



### Part # 12290110/12290115 - 2015-2024 Ford F150 2WD/4WD Lowering Kit

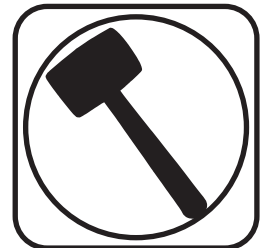
#### Front Components

12293699 Front Upper Control Arms  
12293110/12293115 2WD/4WD Front CoilOver Kit

#### Rear Components

12299512 Rear Flip Kit  
12299510 Rear HQ Series Shocks

#### Recommended Tools



## 15-24 Ford F150 2WD/4WD Lowering Kit Installation Instructions

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**THIS KIT WILL NOT FIT 2021 NEWER MODELS WITH POWERBOOST (HYBRID) OPTION.**

**IF YOU ARE INSTALLING THIS KIT ON A 2021+ WITH HEADLIGHT SENSORS, YOU WILL ALSO NEED KIT # 12299501.**

**TRUCKS EQUIPPED WITH BLUE CRUISE WILL NEED THE FORWARD CAMERA RECALIBRATED TO THE NEW WHEEL ARCH HEIGHT. A FORD DEALERSHIP CAN DO THIS.**

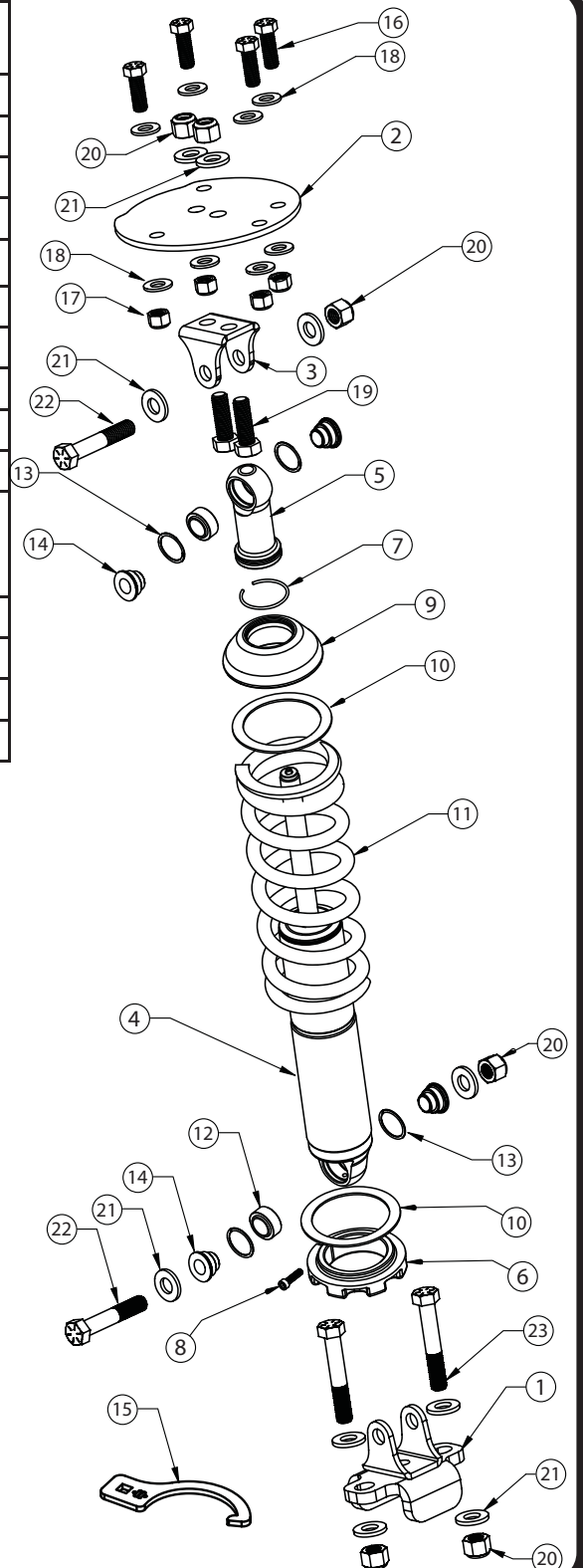
We recommend installing some components in conjunction with each other. On the front, the CoilOvers and Upper Control Arms should be installed at the same time. In the rear, install the Flip Kit before installing the HQ Series Shocks.





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

Item #	Part #	Description	QTY
1	90003270	Lower CoilOver Mount	2
2	90003271	Upper CoilOver Mounting Plate	2
3	90002158	Upper CoilOver Mounting Bracket	2
4	982-10-805	5.2" Stroke HQ Series Shock	2
5	90002025	2.7" Shock Eyelet Assembly	2
6	234-15-200	Lower Spring Adjuster Nut	2
7	038-01-006-A	CoilSpring Plate Retaining Ring	2
8	99050001	Adjuster Nut Locking Screw	2
9	90002070	Dropped CoilSpring Cap	2
10	70010828	Delrin Spring Washer	4
11	59100650 (2WD) or 59100750 (4WD)	CoilSpring 10" (2WD) 650lb - 2WD or CoilSpring 10" (4WD) 750lb - 4WD	2 or 2
12	90001994	5/8" ID Shock Bearing	4
13	90001995	Shock Bearing Snap Ring	8
14	90002043	.500 x .365 Shock Bearing Spacers	8
15	85000000	Spanner Wrench	1



