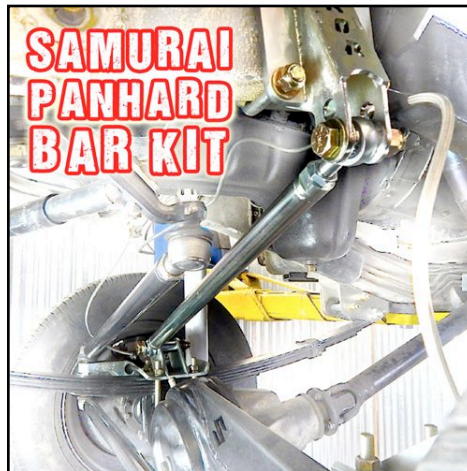




86-95 Suzuki Samurai Panhard Bar by Low Range Off-Road (SKU# SST-PHK-LR)

Installation Instructions



CAUTION: Safety glasses should be worn at all times when working with vehicles and related tools and equipment.



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Suggested Tools:

- Twin Post Lift (or floor Jack and (4) Jack Stands)
- Under Hoist Jack Stand
- Combination Wrenches: 24 & 17mm & 15/16"
- Tubing Wrench: 10mm
- Deep Impact Socket: 19mm
- 1/2" Drive Impact Wrench
- Sockets: 15/16"
- Ratchet
- Angle Grinder
- 12" Channel Lock Pliers
- Die Grinder W/Cut-Off Wheel
- Large Standard Screwdriver
- Pry Bar
- Measuring Tape
- Electric Hand Drill (Optional)
- 11/16" Drill Bit (Optional)



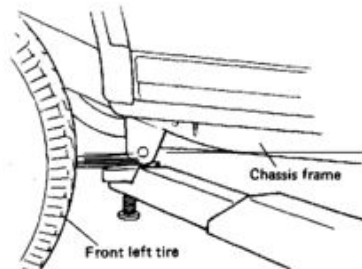
Lifting and Supporting the Vehicle



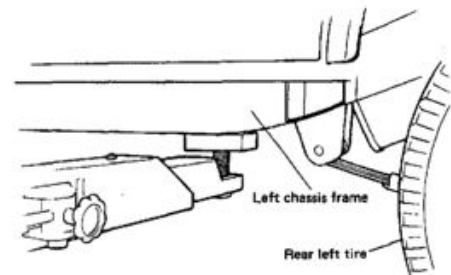
Lifting Option 1

Lift and support the vehicle on a twin post lift.

CAUTION: Always follow the safety guidelines associated with the lift you are using.



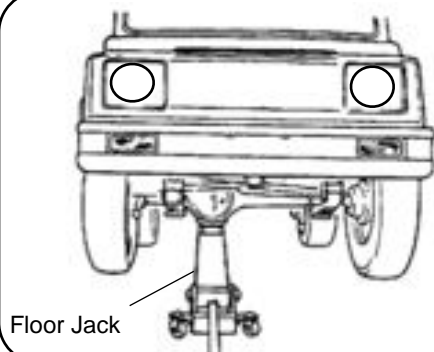
Front Support Location



Rear Support Location

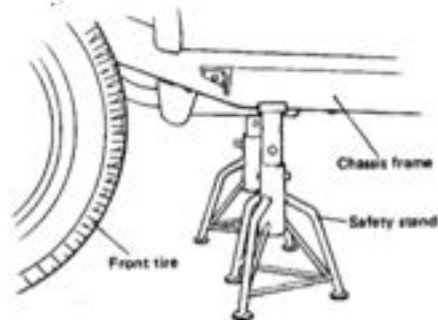
Lifting Option 2

We used a twin post lift for these instructions, but this job could also be done with a floor jack and (4) safety stands.

