

## 99-04 Suzuki Sidekick 2 Inch Budget Lift Kit

Also fits 99-04 Tracker, Vitara, Grand Vitara or XL-7

Instructions Include:   SKU# KSP-BLKV           Basic Kit  
                                   SKU# KSP-C2BLKV-RS   Basic Kit W/Rear Shocks  
                                   SKU# KSP-CB             Camber Alignment Bolts

## Installation Instructions



Camber Alignment Bolts



Rear Shock Absorbers

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

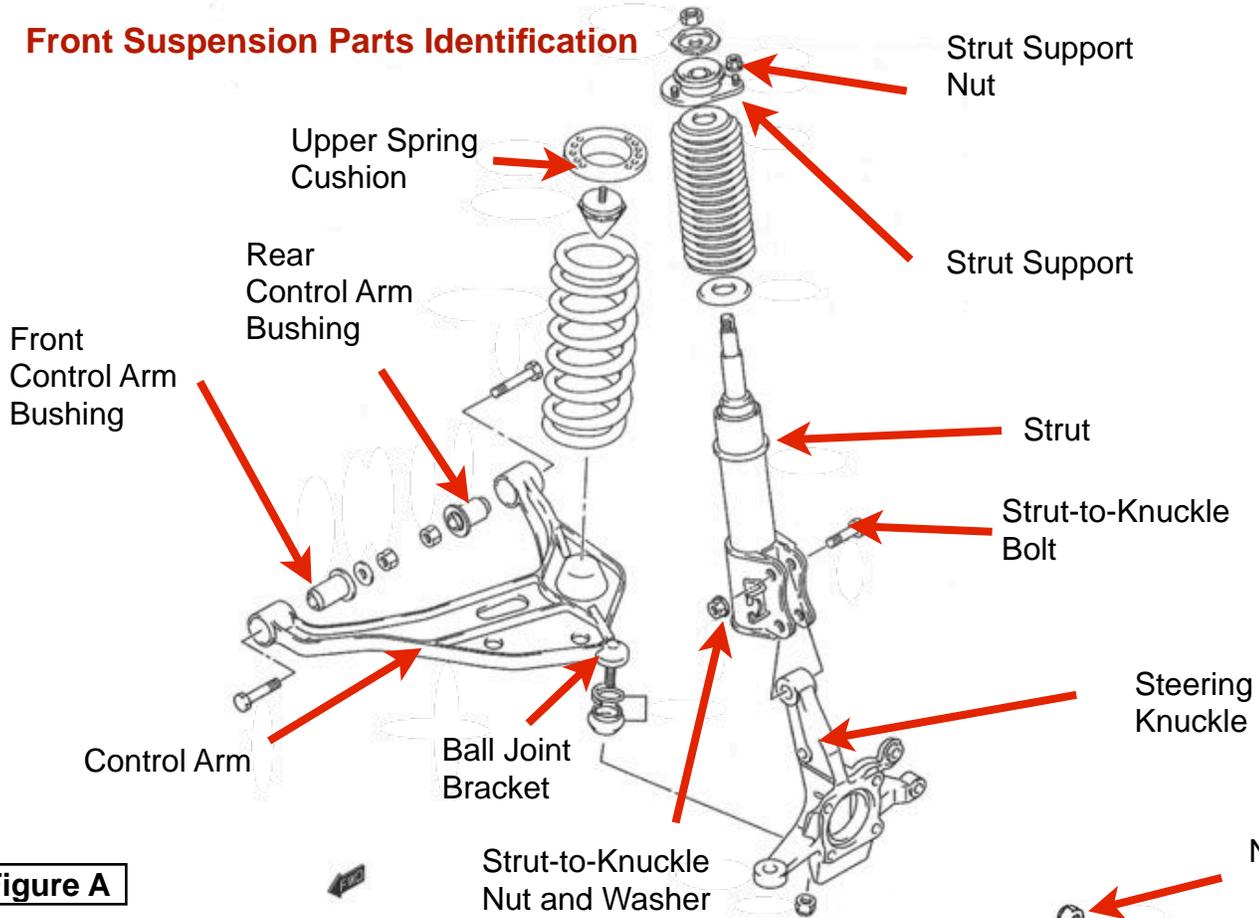


### Suggested Tools:

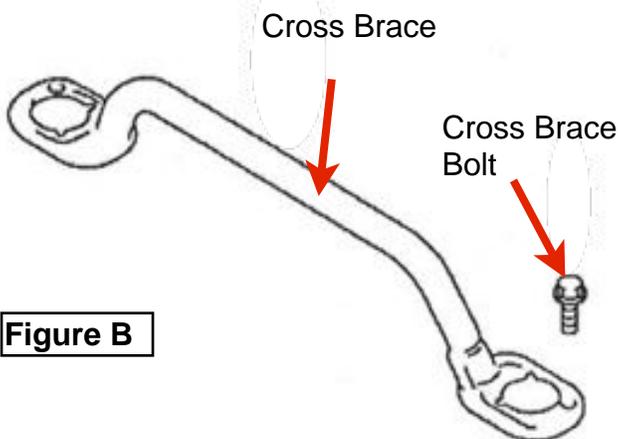
- Twin Post Lift & Hoist Jack Stand
- Floor Jack
- 4 Jack Stands (If using floor jack only)
- Lug Wrench, 19 mm
- Slip Joint Pliers
- 1/2" Impact Wrench (Optional)
- Sockets: 10,12,14,17,19 mm
- Ratchet
- Combination Wrenches: 8,10,12,15,17,& 19 mm
- 2-14 mm Combination Wrenches
- Large Pry Bar
- Ball Peen Hammer
- Center Punch
- Bench Vice
- Penetrating Oil
- Die Grinder w/ 1/2" Carbide Deburring Bit
- Angle Grinder W/Grinding wheel
- Large Channel Lock Pliers
- 10 mm Tubing Wrench
- 2-Vice Grip Pliers
- Brake Fluid, DOT 3