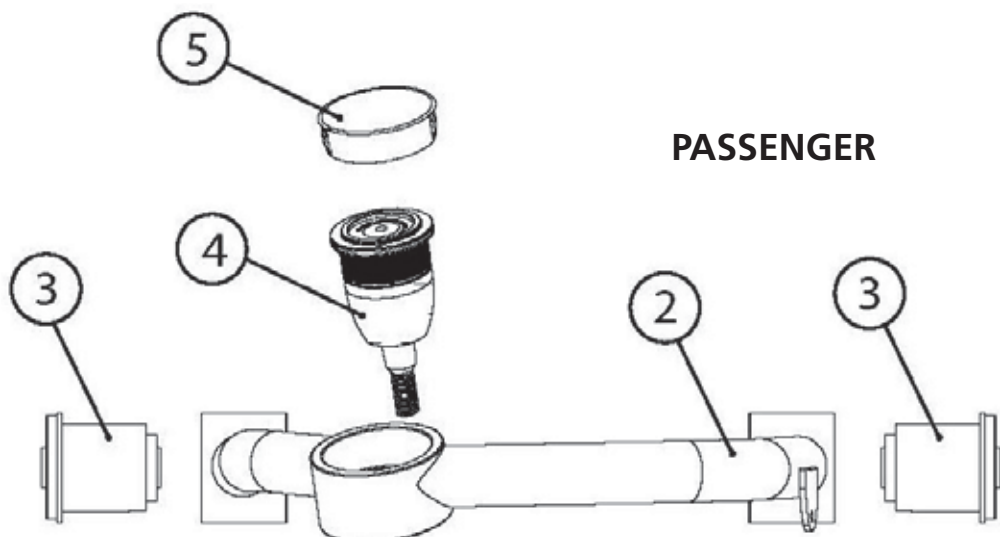
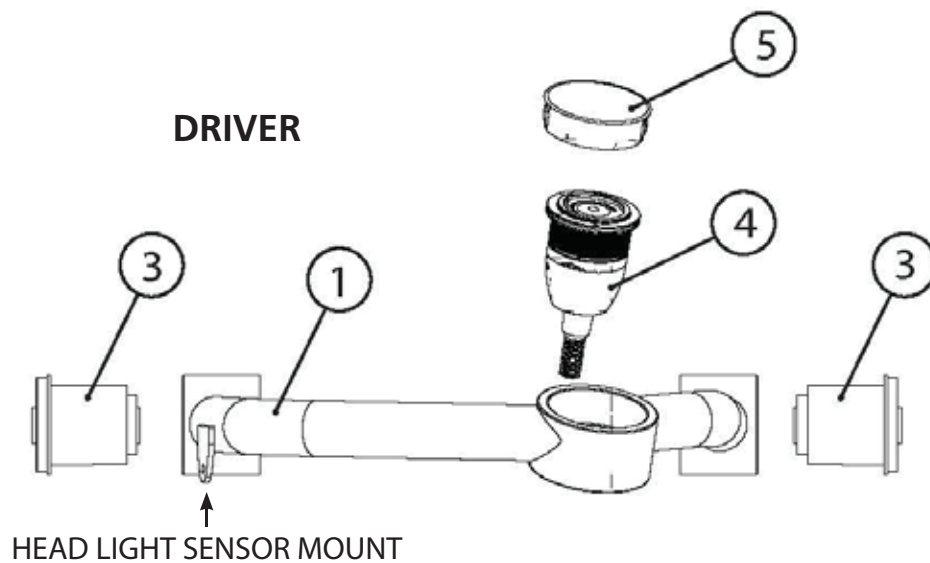
#### HARDWARE LIST - Kit # 99010168

Item #	Part #	Description	QTY
<b>UPPER MOUNT TO STRUT TOWER</b>			
16	99431021	7/16"-14 x 1 1/4" Hex Bolt	8
17	99432010	7/16"-14 Nylok Nut	8
18	99433005	7/16" SAE Flat Washer	16
<b>UPPER COILOVER MOUNT TO BRACKET</b>			
19	99501053	1/2"-13 x 1 1/2" Hex Bolt	4
20	99502009	1/2"-13 Nylok Nut	4
21	99503014	1/2" SAE Flat Washer	4
<b>SHOCK TO SHOCK MOUNT</b>			
20	99502009	1/2"-13 Nylok Nut	4
21	99503014	1/2" SAE Flat Washer	8
22	99501064	1/2"-13 x 2 3/4" Hex Bolt	4
<b>LOWER MOUNT TO CONTROL ARM</b>			
20	99502009	1/2"-13 Nylok Nut	4
21	99503014	1/2" SAE Flat Washer	8
23	99501004	1/2"-13 x 3" Hex Bolt	4



### Major Upper Control Arm Components .....In the box

Item #	Part #	Description	QTY
1	90003266	Upper Control Arm - Driver	1
2	90003267	Upper Control Arm - Passenger	1
3	90003269	Upper Control Arm Bushings - Tenneco # MB05B714620	4
4	90003268	Upper Control Arm Ball Joint - Moog # K6696	2
5	70015619	Upper Ball Joint Dust Cap	2





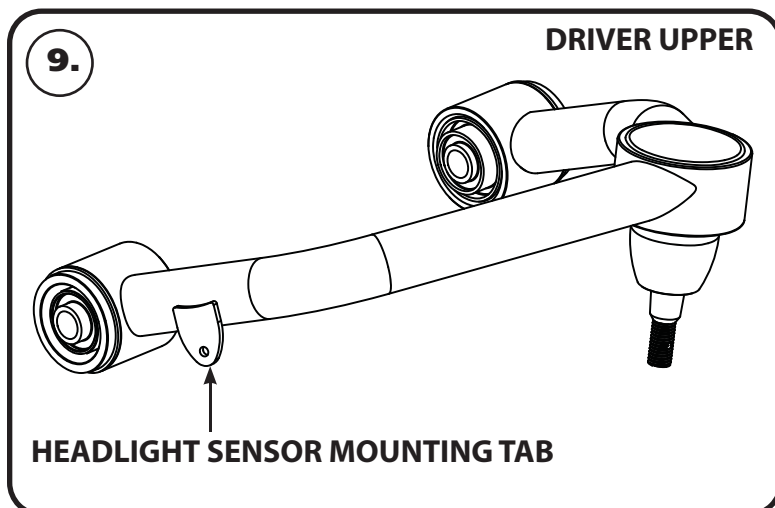
### Disassembly

This CoilOver System is Designed to replace the factory Shocks and Springs.

The front OEM Shock and Spring assemblies will need to be removed from the front of the truck. **DO NOT DISASSEMBLE THE SHOCK/SPRING ASSEMBLY, THE COILSPRING IS UNDER COMPRESSION AND COULD CAUSE BODILY INJURY!**

1. Block the rear wheels of the truck to prevent it from rolling.
2. Raise the front of the truck and support it by the frame, allowing the suspension to hang freely.
3. Remove the wheels.
4. Disconnect the sway bar linkage from the sway bar. This allows the lower control arm to move easier during the CoilOver installation.
5. Disconnect the upper ball joint from the steering knuckle. Do not hit the spindle with a hammer, use the appropriate ball joint separation tool to disengage the ball joint pin from the knuckle.
6. Remove the OEM upper control arm. Retain the hardware to install the new upper control arm. **2021 or newer F150 trucks will require the headlight sensor linkage to be disconnected from the upper control arm.**
7. **Support the lower control arm before removing the OEM shock/spring setup. This will prevent the lower control arm from swinging down abruptly when the shock/spring is unbolted from the truck.**
8. Remove the shock/spring assembly from both sides of the truck. **DO NOT DISASSEMBLE THE SHOCK/SPRING ASSEMBLY, THE COILSPRING IS UNDER COMPRESSION AND COULD CAUSE BODILY INJURY!**

### Installation



6. The upper control arm has a headlight sensor tab on the front tube. The headlight sensor is only on 2021 & up model year trucks.



