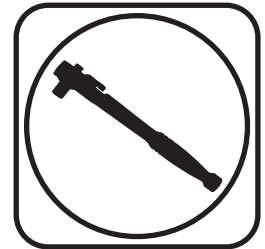




### Part # 11729511/11729513 - 2019-Up GM 1/2 Ton Axle Flip Kit

#### Recommended Tools



## 2019-Up GM 1/2 Ton Axle Flip Kit Installation Instructions

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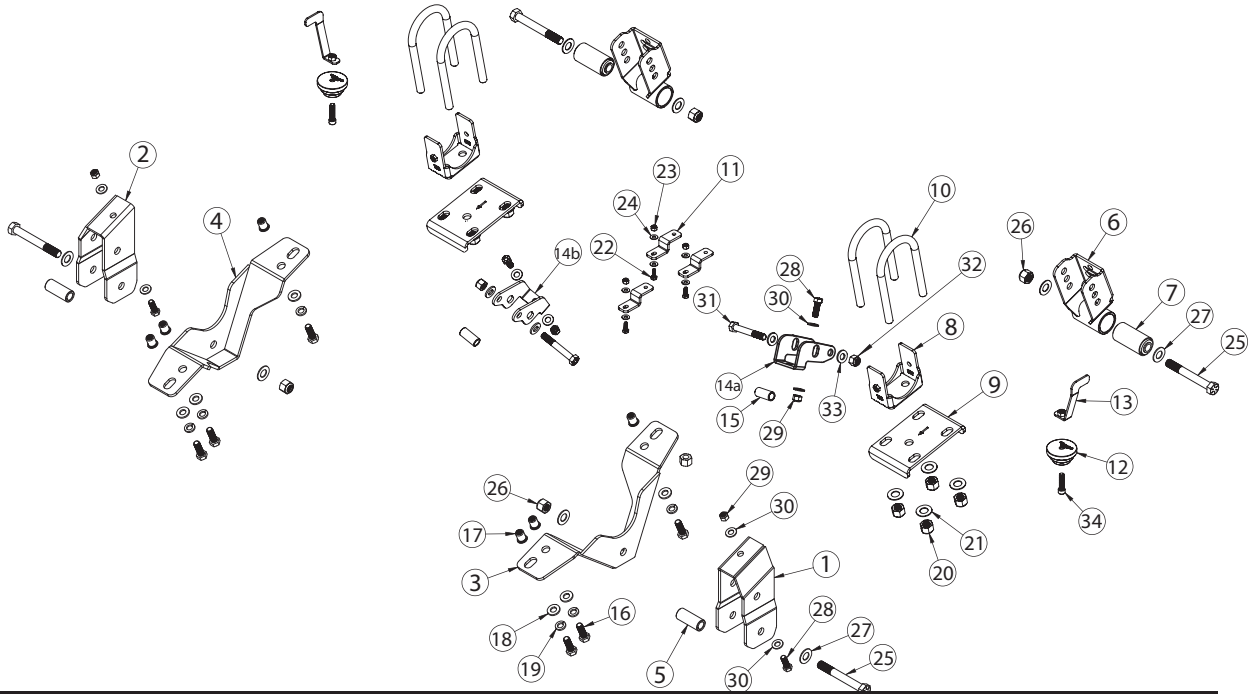
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IF YOU ARE PLANNING TO TOW WITH YOUR NEW LOWERING KIT, WE RECOMMEND THE RIDETECH AIR LEVELING KIT 11724099.





### Major Components .....In the box



Item #	Part #	Description	QTY
1	90003438	Leaf Spring Front Drop Bracket - Driver	1
2	90003439	Leaf Spring Front Drop Bracket - Passenger	1
3	90003440	Leaf Spring Frame Brace - Driver	1
4	90003441	Leaf Spring Frame Brace - Passenger	1
5	90003442	Leaf Spring Mount Spacer, 656" ID x 1.00" OD x 2.43 Long	2
6	90003443	Rear Shackle	2
7	70015559	Shackle Bushing - installed in shackle	2
8	90003444	Leaf Spring Flip Bracket	4
9	90001142	Leaf Spring Clamp Plate	2
10	99626004	U-Bolt, 3.375"W x 7.00"L x 5/8" -18	4
11	90003445	Differential Harness Relocation Bracket	3
12	70015643	Bump Stop	2
13	90003446	Bump Stop Nut Plate	2
14a	90001139	Rear Shock relocation Bracket - Driver	1
14b	90003447	Rear Shock relocation Bracket - Passenger	1
15	90003474	Sleeve, .558" ID x .75" OD x 1.67 Long	2
	90003448	1/2" Riv-Nut Tool	1
<b>11729511/11729513 KIT SHOCKS</b>			
	986-10-806	6.3" Travel Single Adjustable Shock	2
	815-05-022-KIT	1.7" Shock Eyelet	2
	90002994	Shock Bearing, 5/8" ID - installed in shock	4
	90001995	Internal Snap Ring - installed in shock	8
	90003449	Shock Bearing Spacer - .500" ID x .81" Spaced Length	4
	90003473	Shock Bearing Spacer - 14mm" ID x .588" Spaced Length	4