# Front Suspension Lift Instructions

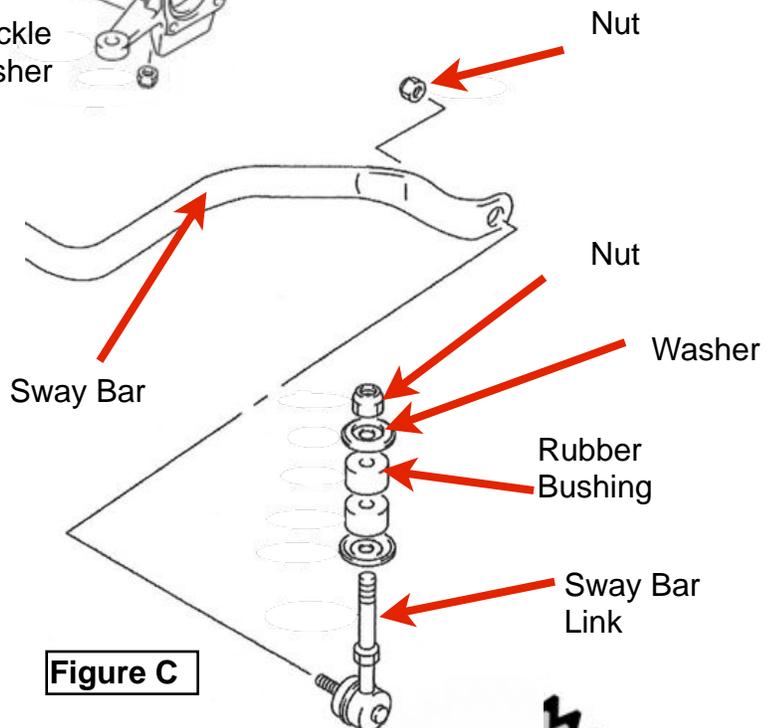
## Front Suspension Parts Identification



**Figure A**



**Figure B**



**Figure C**



### Step 1

Safely raise and support the vehicle on a twin post lift supported by the frame. If there is no lift available, a floor jack and 4 jack stands are a good alternative. This job could also be done with a floor jack and only 2 jack stands if that is all you have.

### Step 2

Pull the hood release lever located on the lower left dash.



### Step 3

Release the hood safety latch and open the hood.

### Step 4

Remove the plastic lug nut covers by hand using a 19 mm socket by.

**Caution:** Be careful. These covers are easily stripped or damaged.



## Begin on the Driver Side



### Step 5

Remove the Lug nuts using a 19 mm socket or lug wrench.

### Step 6

Remove the wheel assembly.



### Step 7

Soak all the nuts, bolts and studs, associated with this repair with a good quality penetrating oil. This will make the job go better.

Note: If this could be done a day ahead it would be even better.

### Step 8

Loosen but do not remove the front inner control arm bushing bolt by holding the nut with 17 mm box end wrench and tuning the bolt with a 17 mm socket.





### Step 9

Loosen but do not remove the rear inner control arm bushing bolt by holding the bolt with a 19 mm box end wrench and tuning the nut with a 19 mm socket. (See Figure A for parts identification)



### Step 10

Disconnect the brake hose from the strut by sliding the locking clip out using slip joint pliers.



### Step 11

Disconnect the sway bar link using a 14 mm box end wrench on the nut and a 14 mm open end wreck on the bottom.



### Step 12

Disconnect the sway bar on the passenger side the same way and let the sway bar drop down as shown.





### Step 13

Disconnect the inner end of the drive axle by removing (3) bolts and nuts using two 14 mm box end wrenches.



### Step 14

Let the drive axle drop down and rest on the lower control arm.



### Step 15

Loosen the outer tie rod end nut using a 17 mm socket.

Note: Do not remove the nut completely yet. Leave on the stud as shown in the next step.



### Step 16

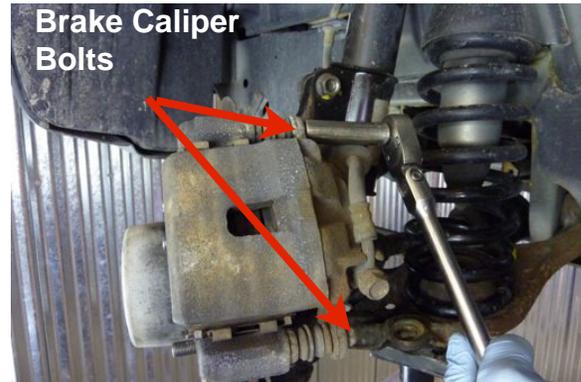
Separate the outer tie rod end from the steering arm by striking the steering arm sharply with a ball peen hammer as shown.

Note: It is a good idea to leave the nut at the top of the stud to protect the threads.



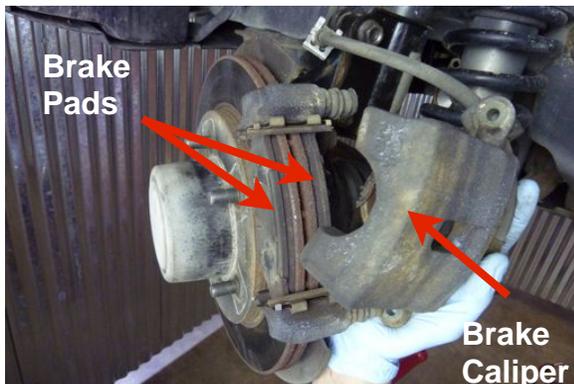
### Step 16 Continued

Once the stud is separated from the steering arm, remove the nut and let the steering arm drop out as shown.