### Installation



**7.** Install the Ridetech upper control arms using the OEM hardware. The headlight sensor tab should be to the front of the truck. If installing controls arms on a 2021+ F150, reattach the headlight sensor linkage to the tab of the control arm. The control arm mounting bolts will need to be tightened after the truck is sitting on the ground.

### Getting Started.....

**11.** The CoilOvers need to be assembled before putting the shocks in the mounts. Assemble the shocks and springs using the instructions below.

#### CoilOver Assembly...



First, using the supplied lower adjuster nut (803-00-199) thread the nut onto the shock from the bottom side as seen in figure 6. Remove the plastic pellet that is in the split of the adjuster nut.



Once the knob is removed slide a Delrin washer over the eyelet. Next, slide the upper spring mount (803-00-199) over eyelet as seen in figure 9.



Next, install a delrin washer then coil spring over the top of the shock as seen in figure 7.



Install upper spring mount retainer clip (803-00-199) into the groove on the upper eyelet as seen in figure 10. Then, reinstall adjuster to complete assembly.



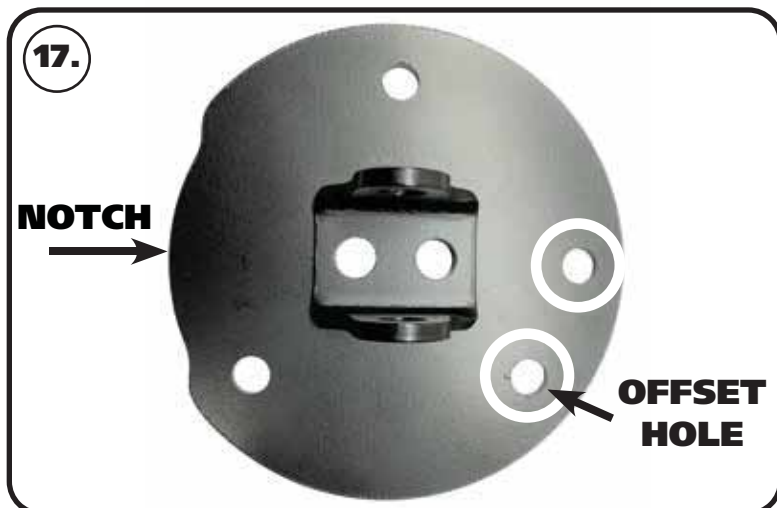
Before the upper spring mount can be installed screw the adjuster knob on the upper eye mount to the firmest setting (clockwise) as seen in figure 8. Then remove the Knob by holding it while removing the center screw.

**Install the locking screw in the adjuster nut before setting spring preload, but DO NOT tighten until the spring preload has been set. Set the spring preload after the CoilOver has been installed.**

**NOTE:** Remember to adjust the shock valving before driving, the shock is currently set to full stiff.



### Assembling Upper Mount



**17.** Line up the 2 mounting holes in the upper mounting flange with the 2 holes of the mounting bracket. The location of the offset hole is critical. Make sure it is located the same as **Image 11**. The front hole is a locating hole.

**NOTE:** The Upper Mounts are not side specific so they are the same for both sides of the truck.



**18.** Insert a 1/2"-13 x 1 1/2" bolt through each hole of the flange/mount. The bolts need to be installed with the bolt head in the upper bracket. Refer to **Images 18 & 19**.



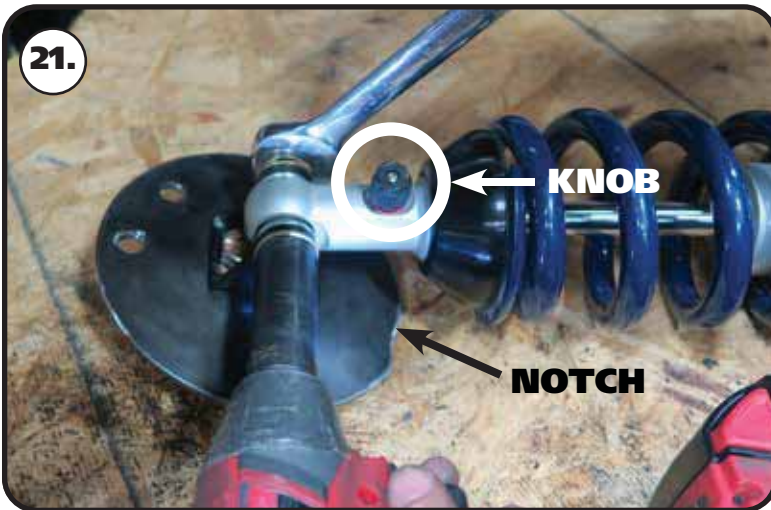
**19.** Install a 1/2" SAE flat washer & 1/2"-13 nylok nut on the threads of each bolt that is sticking through the mount. Torque to 75 ftlbs.



### Assembling CoilOver



**20.** Install the 1/2" I.D. bearing spacers into the bearing in the shock eyelet. These spacers have a through hole that is 1/2" diameter. The small diameter of the spacers will insert into the shock bearing.



**21.** Insert the shock eyelet into the upper mount. **Install each CoilOver in the upper mount with the Adjusting Knob facing the opposite side as the notch in the upper plate.** Line up the shock bearing/spacers hole with the mounting holes of the upper mount. Install a 1/2" flat washer on a 1/2"-13 x 2 3/4" bolt. Insert a bolt/washer through the mount/shock. Install a 1/2" flat washer and 1/2"-13 nylok nut on the threads of the bolt that are sticking through the mount. Torque the upper mounting hardware to 75 ftlbs.



