RHINO +2" +1"
SUSPENSION SYSTEM INSTALLATION INSTRUCTIONS

PARTS INCLUDED:

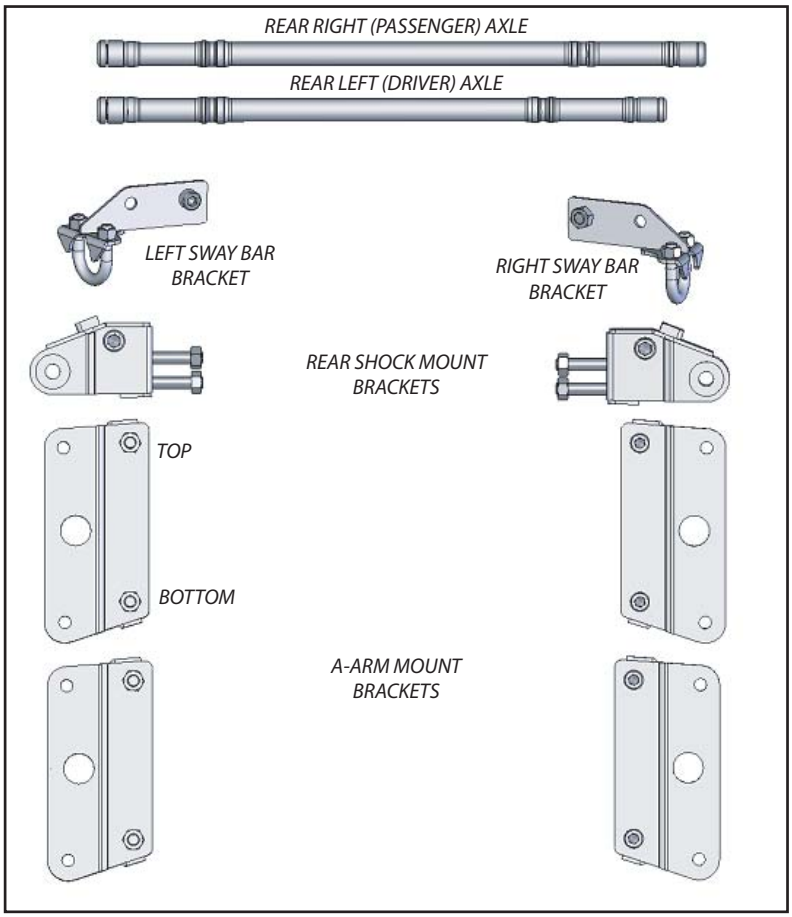
4 - EXTENDED AXLE SHAFTS
2 - TIE ROD EXTENDERS
2 - 12MM HEX NUTS
8 - SHORT CV BOOT CLAMPS
8 - LONG CV BOOT CLAMPS
1 - RIGHT SWAY BAR BRACKET
1 - LEFT SWAY BAR BRACKET
2 - U BOLTS WITH NUTS
4 - REAR A-ARM BRACKETS
2 - REAR SHOCK BRACKETS
2 - FRONT A-ARM BRACKETS
2 - FRONT UPPER A-ARM BRACKETS
2 - FRONT LOWER A-ARM BRACKETS
1 - FRONT SHOCK MOUNT

8 - M10 x 45mm BOLTS
14 - M10 x 18mm BOLTS
4 - M10 x 60mm BOLTS
12 - M10 x 65mm BOLTS
4 - M12 x 25mm BOLTS
38 - M10 LOCK NUTS
4 - M12 LOCK NUTS
2 - O-RINGS

TOOLS NEEDED:

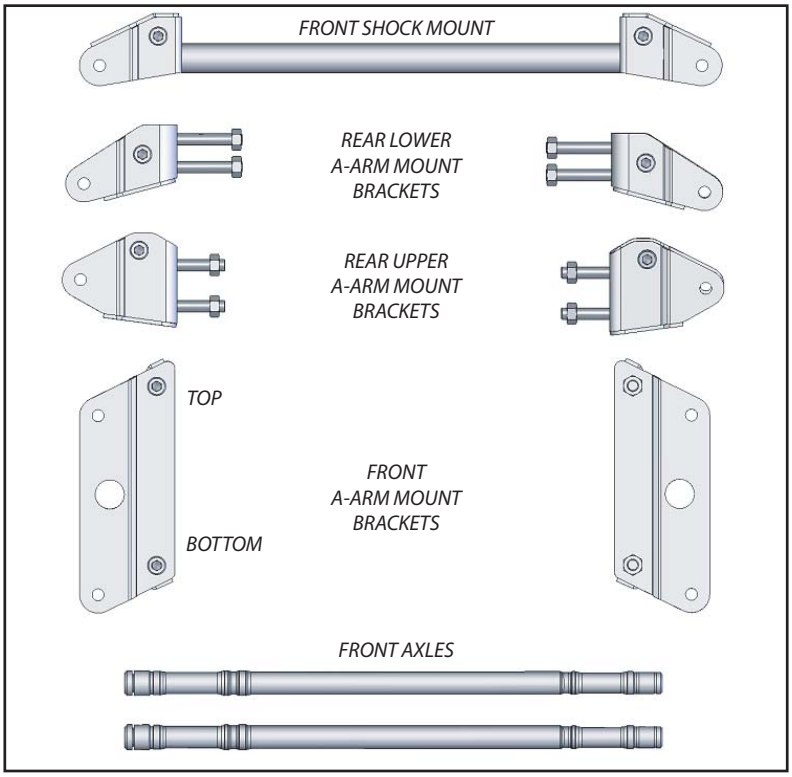
Floor jack and/or jack stands
14mm wrench and socket
17mm wrench and socket
3/8 ratchet
Hammer or dead blow hammer
Electric Drill
13/32 or Y size drill bit
12mm wrench and socket
10mm wrench and socket
Short 3/8 extension
Impact wrench or large breaker bar
1 1/4" or 32mm socket
8mm Allen wrench or socket
10mm Allen wrench or socket

REAR BRACKET LOCATIONS



TIE ROD EXTENDERS

FRONT BRACKET LOCATIONS



RHINO +2" +1"
SUSPENSION SYSTEM
INSTALLATION INSTRUCTIONS

BEFORE YOU START:

Congratulations on purchasing your new suspension system for your Rhino. This kit will widen your stance by a full 4" total and raise the height of the chassis by 1". It will give you a lot more stability and some more ground clearance to clear bigger obstacles. It will give the Rhino a lot better handling and steering characteristics. It will be less prone to roll over. Although it is still possible to roll over, you must use caution when cornering.

You can use your stock shocks or upgrade to aftermarket shocks that are designed for the OEM suspension. All suspension geometry remains the same as OEM.

We recommend that you ***do not use*** wheel spacers or offset wheels on the front of your Rhino. They both significantly reduce the steering characteristics of your Rhino. Feel free to use them on the rear, to help with even more with stability when cornering.

WARNING:

This kit is not designed for racing purposes. If you intend on racing your Rhino, please contact us for other suspension systems that we offer that are designed for racing. This kit is meant for normal recreational use.

SOME NOTES:

The installation of this system will take the better part of a day with normal mechanical skills. The most difficult part with installing this kit is drilling the holes to mount the brackets. If you are comfortable drilling holes through metal, then you will be fine installing this system. Please see the supplement instructions on how to properly install your new axles. The following pages will outline how to install your new suspension system.

You will need to use your OEM hardware to reattach your suspension components. Please take note of where they go when you are disassembling your factory suspension. All the hardware supplied is intended for attaching the new brackets to the chassis. The OEM hardware is used to attach the suspension components to the brackets, just as they were attached to the chassis before you disassembled them.

CLEANING/ MAINTAINING:

Use soap and water to clean, taking care not to use high pressure pointed at the pivot points. You need to periodically check all hardware for tightness.

INSTALLATION:

1. The first thing you will want to do is raise the front end up on jack stands. Make sure to raise the tires a few extra inches above the ground. Remember, you are adding a lift kit, so the tires will be lower when your done. Make sure the Rhino is very stable once you have the tires off the ground, as you are going to be applying significant force to remove and install hardware.
2. Remove the front wheels using a 17mm socket and impact wrench. Remove the plastic dust caps over the main axle nuts if you haven't already done so previously.
3. Turn on the key of your Rhino, put it into 4WD and lock the front differential. This will help hold the axles so you can remove the large axle nuts with the 32mm socket and impact wrench.
4. Remove the brake calipers using a 12mm wrench or socket. Remove the 2 brake line clamps on each front a-arm. Save this hardware for use on installation.
5. Remove the large axle nuts using the 32mm socket and impact wrench, then pull off the wheel hubs. Take note, there are thin o-rings inside the spindle bearing carriers on the axle shaft, save these and note the position for installation later.