### Step 17

Remove the (2) brake caliper bolts using a 12 mm socket.



### Step 18

Once the bolts are removed lift the caliper off the rotor leaving the pads in place.



### Step 19

Suspend the caliper from the body or frame using a wire.

Note: A coat hanger works well for this.



## Step 20

Place an under hoist jack stand (or floor jack) under the control arm and lift up until the vehicle nearly lifts off the lift (or jack stand)



## Step 21

Remove the lower strut to steering knuckle bolt by holding the nut with a 17 mm box end wrench and turning the bolt with a 17 mm socket.



## Step 22

Remove the upper strut to steering knuckle bolt the same as in the previous step.



## Step 23

Separate the steering knuckle from the strut as shown.

Note: This step may require prying a little between the steering knuckle and the strut with a large screw driver.



## Step 24

Relieve spring compression by slowly lowering the under hoist jack stand (or floor jack) until the spring becomes loose enough to remove.



## Step 25

Remove the coil spring. Then remove the under hoist jack stand and let the lower control arm hang in a vertical position.

Note: Leave the upper spring cushion in place.



## Step 26

Install the 1 1/2 inch spacer on the upper spring mount.

Note: If the spacer is too snug to push on with your hands, remove the spacer, lube the bump stop mount with a light film of lubricant and reinstall it.

Note: Lithium, dielectric, or bearing grease works well.



## Step 27

If the spacer is still hard to install, drive the spacer into place by hitting it on alternate sides with a ball peen hammer.



### Step 28

Lower the vehicle if you are using a lift.



### Step 29

Disconnect the driver side of the cross brace by removing the (3) bolts using a 14 mm socket.



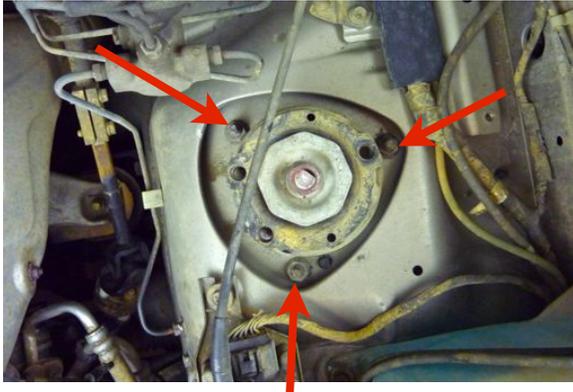
### Step 30

Disconnect the passenger side cross brace using a 14 mm socket.



### Step 31

Remove the cross brace and set it aside.



### Step 32

Disconnect the upper strut mount by removing the (3) bolts using a 14 mm socket.

Note: Be sure to hold the strut as you remove the last bolt. It will drop out on the floor if you do not.



### Step 33

Remove the strut by guiding it down and out of the vehicle.



### Step 34

Place the strut in a vice with the jaws open about 1/2 in.



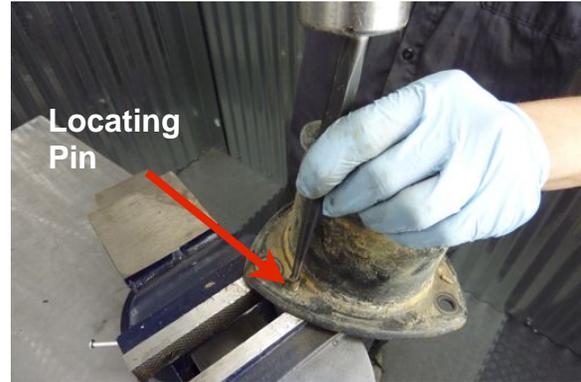
### Step 35

Pound the old stud out using a ball peen hammer.



### Step 36

Repeat the previous step on the other 2 studs.



### Step 37

Pound out the locator pin using a center punch and ball peen hammer.

Note: Using a center punch reduces the risk of mushrooming the top of the pin making it more difficult to remove. Some have found it easier to grind the pin off.

## Strut Modification

If you are using the Camber Alignment Bolts, skip to Step 40. If you are **NOT** using the Camber Alignment Bolts continue to Step 38.

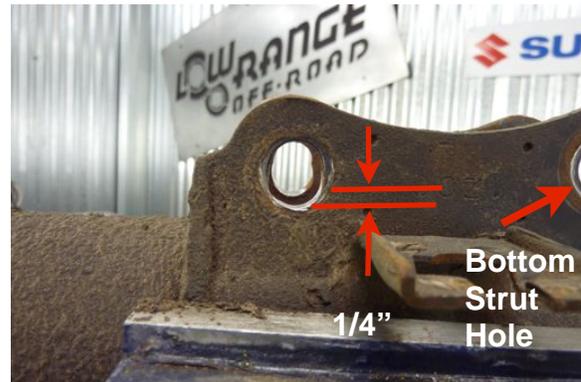


Elongate Top  
Strut Holes

### Step 38

When this lift kit is installed, the camber angles will be affected. The camber will go more positive or out at the top of the tire. To compensate for this, you should slot (or elongate) both of the top strut-to-knuckle holes in the strut as shown.

Note: We used a die grinder with a 1/2" cylindrical carbide deburring tool.



Bottom  
Strut  
Hole  
1/4"

### Step 39

Holes properly elongated. They should be elongated about 1/4 of an inch toward the strut (or engine).

Note: Do not elongate the bottom strut holes.





### Step 40

Install the strut spacer on the top of the strut and align the holes.