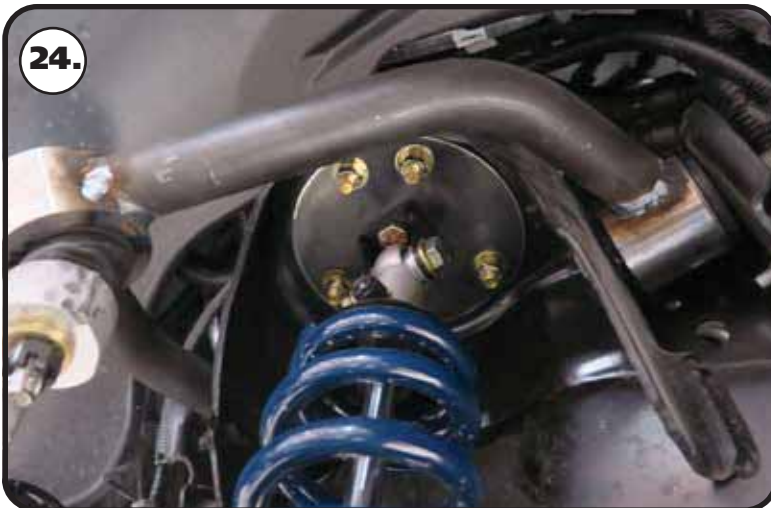
**22.** The upper mount has 4 holes in the perimeter of the flange. The flange is also notched out on one side. The upper mount needs to be installed in the truck with the notch to the frame.



### Installation of CoilOver Assembly



**23.** Position the mount/coilover in the truck. It will be placed in the OEM location. Line up the locating hole and 3 mounting holes.



**24.** Install a 7/16" flat washer on each of (4) 7/16"-14 x 1 1/4" hex bolts. Install the bolt/washer in the frame/mount from the top side with the threads pointing down. Install a 7/16" flat washer and 7/16"-14 nylok nut on the threads of each bolt sticking through the frame. Torque the hardware to 50 ftlbs. Repeat steps 17-24 on the remaining side.



**25.** The lower shock mount bolts to the lower control arm in the same location as the OEM shock. Sit the mount on the lower control arm, aligning the mounting holes with the shock mounting holes





### Installation of CoilOver Assembly



**26.** . Install a 1/2" flat washer on each of (2) 1/2" 13 x 3" hex bolts. Insert a bolt/washer in each mounting hole.



**27.** Install a 1/2" flat washer and 1/2"-13 nylok nut on the threads of each bolt sticking through the control arm. Torque the hardware to 75 ftlbs.



**28.** Install the 1/2" I.D. bearing spacers into bearing in the shock body. These spacers have a through hole that is 1/2" diameter. The small diameter of the spacers will insert into the shock bearing.



### Installation of CoilOver Assembly



**29.** Insert the shock into the lower mount. Line up the shock bearing/spacers hole with the mounting holes of the lower mount. Insert a 1/2"-13 x 2 3/4" bolt through the mount/shock.



**30.** Install a 1/2" flat washer and 1/2"-13 nylok nut on the threads of the bolt that are sticking through the mount.



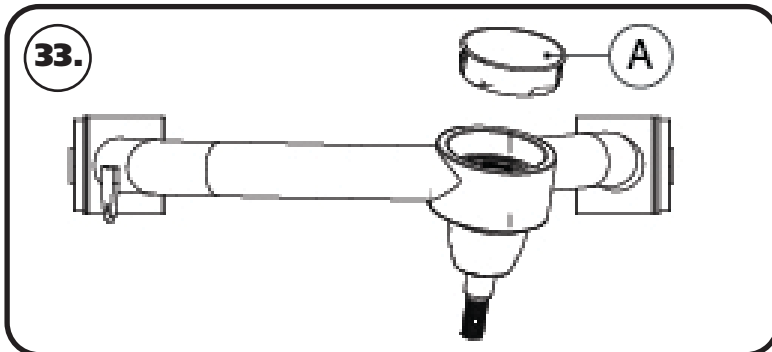
**31.** Insert the ball joint stud into the spindle. Install the flat washer supplied with the ball joint nut. Next, install the ball joint nut and torque to 50 ft-lbs. Tighten the nut until a slot in the nut aligns with the hole in the ball joint pin. **NEVER LOOSEN THE NUT TO ALIGN THE HOLE!**



### Installing Upper Control Arm



**32.** Install the supplied cotter pin. Bend the tabs of the cotter pin.



**33.** Insert the grease zerks in the ball joints. Grease the ball joints and install the supplied caps(A). These caps will help keep debris out of the control arms.

**34.** Repeat steps 9-33 on the other side of the truck.

**35.** Reattach the sway bar linkage. The lower sway bar linkage nut is torqued to 60 ft-lbs. The upper linkage nut is torqued 50-55 ft-lbs.

**36.** Verify all the hardware is tight before continuing to coil spring adjustment.

**37.** Preload the springs of the CoilOver 3/4" to start. **Steps 37a - 37e** will assist you with preloading the coil spring. You may need to adjust the amount of preload in the spring, but this will be determined after the truck has been sat on the ground.

**37a.** Verify the adjuster nut locking screw is installed in the adjuster nut, but not tight.

**37b.** Screw the spring adjuster nut up the shock body until it is snug against the spring. You should NOT be able to move the spring up and down on the shock (0 preload). Verify the dropped upper coil spring cap is seated correctly on the upper shock eyelet.

**37c.** Measure from the bottom of the adjuster nut to the flat of the shock. You may want to write the measurement down.

**37d.** Using a spanner wrench, thread the adjuster up the shock an additional 3/4" (from the measurement you took in step 2) to preload the spring.