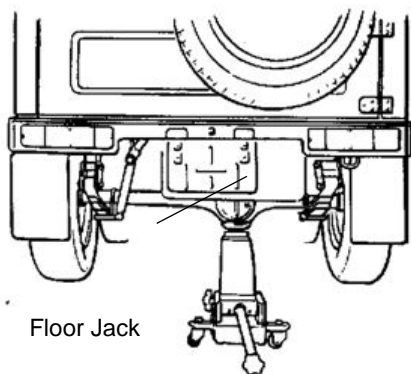


Floor Jack

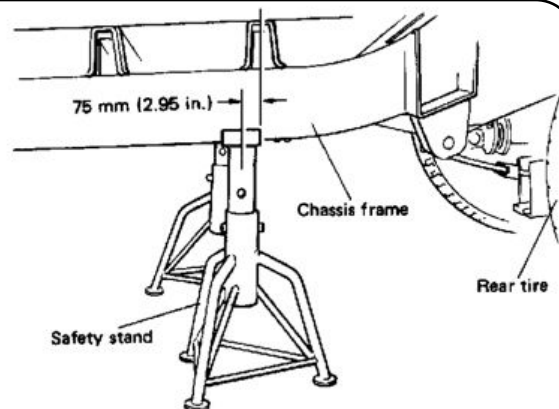
Front

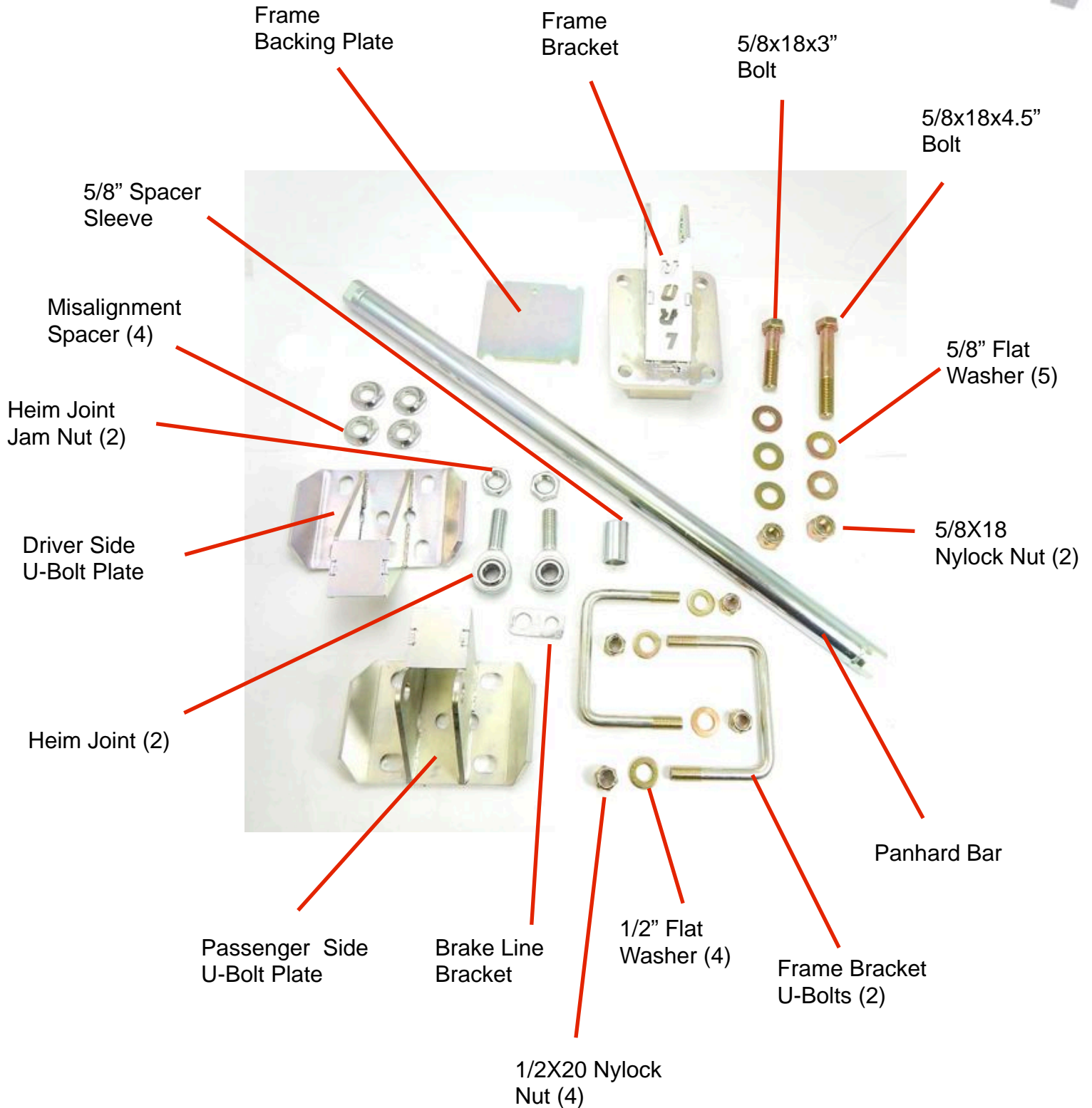


Rear



Floor Jack





Installing the Passenger Side U-Bolt Plate



Step 1

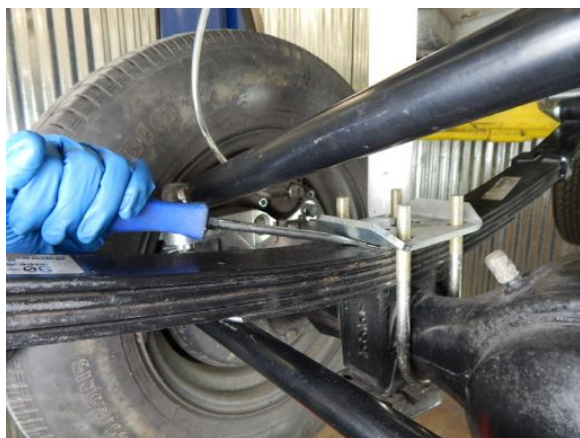
After lifting and supporting the vehicle by the frame as shown above, place a high lift safety stand under the passenger side axle and lift slightly.

Note: Be sure to support the axle in a way that the U-Bolts can be removed.



Step 2

Remove the U-bolt nuts and lock washers using a 19mm deep impact socket and impact wrench.



Step 3

Loosen the U-Bolt plate using a large standard screwdriver.



Step 4

Remove both U-Bolts.





Step 5

Remove the U-Bolt plate.

Note: This U-Bolt plate will NOT be used with this installation.



Step 6

Install the supplied passenger side U-Bolt plate.

Note: Be sure the bump stop is oriented toward the passenger side tire.



Tech Tip 6

Some leaf spring center bolts and nuts are larger than others. If the center bolt nut will not fit the center hole in the U-Bolt plate, it will be necessary to drill out the hole to the appropriate size. We were using Toyota springs on our Samurai so we needed to drill out the center hole using an 11/16" drill bit.



Step 7

Reinstall the U-Bolts.

Note: Our U-Bolts had just recently been replaced so we inspected them and reused them. If yours are the original Samurai U-Bolts we strongly recommend replacing them. If they are not the original U-Bolts we recommend inspecting them closely and replace if needed.