### Hardware Kit #99010215 ....In the box

Item #	Part Number	Description	QTY	QTY	Part Number	Description	QTY
<b>FRAME BRACE</b>				<b>REAR SHACKLE</b>			
16	99501053	1/2-13 x 1 1/2" Hex Bolt	6	25	99621007	5/8-18 x 5" Hex Bolt	2
17	99502024	1/2"-13 Riv-Nut	6	26	99622001	5/8-18 Nylok Nut	2
18	99503014	1/2" SAE Flat Washer	6	27	99623001	5/8" SAE Flat Washer	4
19	99503015	1/2" Split Lock Washer	6	<b>FRONT LEAF MOUNT</b>			
<b>U-BOLT</b>				28	99431021	7/16-14 X 1 1/4" Hex Bolt	2
20	99622001	5/8-18 Nylok Nut	8	29	99432010	7/16-14 Nylok Nut	2
21	99623001	5/8" SAE Flat Washer	8	30	99433005	7/16 SAE Flat Washer	4
<b>DIFF HARNESS BRACKETS</b>				<b>REAR SHOCK MOUNT</b>			
22	99253003	1/4-20 x 3/4" Hex Bolt	3	28	99431021	7/16-14 X 1 1/4" Hex Bolt	2
23	99252003	1/4-20 Nylok Nut	3	29	99432010	7/16-14 Nylok Nut	2
24	99253008	1/4" SAE Flat Washer	6	30	99433005	7/16 SAE Flat Washer	4
<b>FRONT LEAF EYE</b>				31	99501005	1/2-13 x 3 1/2" Hex Bolt	2
25	99621007	5/8-18 X 5" Hex Bolt	2	32	99502009	1/2-13 Nylok Nut	2
26	99622001	5/8-18 Nylok Nut	2	33	99503014	1/2" SAE Flat Washer	4
27	99623001	5/8" SAE Flat Washer	4	<b>BUMP STOP</b>			
	90002263	Red Loctite	1	34	99371019	3/8-16 x 1 1/2" Socket Head	2
				<b>BRAKE LINE TO FLIP BRACKET</b>			
					99081010	M8-1.25 X 16mm HEX BOLT	2
					99083001	M8 FLAT WASHER	2

## Getting Started.....

THIS KIT CAN BE SETUP TO LOWER THE REAR OF YOUR TRUCK 3 DIFFERENT HEIGHTS. IT CAN BE SET TO LOWER THE REAR OF THE TRUCK 3 1/2", 4" OR 4 1/2". THIS HEIGHT ADJUSTMENT IS BUILT INTO THE REAR SPRING SHACKLE. BEFORE YOU START THE INSTALL, MEASURE THE HEIGHT OF YOUR TRUCK TO HELP DETERMINE HOW YOU WANT IT TO SIT. THE RIDETECH FRONT KIT HAS SOME ADJUSTMENT TOO. THE FRONT KIT WILL LOWER THE TRUCK 2". YOUR TIRE HEIGHT WILL PLAY A FACTOR ON HOW LOW YOU CAN SET THE FRONT SUSPENSION.

1. Raise the vehicle to a safe and comfortable working height and support it by the frame. You will need to be able to move the rear differential up and down. Use a jack under the rear axle to raise and lower it during the install.
2. Jack up the rear end slightly to remove the tension from the rear shocks. Remove the shock absorbers. Retain the OEM hardware. For proper function, they should be replaced with the Ridetech HQ Series shocks 11729510. Shocks are included with this kit.

## Disassembly

3. Lower the jack to relieve the tension on the rear springs, but keep the jack touching the rear axle.
4. Remove the u-bolts and axle clamps to disengage the axle from the leaf springs.
5. Lower the axle to get clearance on the leaf springs, but **DO NOT** strain the brake lines.
6. The leaf springs will need to be removed to install the rear lowering kit. Retain the hardware for reassembly. We suggest marking the leaf springs driver and passenger. This can be done with a piece of masking tape and a marker. The leaf springs are heavy and may require assistance to remove and reinstall them. Repeat Steps 4 - 6 on the 2nd leaf spring.



### Disassembly



**7.** Unbolt the brake line bracket from the mount that is below the leaf spring on each side of the axle. Retain the hardware for reassembly.



**8.** The bracket that is at the rear of the OEM leaf spring perch will need to be cut off of the axle tube. We use a saw-z-all to cut it off. It needs to be cut off even with the axle, perpendicular to the top of the leaf spring perch. Use **Image 8** as a reference.



**9.** The OEM bump stop mount will need to be cut off the frame. We do this by cutting the weld with a cut off wheel on a die-grinder. Cut in the center of the weld without going too deep. Cutting too deep will cut into the frame.



### Disassembly



**10.** We recommend grinding the remaining weld down until it is smooth. Paint the exposed metal to keep it from rusting.



**11.** The leaf spring locating pin needs to be flipped over. Currently, the nut for the pin is on the top side of the leaf spring pack. The nut will need to be on the bottom side for proper location of the flip bracket. The u-bolt locating plate will need to be removed and discarded. To remove the pin and u-bolt locator, clamp the leaf springs together in front of and behind the u-bolt locator. With the leaf spring clamped, remove the nut from the locating pin. Next, remove the u-bolt locator and discard it.



**12.** Remove the locating pin from the leaf spring pack. Reinstall the locating pin from the TOP side. Reinstall the nut on the BOTTOM side and tighten. With the nut tight, remove the clamps. Repeat on the second spring.



### Brake Line Bracket Installation



**13.** Next, remove the OEM shackle from the leaf spring. **Note the orientation of the OEM bolt, it will be reinstalled in the same orientation with the new shackle.** Retain the OEM hardware for reassembly.



**14.** Unbolt the brake line bracket from the top of the differential. This will help provide enough slack in the lines to be able to flip the leaf springs on the bottom side of the axle. Retain the hardware, this bracket will be reinstalled later.