**37e.** Lock the adjusting nut in place by tightening the adjuster nut locking screw.

**38.** Reinstall wheels and torque lug nuts to factory specifications.

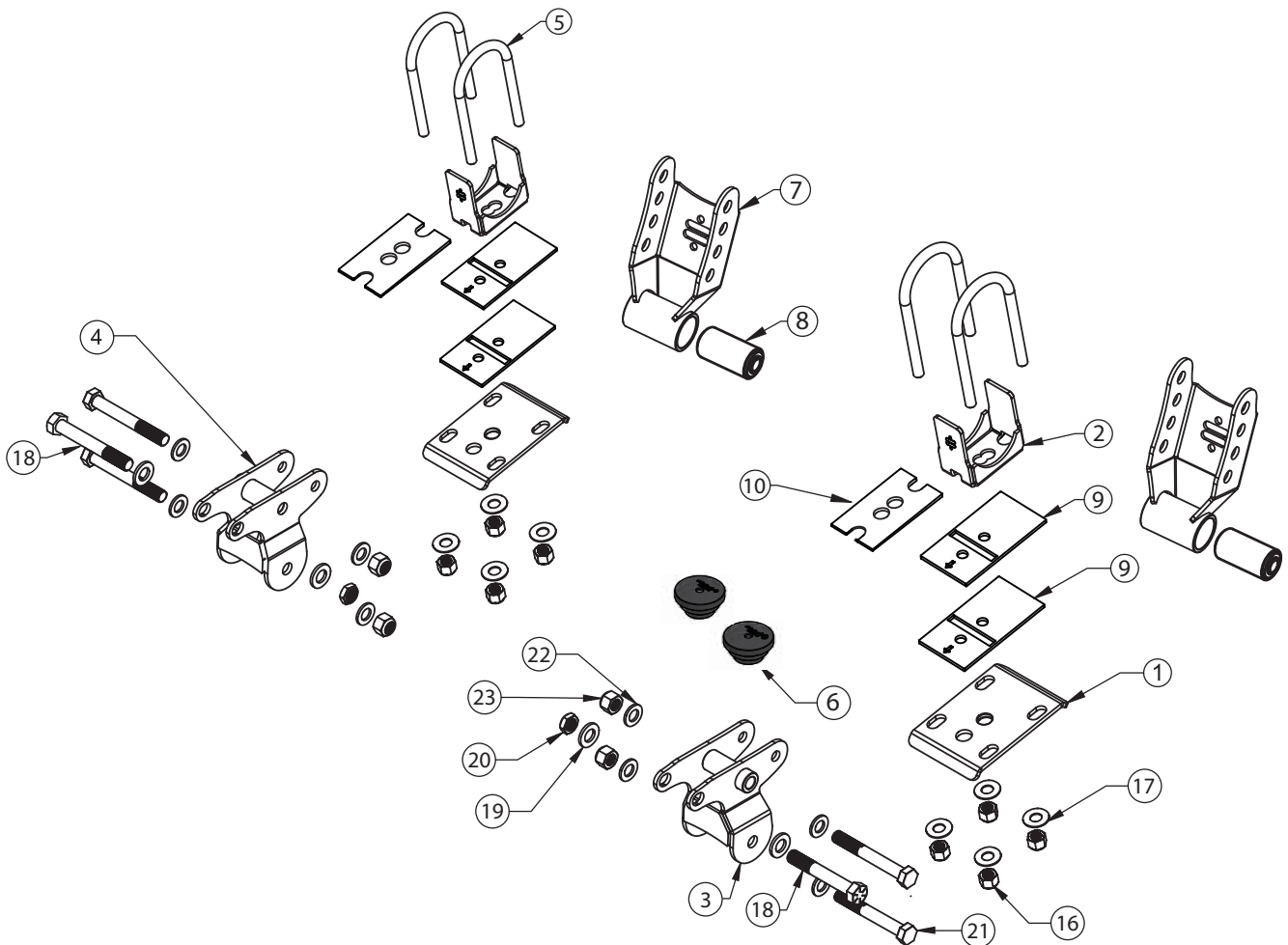
**39.** Lower the front of the truck to the ground and torque upper control arm hardware to 111 ft-lbs.

**40.** Remove the cap and grease the ball joint at regular service intervals.



### Major Flip Kit Components .....In the box

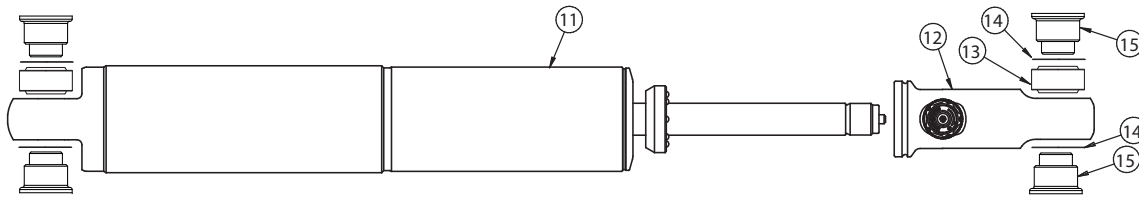
Item #	Part #	Description	QTY
1	90003275	Rear Axle Mounting Plate	2
2	90003274	F150 Axle Flip Bracket	2
3	90003272	Front Leaf Spring Relocation Bracket - Driver	1
4	90003273	Front Leaf Spring Relocation Bracket - Passenger	1
5	99626004	U-bolt - 3.375" W x 7.00" long x 5/8"-18 thread	4
6	70015643	Bump Stops	2
7	90003364	Adjustable Shackle	2
8	70015559	Shackle Bushing - installed in shackle	2
9	90003292	Leaf Spring Shim	4
10	90003296	Pinion Angle Shim	2





### Major Rear Shock Components .....In the box

Item #	Part #	Description	QTY
11	982-10-807	6.9" Stroke Single Adjustable Shock	2
12	90002026	3.7" Adjustable Shock Eyelet	2
13	90001994	Shock Bearing	4
14	90001995	Bearing Snap Ring	8
15	70015463	Shock Bearing Spacers	8
	99121016	M2-1.75 x 70mm Flange Bolt - DRIVER LOWER SHOCK BOLT	1



### Hardware Kit .....# 99010169

Item #	Part #	Description	QTY
<b>U-BOLT</b>			
16	99622001	5/8"-18 Nylok Nut	8
17	99623001	5/8" SAE Flat Washer	8
<b>PASSENGER FRONT LEAF SPRING MOUNT</b>			
18	99751011	3/4"-16 X 5" Hex Bolt	2
19	99753004	3/4" SAE Flat Washer	4
20	99752013	3/4"-16 Thin Nylok Nut	2
<b>HANGER TO FACTORY LEAF SPRING HOLE</b>			
21	99181001	M18-2.5 X 130 Hex Bolt	2
22	99183001	M18 Flat Washer	4
23	99182001	M18-2.5 Nylok Nut	2

Item #	Part #	Description	QTY
<b>LEAF SPRING TO HANGER</b>			
21	99181001	M18-2.5 X 130 Hex Bolt	2
22	99183001	M18 Flat Washer	4
23	99182001	M18-2.5 Nylok Nut	2
<b>BUMPSTOP</b>			
		M10-1.5 X 30mm SHCS	2
		M10 Flat Washer	2



### Notes

THIS KIT CAN BE SETUP TO LOWER THE REAR OF YOUR TRUCK 4 DIFFERENT HEIGHTS. THERE IS A 3" DIFFERENCE BETWEEN THE 4 SETTINGS. THIS HEIGHT ADJUSTMENT IS BUILT INTO THE REAR SPRING SHACKLE. THE PICKUP STYLE AND ACCESSORIES WILL AFFECT WHICH HOLE IS THE BETTER CHOICE. IF YOU HAVE A REGULAR CAB SHORT BED, WE SUGGEST STARTING WITH THE LOWEST SETTING(LONGEST SETTING ON THE SHACKLE). IF YOU HAVE A CREW OR EXTENDED CAB, START WITH THE HIGHEST SETTING(SHORTEST SETTING ON THE SHACKLE).

