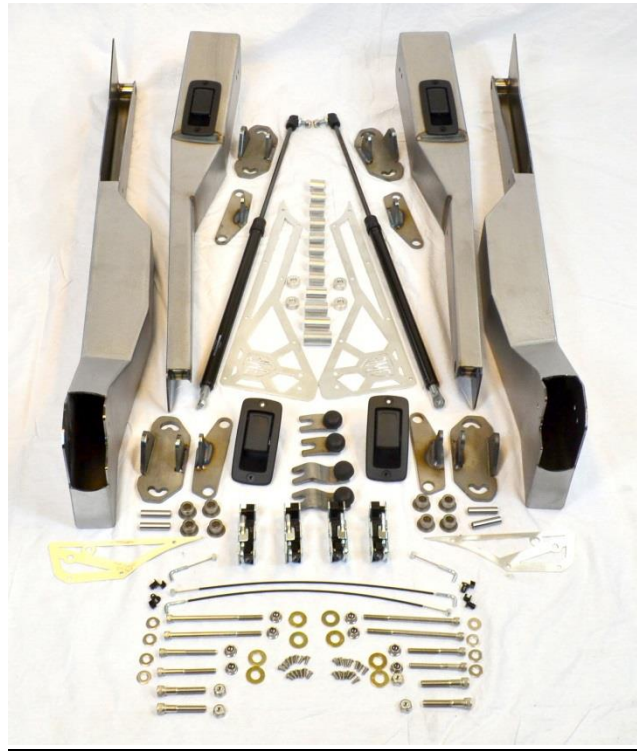




FULL METAL FABWORKS

ZSR Trail Door Installation Instructions
Instructions are for installation on 4-dr Jeep JKU 2007-2017



Please read these instructions in their entirety before proceeding with installation. If you are not confident in your ability to perform this installation, or lack the necessary tools, please consult the help of a professional.

What Is Included:

Before beginning the installation, please make sure that all parts and hardware are included in your package and that no damage has been done to the product during shipping. If you are missing parts or the product is damaged please give us a call at (909)-792-9777 and we will make sure that any problems are taken care of.

- **(4) Doors Front and Rear, (4) Aluminum Overlays**
- **(4) Upper Door mounts** (installs using factory hardware in factory upper door hinge mounting location,)
- **(4) Lower gas spring mounts** (2 LH, and 2 RH. The gas spring mounting tab will be towards the outside of the vehicle with the flat edge towards the inside, installs using factory hardware in factory lower door hinge mounting location)
- **(4) Paddle Actuators/Pull Handles**
- **(4) Actuator Cables** (qty 2: long cables for front doors, qty 2: short cables for rear doors)
- **(2) Left Hand latches, (2) Right Hand latches**
- **(4) Cable retainer clips** (retains cable to latch)
- **(28) 6/32x5/16 SS Button Head Allens** (For paddle actuators, and aluminum overlays)
- **(4) 5/16-18x1.75" SS Socket Head Allen Bolts, (4) 5/16-18 SS Flanged Nylock Nuts** (For bolting lift assist gas spring to door)
- **(4) 5/16-18 SS Flanged Nylock**(For fastening bottom of lift assist gas spring to lower strut mount)
- **(8) 3/8" Unthreaded aluminum spacer** (top of lift assist gas spring)
- **(2) 40lb Lift assist gas springs** (1/ front door front, **(2) 30 lb Lift assist gas springs** (1/rear door)
- **(8) Bronze bushing** (2 per door, installs from outside of door inward into door bushing housing)
- **(4) 4130 Chromoly Crush Sleeve** (1 per door, installs inside of bronze bushings)
- **(4) 1/4-20x2.25" Socket Head Allen , (1) 1/4" SS Flat Washer, (1) 1/4-20 SS Flange Nylock**, (1 per door, Hinge Bushing Bolts)
- **(4) 1/4-20x2.25" Socket Head Allen, (4) 1/4" SS Flat Washers, (4) 1/4-20 SS Flange Nylock** (Front Door Latch Hardware, 2 per door)
- **(4) 3/4" Unthreaded aluminum spacers** (2/ front door, spacer for latch)
- **(4) 1/4-20x3.75" Socket Head Allen, (4) 1/4" SS Flat Washers, (4) 1/4-20 SS Flange Nylock** (Rear Door Latch Hardware)
- **(4) 1-5/16" Unthreaded aluminum spacers** (2/ rear door, outside spacer for latch) ,(4) **15/16" Unthreaded Aluminum Spacers** (2/ rear door, inside spacer for latch)
- **(4) Door Travel Limiting Stops** (stops with 2 bends are for the front doors, and stops with a single bend are for the rear doors)

