Suzuki Samurai Rear Disk Brake Kits by Low Range Off Road (SKU# SB-LRD)
Also included in the instructions are:

SB-LRDB Suzuki Samurai Disk Brake Bracket Kit by Low Range Off Road
SB-LRDB-FK-1 Suzuki Samurai Complete Rear Disk Brake Kit, 1986-1988
SB-LRDB-FK-2 Suzuki Samurai Complete Rear Disk Brake Kit, 1988.5-1995

Installation Instructions

NOTICE: We recommend reading these instructions completely through before beginning the job. This will help insure you have all the tools, supplies, and part needed to complete the job.

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 and click on the "INSTRUCTIONS" tab.

Suggested Tools:

- Twin Post Lift (or Floor Jack and (2) Safety Stands)
- Combination Wrenches: 10,14,17 & 19 mm
- Tubing Wrenches: 10 mm
- Sockets: 14,17 & 19 mm
- Impact Wrench: 1/2" Drive (or Lug Wrench)
- Impact Socket: 17 & 19 mm
- 12" Adjustable End (Crescent) Wrench
- Ball Peen Hammer
- Pipe: 1-1/2" ID (42 inches long)
- Die Grinder W/cut-off wheel
- Cold Chisel
- Seal Puller
- Standard Screwdriver
- Brake Fluid
- Bearing Grease
- Gear Oil

Important Information

1. If you have the basic kit (SKU# SB-LRDB) you will need to secure the following items:

   - 2 ea. Samurai front brake rotors, calipers, pads and flexible brake lines.
   - We recommend a proportioning valve.
   - 2 ea. Samurai rear wheel bearings, collars and seals. (You may be able to reuse the old ones, but these items usually get destroyed during this "Install")

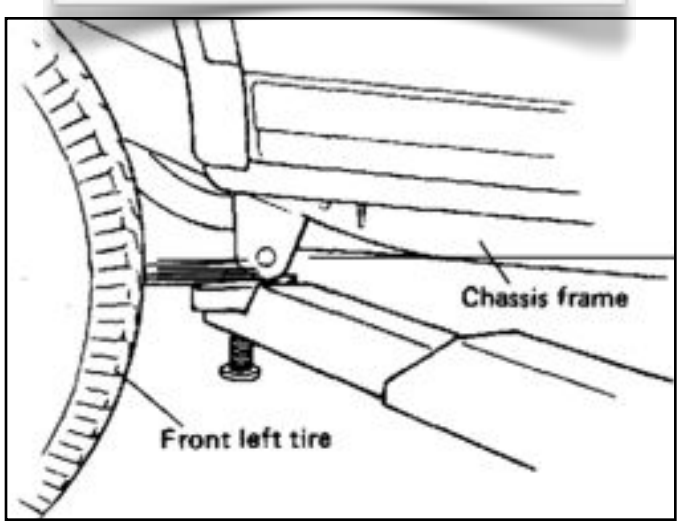
2. The OEM (original equipment manufacturer) park brake system will NOT work once this rear disc brake kit has been installed. You could install a electric brake line-lock, or a transfer case E-brake instead.

Click HERE for information on an Brake Line-Lock System.

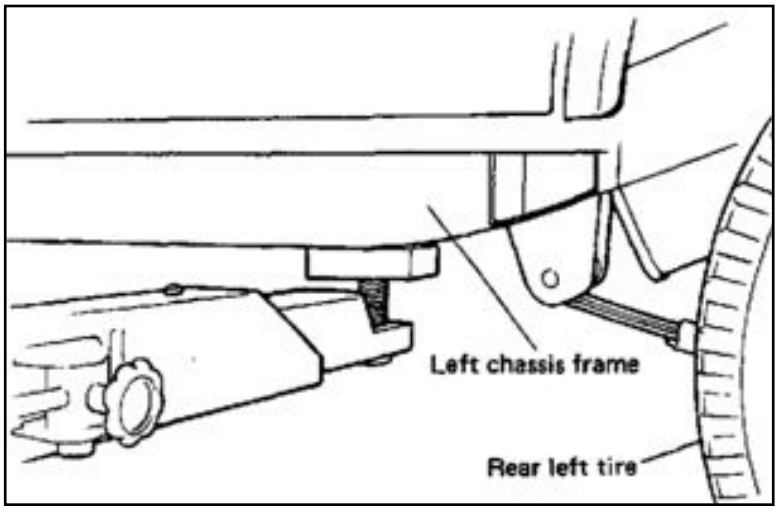
Lifting and Supporting the Vehicle

Lifting Option 1

Lift and support the vehicle on a twin post, frame contact, lift.



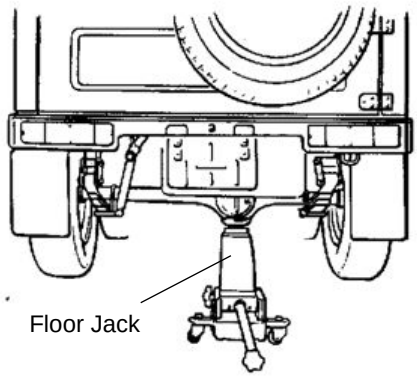
Front Positioning



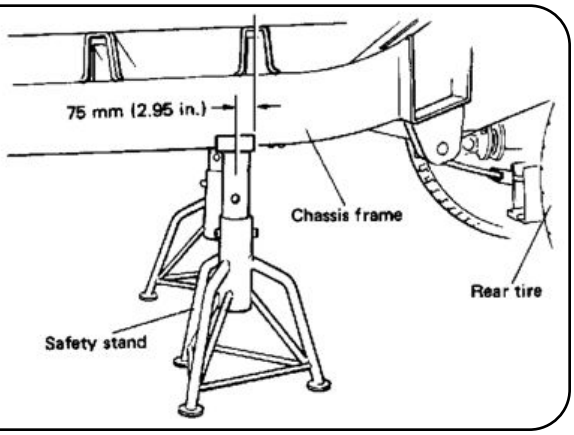
Rear Positioning

Lifting Option 2

Lift the rear of the vehicle with a floor jack and support it on (2) safety stand.