**ON SOME 2024 TRUCKS, USING THE TOP HOLE IN THE REAR SHACKLE MAY RESULT IN CONTACT BETWEEN THE LEAF SPRING AND THE TRUCK BED CROSS BRACE. IF YOU EXPERIENCE THIS INTERFERENCE ON YOUR VEHICLE, YOU MAY EITHER USE A LOWER HOLE ON THE SHACKLE (which will slightly raise the ride height), OR NOTCH OUT THE BED BRACE.**

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 1 1/2"-3 1/2". YOUR TIRE HEIGHT WILL PLAY A FACTOR ON HOW LOW YOU CAN SET THE FRONT SUSPENSION.

### REAR FLIP BRACKET INFORMATION

This kit includes a flip bracket that can be mounted 2 different directions, along with a 2° angle shim. We will cover the mounting of these components on Pages 10-13 of these instructions. **IF YOU HAVE A COMPOSITE LEAF SPRING TRUCK, We recommend checking the pinion angle with a angle finder after the truck is back on the ground. We will cover how to do this in these instructions.**

The flip bracket tabs are 2 different heights. ***The tab with the icon is the taller of the 2. These instructions will refer to the icon when going over the orientation of the flip bracket.*** This kit also includes a 2° angle shim. These instructions will reference the THICK side when discussing orientation.

We have found through R & D, 2015-2020 steel leaf spring trucks use the same combination and mounting of the flip bracket/shim. Where we found variations in the pinion angle is on the trucks with the composite overload spring. The images on below illustrate the difference between all steel and composite leaf spring trucks.



2015 - 2020 STEEL SPRINGS



2021 & NEWER COMPOSITE SPRINGS



### Getting Started.....

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. They will be replaced with the Ridetech HQ Series shocks.

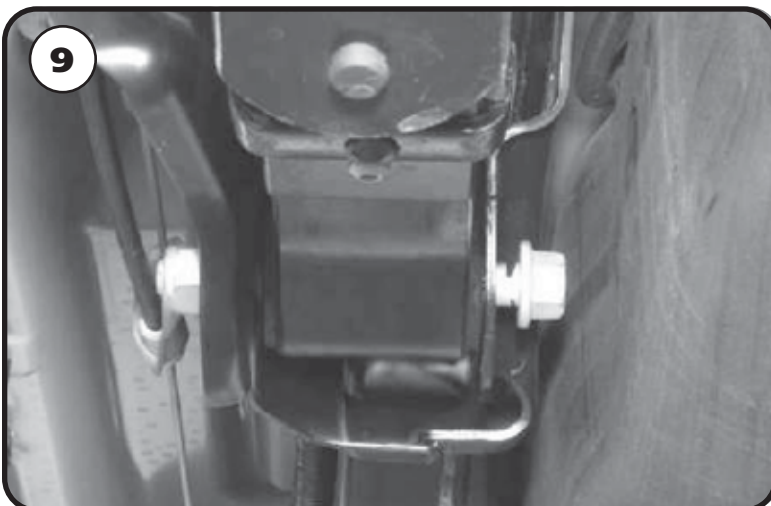
### HeadLight Sensor



3. **2021 & NEWER ONLY!** Disconnect the headlight sensor linkage from the Drivers side leaf spring mount. Remove the linkage bracket from the axle. There isn't a sensor on the Passenger side of the truck.

### Disassembly

4. Mark the leaf springs driver and passenger.
5. **2015-2017 ONLY!** These year range of F150s may have a cable operated emergency brake. If your truck does, you will need to unbolt the emergency brake cable brackets from the drivers side front leaf spring mount and passenger side leaf spring axle pad. Retain the hardware, these will get reattached later.
6. Lower the jack to relieve the tension on the rear springs, but keep the jack touching the rear axle.
7. Remove the u-bolts and axle clamps to disengage the axle from the leaf springs.
8. Lower the axle to get clearance on the leaf springs, but **DO NOT** strain the brake lines.



9. The front of the leaf springs will need to be disconnected to install the front bracket and to move the springs under the axle. Due to the location of the fuel tank and exhaust, cutting the bolt head off is the easiest way to remove it. Loosen the nut enough to expose the shank of the bolt. Push the bolt in toward the fuel tank/exhaust. Cut off the head of the bolt, being careful to not damage the fuel tank, exhaust, or frame.

10. Support the front of the leaf spring and remove the remainder of the leaf spring hanger bolt.



### Disassembly



**11.** The rear of the leaf springs will need to be disconnected to move the springs under the axle and to also replace the shackle. Support the rear of the leaf spring and remove the bottom leaf spring shackle bolt. Remove the rear shackle from the leaf spring.

Repeat Steps 9-11 on the 2nd leaf spring.



**12.** The leaf spring locating pins need to be flipped over. Currently, the nuts for the pins are on the top side of the leaf spring pack. The nuts 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. The pins can be held with a pair of vise grips to loosen and remove the nuts.