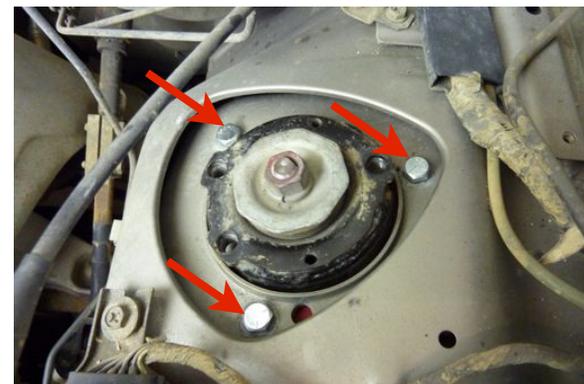
### Step 41

Reinstall the strut in the vehicle as shown.



### Step 42

Twist the strut so that the two holes shown by the arrows go toward the engine.



### Step 43

Install all three of the supplied longer bolts from the top.





### Step 44

Install the nuts from the bottom.



### Step 45

While holding the nuts with a box end wrench torque the nuts to 14 to 22 ft. lbs.



### Step 46

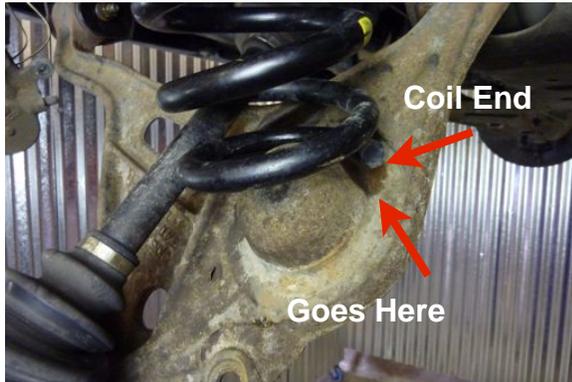
Raise the vehicle back up if you are using a lift.



### Step 47

Reposition the smaller diameter end of the coil spring on the upper bump stop.





### Step 48

Reposition the bottom of the spring on the lower control arm. Twist the spring so the bottom coil end matches the shape of the lower control arm.



### Step 49

Lift the lower control arm as high as you can by hand then place the under hoist jack stand (or floor jack) under the control arm.



### Step 50

Raise the lower control arm until the lower strut can be reconnected to the steering knuckle.

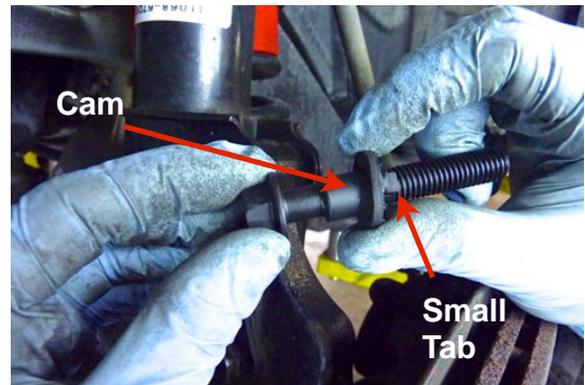
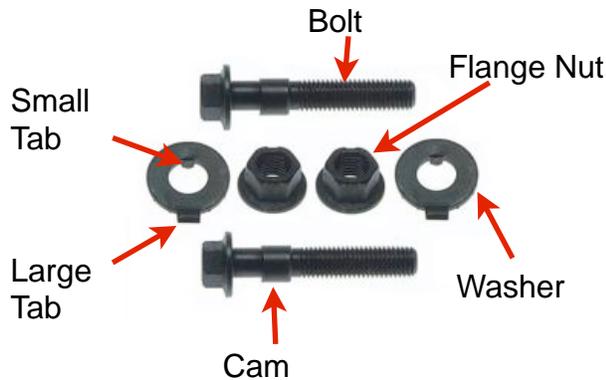


### Step 51

Align the holes in the lower end of the strut with the holes in the steering knuckle and install the lower bolt and nut. Do not install the nut at this point.

# Camber Alignment Bolt Installation

If you are **NOT** installing the Camber Alignment Bolt skip to **Step 57**.



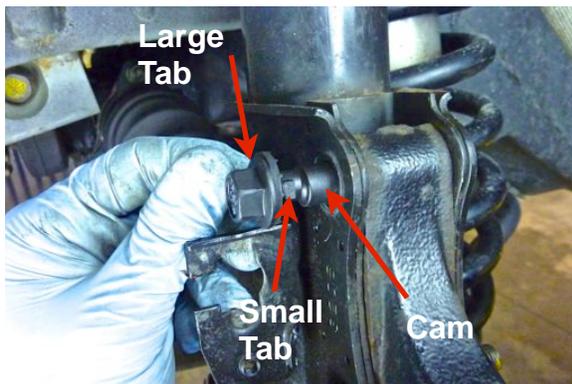
## Tech Tip

This picture shows the parts of the camber alignment bolt SKU# KSP-CB.

Note: We recommend using these bolts to allow for a more accurate camber adjustment.

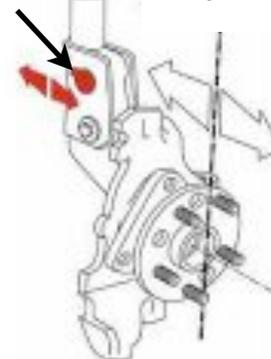
## Step 52

To install the camber bolt begin by installing the washer on the bolt with the small tab toward you. Position the bolt so that the cam is also toward you.



Large Tab

Note:  
Install large tab  
in direction of  
desired camber  
change: out for  
positive and in  
for negative.