**15.** The kit includes 3 identical brackets that will be used to relocate the differential bracket down and forward. Attach the brackets to the differential mount at the (3) locations the brake line bracket was bolted to. The relocation bracket needs to be installed with the slotted hole forward. Align the holes of each bracket with the mounting holes of the differential bracket. Insert an OEM bolt in each aligned hole. Leave these bolts loose until the mount is attached.



### Shackle & Front Leaf Spring Bracket Installation



**16.** Install a 1/4" flat washer on each of (3) 1/4"-20 x 3/4" bolts. Align the brake line bracket with the relocation brackets and insert a 1/4" bolt/washer in each mounting hole. Install a 1/4" flat washer and 1/4" nylok nut on each bolt. Torque the hardware to 92 in-lbs.



**17.** Attach the new shackle to the leaf spring using the OEM hardware. The closed side of the shackle needs to be on the same side as the top of the leaf spring. When installing the hardware, make sure the nut will be on the outside of the truck. In this install, we are targeting the 4" drop by using the hole furthest away from the bushing. If you don't want to drop your truck as much, you might want to use a different hole. Refer to the adjustment paragraph on **Page 3**.



**18.** Install the OEM nut on the shackle bolt. Again, make sure the nut will be on the outer side of the leaf spring. The hardware will be left loose until the truck is on the ground. Repeat on the second spring.



### Front Leaf Spring Bracket Installation



**19.** The kit includes a front leaf spring relocation bracket. These brackets are side specific and will only fit correctly when installed on the correct side. The angle goes to the outside of the frame. Align the bracket with the OEM leaf spring hole. The kit includes a 2.43" long spacer to be installed in place of the leaf spring on the OEM leaf spring bolt. This keeps the leaf spring bracket installed. IF YOU ARE INSTALLING THE OPTIONAL TRACTION BARS, THE FRONT OF THE TRACTION BAR WILL BE INSTALLED ON THE OEM LEAF SPRING HOLE, see **Step 20**.



**20.** Image 20 shows the leaf spring relocation bracket with the optional traction bars. Refer to the Traction Bar instructions for proper hardware and installation. If you are not installing traction bars, a 2.43" long spacer (90003442) will be installed in its place. With the leaf spring bracket and spacer/traction bar aligned, install the OEM front leaf spring bolt



**21.** Install a 7/16" flat washer on a 7/16"-14 x 1 1/4" bolt. Insert it in the top hole of the bracket and OEM leaf spring mount. Install a 7/16" flat washer and 7/16"-14 nylok nut on the threads of the bolt and torque to 70 ft-lbs.



### Front Leaf Spring Bracket Installation



**22.** Insert the front of the leaf spring in the new bracket. Install a 5/8" flat washer on a 5/8"-18 x 5" bolt. With the mounting holes aligned with the inner sleeve of the leaf spring, insert the bolt/washer. **DO NOT INSTALL THE WASHER AND NUT AT THIS TIME.**



**23.** This kit includes a frame brace for the front leaf spring mount. These mounts are side specific. The open side of the brace should be facing inboard, with the leaf spring bolt hole offset to the front of the vehicle. The hole in the side of the brace will slip over the leaf spring bolt.



**24.** Mark the 3 holes of the upper flange. There's 2 holes in the front, 1 to the rear. Remove the bracket to allow access to the bottom of the frame rail.



### Front Leaf Spring Bracket Installation



**25.** Center punch the marked holes. Use a smaller drill bit to drill a pilot hole at each marked location.



**26.** Drill the 3 holes out to 11/16".



**27.** Install the Rivnuts in the bottom of the frame rail. **Refer to the Rivnut installation instructions on PAGE 11 for proper Rivnut installation.** Image 26 illustrates a Rivnut being installed on the installation tool.



### Rivnut® Installation & Specs

1. Drill Hole in Frame to 11/16" using an 11/16" drill bit or stepped Unibit keeping the Drill square with the metal.
2. We recommend installing (2) 1/2" Flat Washers between the bolt head and the lower anvil of the installation tool. Thread a Rivnut® onto the supplied Tool. Thread the Rivnut all the way onto the Tool until it stops.
3. Insert the Tool and Rivnut® into the drilled hole 90° to the Frame Rail.
4. The Tool requires (2) 3/4" Wrenches to use. A Ratchet can be used on the top of the Tool.

#### KEEP THE TOOL AND RIVNUT 90° TO THE SURFACE WHILE TIGHTENING

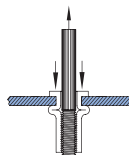
5. Put a 3/4" Wrench on the Lower Hex of the tool. Use a Wrench or Ratchet on the Top hex to Tighten.
6. Hold the Wrench in one position and turn the TOP HEX CLOCKWISE to engage the Rivnut®. Keep Turning the TOP WRENCH until you feel a positive stop and you can't turn the TOP WRENCH anymore.
7. Break the Tool loose by turning the TOP HEX counterclockwise and thread the Tool out of the Rivnut®

#### THE DATA BELOW ILLUSTRATES THE STRENGTH OF THE RIVNUT®

#### RIVNUT® Fastener Engineering Data

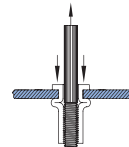
Upset Load (lbs.)		
RIVNUT® Size	Steel	
	Min. Grip	Max. Grip
1/2-13	5800	6300

Fig. 1



Ultimate thread strength (lbs.)		
RIVNUT® Size	Steel	
	Min. Grip	Max. Grip
1/2-13	17250	14500