Step 8

Reinstall the (4) lock washers and (4) nut.



Step 9

SNUG the nuts using an impact wrench.



Step 10

Torque the U-Bolt nuts in an increasingly tighter criss-cross pattern until 58 ft lbs is reached. 58 ft. lbs is the spec for a Suzuki Samurai.

Note: Torque specs may vary according to the type and size U-Bolts being using.

Installing the Driver Side U-Bolt Plate



Step 11

Repeat Steps 1 through 10 on the driver side U-Bolt plate.

Tech Tip 11

Be sure the bump stop is oriented toward the driver side tire.

Disconnecting the Brake Line

The driver side brake line bracket will need to be removed. It will be replaced by a custom built bracket that is supplied with the kit.



Step 12

Place a drain pan under the driver side flexible brake line.



Step 13

Disconnect the brake line using a 10 mm tubing wrench.



Step 14

Remove the brake line retainer clip using a standard screwdriver.

Note: We disconnected the shock absorber for greater accessibility. It is not necessary to do this.



Step 15

Remove the flexible brake line from the bracket and lay it aside.



Step 16

Cut the front part of the existing brake line bracket using a cut-off wheel. This could also be done with a sawzall or even a hacksaw if that is all that is available.

Caution: Cut only the bracket. **DO NOT** cut into the frame. Cutting the frame (even a little) could weaken the frame leading to premature frame failure.



Step 17

Bend the bracket open using channel lock pliers.