INSTALLATION CONTINUED:

6. Remove the tie-rod from the tie rod end using a 12mm wrench to turn the tie rod. You do not have to remove the tie rod end from the spindle.
7. Remove the front shocks using a 14mm and 17mm wrench and socket.
8. Remove the 4 bolts and nuts that hold the a-arms to the chassis using a 14mm and 17mm wrench and socket. Slide the a-arms out of the chassis and the axle should pull out of the spindle. Take note of the dust caps that are on the a-arm pivot points. Make sure they go back on when you install the a-arms in the same positions.
9. Place the a-arm assembly on the ground and slide it out of the way, but be sure to not stress the brake line.
10. Now, is a good time to pull the OEM axle assemblies from the differential. You should be able to grasp the shaft by hand and pull them straight out with a quick pull. There will be a small amount of fluid that leaks from the differential, so be aware. See the axle supplement instructions on how to assemble the new axle shafts.
11. Now, you are ready to mount the front a-arm brackets. See Fig. 1 below for how they are attached. For the rear mounts, you will have to drill holes through the chassis and use the supplied bolts. We recommend bolting the bracket in place using the existing holes, then start to drill the holes through the chassis. You might need to remove the bracket to finish drilling the holes depending on how long your drill bit is. The rear upper mount has two sets of holes. Use the set of holes that go through the tube as shown in Fig 2. Use the bolts that are called out in the Figure below.

Fig. 1

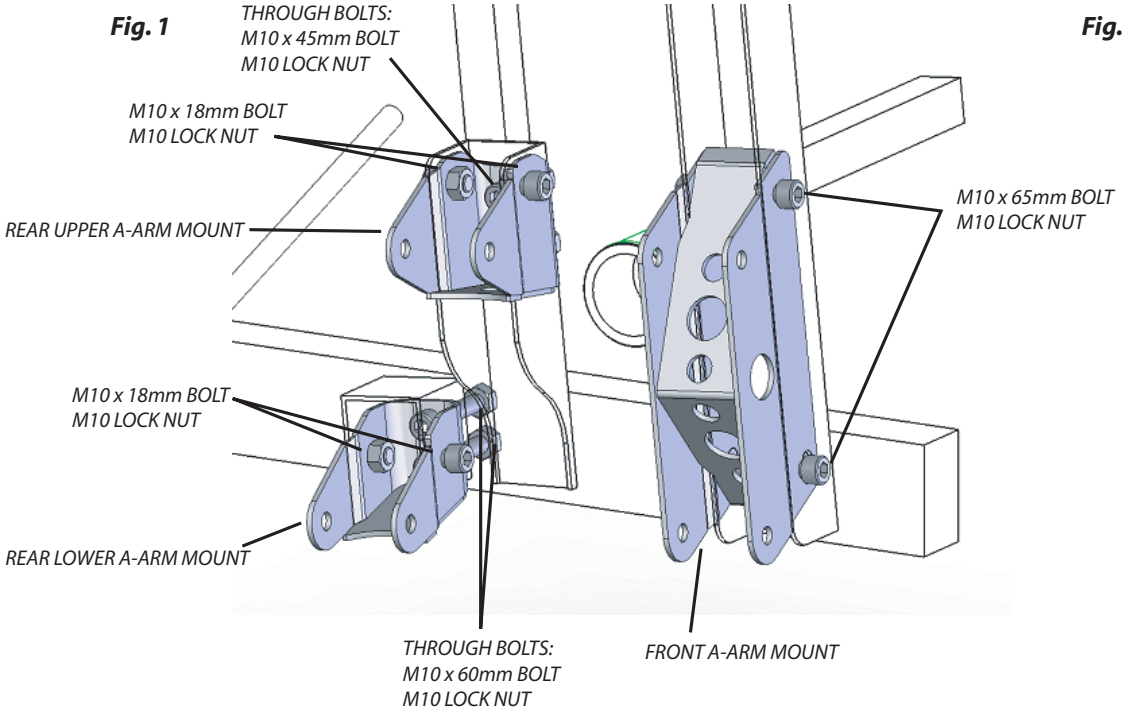
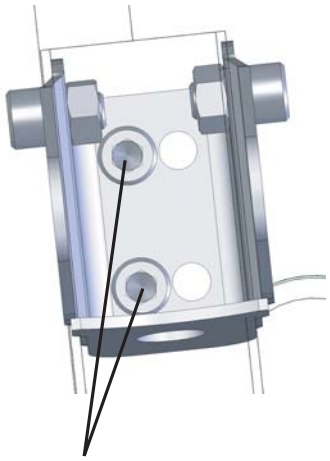


