86-95 Suzuki Samurai Front Disc Brake Inspection and Service

(SKU# SB-BP)

Instructions also Includes: **SKU# SB-Rotor** **Front Brake Rotors**
SKU# SB-CGP **HD Front Brake Caliper Guide Pin Bolts**

Installation Instructions

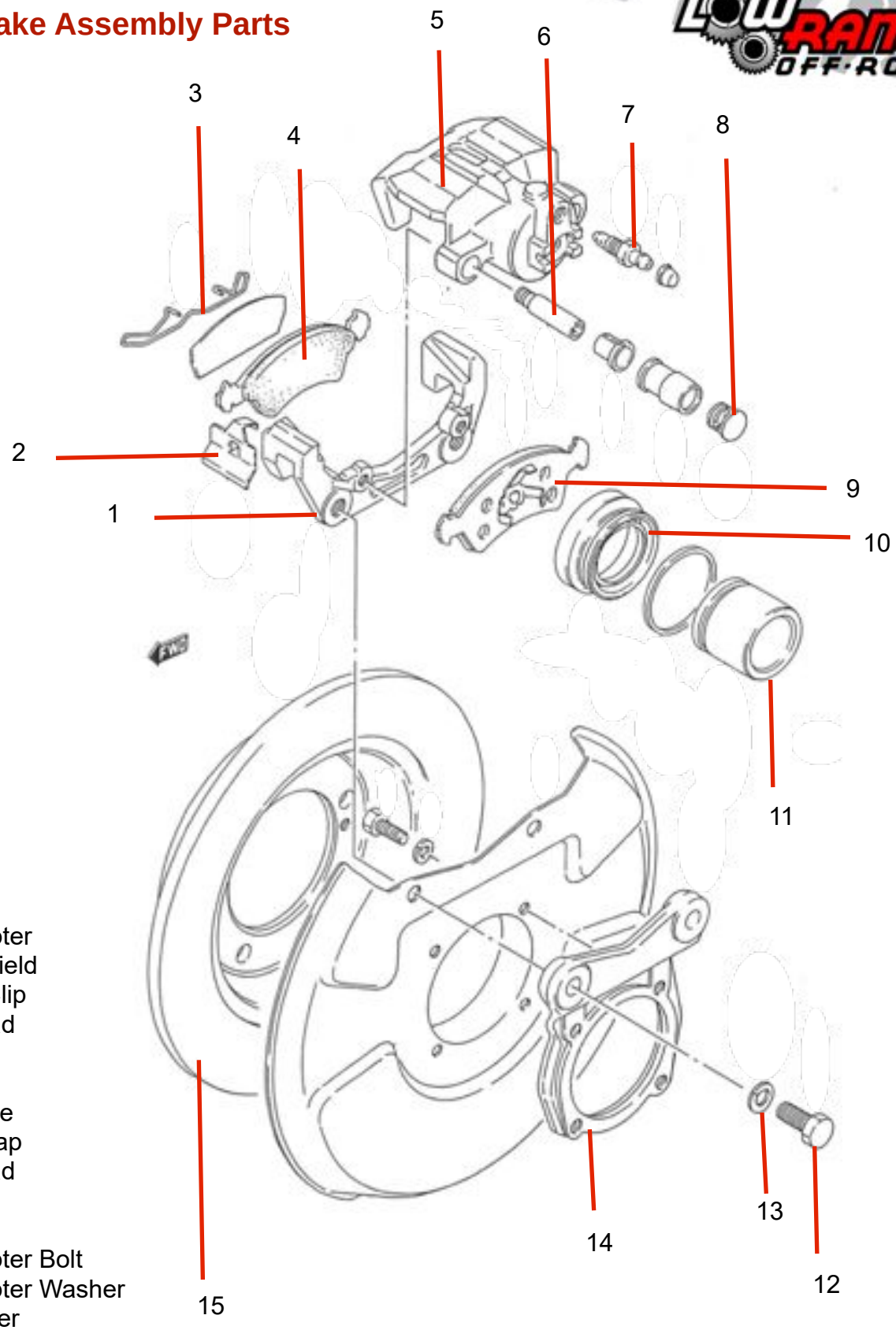
CAUTION: Safety glasses should be worn at all times when working with vehicles and related tools and equipment.