Step 18

Cut the rear part of the existing brake line bracket.



Tech Tip 18

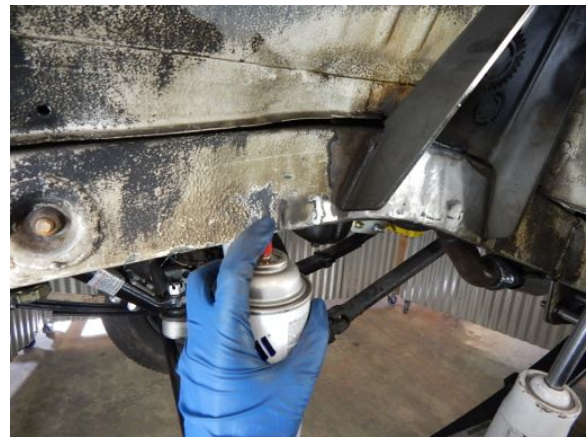
This shows the bracket after being cut off.



Step 19

Grind any remaining brake line bracket using an angle grinder.

Caution: DO NOT grind away any of the frame.



Step 20

Paint any exposed metal with a rust inhibitive paint using a color of your choice.

Installing the Frame Bracket



Step 21

Temporarily position the supplied frame bracket at about 5-3/4" from the steering gear bolt. Mark the position of the two upper U-bolt holes using a permanent marker. Remove the bracket.



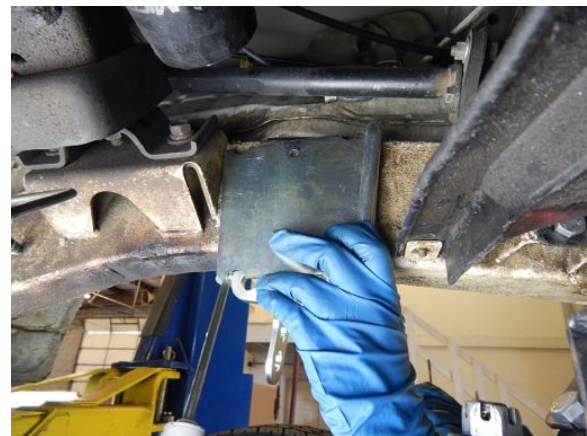
Step 22

Provide an opening for the U-bolts by bending the inner fender as shown. A large pry bar works well for this.



Step 23

Reposition the frame bracket again.



Step 24

Position the supplied frame backing plate and one of the U-Bolts on the opposite side of the frame.



Step 25

Install (2) flat washers and (2) Nylock nuts. Leave them loose for now.



Step 26

Install the second U-Bolt.



Step 27

Install the top flat washer and nylock nut.



Step 28

Install the supplied brake line bracket, flat washer and nylock nut on the bottom. Leave all the nuts loose for now.

Installing the Pan Hard Bar



Step 29

Install the two supplied jam nuts on to the two supplied heim joints. One joint has right hand threads and the other has left hand threads.



Step 30

Install the (2) heim joints in the pan hard bar. Thread them in an equal number of threads on each end.

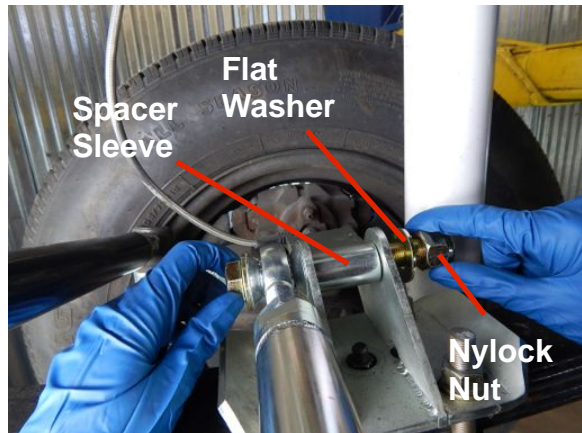
Note: The mark shown here indicates that this end of the bar has left Left hand threads.



Step 31

Install the 5/8X18X4.5" bolt with the accompanying hardware as shown.

Note: It does not matter which end of the pan hard bar installs first.



Step 32

Install the pan hard bar and hardware as shown here.