Tools Needed:

- Safety glasses
- 3/8 drive ratchet
- T-45 Torx Bit
- T-50 Torx Bit
- 13 mm open ended wrench
- 7/16 open ended wrench
- (2) 1/2" open ended wrenches
- 5/64" Allen Key
- 3/16" Allen Key
- 1/4" Allen Key

Tools that are not needed but are helpful:

- Bungee cord or helper/second set of hands

Hold Harmless Agreement:

In purchasing a Full Metal Fabworks LLC product I release, waive, discharge and covenant not to sue Full Metal Fabworks LLC officers, servants, agents, or employees (hereinafter referred to as Releasees) from any and all liability, claims, demands, actions and causes of action whatsoever arising out of or related to any loss, damage, or injury, including death, that may be sustained by me (or anyone else), any property belonging to me (or anyone else), whether caused by the negligence of the releasees or otherwise, while working on, using or any activity related to this product. Furthermore, I acknowledge that any and all products manufactured by Full Metal Fabworks LLC are designed for off road use only, are not DOT approved or recommended for highway use.

I am fully aware of risks and hazards connected with the use of a this product and I elect to voluntarily engage in such use of this product knowing that the use may be hazardous to me and my property. I voluntarily assume full responsibility for any risks of loss, property damage or personal injury, including death, that may be sustained by me (or anyone else), or any loss or damage to property owned by me (or anyone else), as a result of using this product, whether caused by the negligence of releasees or otherwise.

I further agree to indemnify and hold harmless the releasees from any loss, liability, damage or costs, including court cost and attorney fees, that they may incur due to my use of a this product, whether caused by negligence of releasees or otherwise.

It is my express intent that this Release and Hold Harmless Agreement shall bind the members of my family and spouse, if I am alive, and my heirs assigns and personal representative, if I am deceased, and shall be deemed as a release, waiver, discharge, and covenant not to sue the above named releasees. I further agree that this Waiver of Liability and Hold Harmless Agreement shall be construed in accordance with the laws of the State of California.

By accepting this product, I acknowledge and represent that I have read the above Waiver and Liability and Hold Harmless Agreement, understand it and accept it voluntarily as my own free act and deed; no oral presentations, statements, or inducements, apart from the foregoing written agreement, have been made; I am at least eighteen (18) years of age and fully competent; and I execute this Release for full, adequate and complete consideration fully intending to be bound by same.

If you do not agree with the preceding Hold Harmless Agreement, you may return the product

and receive a full refund. Please, contact a representative of Full Metal Fabworks LLC and they will issue a call tag for the product in question. Once the product has been received by Full Metal Fabworks LLC a full refund will be issued.

After verifying all parts, tools, and skills are accounted for and reading these instructions, you are ready to start the installation.

Installation Procedure:

- 1) Begin by parking your vehicle on a level surface and setting the parking brake.
- 2.) Disconnect the battery
- 3.) Factory door Removal: Remove door pin retainer nuts using 3/8 drive ratchet and T-50 Torx Bit, as shown in Figure 1. If installing on a vehicle with power windows, before disconnecting the electrical plug, roll down windows to make door access and removal easier. Remove door limit strap from hook, unplug door electrical connector located behind the limit strap by sliding the red tab down, pushing down on the release tab, and pulling gently.