FOR ADDITIONAL COPIES OF THESE AND OTHER INSTRUCTIONS GO TO:
www.lowrangeoffroad.com and click on the **"TECH AND INSTRUCTIONS"** tab.

Suggested Tools:

- Tire Tool: 19 mm
- !/2" Impact wrench (Optional)
- Impact Sockets:17 & 19 mm (Optional)
- Standard Sockets: 10,14,17 & 19mm
- Ratchet
- 2-8X1.25X25mm bolts (If removing the disc)
- Allen Socket: 1/4" (on some models)
- Combination Wrenches: 10,14, & 17mm
- Standard Screwdriver - Large
- C-Clamp: 10" or larger
- Ball Peen Hammer
- Brake Parts Lubricant (Supplied with Pads)

Disc Brake Assembly Parts



1. Caliper Adapter
2. Protector Shield
3. Anti-Rattle Clip
4. Outboard Pad
5. Caliper
6. Guide Pin
7. Bleeder Valve
8. Guide Pin Cap
9. Outboard Pad
10. Boot
11. Piston
12. Caliper Adapter Bolt
13. Caliper Adapter Washer
14. Caliper Holder
15. Disc

Tech Tip

When working on suspension, brakes or drive train parts it is a good idea to spray all fasteners with penetrating oil a day ahead. If not done a day ahead, an hour or even minutes before is helpful.

Step 2

Leave the lid positioned loosely on top of the master cylinder.

Step 1

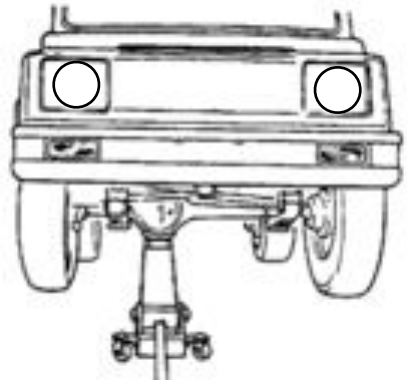
Remove the master cylinder cover.

Note: This will make pushing the caliper piston into the caliper bore easier.

Step 3

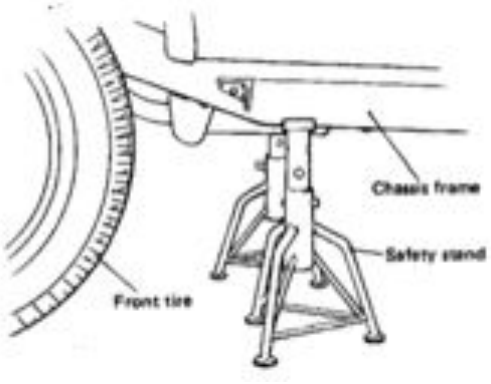
Lift and support the vehicle on a twin post lift.

Note: We used a twin post lift, but this job could easily be done with a floor jack and safety stands.



Tech Tip

Proper positioning of floor jack.



Tech Tip

Proper positioning of safety stands.

We begin our instructions on the passenger side front wheel.

Step 4

Remove the (5) lug nuts using a 19 mm socket or lug wrench.

Step 5

Remove the wheel assembly and set it aside.

Step 6

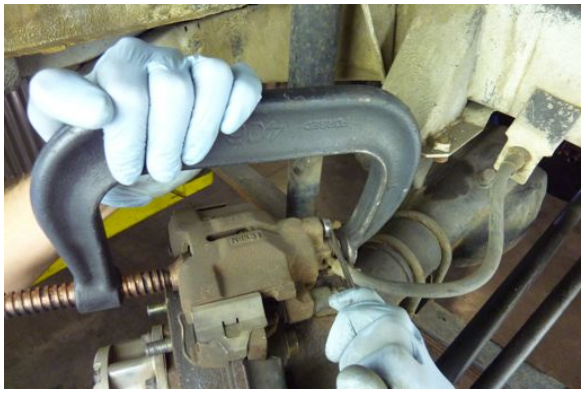
Rotate the brake assembly by hand (or by turning the steering wheel) all the way as if making a right hand turn.

Note: This will give you easier access to the back side of the brakes.

Step 7

Position a C-Clamp on the outboard bake pad and the brake line banjo bolt as shown.

Note: Do not apply any force yet.