Note: Be sure to install the 5/8" spacer sleeve.



Tech Tip 32

A closer view of the hardware.

Note: The nut should be oriented rearward.



Step 33

Hold the bolt using a 15/16" box end wrench and tighten the nut using a 15/16" Socket. Then torque this nut to 150 ft. lbs.



Step 34

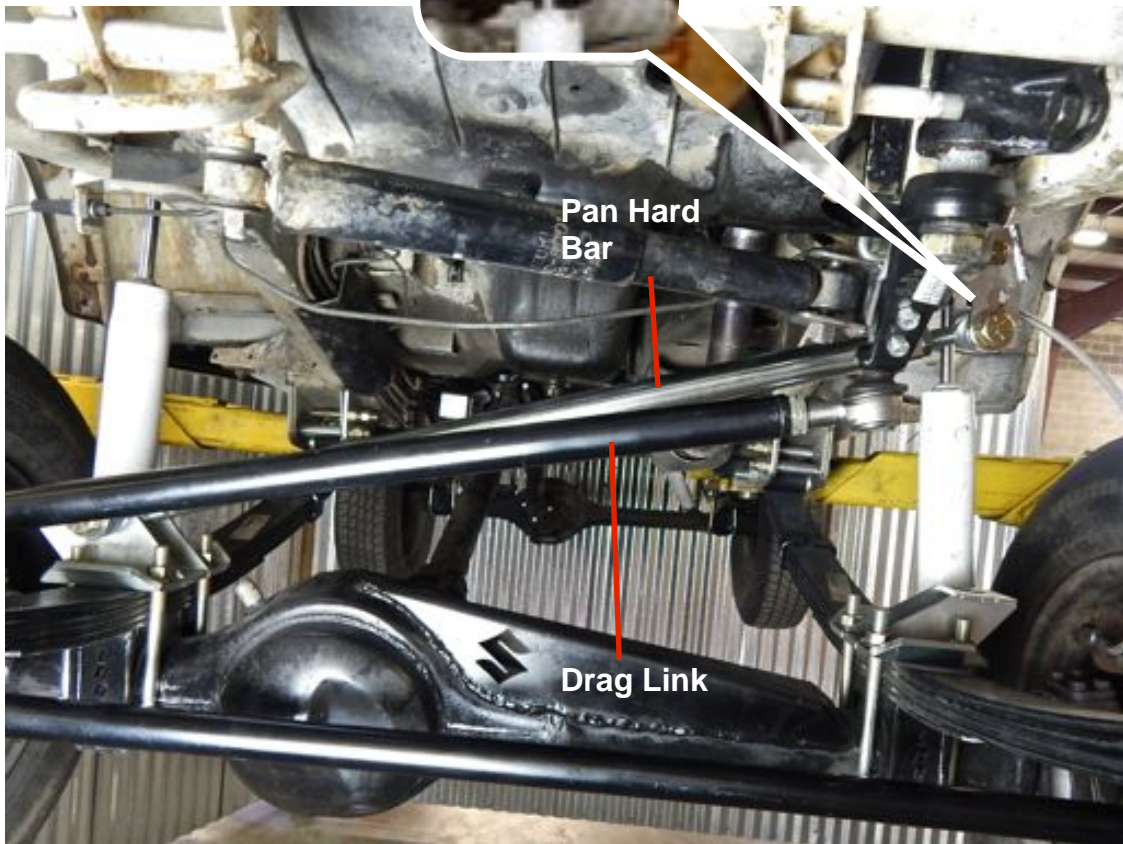
Lower the vehicle to the floor so that the full weight of the vehicle is supported by the tires.



Step 35

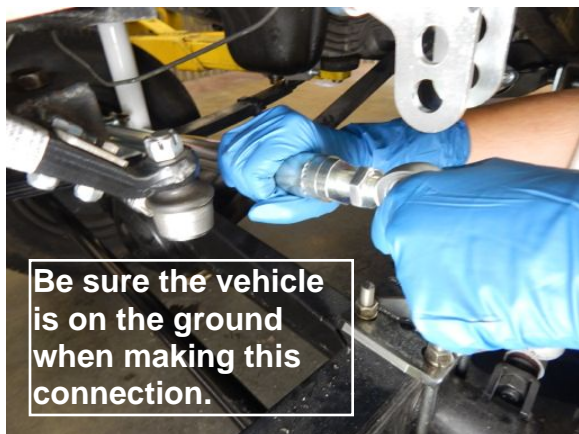
Position the other end of the pan hard bar with the heim joint positioned as shown.