Figure 1:



4.) You may wish to mark the location of your factory door hinges at this time to aid in alignment when re-installing factory doors at a later date. To do so, we like to make a thin clocking/timing line across all hinges, and then mark the back side of the factory hinge with numbers 1,2,3, and 4; starting with the driver's door, the most used, hence the #1, going clockwise to the next most used door, the passenger, with #2, etc. You may also mark behind the hinges on the vehicle as any markings will be covered with the new hinges. After marking factory hinges location, remove the hinges, using 13 mm open ended wrench, using an impact will damage the paint on the bolts, so it is worth the extra few minutes to manually remove the hardware. **KEEP THIS HARDWARE, IT WILL BE RE-USED IN THE NEXT STEP.**

5.) With the factory hinges removed install the upper bushing clevis door mount with the larger/

bent tab towards the inside of the vehicle, and the smaller welded tab towards the outside of the vehicle, and the door stop in the top bolt of the upper mount as shown in Figure 2. The gas spring mount will install in the lower factory door hinge position with the tab away from the vehicle. Just snug up the bolts for now, and take notice of the cam slots in both mounts, these will be used to align the door later.

Figure 2:



6.) Assemble paddle actuator, cable, cable retainer clip, and latch as shown in Figure 3. Notice that latches are Right Hand and Left Hand. Assemble a R/L for each front door with the longer of the cables, and a R/L with the shorter cables for each rear door. The barrel end of the cable will install into the circular female opening in the paddle actuator, and the “L” shaped end will install into the latch using a cable retainer clip. The top of Figure 3 shows the parts that will be used, and the bottom shows the completed assembly. **WHEN INSTALLED, THE LATCHES RUBBER BUMPER WILL BE TOWARDS THE OUTSIDE OF THE VEHICLE, AND THE “C” SHAPED LATCH CAM WILL BE TOWARDS THE INTERIOR OF THE VEHICLE FOR ALL DOORS.**

Figure 3:

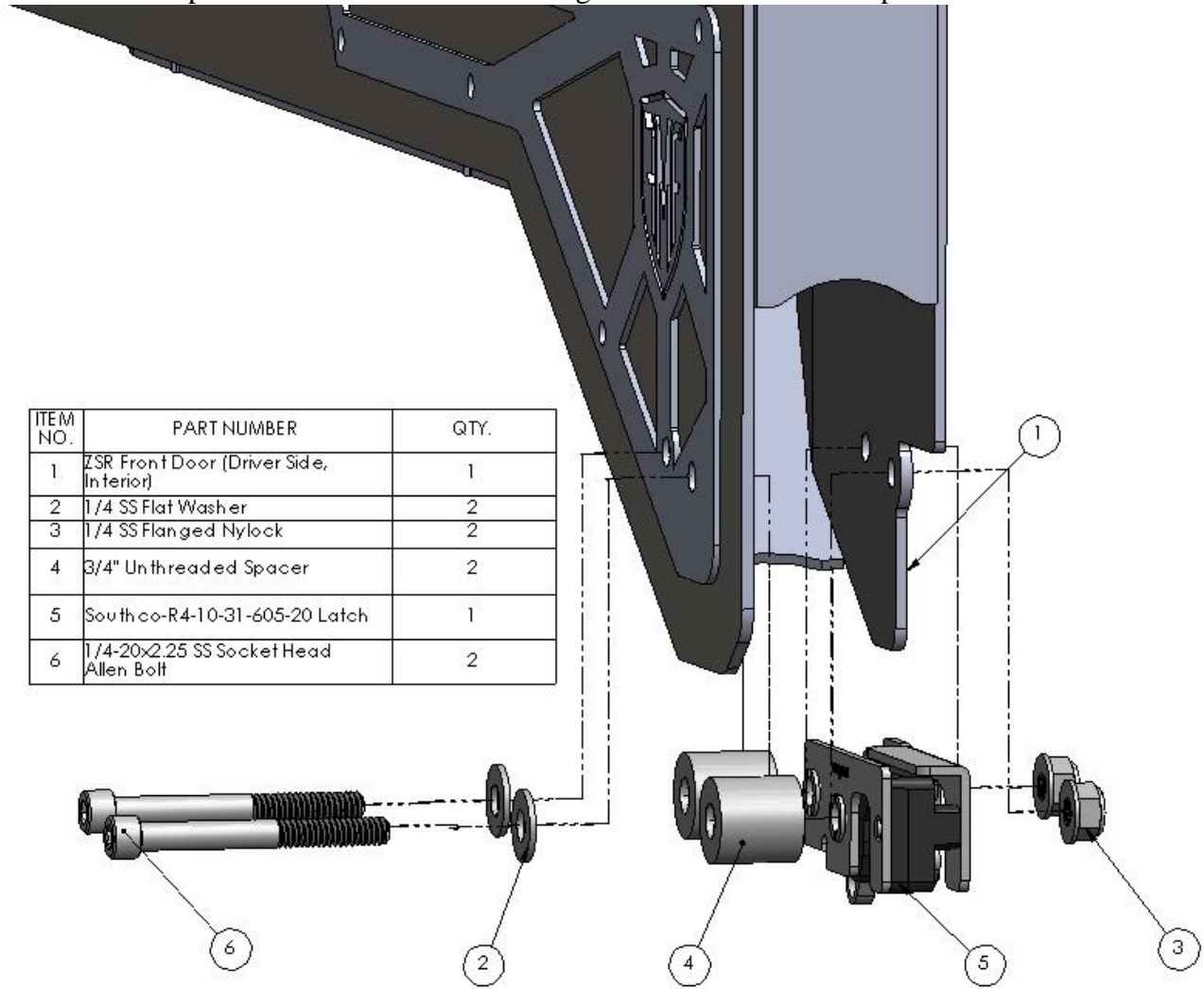


7:) Before installing the latch assembly into the doors, loosely install the aluminum overlays using (7) 6/32-5/16" SS button head allen screws for each front, and (3) for each rear.

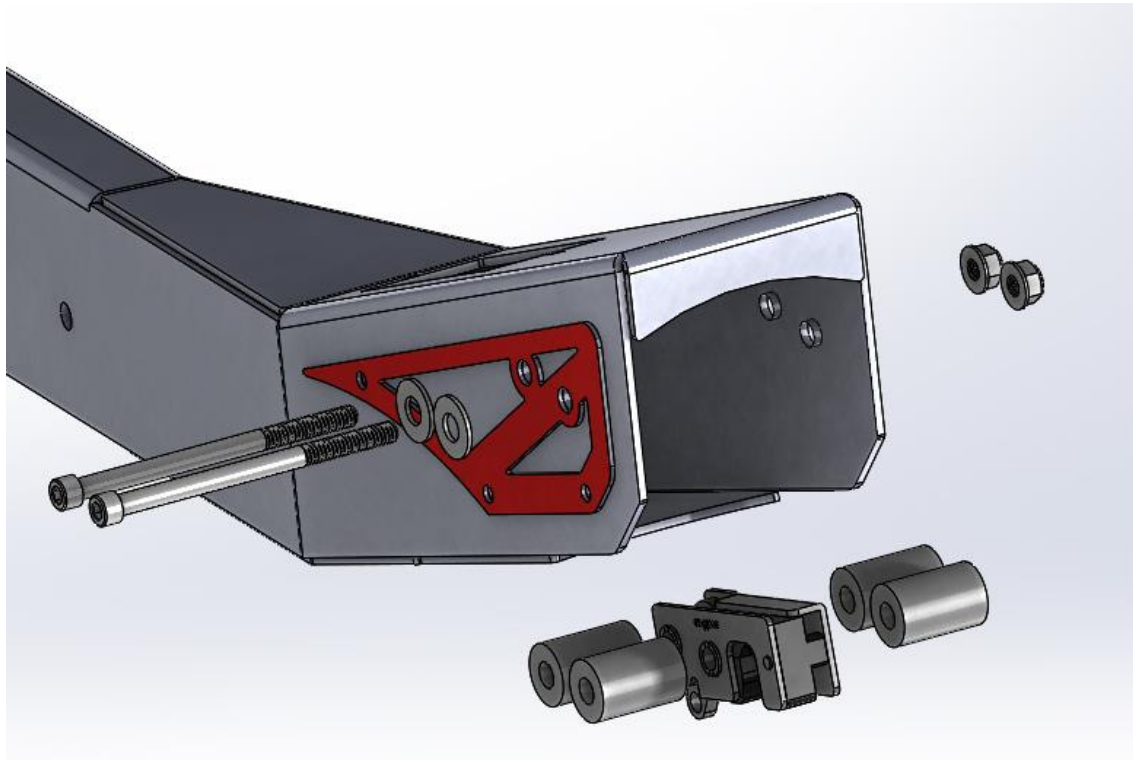
8:) Install actuator/latch into the doors as an assembly through the actuator hole on top, and let the latch hang for now. Using (2) 6/32-5/16" SS button head allen screws and your 5/64 allen key attach the paddle actuator to the door.