Fig. 2



Ultimate tensile strength (lbs.)	
RIVNUT® Size	Steel
1/2-13	4900

Fig. 3

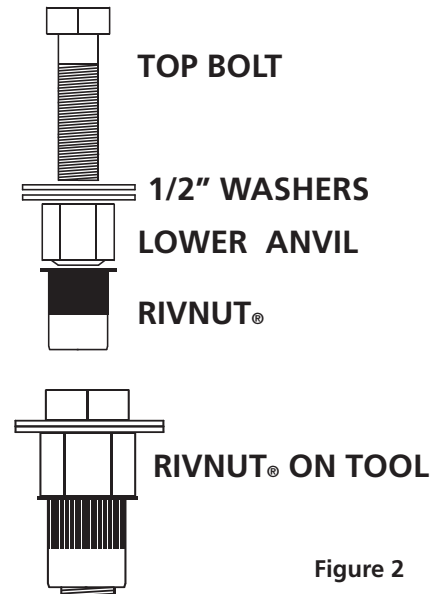
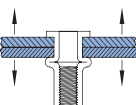


Figure 2

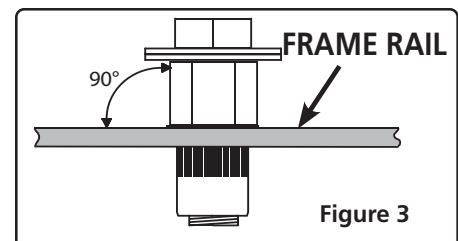


Figure 3

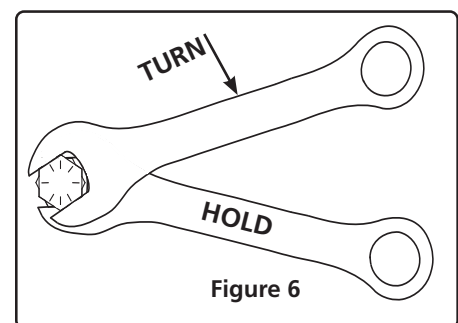


Figure 6



### Front Leaf Spring Bracket Installation



**28.** Install all (3) Rivnuts in the frame rails.



**29.** Reinstall the frame brace bracket. Install a 5/8" flat washer and 5/8"-18 nylok nut on the leaf spring bolt. You can snug, but do not completely tight until the truck is on the ground.



**30.** Install a 1/2" split lock washer & 1/2" SAE flat washer on each of (3) 1/2"-13 x 1 1/2" hex bolts. Insert the bolts/washer through the bracket, threading them into the Rivnuts.



### Shackle & Flip Bracket Installation



**31.** Torque the 1/2" hardware to 75 ft-lbs. Again, **DO NOT TIGHTEN THE LEAF SPRING BOLT UNTIL THE TRUCK IS SITTING ON THE GROUND.** Repeat **Steps 18-31** on the other side of the truck.



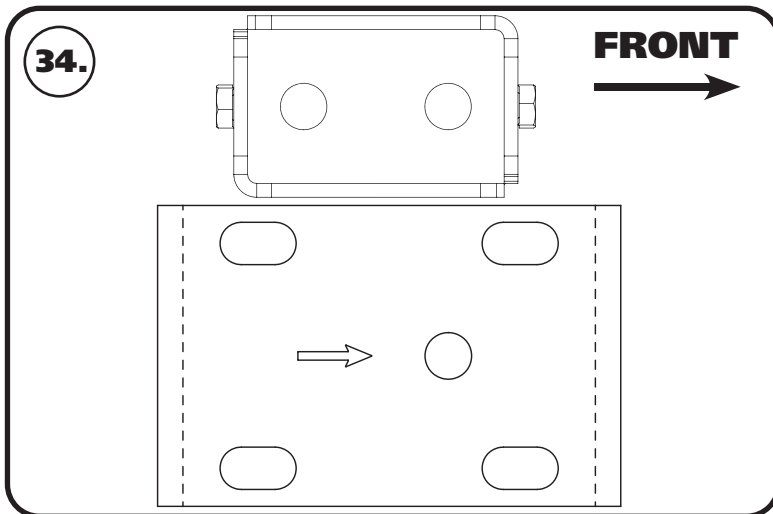
**32.** Raise the rear of the leaf spring up to the factory mount. You may need to jack the rear differential up to get enough clearance on the leaf spring. Install a 5/8" flat washer on a 5/8"-18 x 5" hex bolt. Align the through hole of the shackle bushing with the OEM shackle mounting holes. Insert the 5/8" bolt/washer through the aligned holes.



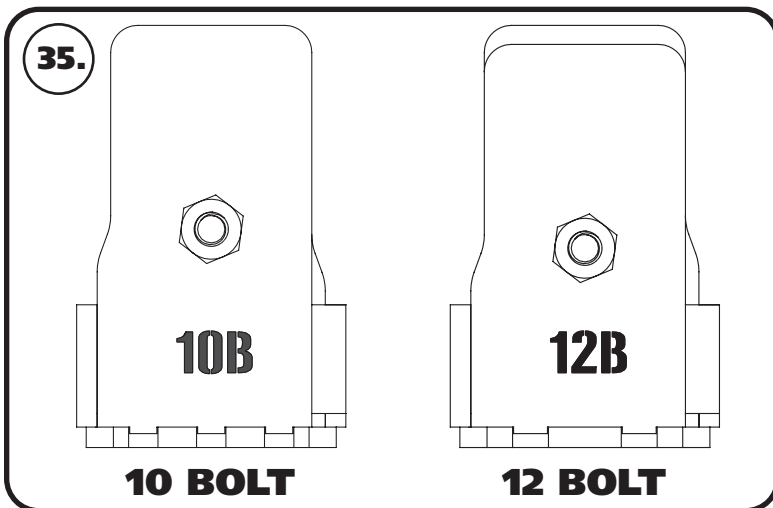
**33.** Install a 5/8" flat washer and 5/8"-18 nylok nut on the threads of the bolt. Snug down the hardware, but **DO NOT** tighten until the truck is sitting on the ground.