Step 8

Open the bleeder screw using a 10 mm box end wrench.

Step 9

Tighten the C-Clamp (Turn handle clockwise), which forces the piston into the caliper bore. Brake fluid will escape from the bleeder screw. When the C-Clamp gets hard to turn, stop turning . . . .

Step 10

. . . . and close the bleeder screw.

Step 11

Remove the C-Clamp and set it aside

Step 12

LOOSEN the front caliper guide pin with a 10 mm socket (or allen socket on some models).

Step 13

Remove the rear caliper guide pin using a 10 mm socket.

Step 14

Remove the front caliper guide pin using a 10 mm open end wrench.

Note: There was not enough room to remove this pin with a socket because of the positioning of the brake line. Of course, use a socket if possible.

Step 15

Remove the rear end of the anti-rattle clip by prying with a standard screwdriver.

Step 16

Remove the anti-clip.

Step 17

Remove the rear protector shield using a standard screwdriver.

Step 18

Remove the front protector shield.

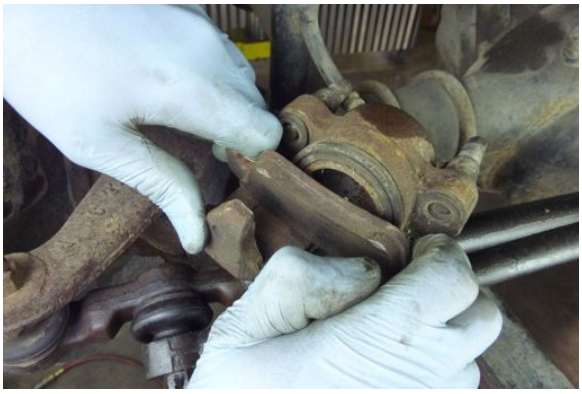
Step 19

Lift the caliper off. The inboard pad will come off with the caliper. The outboard pad will stay in place on the caliper adapter.

Caution: Do not suspend the caliper by the brake hose. Either hang it up using a wire or rest it on the leaf spring.

Step 20

Inspect the flexible brake hose. If there are signs of cracking, chaffing or leakage, replace the hose. Click HERE to see what is available through Low Range Off-Road.

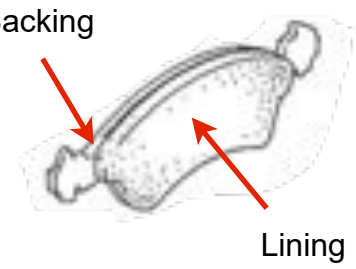


Step 21

Remove the inboard pad from the caliper.

Step 22

Remove the outboard pad from the caliper adapter.

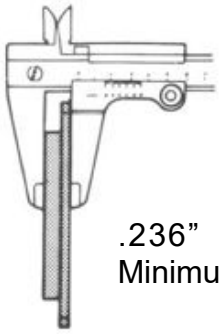


Step 23

Inspect the pad linings for cracking, breakage, or separation from the backing. Replace the pads if any of these conditions exist.

Step 23 Continued

Measure both pads using a dial indicator or equivalent. If either pad measures less than .236” (or 6 mm), all 4 front brake pads (pads sold in sets of 4) should be replaced.



.236” (or 6 mm) Minimum Thickness

Step 23 Continued

This is an illustration of how brake pads should be measured.

Other Measuring Options:

1. The lining should be at least as thick as the backing.
2. The lining should be at least 2/32” (1.6mm) thick.

Step 24

Measure the disc thickness using a 0-1” micrometer. If disc measures less than .334” (8.5 mm) the disc should be replaced.

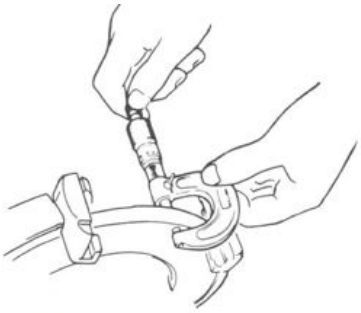


Fig. 19-31

	Standard	Limit
Disc thickness	10 mm (0.394 in.)	8.5 mm (0.334 in.)

Step 24 Continued

This is an illustration showing proper measurement and specifications of the brake disc.