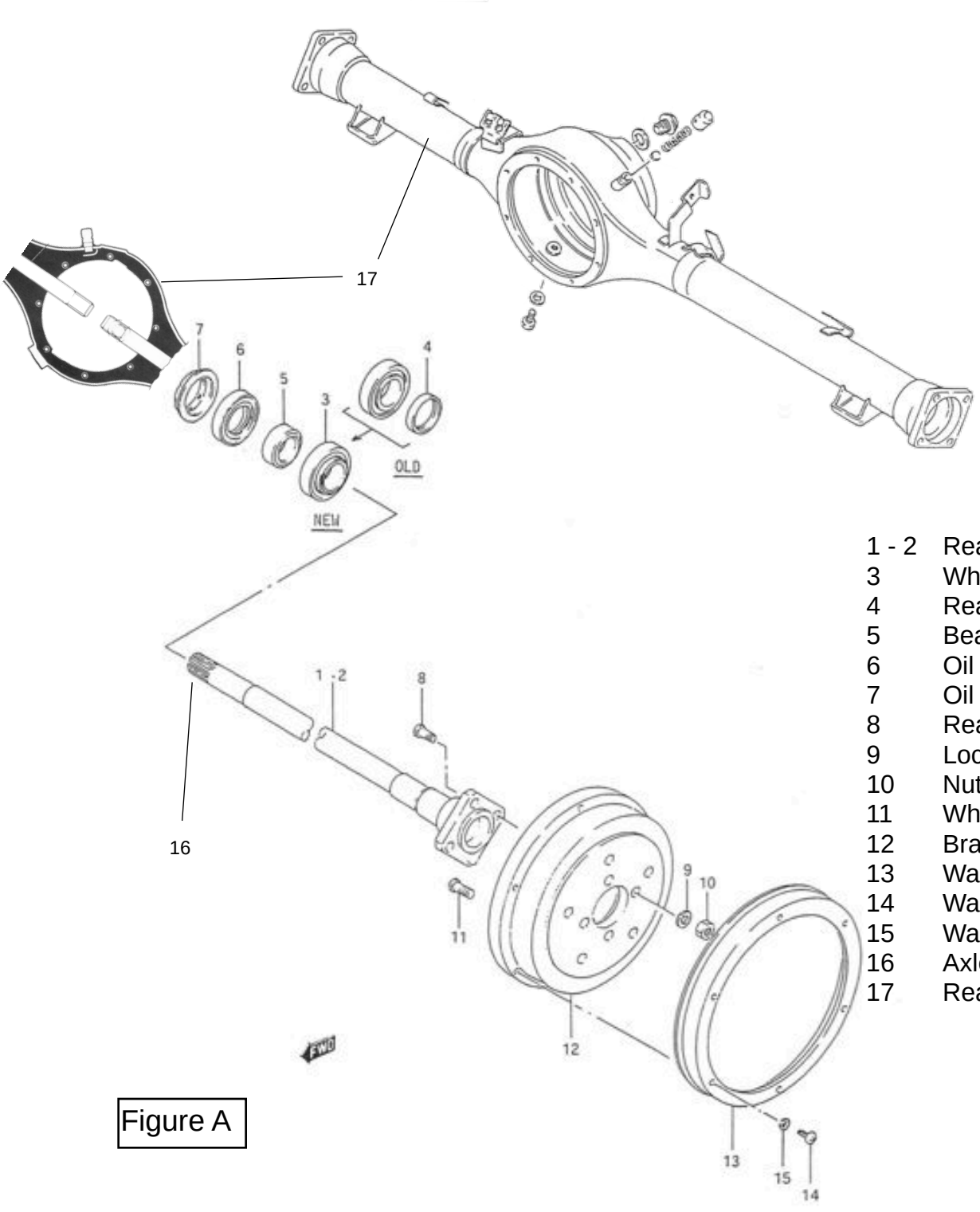
Rear



Tech Tip

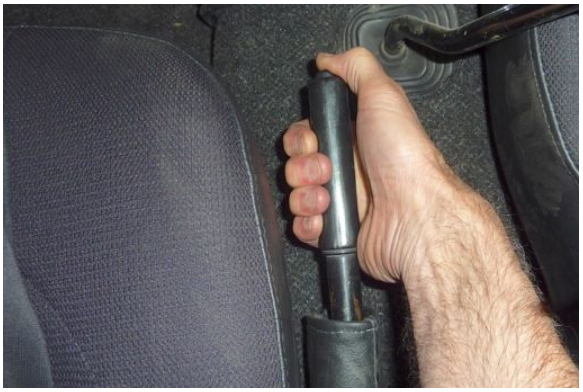
When working on suspension, brake or drive train parts it is a good idea to spray all fasteners with penetrating oil a day ahead. If not done a day ahead, an hour or even minutes before is helpful.

Rear Axle Assembly Parts Identification



1 - 2	Rear Axle Shaft
3	Wheel Bearing
4	Rear Shaft Spacer
5	Bearing Collar
6	Oil Seal
7	Oil Seal Protector
8	Rear Hub Bolt
9	Lock Washer
10	Nut
11	Wheel Stud
12	Brake Drum
13	Water Shield
14	Water Shield Screw
15	Washer
16	Axle Splines
17	Rear Axle Housing

Figure A



Step 1

Release the parking brake if applied (Lever down).

Step 2

Remove the passenger rear wheel assembly by removing the (5) wheel lug nuts using a 19 mm socket or lug wrench.

Caution:

Some brake shoe lining materials contain asbestos. Consequently, the dust created inside the brake drums could have asbestos in it. If this dust becomes airborne and then inhaled, it could increase the risk of lung cancer and other reparatory diseases. Therefore you should never clean brake parts by spraying them with compressed air. Always wash brake parts with a safe liquid and then dispose of the liquid in accordance with state and federal regulations. Using a respirator is also a good idea to reduce the risk of inhaling harmful asbestos dust.

Step 3

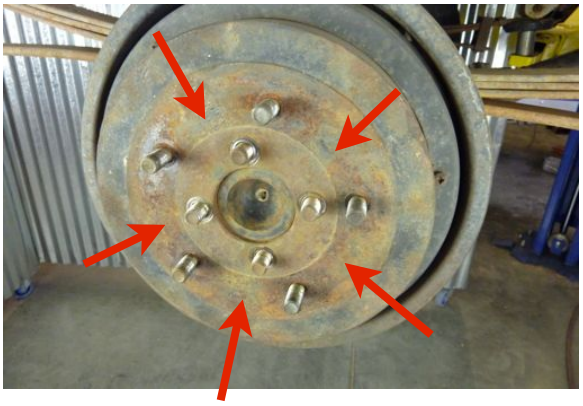
Remove the (4) axle stud nuts and lock washers using a 17 mm socket. See Figure A for parts identification.

Step 4

Remove the brake drum and set it aside.