Note: It is your choice as to whether to use the top hole or bottom hole in the bracket. This choice is determined by the hole that allows the angle of the pan hard bar to be at the same (or as close as possible) to the angle of the drag link. See Next Tech Tip.



Tech Tip 36

The Pan Hard Bar should be as close as possible to the same angle as the drag link.



Step 37

If the heim joint does not align with the selected hole in the frame bracket, hold the heim joint with one hand and rotate the pan hard bar with the other hand. This will lengthen or shorten the bar according to need.

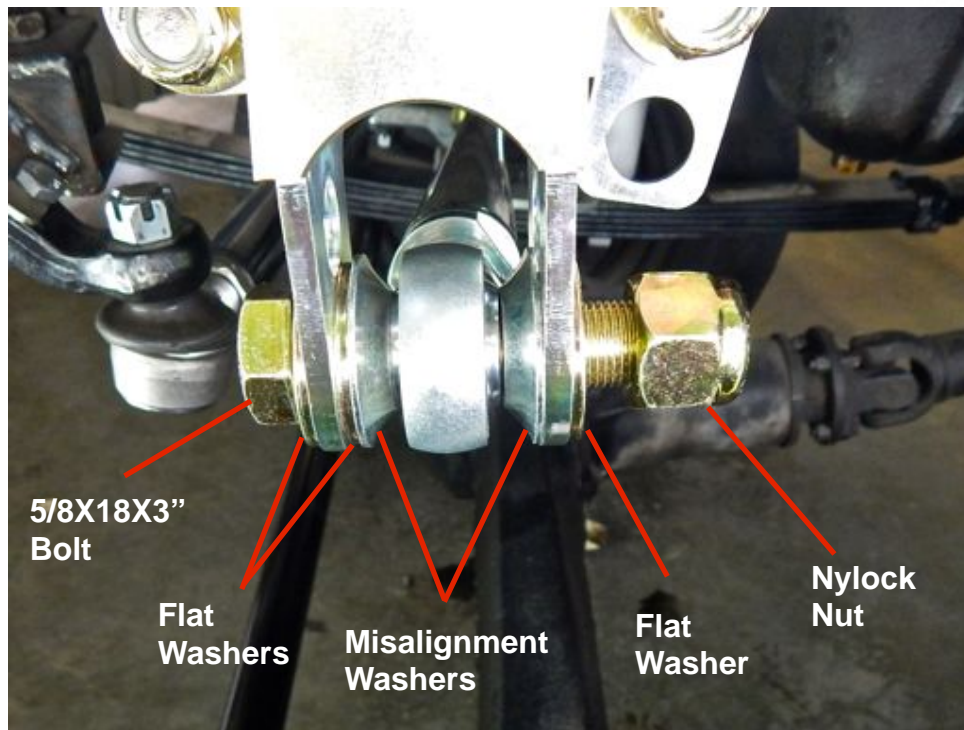
Caution: If you lengthen the pan hard bar too much the heim joints will not have enough thread contact and the heim joint may pull out of the pan hard bar. There should be at least 5 full threads of contact between the heim joint and the pan hard bar.



Step 38

Once the holes align, install the hardware as shown here. (See next Tech Tip for greater detail.)





Tech Tip 38

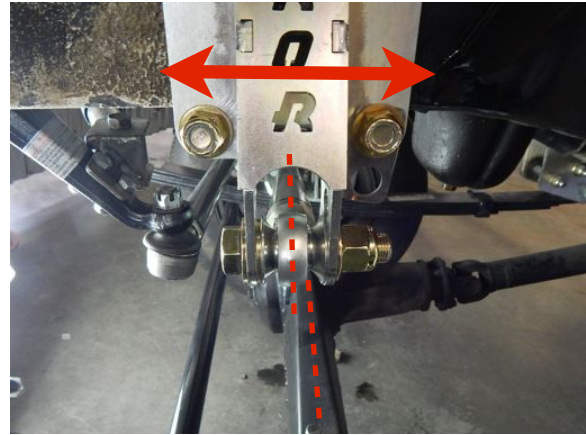
This shows the hardware placement.