Fig. 2



12. Once you have all the mounts positioned and the holes drilled. Install all bolts and nuts, but do not tighten them yet. It will be much easier to install and line up the a-arm assembly with the brackets loose. You will need to tighten them after you have the a-arm assembly mounted up.
13. Next, install the new extended axle assemblies into the differential housing. It will be necessary to fill the differential back up with the recommended fluid as shown in your manual.
14. Now, you can install the tie rod extenders on to the OEM tie rods. Thread them on about 3/4 the way, then thread on the 2 12mm nuts that are to be used as jam nuts.
15. Take the front shock mount bracket and position it inside the OEM front shock mount. Secure it to the chassis using 4 M10 x 18mm bolts and 4 M10 lock nuts.
16. It will be helpful to have a friend help you hold the parts in the next few steps. While holding the a-arm assembly, install the axle stub into the spindle bearing. Now, take the upper a-arm from the assembly, and position it in the new brackets. Install the OEM bolts and nuts and leave them loose. The lower a-arm will be hanging down on the ground.
16. Install the lower a-arm into position, again using the same OEM bolts and nuts.
17. You can install the front shocks using the OEM bolts and nuts.
18. Now, you can tighten all the hardware that hold the brackets to the chassis and the suspension to the brackets.

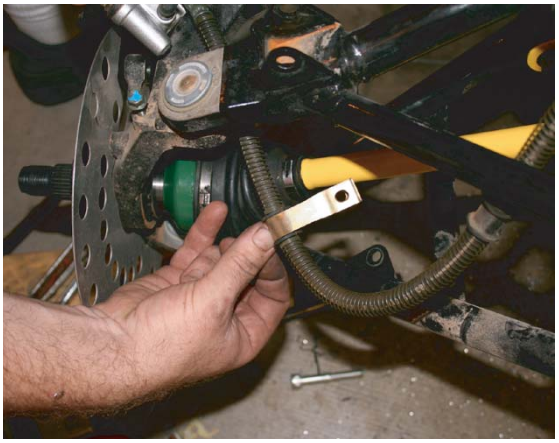
INSTALLATION CONTINUED:

19. Next, you need to thread the tie rod extender and tie rod into the tie rod end. Thread it on about half way. Once the kit installation is finished and the car is back on the ground, you can set the toe as shown in these instructions later.

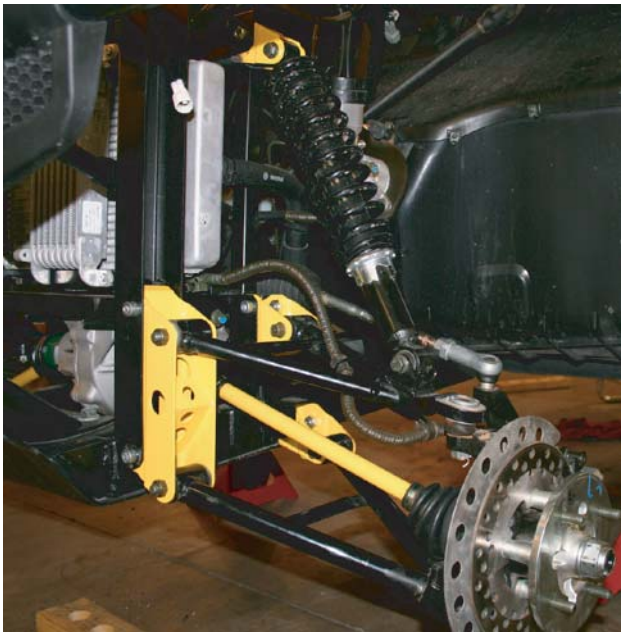
20. Now, you can install the front wheel hub and rotor assembly onto the axle shaft and tighten the large nut using an impact wrench. Do not crush the nut into the axle yet. Wait until you do a short test drive so everything has a chance to seat, then tighten the nut again, then crush the nut to the shaft.