Tech Tip 4

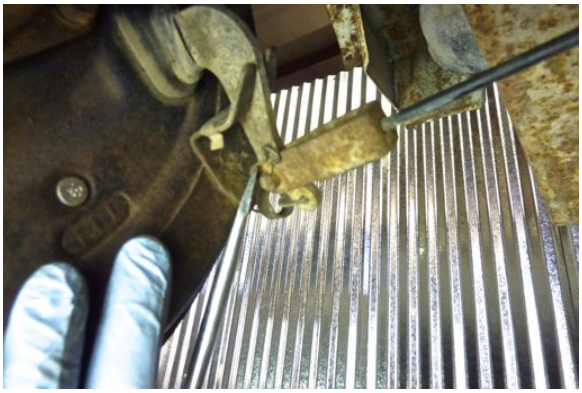
It is always a good idea to clean the backing plate and drum brake assembly before working with these items. The dust that accumulates in the drum could contain asbestos. There are many methods of cleaning brake parts. One acceptable and inexpensive method is to spray parts with a aerosol can of brake cleaner letting it drain into a pan.



Step 5

Rusted brake drums can be loosened by pounding on them with a large ball peen (or small sledge) hammer in the locations shown above.

Caution: Do not hit the wheel or hub studs as thread damage will result and the nuts will not thread on properly.



Step 6

Begin disconnecting the parking brake cable by removing the keeper using a standard screwdriver.

Step 7

Remove the parking brake pin using a standard screwdriver. Lay the parking brake cable out of the way for now.

Step 8

Place a pan under the wheel you are working on to collect any brake fluid that may leak out.

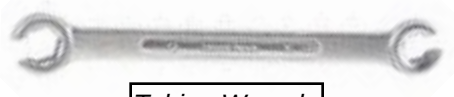
Step 9

Remove the brake bleeder valve using a 10 mm box end wrench. This is done to gain better access to the brake line fitting which is the next step.

Note: Be sure to turn the bleeder valve counter clockwise.

Step 10

Disconnect the brake line using a 10 mm tubing wrench.



Tubing Wrench

Step 11

Remove the (4) backing plate nuts using a 14 mm socket.

Step 12

Grab the backing plate assembly with both hands and pull toward you sharply. Continue this pounding action until the axle comes out as shown in the next step.

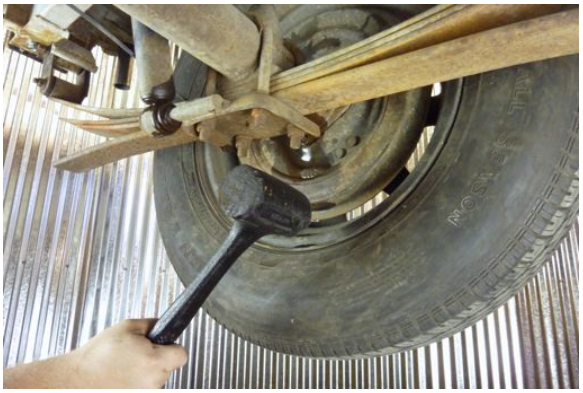
Step 13

Slide the axle out of the rear axle housing and set it aside.

Note: If the axle came out, skip to Page the “Notice” at the top of page 10 which is just before Tech Tip 15. If the axle did not come out, continue to Tech Tip 13.

Tech Tip 13

If the axle did not come out of the rear axle housing, put the wheel assembly back on and snug the lug nuts.



Tech Tip 13 (Continued)

Pound on the inside of the rim (or tire) with a large dead blow hammer until the axle, brakes and wheel assembly comes out of the axle housing. It should come out 6 to 8 inches.

Tech Tip 13 (Continued)

Once the axle comes out of the rear axle housing as shown, continue to the next Tech Tip.

Tech Tip 13 (Continued)

Leave the axle, drum and backing plate in the rear axle housing and remove the wheel assembly using a 19 mm socket.

Step 14

Remove the axle, backing plate and bearing assembly and set it aside.

Notice: If you are replacing the seal continue to the next step, Tech Tip 15. If you are not replacing the seal, skip to "Removing the Wheel Bearing and Backing Plate" section on Pg 13. (just after Tech Tip 20)

Replacing the Axle Seal

Tech Tip 15

Take note of how deep the seal is in the rear axle housing before it is removed. The new seal will need to be installed in the same position as the old.

Step 15

Hook the seal with the seal puller as shown. Strike the seal puller as shown with a ball peen hammer until the seal comes out of the rear axle housing.

Step 15 Continued

This shows the seal removed.

Step 16

Wipe the seal area clean with a cloth.

Step 17

Correctly position the new seal in the housing. See next tech tip for correct seal orientation.

Cross Section View of a Seal

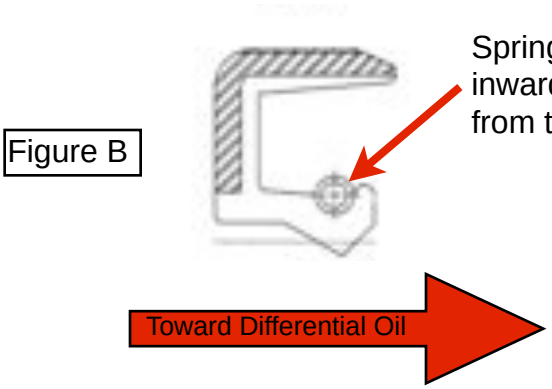


Figure B

Tech Tip 17

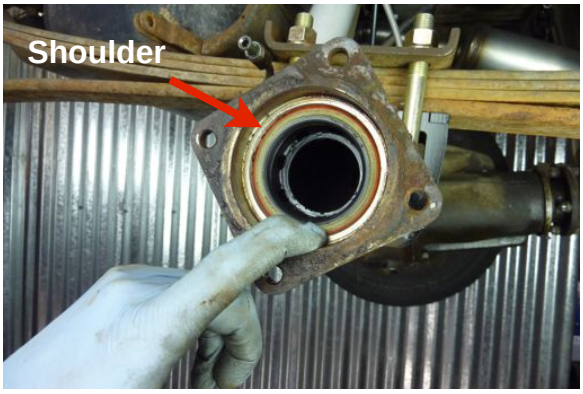
The correct seal orientation.

Step 18

Select a socket that has an outside diameter a **LITTLE** smaller than the outside diameter of the seal.

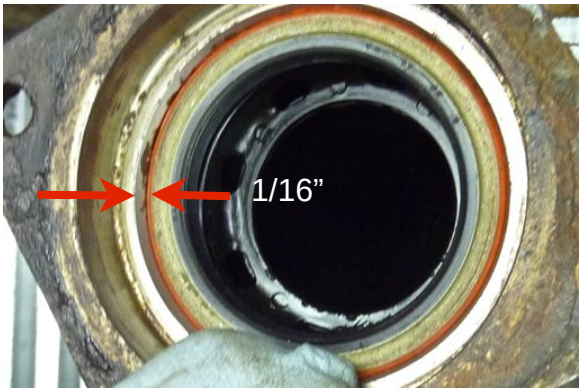
Step 19

Carefully and evenly drive the seal into the axle housing.