**13.** Next, remove the u-bolt locator and discard it.

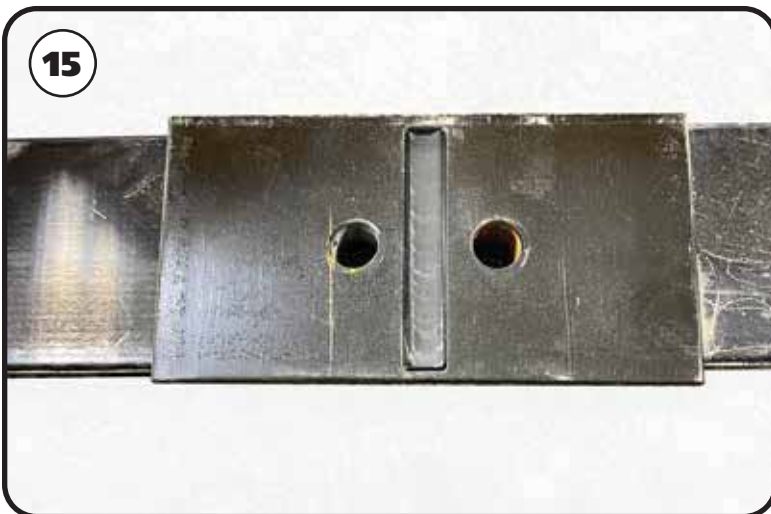




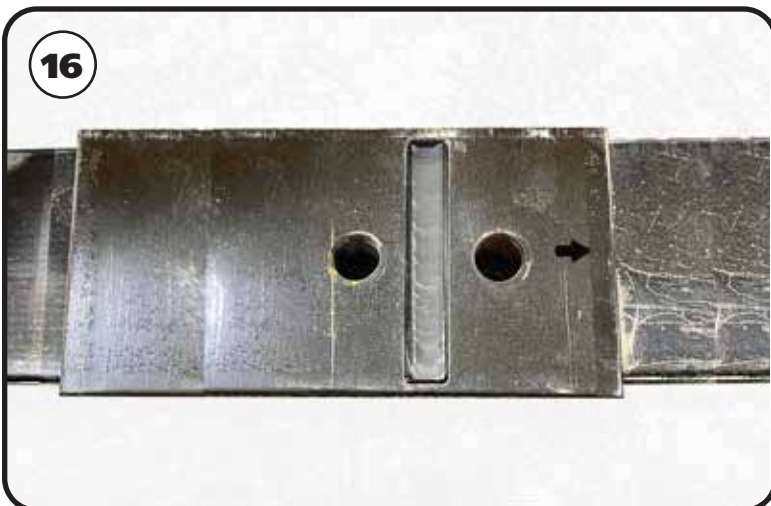
### Disassembly



**14.** The top shim will also be discarded. The CENTER & BOTTOM shims will need to be replaced with the offset ones supplied in the kit. **Steps 15 & 16** illustrate the OEM and Offset Shims. Remove the locating pins and remove the shims to prep for flipping the locating pins and replacing the shims.



**15.** The OEM shim has the holes centered in the shim. The new shim has the holes offset to allow even clamping of the flip bracket and clamping plate. **Step 16** shows the offset shim.



**16.** The new shims have the holes offset to the front of the truck. The arrow on the shim should point to the front of the truck. Replace the bottom and middle shims that are indicated in **Step 14**.



### Bumpstop & Leaf Spring Bracket Installation



**17.** Put the new offset shims in position with the arrows to the front of the truck. Align the holes in the springs and shims and reinstall the locating pins from the TOP side. Reinstall the nuts on the BOTTOM side and tighten. Torque the nuts to 35 ftlbs Repeat on the second spring.



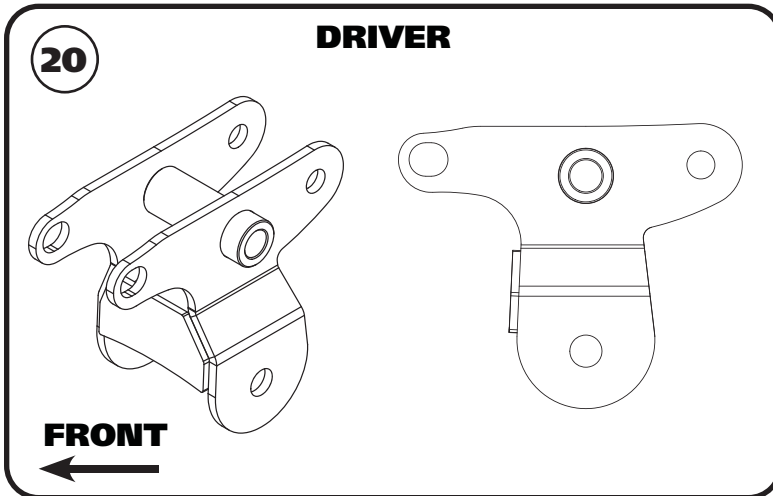
**18.** The OEM bump stop mount will need to be removed.



**19.** Install a M10 flat washer on a M10-1.5 x 30 mm socket head cap screw. Insert the washer/bolt in the center hole of the bumpstop. Use a hex key (allen) wrench to attach the bumpstop in the OEM location. Repeat on the other side and torque to 35 in-lbs.



### Leaf Spring Bracket Installation



**20.** The kit includes brackets to relocate the front of the leaf spring. The brackets have a "D" or "P" stamped into the side of the bracket. The Driver side is shown in **Image 20**. The bracket is mounted in the truck with the cross tube to the top and the long tabs to the front of the truck.



**21.** Insert the leaf spring hanger bracket into the OEM leaf spring mount. The long tabs will point to the front of the truck and insert into the OEM mount. Position the bracket so that the tube lines up with the OEM leaf spring mounting hole.

**NOTE:** Some trucks may require slight trimming or modification of the lower edges of the OEM leaf spring mount to provide adequate clearance for the new hanger bracket. See highlighted area in Figure 21.



**22.** Install a M18 flat washer on a M18-2.5 x 130mm bolt. Insert the bolt into the OEM leaf spring hole. Install a M18 flat washer & M18-2.5 nylok nut on the threads of the bolt. Do not tighten at this time.