## Step 53

Insert the camber alignment bolt with the cam **OUT** toward you, the washer small tab **OUT** toward you and the large tab **IN** toward the engine. (See Figure D)

Figure D



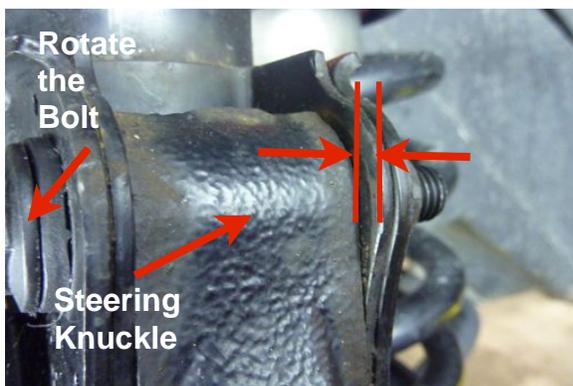
## Step 54

Install the camber alignment flange nut. Tighten the nut to where it is against the strut, but do not tighten all the way yet. The bolt and nut needs to be loose enough so as to be able to turn the bolt with a wrench.



## Step 54 Continued

Be sure the washer is flat against the strut and the small tab is out of sight, inside the bolt hole of the strut.



## Step 55

Rotate the bolt such that the steering knuckle is as far inward (toward the engine) as possible.

Note: This setting places camber pretty close to factory specification. However, you will still need to have this vehicle professionally aligned when this installation is complete.



## Step 56

Torque the top strut-to-knuckle nut to 55 ft. lbs. and the bottom nut to 58 to 75 ft. lbs.

Skip Ahead to **Step 61**



### Step 57

Align the upper hole in the steering knuckle with the hole in the strut and install the strut-to-knuckle bolt.



### Step 58

Install the nut but do not tighten it yet.



### Step 59

Push the steering knuckle as far inward (toward the engine) as possible and tighten the upper strut-to-knuckle bolt.

**Caution:** This procedure restores the camber setting as close as possible to factory settings. This vehicle will require a professional alignment upon completion of this lift kit installation. Failure to have this vehicle aligned could result in improper handling, excessive tire wear and improper braking.



### Step 60

Then torque both upper and lower strut-to-knuckle bolts to 58-75 ft. lbs.



### Step 61

Reposition the brake caliper back in its original position over the brake pads.

Note: Be careful that the pads are still positioned properly.



### Step 62

Install the (2) brake caliper bolts and torque them to 36 to 57 ft. lbs.



### Step 63

Reposition the brake line in the bracket and insert the lock as shown.



### Step 64

With the under hoist jack stand (or floor jack) under the lower control arm, lift up on the lower control arm until it is at normal ride height or until the vehicle begins to lift off the lift (or jack stand)



### Step 65

Torque the front inner control arm bolt to 50-75 ft. lbs.



### Step 66

Torque the rear inner control arm bolt to 65-100 ft. lbs.



### Step 67

Insert the tie rod end into the steering arm.



### Step 68

Install the nut and torque to 22 to 40 ft. lbs.



### Step 69

Position the drive axle and install the (3) bolts and nuts as shown.



### Step 70

Torque the nuts to 29 to 43 ft. lbs.



### Step 71

Repeat all previously performed steps on the passenger side front wheel of the vehicle with one exception. See Next Step.

### Step 72

All the steps necessary to complete the front lift on the passenger side front are exactly the same except for one thing. The inner drive axle is disconnected from the front differential housing by PRYING it out using a pry bar as shown above. It is important to note the position of the axle before removal so it can be reinstalled to the same depth in the differential.

**Caution:** The axle seal is close to the edge of the axle. Use caution when prying so as not to damage the seal.

## Step 73

After completing all the necessary steps on the passenger side front of the vehicle, continue to the next step.



## Step 74

The sway bar links will not connect to the control arm in their original position. They will need to be moved to the inside of the sway bar. To do this, remove the sway bar link by holding it with a 14 mm open end wrench and removing the nut with a 14 mm socket.



## Step 75

Reinstall the sway bar link on the opposite side of the sway bar as shown and torque to 29-43 ft. lbs.

## Step 76

Repeat **Steps 74 and 75** on the passenger side sway bar link.



## Step 77

Guide both front sway bar links into both control arms at the same time.



## Step 77 Continued

This picture shows the correct positioning of the passenger side sway bar link.

Note: If you are working on jack stands it may be necessary to wait until you have installed the front tires and set the vehicle back on the ground to attach the sway bar links.



## Step 78

Once both sway bar links are properly positioned. Install the bushings, washers and nuts on both sides. (See Figure C) While holding the link with a 14 mm open end wrench, tighten the self-locking nut with a 14 mm socket until the bushings bulge.



## Step 79

If you are working on a twin post lift, lower the vehicle to where you can work under the hood.





### Step 80

Place (3) of the supplied spacers on top of the driver side strut as shown.



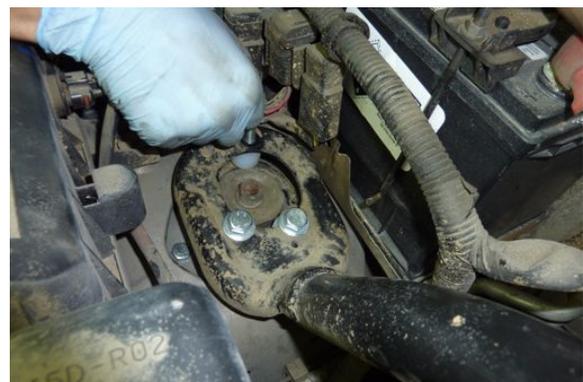
### Step 81

Place (3) of the supplied spacers on top of the passenger side strut as shown.



### Step 82

Position the cross brace and start the (3) supplied bolts on the driver side. But do not tighten them yet.



### Step 83

Position the cross brace and start the (3) supplied bolts on the passenger side.



### Step 84

Torque all (6) cross brace bolts (passenger and driver side) to 16 to 25 ft. lbs.