9:) Flip the door upside down so that the top of the door rests on your workbench and the back opening is facing you to install the unthreaded latch spacers: See diagrams below:

For each front door use (2) 1/4-20x2.25 SS socket head allen bolts, (2) 1/4" SS flat washers, and (2) 1/4-20 SS Flange Nylocks to install (1) 3/4" unthreaded spacer per bolt between the inside of the door and the rotary latch, pushing the latch up against the inside of the door on the vehicle interior side. We have found it is easiest to install the forward bolt, washer, spacer, and nut first and let the latch pivot on that bolt while installing the rear hardware and spacer.



For each rear door: use (2) 1/4-20x3.75 SS socket head allen bolts, (2) 1/4" SS flat washers, and (2) 1/4-20 SS Flange Nylocks to install (1) 1-5/16" unthreaded spacer per bolt towards the outside of the door, and a 15/16" spacer on the inside of the door, so that the rear latch is slightly offset to the inside of the vehicle; again installing the forward bolt, washer, spacers, and nut first and the rear hardware and spacers last.



10:) Tighten the latch bolts so there is no play in the latch using your 3/16 allen key and 7/16 open ended wrench.

11:) Go back and tighten all 6/32-5/16 SS button head allens for the aluminum overlays using your 5/64 allen key.

12:) If you purchased powder coated doors skip to step 13 as your bronze bushing and 4130 crush sleeve should already be pre-installed. If you coated your doors yourself, it is time to install the bronze bushings and crush sleeves. Note, that these parts are designed to be a very tight slip fit and depending on the coating process used for the doors may need to be pressed in, or the coating on the inside may have to be removed with fine sand paper prior to installation. It is important to ensure that the bushings are installed squarely and don't bind. See Figure 4 below:

Figure 4:



13:) Insert crush sleeve into bushings. These are also designed to be a tight slip fit.

14:) With the help of a friend install each door using (1) 1/4-20x2.25" Socket Head Allen , (1) 1/4" SS Flat Washer, (1) 1/4-20 SS Flange Nylock for each door.

