of your welder to the point it is starting to burn through the sheet metal skin, but not so much you are blowing holes out into the skin. Focus your weld just past the tangent point of the tube, working outside edge inward. What you are doing is depositing most of the weld on the inside of the skin where it meets the tube. The weld fillet is now tucked up on the inside of the tube fender frame. This way you can polish the weld down with out the skin separating from the tube.

Cutting the stock side aprons

With the built tube fender bolted in place use cardboard to make a cutting template for the side apron. Line up a straight edge of cardboard with the top hood line edge between the body and the front head light apron. Use a marker and trace the profile of the fender onto the cardboard. Cut out the profile and mark the template right or left and note the front and back ends of the apron on the template. Line the template up onto the stock side apron, use a marking pen and trace the cut line onto the side apron. Cut the side apron along the line. (Plasma cutter, cut off disk or jig saw, they all work for this) Test fit the cut apron to the fender and truck. Use a 40 grit sanding flap disk to make adjustments to the cut edge of the apron to best fit the top of the fender. Test fit part of the welting, you may need to remove about an 1/8" more of the cut edge to allow for the welting to fit properly. Make all trim adjustments with the 40 grit sanding flap disk to avoid removing too much material too quickly.

Tip: Since you are using welting to trim off the cut edge slight imperfections will be covered and not noticeable. Don't forget to paint the cut edge!

Finishing:

Mounting the cut side aprons You can use two inner bolts of the front of the side apron to the head light apron. You may need to add new hole to the head light apron for the lower bolt. For the rear support the cleanest and best performing way is to bend out and cut down the factory inside mounting tab. Just bend it outward, cut it in half and lap weld it back over itself so that the flat bolt holes are sitting on top of the fender skin under the hood. You will need to bend the plane of the bolt hole tab to match the new angle of the support tab off the apron. Add holes to the fender skin to match the support tab and bolt into place.

Hood latch

Two good options:

Option one: The way I do it is to remove one bolt at the base of the hood latch and rotate the hood latch forward. (This is on the hood) Fabricate a mounting point for the stock hood latch out of a stainless steel ½" washer. (fits a ½" bolt) Put 1/3rd of the washer into a vise and bend it over slightly. On that new 1/3rd surface drill a small hole for a mounting bolt. I use a 4-40 stainless socket cap button head bolt with a washer and nylock nut on the inside. Bolt the bent washer to the side apron using the ½" hole as the new anchor point for the factory latch. Option two: Remove the stock hood latch all together. Pick up a rubber hood latch and mounting cup from a truck supply. (Used on Simi trucks and other random hold down needs) Mount the rubber latch and mounting cup on the inside of the fender under the hood. To release the hood you reach under the fender and release each side. This idea is credited to my good friend Travis Winkler, thank you for the great idea Travis!

Wheel Well Inner Skirts?

Completely optional. First off the stock inner skirts cannot be cut off the stock fender and modified to fit. The fender is just too different. I run my wheel wells completely open except for an aluminum splash guard under my K&N air filter on the cold air pick up near the side apron. Running open wheel wells drops under the hood temperature considerable. This in turn also drops engine running temperature as well. I run a 383 TPI motor with a stock radiator with no heat issues on hot days in Moab. Even living in the Pacific North West (ie. Lots of rain!) I run the wheel wells wide open. However I am not a mud bogger, but mud is part of winter wheeling in this area. You could fabricate sheet metal wheel wells if you feel you need them. The best version I have seen is a customer took his truck into a boat top shop. They made a set of soft inner skirts out of the same type of material as a soft top. The top shop also put the skirts on snaps. This way during the winter when extra engine heat is needed and more likely of wet off-roading the skirts are on. Then in the summer the skirts are unsnapped and removed for better cooling! Great idea. I would name the person who did this however a hard drive crash lost this name and the photos of the set up.

Closing:

Enjoy your new tube fenders if you have any questions please let us know!

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Hours of Operation:
Monday - Friday
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