Step 25

Inspect the disc for grooves, scoring, and hot spots. If any of these conditions exist the disc will need to be machined or replaced. If the rotor is reusable, skip to **Step 37.** If not continue to the next step

Note: Machining should be performed by a competent professional. Discs should never be machined below the minimum thickness specification determined by the vehicle manufacturer.

Step 26

Remove the (2) caliper adapter bolts using a 17 mm socket.

Step 27

Remove the caliper adapter.

Step 28

Spray wheel stud and hub area of the disc with penetrating oil.

Note: This helps in removing the disc.

Step 29

Install (2) 8X1.25X25mm bolts opposite each other in the disc as shown.

Step 30

While holding the hub assembly with a large standard screwdriver, snug the blots with a 12 mm box end wrench. If the disc comes off, skip the next step (**Step 31**).

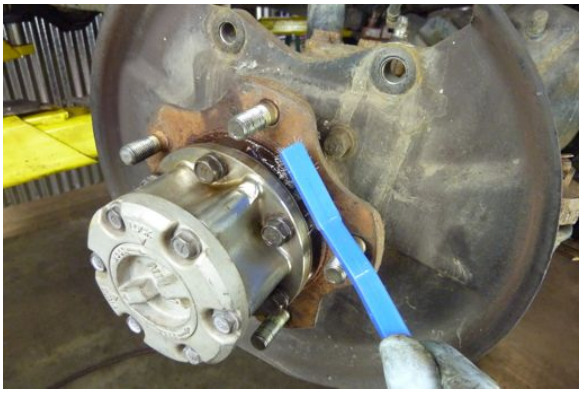
Caution: Do not damage the wheel stud thread with the screwdriver.

Step 31

If the disc is being stubborn, strike the disc sharply with a ball peen hammer as shown. If the disc still does not come off, alternately tighten the bolts and strike the disc until it does.

Step 32

Remove the disc.



Step 33

Clean any rust from the hub and disc mating surfaces, using a wire brush.

Note: Whether installing a new disc, or a machined disc, the next steps are the same.

Step 34

Clean the disc with “Brake Cleaner” . . . .

Step 35

. . . . and a cloth.

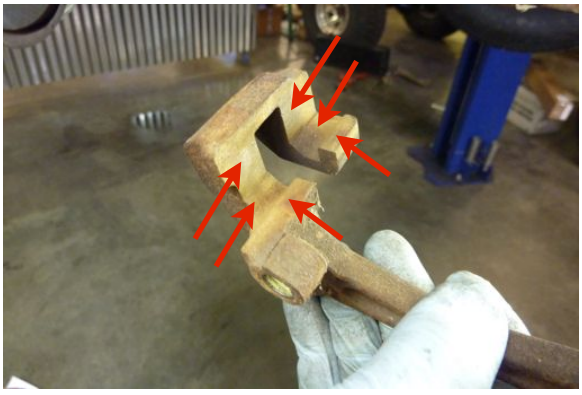
Step 36

Align the disc on the wheel studs and install it.

Step 37

Clean any rust or debris from the the caliper adapter.

Note: If you have not removed the disc, the caliper adapter will still be in place. It can be cleaned without removal if you you wish.



Step 37 Continued

Be sure to clean the surfaces indicated by the arrows.

Step 38

Install the caliper adapter and hand tighten the bolts.

Step 39

Torque the (2) caliper adapter bolts 51 to 72 ft. lbs.

Step 40

Inspect the caliper. If the boot is torn, or there is any sign of fluid leakage around it, the caliper should be replaced. Click HERE to see what is available through Low Range Off-Road.

Step 41

Using a wire brush, clean any rust and debris from the caliper; particularly in the area where the pads will be contacting the caliper.

Step 42

Remove and inspect the guide pins. If the guide pins are rusted, pitted or worn, we recommend replacing them. Click HERE to see what is available through Low Range.

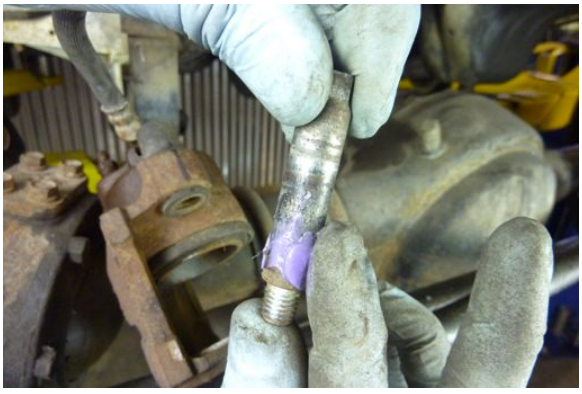
Step 43

Clean the guide pins using a wire brush.