Step 20

Stop driving the seal when it reaches the same location as the one just removed or about 1/16” inside the axle housing shoulder. (See next Tech Tip)



Tech Tip 20

Seal positioned correctly. It should be recessed evenly all the way around the axle housing.

Removing the Wheel Bearing and Backing Plate

Parts of a Wheel Bearing Assembly.

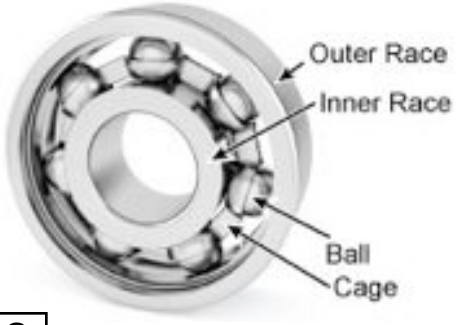
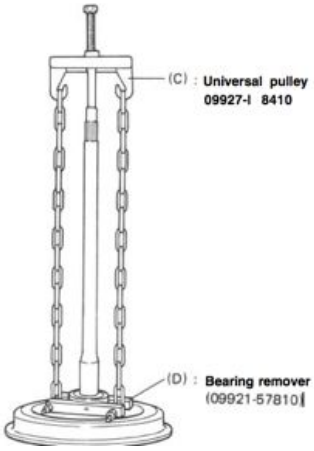


Figure C



Brake Backing Plate

Step 21

Place the axle and backing plate on a work bench or suitable work area.

Tech Tip 21

The method used in these instructions destroys the wheel bearing and bearing collar. Consequently, a new wheel bearing and bearing collar will be needed if you follow these instructions. However, some have found some success by pressing the bearing and collar off the axle by pushing against the brake backing plate. This method usually bends the brake backing plate and often ruins the bearing and collar as well. Another method used in removing the bearing is using the tool shown Left. Most do not have access to this tool. Therefore, for best results, we recommend following these instructions.

Note: There is yet another method of removing the bearing and bearing collar. This method is shown in our 86-95 Suzuki Samurai Rear Wheel Bearing Kit (SKU SAX-RWB) instructions. Click HERE and go to Step 42.

Step 22

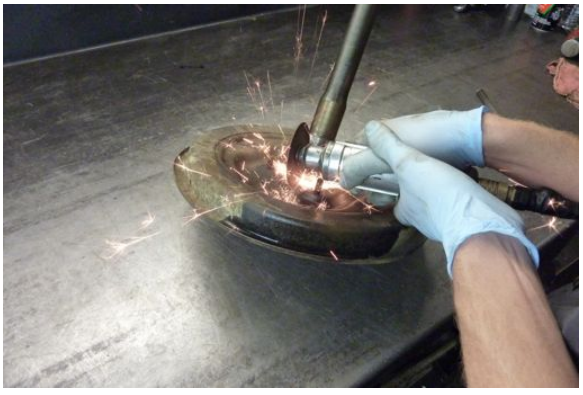
Using a cut-off blade on a die grinder, cut through the outer bearing race (See Figure C) of the wheel bearing.

Step 22 Continued

This shows the cut just made in the outer bearing race.

Step 23

Rotate the outer bearing race 180° (or 1/2 turn)



Step 24

Make a second cut through the outer bearing race.

Step 25

Separate the two outer bearing race halves using a cold chisel and a hammer.

Step 26

Remove the two outer bearing race halves.

Step 27

Remove the top bearing grease cover.

Step 28

Cut the bearing cage using the cut off wheel.

Step 29

Remove the cage and any ball bearings if there are any remaining in place.

Step 30

Remove the lower bearing cover.

Step 31

Remove the brake backing plate.

Step 32

Cut the bearing collar (See Figure A to see the Collar) about 3/4 of the way through using the cut-off wheel.

Caution: Do not grind into the axle.

Step 32 Continued

This shows the collar cut 3/4 of the way through.

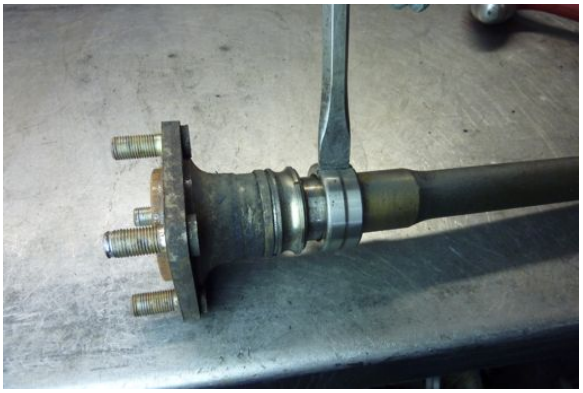
Step 32 Continued

This is another view of the collar cut 3/4 of the way through.

Caution: Do not cut into the axle.

Step 33

Place a cold chisel in the “cut” and strike it with a ball peen hammer.



Step 33 Continued

The chisel will crack the collar just below the cut, enlarge the collar and allow the collar to be removed.

Step 34

Repeat Steps 32 through 33 on the bearing inner race.

Caution: Do not cut into the axle. You may not be able to cut as deep into the inner bearing race as you did on the collar, but the procedure will work. You may have to strike the cold chisel a little harder.

Step 34 Continued

This shows the cut just made by the cut-off wheel.

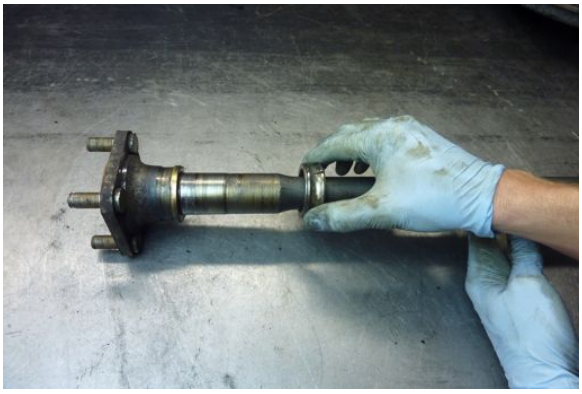
Caution: Do not cut into the axle. It will weaken the axle leading to possible axle failure later on.

Step 34 Continued

This shows the inner bearing race being struck with the cold chisel and hammer.

Step 34 Continued

It may be necessary to force the inner bearing race off with the hammer and chisel.