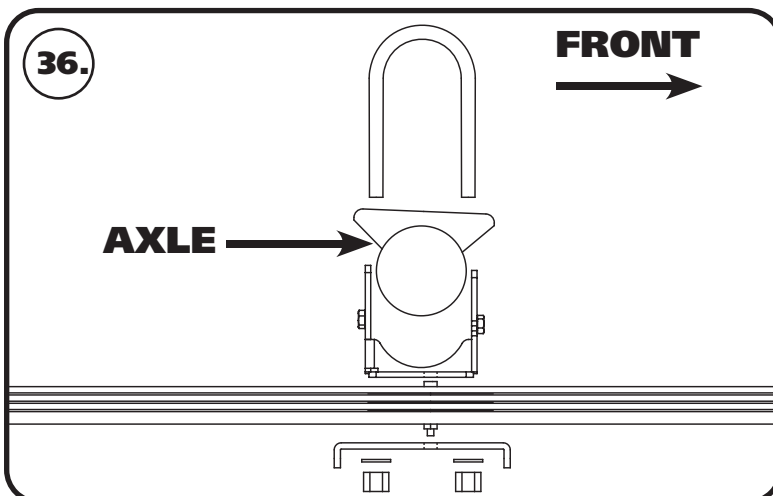
### Flip Bracket Installation



**34.** The Flip Kit has the locating holes offset to center the wheel in the wheel opening. **Image 34** illustrates a top view of the Flip Bracket and the Leaf Spring Plate. Notice the locating holes are not centered. These brackets are designed to move the axle to the rear of the truck to keep the differential centered in the wheel opening. The ARROW in the clamping plate needs to point to the front of the truck. The orientation of the flip bracket is covered in the next step.



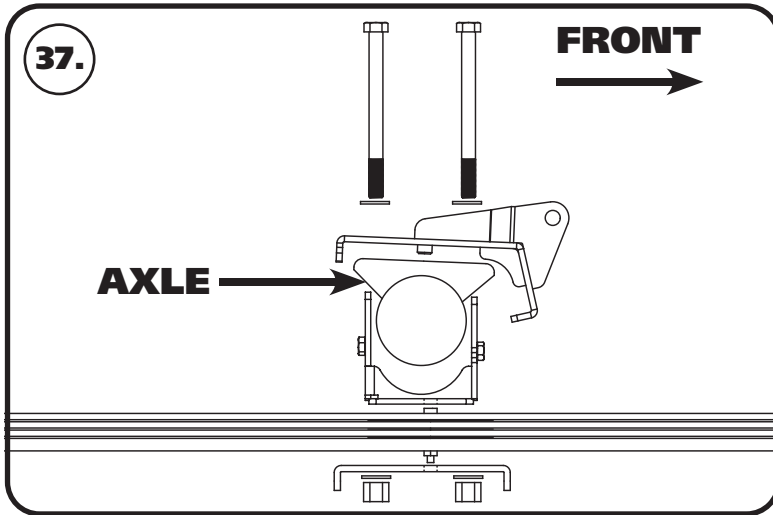
**35.** These trucks came with either a 10 bolt or 12 bolt differential. You can determine which differential you have by counting the number of bolts that hold the differential cover on. The flip bracket has 10B on one side and 12B on the other side. **THE NUMBER THAT CORRESPONDS WITH THE NUMBER OF BOLTS IN YOUR DIFFERENTIAL COVER NEEDS TO BE POSITIONED TO THE FRONT OF THE TRUCK.**



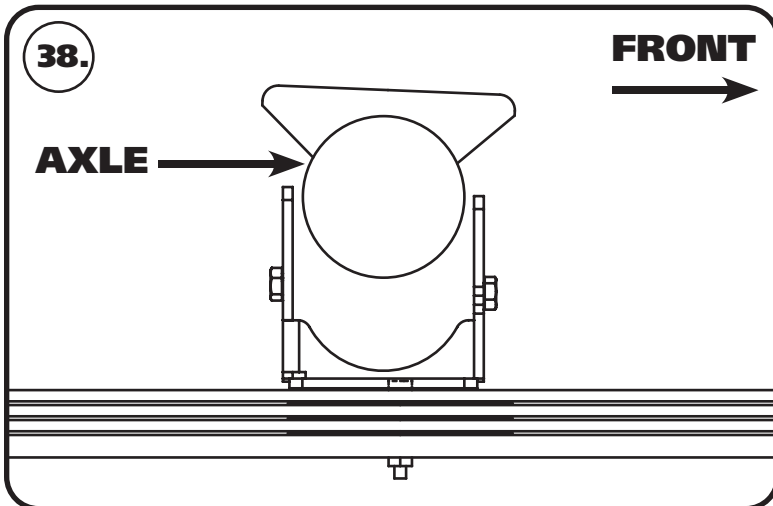
**36.** **Image 36** is an illustration with the parts exploded to assist in the assembly of the flip kit. **IF INSTALLING THE OPTIONAL TRACTION BARS WITH THIS KIT, SEE STEP 37.** If you are NOT installing the traction bar kit, skip to Step 38.