### Step 85

Install both front tires, torque the lug nuts to 55 ft. lbs. and lower the vehicle to the floor.

Note: Don't forget the plastic nut caps.

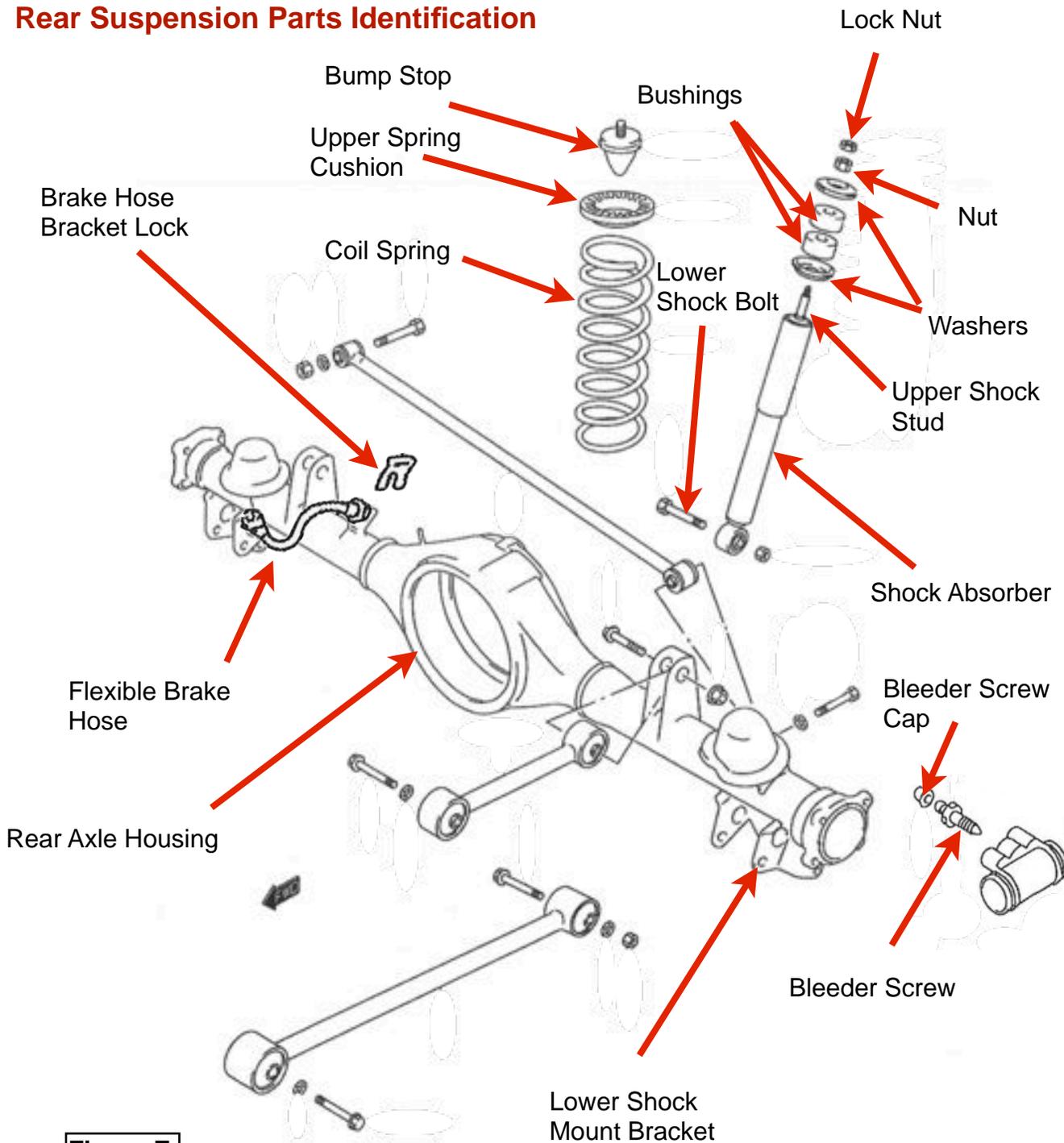
### Step 86

If you were unable to connect the sway bar to the control arms earlier, lower the vehicle to the floor and connect them now as explained in **Steps 77 and 78.**



# Rear Lift Kit Instructions

## Rear Suspension Parts Identification



**Figure E**



Begin the rear lift kit installation at the left (driver side) rear wheel.



### Step 87

Raise the rear of the vehicle and support it by the frame using jack stands or a twin post lift if not already done.



### Step 88

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



### Step 89

Remove the wheel assembly.



### Step 90

Quickly glance ahead to see which fasteners are to be removed and soak them with a good penetrating oil before attempting to remove them.



### Step 91

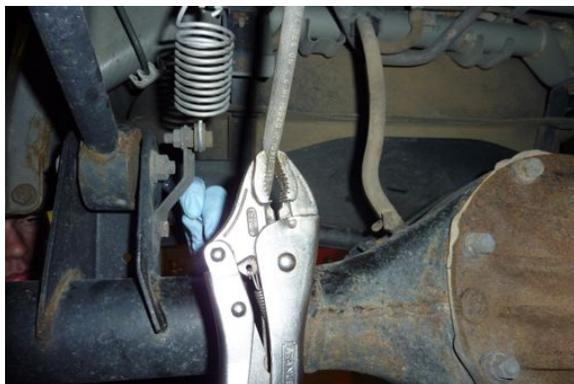
Support the rear axle assembly using an under hoist jack stand or a floor jack as shown.



### Step 92

Disconnect the (2) parking brake cable brackets from the cross bar as shown using a 12 mm socket.

Note: This is done to allow enough slack in these cables after the lift is complete. These bolts will not be reinstalled.