21. Route the brake line as shown in Fig. 3 below and mount the brake caliper to the spindle. Using the OEM brake line clamps, fasten the brake line underneath the arm as shown below.

Fig. 3



COMPLETED FRONT END:

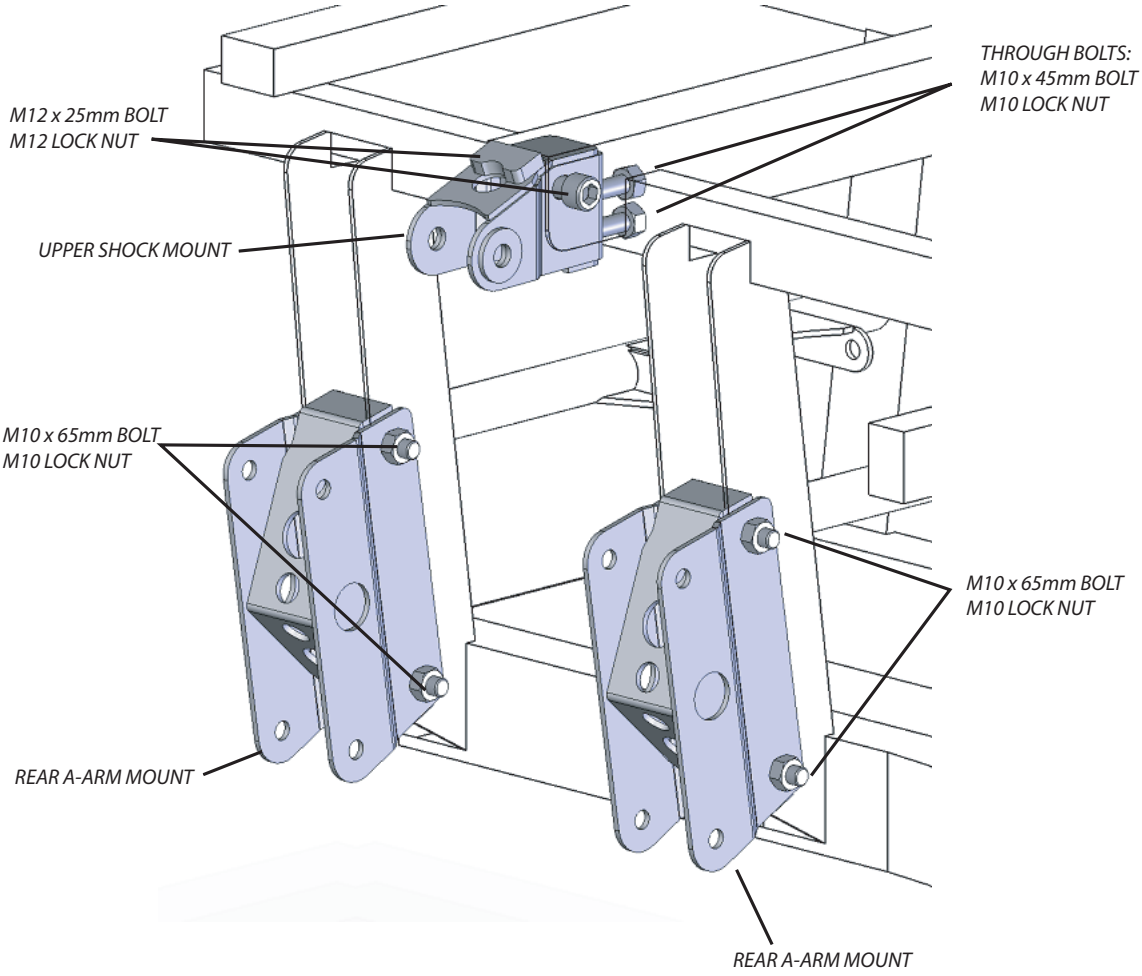


22. Now, you can install your wheels and put the front end on the ground.

REAR INSTALLATION:

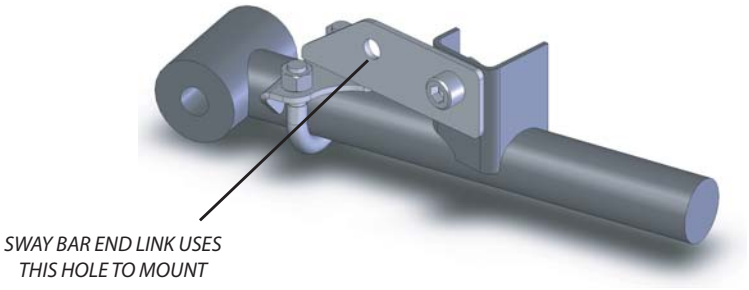
1. The rear installation is very similar to the front installation.
2. We will only comment on the parts that are different.
3. The brackets are installed as shown in Fig. 4 below. The hardware used is also shown below.

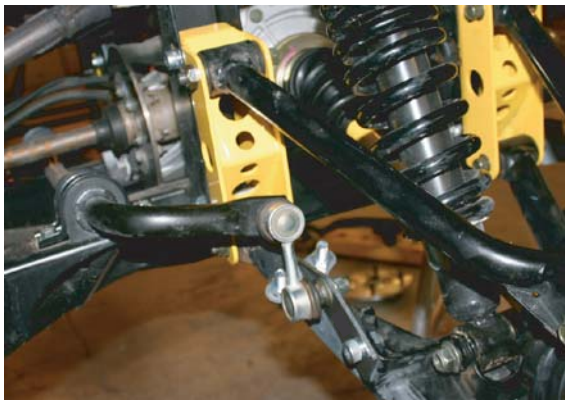
Fig. 4



4. The sway bar mounts get assembled as shown in Fig. 5 below. There is a left and a right, so they need to be placed accordingly. They each use a u-bolt with nuts and a M10 x 18mm bolt and M10 locknut to secure them in place.

Fig. 5





INSTALLATION CONTINUED:

5. Once you have completed the rear installation, it should look like this below.

6. Now, you can install your wheels and set the Rhino back on the ground.
7. The last thing you need to do before driving the Rhino is set the Toe In on the front end.
8. First, you will want to center the steering wheel and make sure the rack and pinion is centered. You can take a measurement to make sure the rack and pinion is centered.
9. Next, you will want to take a measurement from the inside of the wheel to the chassis, and adjust the tie rod until you are the same at both sides.
10. Now, you can measure for toe in. Measure from the back side of the wheel, to the back side of the opposite wheel (making sure to measure in the same spot, about half way up on the wheel). Note this measurement. Take another measurement at the front side of the wheel, and note this dimension. We recommend the front measurement to be about 1/4" to and 1/8" less than the rear measurement. Adjust the tie rods accordingly, making sure to turn them the same amount on each side, until you get to the 1/4" or 1/8" measurement.
11. Now, that you have the tow set, double check all of the bolts to make sure they are tight. Don't forget to add the correct fluid to the front and rear differentials as specified in the user manual.
12. You can now go for a ride.
13. After you drive the car for about 10 to 15 miles, you will want to double check all hardware and re-tighten them accordingly. Also check the main axle nuts and tighten them again. You can now hammer the edge of the nut into the slot to lock them into position.

Congratulations on a job well done!

RHINO
BRACKET LIFT KIT AXLE INSTALLATION INSTRUCTIONS

PARTS INCLUDED:
2 Front Axle Shafts
1 Left Rear Axle Shaft
1 Right Rear Axle Shaft
8 Long Band Clamps
8 Short Band Clamps

TOOLS NEEDED:
Needle Nose Pliers
External Snap Ring Pliers
Small Flat Blade Screw Driver
Diagonal Cutters
Moly CV Joint Grease
Large Dead Blow Hammer
Bench Mounted Vice

Axle Shaft Sizes:

	Bracket Lift Kit
Front Axle Shaft	18.58"
Left (driver) Rear Axle Shaft	18.55"
Right (pass.) Rear Axle Shaft	19.85"

Shown in Overall Lengths

1. Axle Shaft Removal:

First, you need to remove the front and rear hub and spindle assemblies from the a-arms. They should slide off of each shaft. Take note of the o-ring that goes between the hub and spindle bearings. Before removing the axle shafts, you might want to drain a small amount of gear oil from the differentials , so it doesn't leak from the axle openings. It only requires that a few ounces be drained. To remove the axle from the differential, all that is needed is a swift pull on the shaft straight out. You can use the slide motion of the CV joint to assist. It should only take a couple of quick thrusts to pop them out of the differentials by hand.