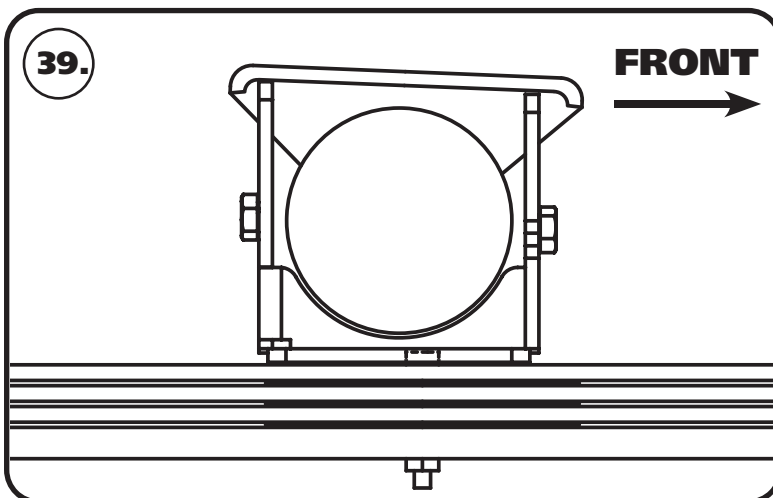
### Flip Bracket Installation



**37. OPTIONAL TRACTION BAR AXLE BRACKET ONLY!!** The traction bar kit uses an upper axle mount and 5/8"-18 x 7.5" hex bolts instead of using the u-bolts that are supplied in the flip kit. The pivot mount will be to the front of the truck with the locating pin nested into the hole of the OEM leaf spring mount.



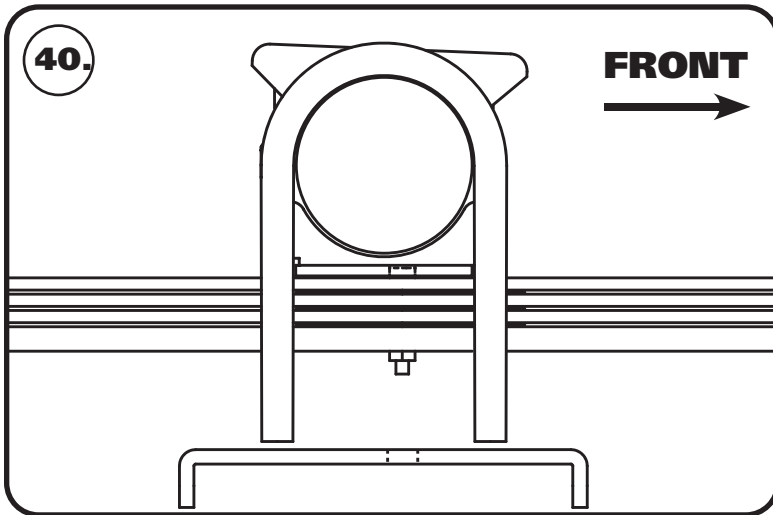
**38.** Set the Flip Bracket onto the leaf spring with the CENTER HOLE OFFSET TO THE FRONT OF THE TRUCK. **Step 35** will help you determine the orientation of the flip bracket. The locating pin needs to be in the front hole of the flip bracket.



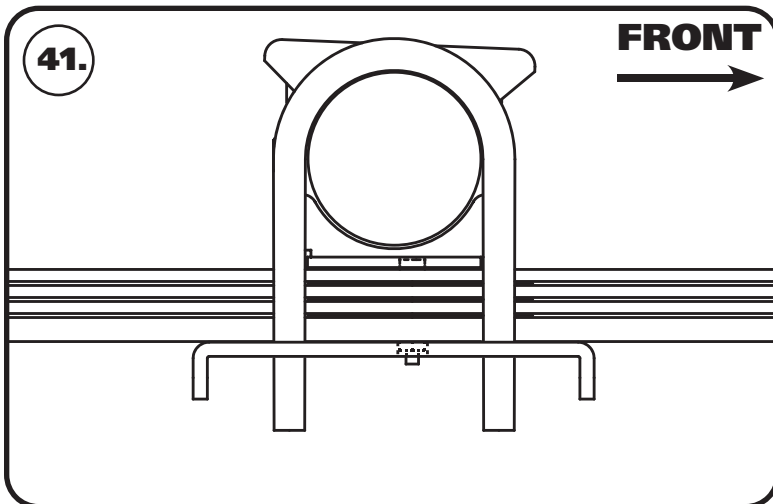
**39.** Slowly lower the axle into the Flip Bracket making sure the tabs go up into the leaf spring saddle. THE FLIP BRACKET WILL POSITION THE PINION AT THE CORRECT ANGLE.



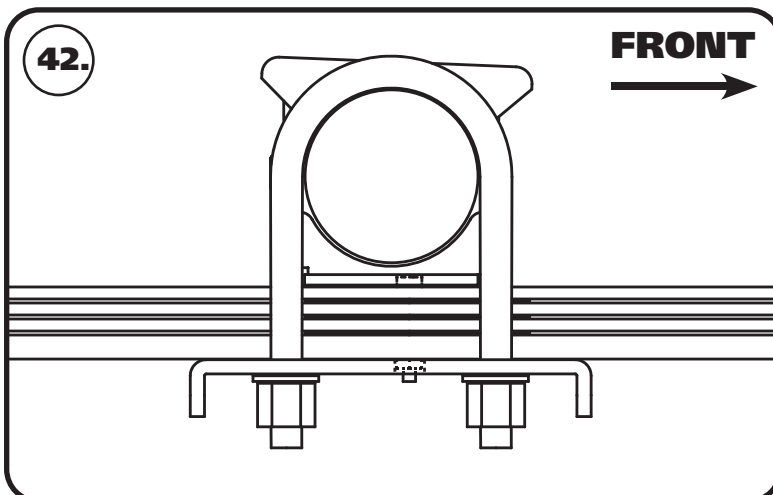
### Flip Bracket Installation



**40.** Slip the U-Bolts over the axle tube with the threads pointing down.



**41.** Slip the Leaf Spring Bracket up onto the U-Bolts WITH THE OFFSET HOLE FORWARD. THE ARROW ON THE BRACKET SHOULD POINT TO THE FRONT OF THE TRUCK.