Step 34 Continued

This shows the bearing inner race being removed.

Step 35

Remove the bearing spacer.

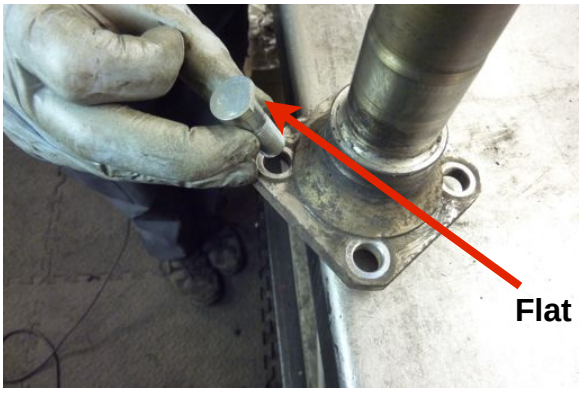
Note: This spacer is **NOT** needed if you are installing a new upgraded wheel bearing and collar. (See Figure A) This spacer is part of the new bearing.

Installing Axle Studs

It is not necessary to install new axle studs unless they have become damaged. If you are not installing axle studs skip to Step 40.

Step 36

Place the axle splines (See Figure A) on a block of wood to prevent axle spline damage and pound the (4) studs out using a ball peen hammer as shown.

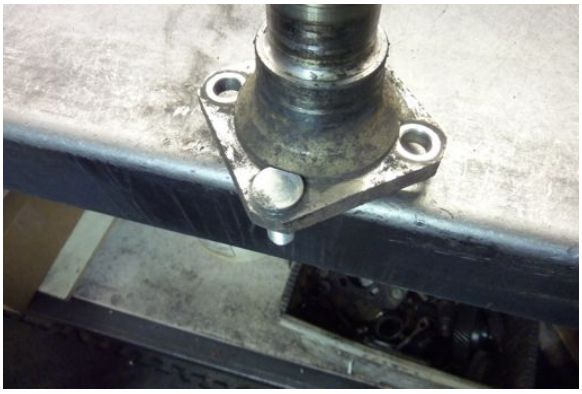


Step 37

Place the axle on a work surface and insert the new stud. Insure that the flat of the stud is oriented inward such that it fits the curvature of the axle shoulder.

Step 38

Strike the stud with a ball peen hammer until the head of the stud contacts the axle hub.

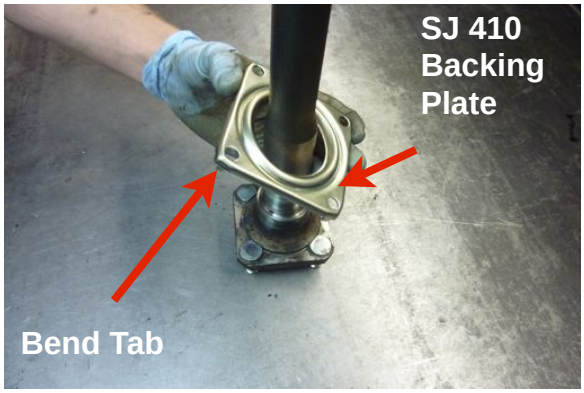


Step 38 Continued

This shows the stud properly installed.

Step 39

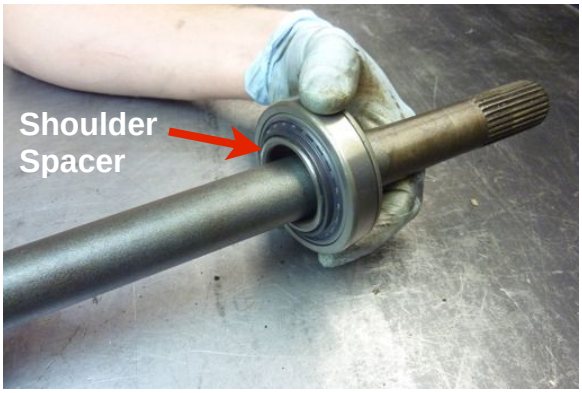
Place the axle on a block of steel (or wood) and repeat Steps 36 through 38 on the other 3 studs.



Step 40

Install the supplied SJ410 plate on the axle.

Note: Insure the bend tabs are facing downward.



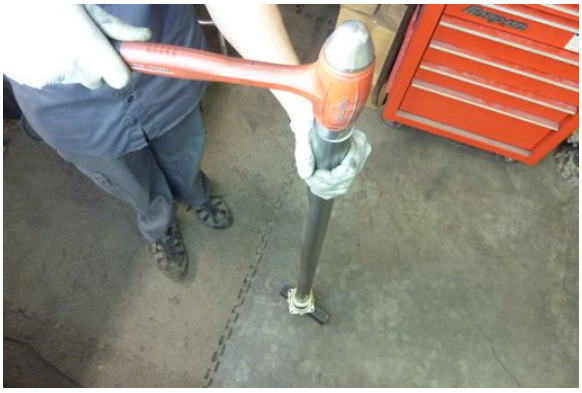
Step 41

Slide the new bearing on the axle.

Note: Be sure the shoulder end of the bearing is oriented toward the axle studs, away from the splines.

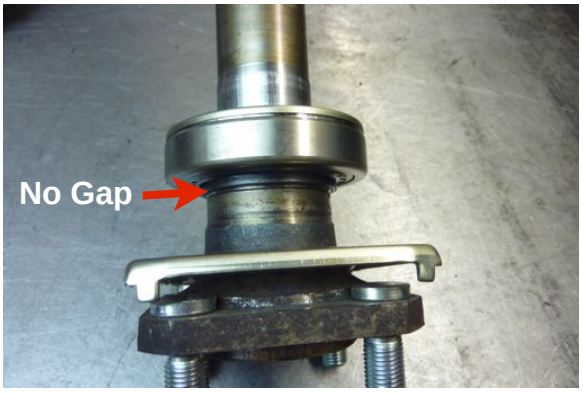
Step 42

Place the axle in a vertical position on a block of steel (or wood) such that the axle studs are not touching the floor. Insure that the studs do not get damaged during this process.



Step 43

Place a pipe over the axle. The pipe we used was a 1-1/2" inside diameter pipe. In selecting the correct pipe, simply be sure the pipe is large enough to fit over the axle, yet small enough to contact the bearing on the inner bearing race. (See Figure C) Then pound the bearing into position by striking the pipe with a large hammer. You may need to strike the pipe several times. Continue striking the pipe until the bearing is positioned as shown in the next picture.