Step 39

Tighten, then torque the nylock nut to 150 ft. lbs.

Positioning the Frame Bracket



Tech Tip: 39

Position the frame bracket such that the pan hard bar is as parallel as possible with the front axle housing.

Step 40

Slide the frame bracket front or rear as needed.



Tech Tip 40

This is a look at the pan hard bar and front axle housing from the passenger side.



Step 41

Once the frame bracket is positioned correctly, tighten and then torque the U-Bolt nuts to 75 ft lbs.

Note: Be sure the brake bracket is in the vertical position.



Step 42

Install the brake hose in the bracket as shown and install the clip.



Step 43

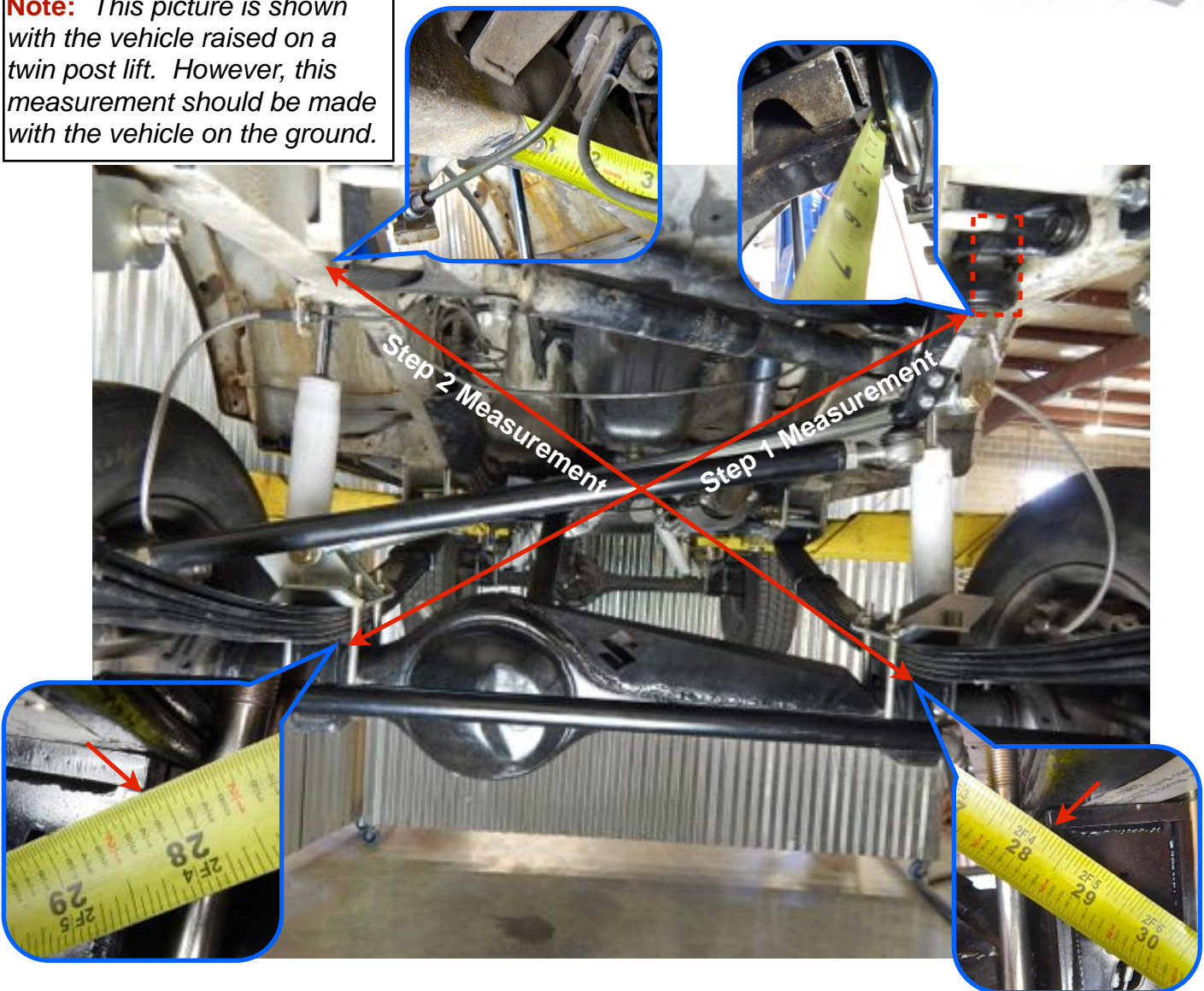
Install and tighten the solid brake line.