### Step 93

Clamp the brake line with vice grip pliers to minimize amount of brake fluid loss during the brake hose replacement.

**Caution:** Clamping a flexible brake hose with vice grip pliers is not normally recommended. It will likely ruin the hose. However, since we are replacing the hose it is ok in this situation.



Tubing Wrench



### Step 94

Loosen (but do not remove) the upper end of the flexible brake hose by holding the hose with vice grip pliers and loosening the flare-nut fitting using a 10 mm tubing wrench.

**Caution:** Do not use an open end wrench on this fitting. It will most likely round up the corners, making removal even more difficult.



### Step 96

Remove the lower bracket lock using slip joint pliers.



### Step 95

Disconnect the lower end of the flexible brake hose in the same way as shown in the previous step.



### Step 97

Remove the upper bracket lock using slip joint pliers. Once the brake hose is free from the bracket, remove the brake hose by unthreading it the rest of the way. Then remove the vice grip pliers and set the old brake hose aside.





### Step 98

Connect the supplied flexible brake hose to the upper brake line as shown.

Note: Make sure the brake line is running through the bracket before connecting it.



### Step 99

Tighten this connection by holding the hose with a 19 mm open end wrench and tightening the fitting with a 10 mm tubing wrench.



### Step 100

Connect the lower end of the flexible brake hose and tighten the fitting using the same method as used in the previous step.

Note: Again make sure the brake hose runs through the bracket before connecting it.



### Step 101

Position the top brake line fitting in the bracket and install the bracket lock as shown.

Note: The brake line and hose may need to be twisted slightly to fit in the bracket properly.



### Step 102

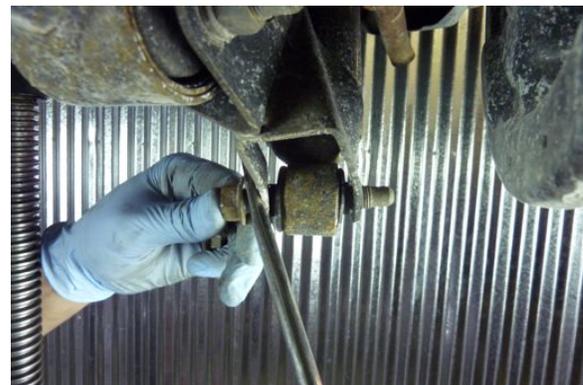
Position the bottom brake line fitting in the bracket and install the bracket lock as shown.

**Caution:** Because the hydraulic brake lines were disconnected and brake fluid escaped and air entered. The brake system will not function properly until a procedure called "Brake System Bleeding" is performed. This procedure will be explained at the end of these instructions.



### Step 103

Remove the lower shock absorber bolt by holding the nut with a 17 mm end wrench and turning the bolt using a 17 mm socket.



### Step 104

Remove the bolt.

Note: It may be necessary to pry the bolt out using a standard screwdriver.





### Step 105

Disconnect the upper shock absorber by clamping the upper end of the shock stud with vice grip pliers and turning the nut with a 14 mm box end wrench.

Note: A ratcheting box end wrench works well here.



### Step 106

Slide the shock absorber down and remove the washer and bushing.

Note: these will not be used again if you are installing new shock absorbers. If you are not installing new shock absorbers, keep all the installation hardware. It will be used again.



### Step 107

Remove the under hoist jack stand or floor jack. Pull down on the differential by hand until the coil spring is loose enough to remove. Lift out the bottom first and then the top.

### Step 108

Unscrew the bump stop using large channel lock pliers.



### Step 109

Clamp the bump stop in a vice and grind the points off as shown. This is to allow the new lift spacer to slide over the bump stop.



### Step 110

Reinstall the bump stop and tighten.



### Step 111

Install the 2" spacer over the bump stop as shown.

Note: Leave the upper spring cushion in place.



### Step 112

Pull down on the differential and reinstall the coil spring. Install the top first and then the bottom.





### Step 113

Reposition the under hoist jack stand (or floor jack) under the axle housing as shown and raise the differential back up.



### Step 114

Prepare the new shock absorber for installation by lubricating the lower bushing with any type of lubricant, such as engine assembly lube, dielectric grease, lithium grease or motor oil.



### Step 115

Insert, then press into place, the new sleeve using large channel lock pliers as shown.

Note: There are 2 different size sleeves supplied with our new shock absorbers. We recommend using the longer of the two sleeves.



### Step 116

Install the washer and bushing on the shock absorber as shown.



### Step 117

Position the upper shock stud through the upper support as shown here and install the top bushing and washer.



### Tech Tip

Insure that both shoulders are placed such that the shoulders are toward the shock support and fit into the hole of the support.



### Step 118

Install the nut.



### Step 119

Tighten the nut using a 14 mm box end wrench until the bushings bulge.



### Step 120

Install the lock nut with the flat side down and tighten with it a 14 mm box end wrench.



### Step 121

Position the lower end of the shock absorber in the lower shock mount and install the original bolt and nut. Tighten the nut until the bushing bulges. If the lower shock absorber bolts-up properly without lower shock mount interference, skip ahead to **Step 124**. If the lower shock will **NOT** fit properly, continue to the next step.

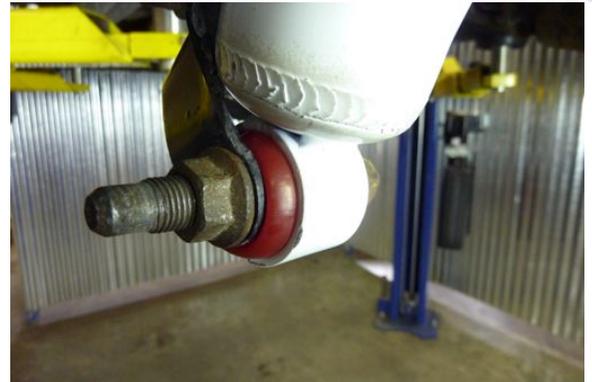
### Step 121 Continued

In some cases we have found that the larger shock absorber body of the new shock hits the lower shock mount bracket in two places. (See arrows above) In these cases we recommend clearancing the lower shock mount by continuing to the next step.