Note: If you are installing new LROR guide pins the procedure is the same as reusing the old ones. The only difference being, the new guide pins require a 1/4” allen socket rather than a 10mm hex socket.

Step 44

Apply the supplied Ceramic Extreme Brake Lubricant to the (2) caliper pins.



Step 45

Coat the entire caliper pin except for the hex head and the threads.

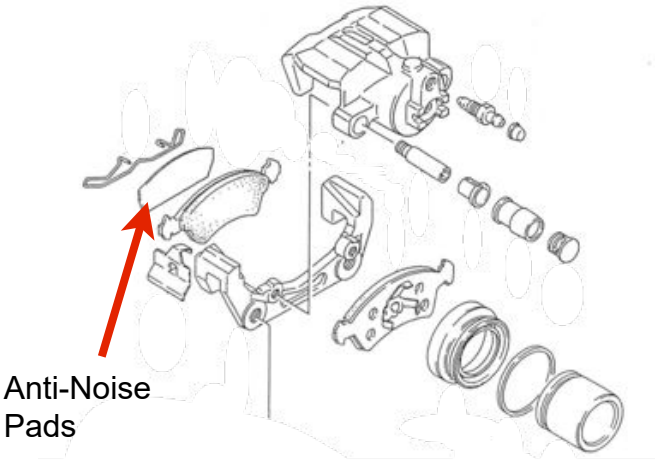
Step 46

Reinstall the (2) caliper pins.

Step 47

Apply Brake Lubricant to the back of the inboard pad in any area that will contact the caliper, caliper piston or caliper adapter.

Note: Do not lubricate the frictional surface of the pad. This is the part of the pad that rides against the disc.



Tech Tip

Some new brake pads come supplied with anti-noise pads and are to be installed on the back side of one or both pads.

Step 48

Install the inboard pad in the caliper as shown.

Step 49

Apply brake lubricant to the outboard pad in the areas indicated by arrows.

Note: This pad came with the anti-noise pad attached to the new pad.

Step 50

Install the outboard pad in the caliper as shown.

Step 51

Invert the caliper and while supporting the outboard pad in place, slide the caliper and pads over the disc.

Step 52

While lifting slightly on the caliper to align the caliper pins, start the (2) caliper pins using a 10 mm socket and ratchet. Once both pins are started, snug them both.

Step 53

Torque the (2) caliper pins 18.5 to 21.5 ft. lbs.

Step 54

Install the anti-rattle clip in the holes of the caliper as shown.

Step 55

Install the front and rear protector shields.

Note: If protector shields are damaged or missing new ones can be purchased through **LOW RANGE OFF-ROAD**. Click HERE for more informations.

Step 55 Continued

Protector shield properly installed.

Step 56

Replace the wheel assembly and lug nuts. Torque the lug nuts 36.5 to 57.5 ft. lbs.

Step 58

Replace the lid on the master cylinder.

Step 57

Repeat of the above procedures on the driver side front wheel and disc brakes.

Step 59 CAUTION!

Because the caliper piston was pushed back into the caliper with the C-Clamp, you will need to pump the brake pedal 3 or 4 times to insure you have the correct brake pedal feel. Correct brake pedal feel is defined by, the pedal moving downward and getting hard to push about 1/2 way to the floor. If the brake pedal goes to, or near the floor, do not drive the vehicle and seek professional help. Failure to perform this step could result in brake failure resulting serious injury or accident.

Step 60

Recheck the fluid in the master cylinder. Fluid level should be between the MAX and MIN lines. If it is not adjust it to proper level with DOT 3 brake fluid.

Note: Don't forget to snap the lid back in place.

Congratulations!

You have completed your disc brake service. We hope these instructions were helpful. Thanks for choosing Low Range Off-Road.

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 8am-5pm MST. Thank you for purchasing from Low Range Off-Road.

WARNING

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.