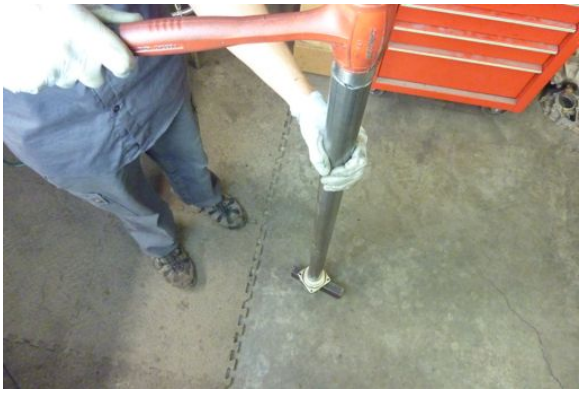


Step 43 Continued

Bearing properly positioned.

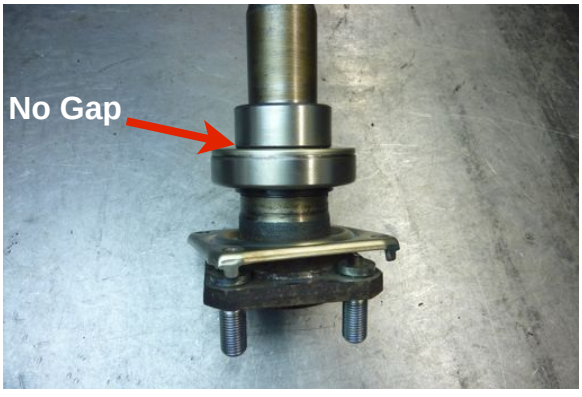
Step 44

Place the bearing collar on the axle as shown.



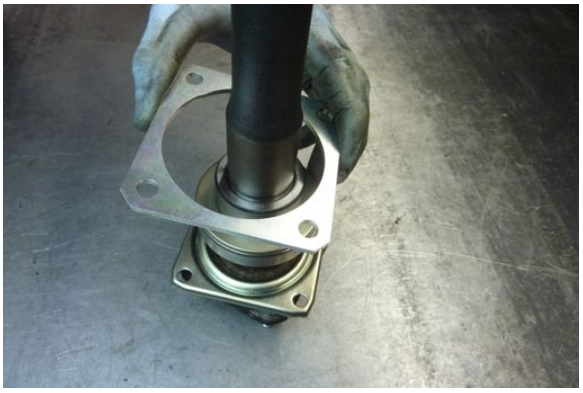
Step 45

Repeat Step 43 until the collar is properly positioned as shown in the next picture.



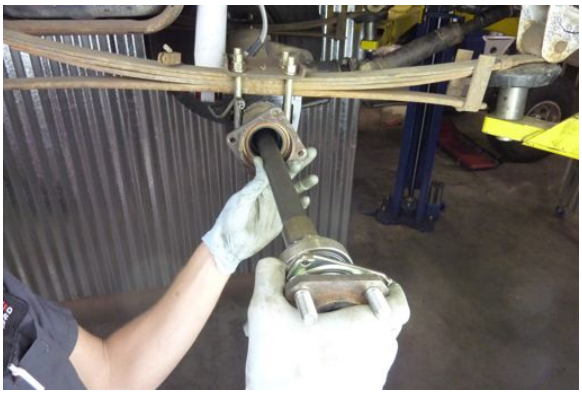
Step 46

Bearing collar properly positioned.



Step 47

Install the supplied disc brake backing plate on the axle, on top of the SJ 410 backing plate, as shown.



Step 48

Insert the axle into the rear axle housing.

Note: Be careful not to damage the axle seal.

Step 49

Apply a layer of bearing grease to the bearing collar.

Note: This grease keeps the seal lubricated until the gear oil contained inside the rear axle housing can reach the seal.

Step 50

Continue installing the axle into the rear axle assembly. The axle will stop going in when it hits the differential. See Figure A. When it hits the differential, lift up the spline end of the axle so it can be inserted in the splines of the differential.

Step 51

Continue installing the axle shaft until the bearing hits the axle housing. Once the bearing is started into the axle housing, strike the axle using the ball end of a ball peen hammer as shown.

Caution: Do not hit the axle studs.

Step 51 Continued

Continue striking the axle until the bearing is seated in the axle housing as shown.

Note: The bearing will extend out the housing about 1/16”.

Step 52

Insert the (3) Supplied M8X1.25X35 bolts through the SJ 410 backing plate and the disc brake backing plate as shown.

Step 53

Insert the (1) Supplied M8X1.25X25 bolts through the SJ 410 backing plate and the disc brake backing plate as shown.

Note: This is the bottom bolt.