### Step 122

Clearancing the shock mount is done by removing the shock absorber from the vehicle. Then reinstall the lower shock mount bolt and snug the nut into place as shown. This will reduce shock mount distortion during the clearancing procedure. Using a large ball peen hammer, strike the bracket sharply in the two locations indicated by the arrows. Reinstall the shock and check for fit. Continue this procedure until the shock can be mounted without the bracket interference.



### Step 123

Reinstall the shock absorber as instructed previously and tighten all the fasteners until the bushings bulge.



### Step 124

Repeat all previously performed steps on the passenger side rear.

### Step 125

Remove the under hoist jack stand (or floor jack) to allow the rear axle assembly to drop to full extension. Inspect all brake hoses, brake lines, park brake cables and electrical wiring to see that they have sufficient slack and are routed properly so as not to be damaged under all driving conditions. Additionally, check all fasteners in the front and the rear, to insure that nothing has been accidentally left loose.

## Brake System Bleeding

Although there are other methods to bleed brake systems, one of the best and quickest way to bleed the brake system is done with two people. So you will need an assistant to help.



### Step 126

Fill the master cylinder reservoir to the "MAX" line with a good quality DOT 3 brake fluid. Then set the lid back on top the master cylinder so fluid does not squirt out during the bleeding process.

Caution: Brake fluid can tarnish and even remove paint. If fluid is spilled on painted surfaces, flush immediately with fresh water.

### Step 127

Have an assistant apply pressure to the brake pedal.



### Step 128

Place a drain pan under the flexible brake hose that was installed earlier. Then loosen (about 1/2 turn) the lower fitting using a 19 mm open end wrench to hold the hose secure and loosening the fitting using a 10 mm tubing wrench.

### Step 129

The brake pedal will gradually go to the floor. When the pedal reaches the bottom, tighten the fitting.





### Step 130

Once the fitting is tight, have your assistant slowly let up on the brake pedal.

### Step 131

Repeat **Steps 126 to 130** until there is no sign of air bubbles coming out of the fitting. All air is usually removed after 3 or 4 bleeding cycles. Be sure to monitor and keep the master cylinder reservoir full. The master cylinder should be refilled about every 4 bleeding cycles.

Note: A bleeding cycle defined as: Placing pressure on the brake pedal, opening the fitting (or bleeder screw), allowing the pedal to go to the floor, closing the fitting (or bleeder screw) and letting the pedal up.



### Step 132

Once you are satisfied there is no more air coming out of the fitting, double check to see that the fitting is tight and move to the left (driver side) rear wheel.



### Step 133

Once at the left rear wheel, locate the brake bleeder screw (shown above) and remove the protective cap if there is one. Sometimes these caps get lost. If there is no cap, don't worry about it. It is only there to keep the bleeder valve clean.



### Step 134

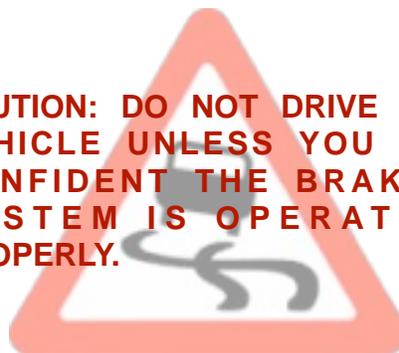
Repeat the bleeding cycle at the bleeder screw just as you did at the flexible brake line fitting. The only difference is that you will need to use an 8 mm box end wrench to loosen and tighten the bleeder screw. The bleeder screw is open at about 1/2 turn counter clockwise and closed by turning an equal amount clockwise. Usually 3 or 4 bleeding cycles is enough to rid the system of air. At the last step double check to see that the bleeder screw is tight and reinstall the bleeder screw cap if you have it.



### Step 135

After bleeding the brakes at the left rear wheel, have your assistant depress the brake pedal to check for proper feel. The pedal should go down 1/3 to 1/2 the distance to the floor and then get hard to push. If it feels soft (or spongy) and goes to near the floor, repeat the bleeding process at the flexible brake hose and the left rear bleeder screw until the pedal has the proper feel. If you are not confident that the brakes are operating correctly you should seek professional help.

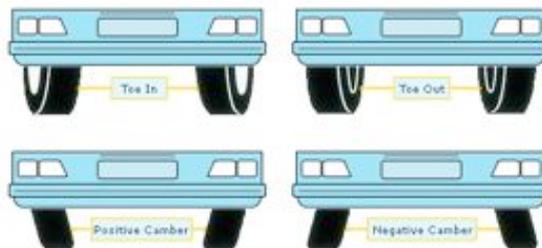
**CAUTION: DO NOT DRIVE THIS VEHICLE UNLESS YOU ARE CONFIDENT THE BRAKING SYSTEM IS OPERATING PROPERLY.**





### Step 136

Reinstall the rear wheels and torque the lug nut to 55 ft. lbs. Don't forget the plastic lug nut caps if so equipped.



### Step 137

After install this lift kit, the wheel alignment will **NOT** be accurate. We strongly recommend that you have the vehicle professionally aligned as soon as possible. Failure to have this vehicle professionally aligned will result in poor handling, odd (possibly dangerous) braking characteristics, and excessive tire tread wear.



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.



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.

Revised 03/12/13© Copyright 2012 Low Range Off-Road, LC All Rights Reserved