15:) Tighten 1/4-20x2.25 SS socket head bolt using 3/16" Allen key and 7/16" open ended wrench until crush sleeve is fully seated and there is no play in the door left to right

16:) DOOR ALIGNMENT: BEFORE installing lift assist gas spring the door will need to be adjusted for proper alignment. We have a video demonstrating this process here:

Youtube Video Link: https://youtu.be/R7e-x_LUsGI

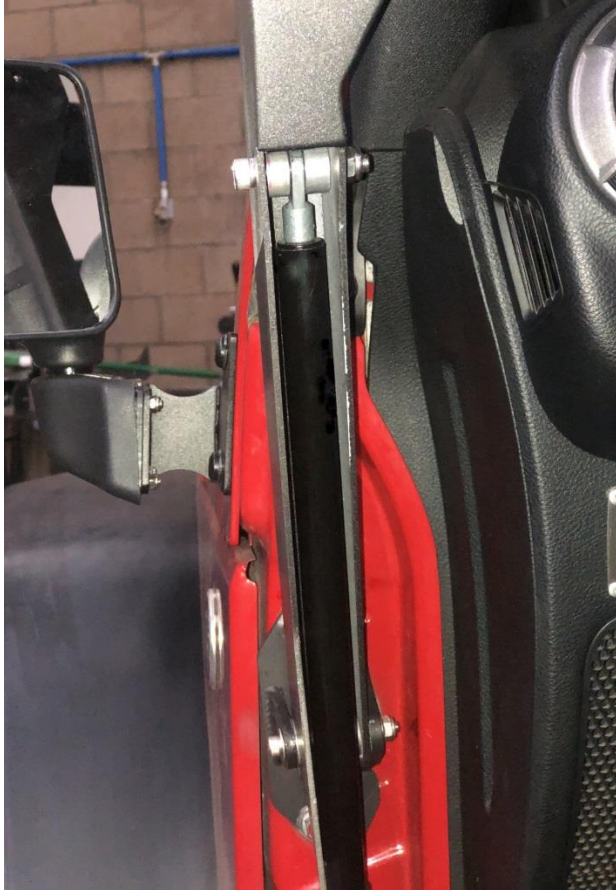
The method we use for aligning the doors is pretty straight forward:

Step 1: First we lift the door into its open position ensuring that it contacts the door stop and clears the roof/top/cage. If the door does not clear the roof/cage it can be clocked away from the vehicle using the cam slots in the upper clevis mount. Once you are satisfied with the door to roof clearance snug up the 13 mm bolts for the hinge mount.

Step 2: Slowly, lower the door to check alignment with the factory striker. If they are not already aligned, you can adjust the doors closed position left to right using the same cam slots from step 1. Fine adjustments can also be made by moving the striker; to do so simply loosen the (2) torx bolts of the striker with a T-45 Torx Bit.

Step 3: Recheck door clearance in the open position, and if there is satisfactory clearance you can now tighten the hardware for the upper clevis mount and door striker. If not, repeat steps 1-3.

17:) With the doors properly aligned install the gas assist spring. We have found it easiest to have a helper, or use a bungee cord, to hold the door in its open position, and install the top of the assist spring (the end with an eyelet opening) into the door first. To do so you will use (1) 5/16-18x1.75" SS Socket Head Allen Bolt, (1) 5/16-18 SS Flanged Nylock Nut, (2) 3/8" unthreaded spacers (1 on each side of assist spring eyelet) 1/4" Allen Key, 1/2" open ended wrench. Once installed it should look like the picture below:



18:) With the lower mounting bracket loosely installed, the gas spring mounted to the door and the door open, compress the rod of the gas spring enough so that you can mount it to the lower mounting bracket. Install 5/16-18 SS Nylock Nut and tighten. **DO NOT SLAM THE DOOR CLOSED.** Slowly open and close the door to make sure the gas spring is aligned with the slot in the door when fully opened, and the latch is aligned with the door striker. Since you likely had to adjust the plane that the door swings to clear the roof in step 16, the lower spring mounting bracket also has a cam slot to allow the plane of the spring to be in-line with the door.

19:) Once you are satisfied with the alignment of the door and all moving parts ensure that all hardware is tight.

20.) Repeat steps 14 through 19 for the remaining doors

Re-connect the battery power to the vehicle. Congratulations you have completed installation of you Full Metal Fabworks ZSR Trail Doors