**42.** Hold the Leaf Spring Bracket in place and install a 5/8" Flat Washer & 5/8"-18 Nylok Nut on the threads of the u-bolts. Snug the nuts down evenly and tighten them in a criss-cross fashion to 130 ftlbs.



### Bump Stop & Shock Bracket Installation



43.

**43.** Attach the OEM brake line bracket to the rear of the flip bracket using the OEM hardware. Torque to 18 ft-lbs.

**NOTE:** On some vehicles, the factory bolt may be too long. Shorter M8 bolts are included in the hardware kit if you encounter this issue.



44.

**44.** Insert the bump stop nut plate in the side hole of the frame that is near the OEM bump stop location. The tab of the nut plate will assist you in holding it in place.



45.

**45.** Insert a 3/8"-16 x 1 1/2" socket head cap screw in the center of the bumpstop. The large diameter of the bump stop will go against the bottom of the frame rail. Using a hex wrench inserted into the socket head cap screw, align the bump stop with the hole in the bottom of the frame and the nut plate. Thread the bolt into the nut plate. Torque to 35 in-lbs.



### Shock Relocation Bracket Installation



**46. Steps 46-48** cover installation of the lower shock relocation bracket. This bracket helps correct the shock angle at the new lower ride height. Slip the bracket over the OEM lower shock mount. Align the hole of the relocation bracket with the OEM shock mounting hole. The bracket should sit against the front of the OEM shock mount. Insert the 1.670" long spacer in the OEM shock mount, aligning it with the OEM shock mounting hole. Insert the OEM hardware in the OEM shock mounting location. Install the OEM nut but do not tighten at this time.



**NOTE:** The relocation brackets are side specific. Be sure to use the correct bracket on the correct side. Refer to the exploded view and parts listing on page 2.

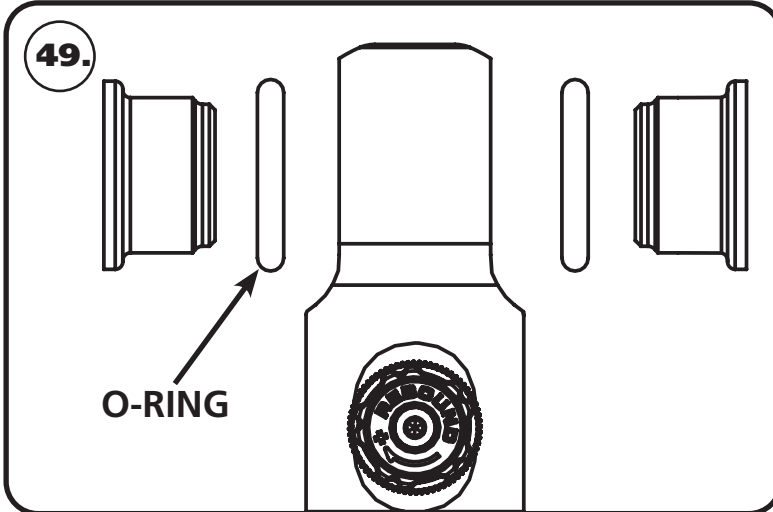
**47.** Use the shock relocation bracket as a template to drill a 7/16" hole in the OEM shock mount.



**48.** Install a 7/16" flat washer on a 7/16"-14 x 1 1/4" hex bolt. Insert the bolt through the relocation bracket and into the previously drilled hole. Install a 7/16" flat washer and 7/16"-14 nylok nut on the bolt. Torque the 7/16" hardware to 70 ft-lbs. Torque the OEM shock bolt to 104 ft-lbs. Repeat **Steps 46-48** on the 2nd shock mount.



### Shock Installation



**49. Steps 49-53** cover the shock installation. The kit includes bearing spacers for the top and bottom shock mounting. The top bolt uses the larger ID spacers.

Slide an O-ring onto each of the aluminum spacers, then install the SMALL end of the bearing spacers into the shock bearing of the eyelet.



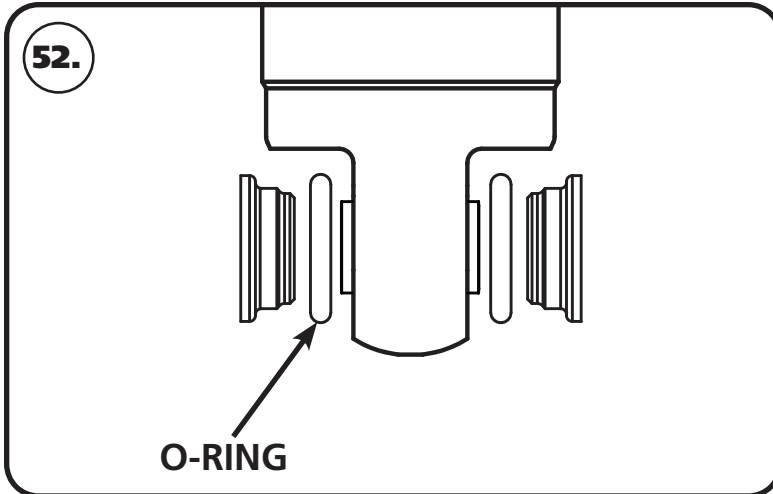
**50.** Insert the eyelet of the shock into the top upper mount and reinstall the OEM shock bolt.