Parts of the Disc Brake Kit

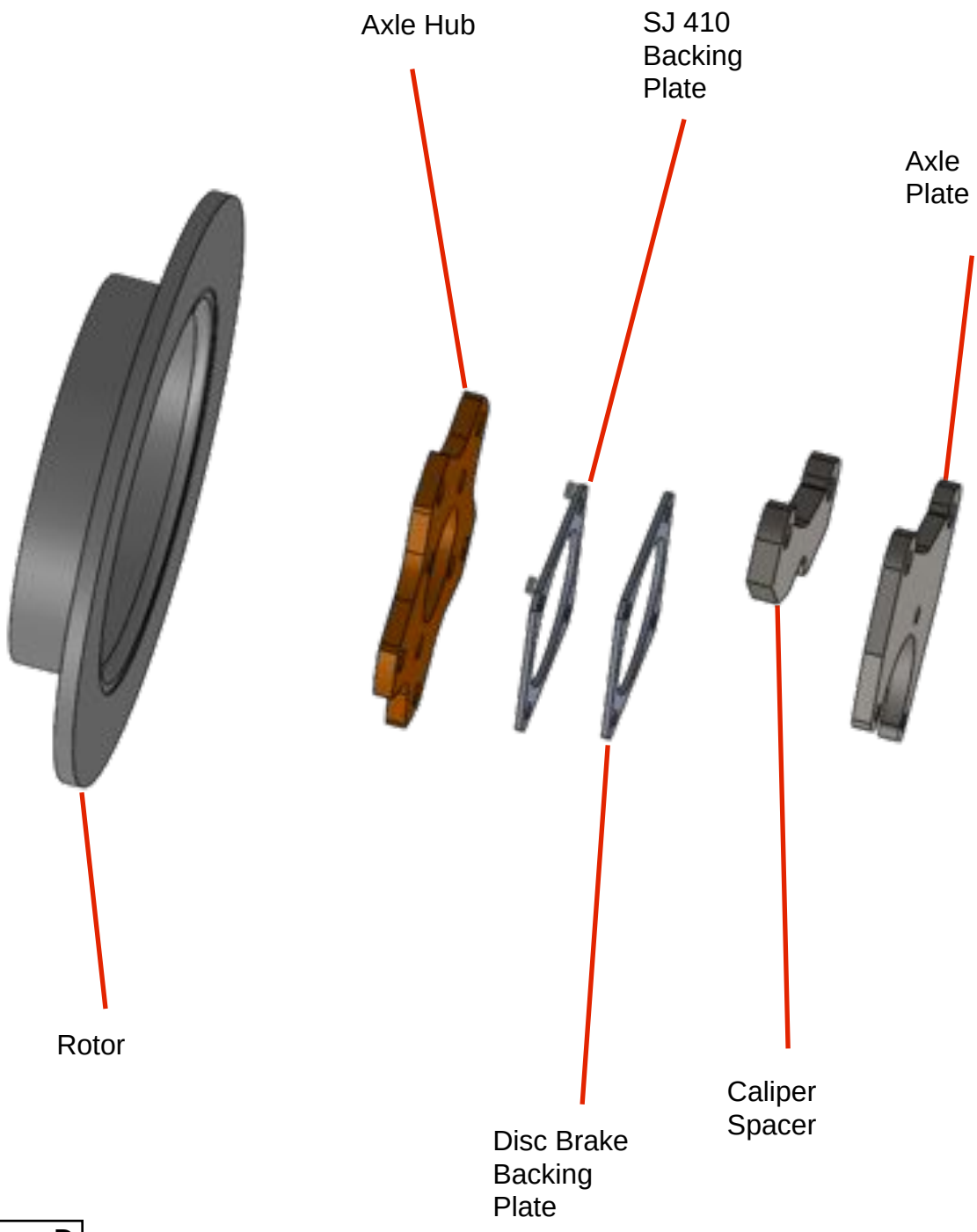


Figure D

Step 54

Install the supplied axle plate on the (3) M8X1.25X35mm bolts.

Step 55

Install the (4) supplied M8X1.25 serrated nuts on the (4) M8X1.25 bolts.

Step 56

Tighten then torque the nuts in a star pattern until 18 ft. lbs. is reached.

Step 57

Bend down the (4) tabs on the SJ 410 Backing Plate by striking them with a ball peen hammer.

Step 57 Continued

This shows the tabs properly bent down.

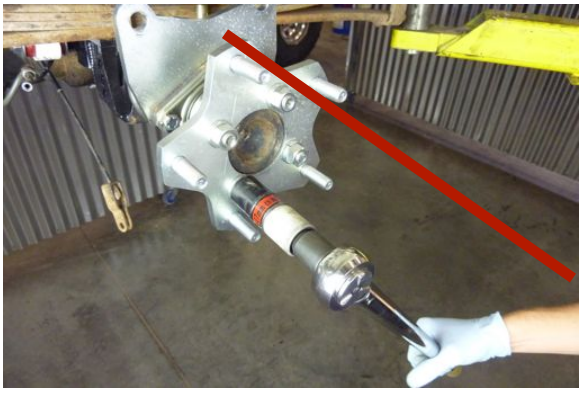
Step 58

Install the axle hub on the axle studs.

Step 59

Install the (4) lock washers and nuts on the axle studs.

Note: These lock washers and nuts should be new if you have installed new axle studs. If not, you will be using the old washers and nuts.



Step 60

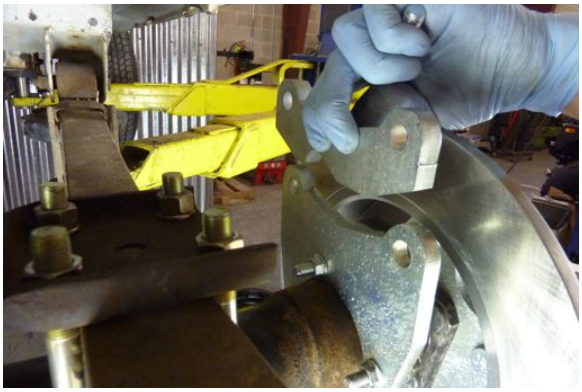
Tighten these nuts in a progressively tighter star pattern until 60 ft. lbs. is reached.

Note: To tighten these nuts, you will need to lock the hub by placed a large screwdriver or pry bar between the wheel studs as indicated by the red line. Be careful not to damage the threads on the wheel studs.

Step 61

Install the supplied brake rotor onto the wheel studs.

Note: Install one lug nut, hand tight, to keep the rotor in place.



Step 62

Position the supplied caliper spacer, aligning the holes with the axle plate, as shown.

Step 63

Insert the (2) supplied M12X1.25X35mm bolts and lock washers as shown.