Note: It will be necessary to hold the flexible brake line with a 19 mm open end wrench.

Adjusting the Pan Hard Bar



Note: This picture is shown with the vehicle raised on a twin post lift. However, this measurement should be made with the vehicle on the ground.



Step 44

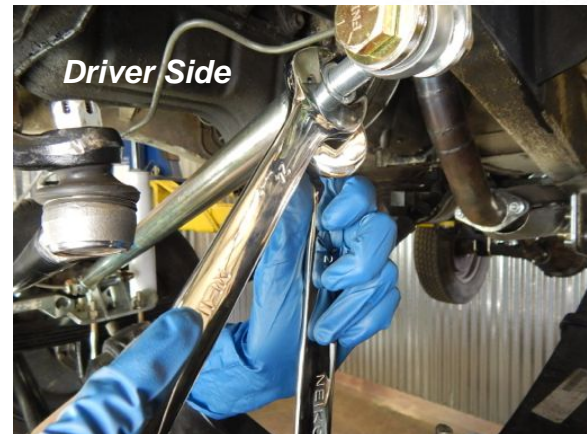
If raised, lower the vehicle to the floor. The measurements shown here should be equal.

Step 1: Measure from the top inside edge of the passenger side spring perch to the frame.

Step 2: Measure from the top inside edge of the driver side perch to the frame.

Step 3: Compare the measurements. If the Step 1 measurement is greater than the Step 2 measurement, **DECREASE** the length of the pan hard bar. If the Step 1 measurement is less than the Step 2 measurement, **INCREASE** the length of the pan hard bar.





Tech Tip 44

Adjust the pan hard bar by loosening both jam nuts (using 24mm and 27mm open end wrenches) and turning the center rod. Turning the rod one direction increases the length of the pan hard bar and turning it the other direction decreases the length. Tighten the jam nuts when the correct length has been achieved.



Step 45

Danger: Anytime the hydraulic brake system has been opened, there is a very high probability that air has entered the hydraulic system. Any air in the system, even the smallest amount, will cause the brakes to operate poorly and possibly not at all. Therefore, it is **EXTREMELY IMPORTANT** to bleed the brake system before moving this vehicle. Our complete and easy to follow Brake Bleeding Instructions can be found by clicking [HERE](#).



Congratulations!

You have successfully installed the a Pan Hard Bar on a Samurai. We hope these instructions have been helpful. If you have suggestions on how to made these instructions (or products) better, please email us at: sales@lowrangeoffroad.com



As always, If you experience any difficulty during the installation of this product please contact Low Range Off-Road Technical Support at 801-805-6644 M-F during regular store hours. Thank you for purchasing from Low Range Off-Road.



These instructions are designed as a general installation guide. Installation of many Low Range Off-Road products require specialized skills such as metal fabrication, welding and mechanical trouble shooting. If you have any questions or are unsure about how to proceed, please contact our shop at 801-805-6644 or seek help from a competent fabricator. Using fabrication tools such as welders, torches and grinders can cause serious bodily harm and death. Please operate equipment carefully and observe proper safety procedures.

Rock crawling and off-road driving are inherently dangerous activities. Some modifications will adversely affect the on-road handling characteristics of your vehicle. All products sold by Low Range Off-Road are sold for off road use only. Any other use or application is the responsibility of the purchaser and/or user. Some modifications and installation of certain aftermarket parts may under certain circumstances void your original dealer warranty. Modification of your vehicle may create dangerous conditions, which could cause roll-overs resulting in serious bodily injury or death. Buyers and users of these products hereby expressly assume all risks associated with any such modifications and use.

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