2. Axle Shaft Disassembly:

Work in a clean area with lots of rags handy, as this will be a messy job. Take care not to get any contaminates in the joints to aid in reassembly. Now that the axle assemblies are removed, you will want to clean them thoroughly using a degreaser and rags. Remove all dirt and sand etc. before you take them apart. You will need to remove the boot clamps by using a small flat blade screw driver to open them up. Pull the boots away from the CV joint. The wheel side of the CV needs to be taken apart using a vice and hammer as shown in Fig. 1. Grasp the joint, and hit the CV joint as shown. It will take a decent amount of force to pop them loose. Remove the small clip as shown in Fig. 2. Slide the boot off of the shaft. Then on the diff. side, there is a small retaining ring as shown in Fig. 3 that needs to be removed using a small screw driver. Next, slide the joint out of the housing. Using the pair of snap ring pliers, remove the clip on the end of the shaft. Slide off the inner CV joint. Remove the last boot from the shaft. All axles use the same system to remove. But please note, not all parts are the same, so we recommend doing them one at a time.

Fig 1

Fig 2

Fig 3

RHINO
BRACKET LIFT KIT AXLE INSTALLATION INSTRUCTIONS

Axle Shaft Sizes:

	Bracket Lift Kit
Front Axle Shaft	18.58"
Left (driver) Rear Axle Shaft	18.55"
Right (pass.) Rear Axle Shaft	19.85"

Shown in Overall Lengths

Wheel Hub End

Axle Shaft | Large Boot | Circlip | Wheel Stub

Note: Front axles get an O-ring as well as the Circlip shown above

Differential End

Diff Stub | Circlip | Snap Ring | Inner CV Joint | Small Boot | Axle Shaft

3. Axle Shaft Reassembly:

You will need to find the right length axle shaft for the location you are working on, using the chart above. We recommend starting on the wheel hub side, as it is a little more tricky to put back together. Slide the larger boot onto the side with the larger splines. The front axles are a little bit different than the OEM ones. This suspension kit requires a little bit more plunge than the factory axles provide. Our axle has a little bit longer spline area on the wheel hub side to let it plunge more. Install the circlip into the groove, just like on the OEM axle shaft. Take the wheel side stub end, and rest it on a table with the joint facing up. Slide the shaft into the CV joint, and make sure it is pointing straight up. You need to close the circlip with a pair of needle nose pliers, as you tap on the end of the axle to slide it into place. Then, on the other side, slide on the smaller boot, then the inner CV joint, with co-bore side going on 1st, and install the snap ring. Make sure the snap ring is fully seated in the groove. Then slide the assembly into the outer differential stub. Install the circlip into the groove on the stub. Now you can pack the CV joints with high quality moly CV joint grease. Now slide the boots into position. You can re-use your old boot clamps, or use the new straps provided. To install the new straps, insert the thin end into the slot of the other end, and pull it through similar to a zip tie. Position the strap around the groove on the boot and make sure it is even. Pull the thin end with pliers. It will be necessary to hold the bulkhead of the strap as you pull on the end with pliers as shown in Fig. 4 to make it tight. Pull it as tight as you can. Make sure the strap is tight around the boot, then cut off the access strap with diagonal pliers or tin snips.

Fig. 4

4. Axle Shaft Installation:

Place the differential end of the shaft into the differential. Make sure the splines are lined up. You can do so by making sure the axle can't spin, and that it is partially seated into the differential. You can use a dead blow hammer to tap the shaft in until it is fully seated. On the rear axles, you might need to use a piece of wood and a normal hammer to install, as the rear clips are a little harder to seat. Make sure not to damage the axle threads. Add recommended gear oil to differentials.