**51.** Torque the top shock bolt to 85 ft-lbs.



### Final Tightening



52. Slide an O-ring onto each of the aluminum spacers, then insert the SMALL end of the bearing spacers into the shock bearings of the shock body. Insert the shock body into the relocation bracket.



53. Install a 1/2" flat washer on a 1/2"-13 x 3 1/2" hex bolt. Insert the bolt/washer in the relocation bracket/shock. Install a 1/2" flat washer and 1/2"-13 nylok nut on the threads of the bolt. Torque to 85 ft-lbs. Repeat **Steps 49-53** on the 2nd shock.

54. Set the truck on the ground. Verify that the rear of the truck sits the height you were targeting. The rear shackle does have 3 positions to help tune the height. Refer to **Page 3**.

55. Torque the leaf spring and shackle hardware to 130 ftlbs.

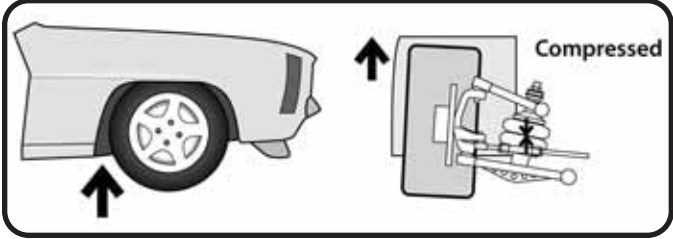


# TUNING GUIDE

## SINGLE-ADJUSTABLE SHOCKS

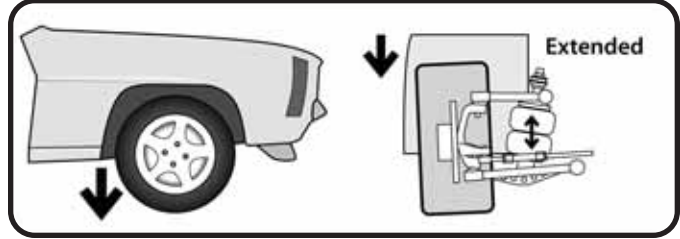


### The Basics...



#### COMPRESSION

This typically occurs when you hit a bump in the road. The bump forces the wheel/tire/suspension assembly to "compress" or move upwards into the car.



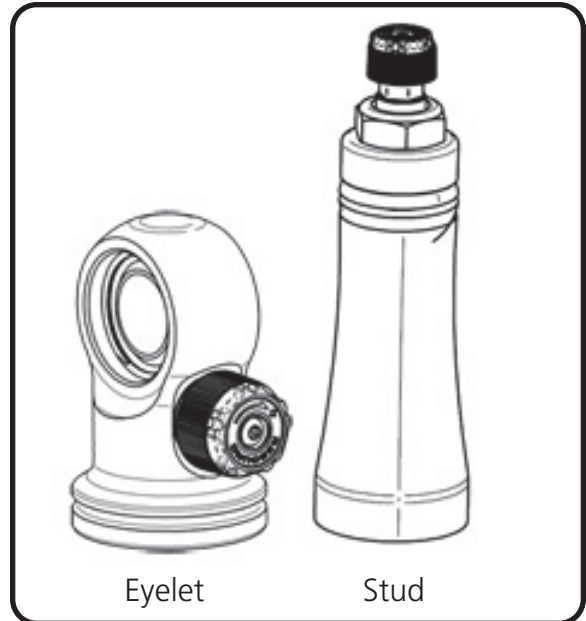
#### REBOUND

Rebound is the opposite of compression. This occurs when the wheel/tire/suspension assembly falls into a pothole, or simply "rebounds" from being compressed.

### Where Are The Knobs?

#### HQ Series Shocks

- The adjustment knob is located on the top of the shock, either protruding from the side of the eyelet, or atop the stud.
- This knob provides rebound adjustment only.



### Knob Function

Counterclockwise

=  
Softer



Clockwise

=  
Firmer





# TUNING GUIDE

## SINGLE-ADJUSTABLE SHOCKS



### Initial Rebound Setting

**NOTE:** Before jumping straight to a middle-of-the-road shock setting, we recommend you experience the full range of adjustment potential of your new shocks by first driving your vehicle at both the “full stiff” and “full soft” settings. Understanding how your shocks behave at these extremes will provide recognizable reference points as you attempt to dial in your settings.

**1.** Begin by setting your shocks to the “full stiff”, or minimal rebound position. You do this by turning the adjustment knob clockwise until it stops.

**2.** Now turn the adjustment knob counterclockwise 12 clicks. This is the approximate center of the adjustment range.

**3.** Take the vehicle for a test drive. Try to determine if you are experiencing any of the unwanted behaviors found at the extremes of the adjustment range. If you are satisfied with the ride quality and handling, you’re all set. Enjoy the ride!

**4.** If the vehicle feels too “floaty” or soft, turn the knob a few clicks clockwise to increase the damping effect.

If the ride quality is still too harsh or stiff, turn the knob a few more clicks counterclockwise to decrease the damping effect.

**5.** Take the vehicle for another test drive. If necessary, repeat the steps above until your desired optimal ride quality has been achieved.



### General Guidelines

- The rear shocks typically have the most influence on ride quality. This is due to your seating position being closer to the rear than the front.
- Adjustments to the front shocks will generally require 3-4 clicks in any direction to be noticeable, while adjustments to the rear shocks may only require 1-2 clicks to be felt.
- Don’t be afraid to turn the knobs and experience the full adjustment range. You are not going to hurt anything and you can always go back if you adjust too far one way or the other.