Disc Brake Caliper Parts Identification

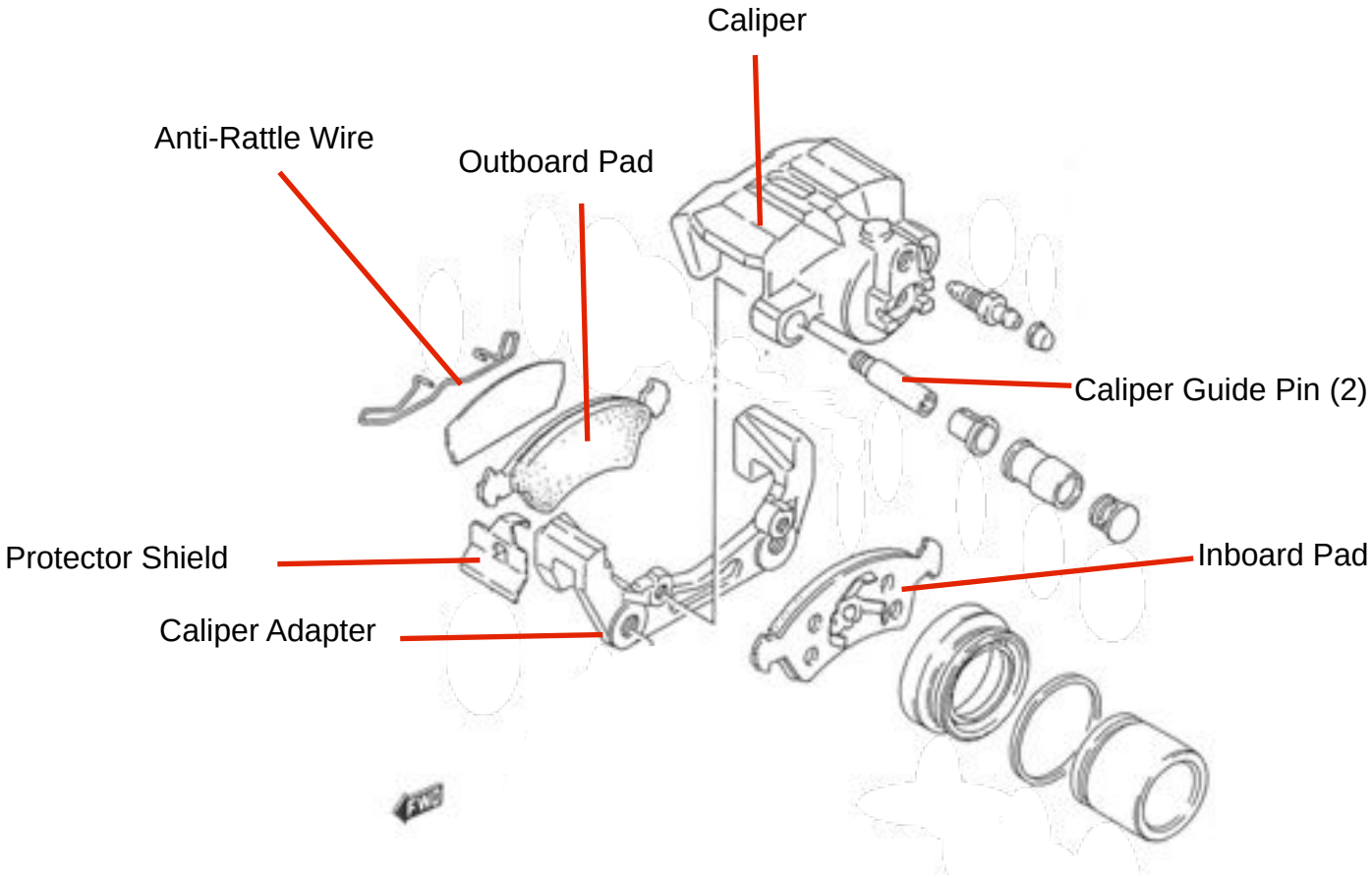


Figure E

Installing the Caliper and Pads

These instructions shows a new caliper, caliper adapter and pads. These parts are not supplied with this kit. It is up to the customer to secure the caliper, caliper adapter and pads. You can use new or used parts.

Step 64

While holding the pads (See Figure E) apart with your fingers, slide the caliper onto the rotor.

Note: Install the caliper only about 1/3 of the way on.

Step 65

Rotate the caliper and rotor to the top as shown. Then install the caliper the rest of the way downward.

Step 66

Align the holes in the caliper adapter with the (2) M12X1.25X35 mm bolts and thread them into place. Get both bolts started before tightening either one.

Step 67

Tighten, then torque, the M12 bolts using a 19 mm tool until 60 ft. lbs. is reached.

Installing the Brake Lines

Note: Brake lines are not supplied in this kit. We recommend using the Suzuki Samurai OEM(Original Equipment Manufacturer) front brake lines on these rear disc brakes.

Step 68

Position the brake line as shown.

Step 69

Thread the solid brake line into the flexible line.

Step 70

Hold the flexible brake line using an adjustable end (Crescent) wrench and tighten the steel brake line fitting using a 10 mm tubing wrench to an estimated 10 to 15 ft. lbs.

Step 71

Prepare the other end of the brake line by installing the banjo bolt and two copper washers as shown.

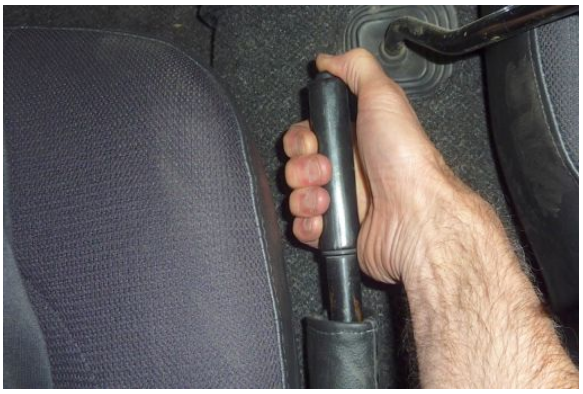
Note: The banjo bolt, copper washers and caliper mounting surface must be clean of any dirt or debris and free of any nicks, burs or irregularities in oder to make a good seal.

Step 72

Thread the banjo bolt into the caliper. Torque the banjo bolt to 20 ft. lbs.

Step 73

Route and secure the solid brake line and flexible brake hose so as not to rub, kink or become damaged in any way. We recommend making a custom built bracket to secure this hose to the axle housing.



Step 74

As mentioned earlier, the OEM park brake system will not work with our rear disc brake kit. You could tie these components back out of the way or you could remove them all together. See Page 2 “Important Information” of this document for suggested parking brake options.

Step 75

Repeat steps 1 through 74 on the driver side rear wheel.

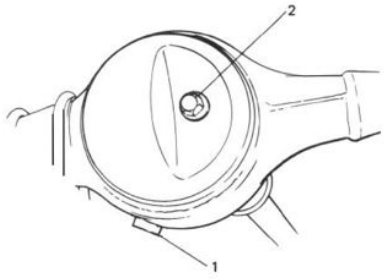


Fig. 16-33 ① Drain plug
② Oil level & filler plug

Figure F

Step 76

If Gear Oil was lost from the rear axle housing during this repair you will need to replenish it. Even if you did not loose any fluid, it is a good idea to check (& fill if needed) this level before putting this vehicle back into service.

Tech Tip 76

To check the gear Oil level, remove the Oil Level & Fill plug. (See Figure F) If oil runs out of the hole, it is full. If not, oil should be added (See Figure G for Oil Type) until it runs out of the hole. Then reinstall the plug. Plug torque is 25 ft. lbs.

Figure G

Differential oil specification		Hypoid gear oil SAE 80W-90, 75W-80 or 75W-90
Oil capacity	Front	2.0 litres (4.2/3.5 US/Imp pt.)
	Rear	1.5 litres (3.2/2.6 US/Imp pt.)

Caution!

After completing this kit installation the brake hydraulic system will need to be bleed. Brake system bleeding means, flushing out any air that has entered the system. Any air, even just a few bubbles, will cause reduced braking and could result in the brakes being completely inoperative. If you are interested in performing this task yourself, click HERE for complete full color instructions. If you are not confident in performing this task, we recommend you seek help from a qualified professional brakes technician.

Step 77

You have successfully installed rear disc brakes. We hope these instructions have been helpful. If you have suggestions on how we can improve our instructions or products we welcome your input. Please email us at sales@lowrangeoffroad.com or call the number listed at the bottom of this page.

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 7:30am-5:30pm 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.