### Leaf Spring Bracket & Shackle Installation

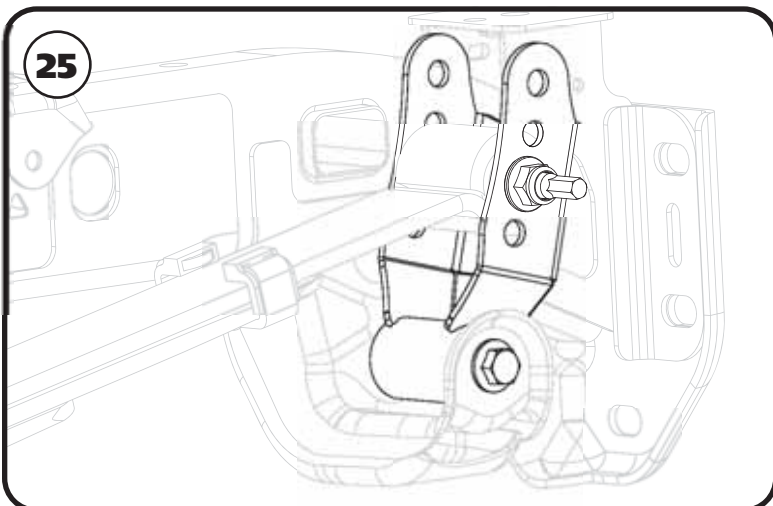


**23.** Make sure the holes in the front tab line up with the front hole of the OEM leaf spring mount. Install a 3/4" flat washer on a 3/4"-16 x 5" bolt. Insert the bolt/washer through the front hole of the leaf spring mount. Install a 3/4" flat washer & 3/4"-16 thin nylok nut on the threads of the bolt. Torque the hardware to 75 ftlbs.

**NOTE:** If the end of the bolt would happen to come in contact with the fuel tank, remove the bolt and add a 2nd 3/4" flat washer on the bolt. In this situation, a washer will NOT be used under the 3/4"-16 thin nylok nut.



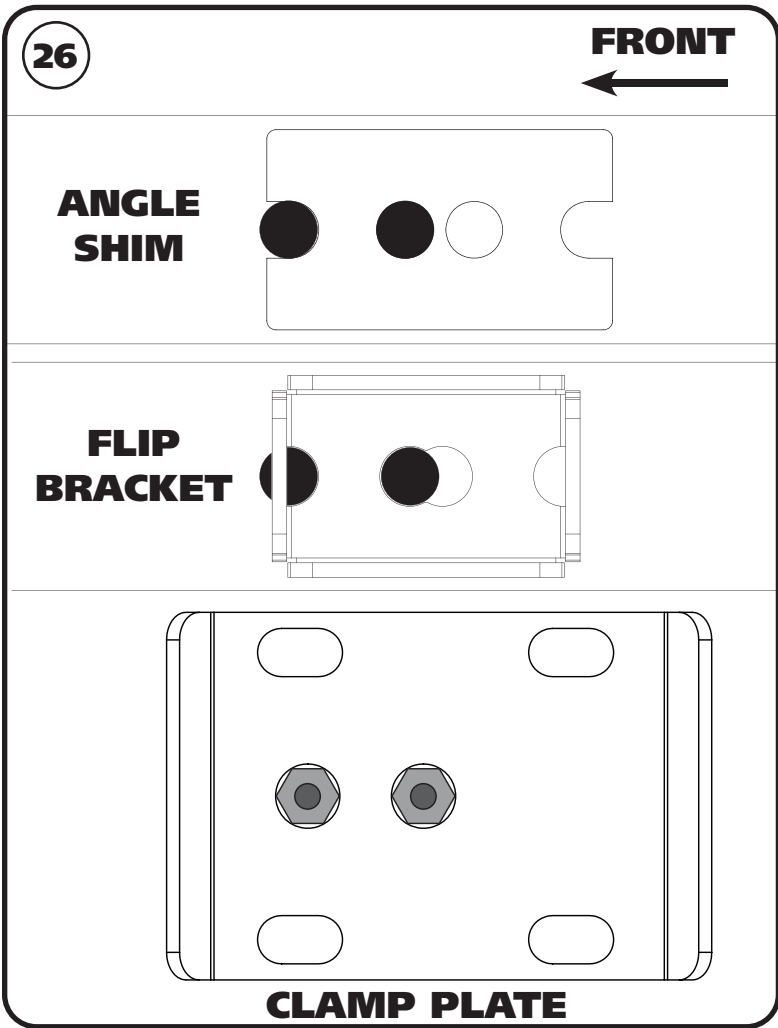
**24.** Insert the front of the leaf spring in the new bracket. Install a M18 flat washer on a M18-2.5 x 130mm bolt. With the mounting holes aligned with the inner sleeve of the leaf spring, insert the bolt/washer. Install a M18 flat washer and M18-2.5 nylok nut on the threads of the bolt. Repeat on the second side. Do not tighten this hardware until the truck is sitting on the ground



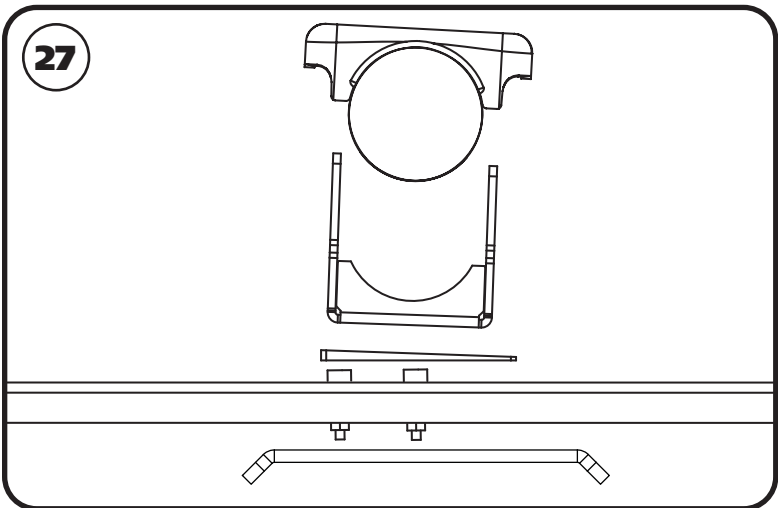
**25.** Make sure the rear differential is raised high enough to get the leaf springs in position. The shackle will need to be bolted to the leaf spring with the OPEN side to the FRONT of the truck. See the NOTES on **Page 14** to help determine which holes to use. Line up the holes in the shackle with the through hole of the leaf spring. Insert the bolt/washer through the leaf spring and shackle FROM THE FRAME SIDE. The threads MUST point to the outside of the truck for clearance reasons. Line up the holes in the hanger with the inner sleeve of the shackle. Reinstall the OEM hardware. Do not tighten the hardware at this time.



### Flip Bracket Installation



26. The flip kit has the locating holes offset to center the wheel in the wheel opening. **Image 26** illustrates a top view of the flip bracket, wedge shim, and the leaf spring plate. Notice the HOLES are offset to the FRONT of the truck. The flip bracket and wedge shim each have 2 sets of holes so that they can be mounted in 2 different directions. The instructions will cover how they need to be installed for your application.



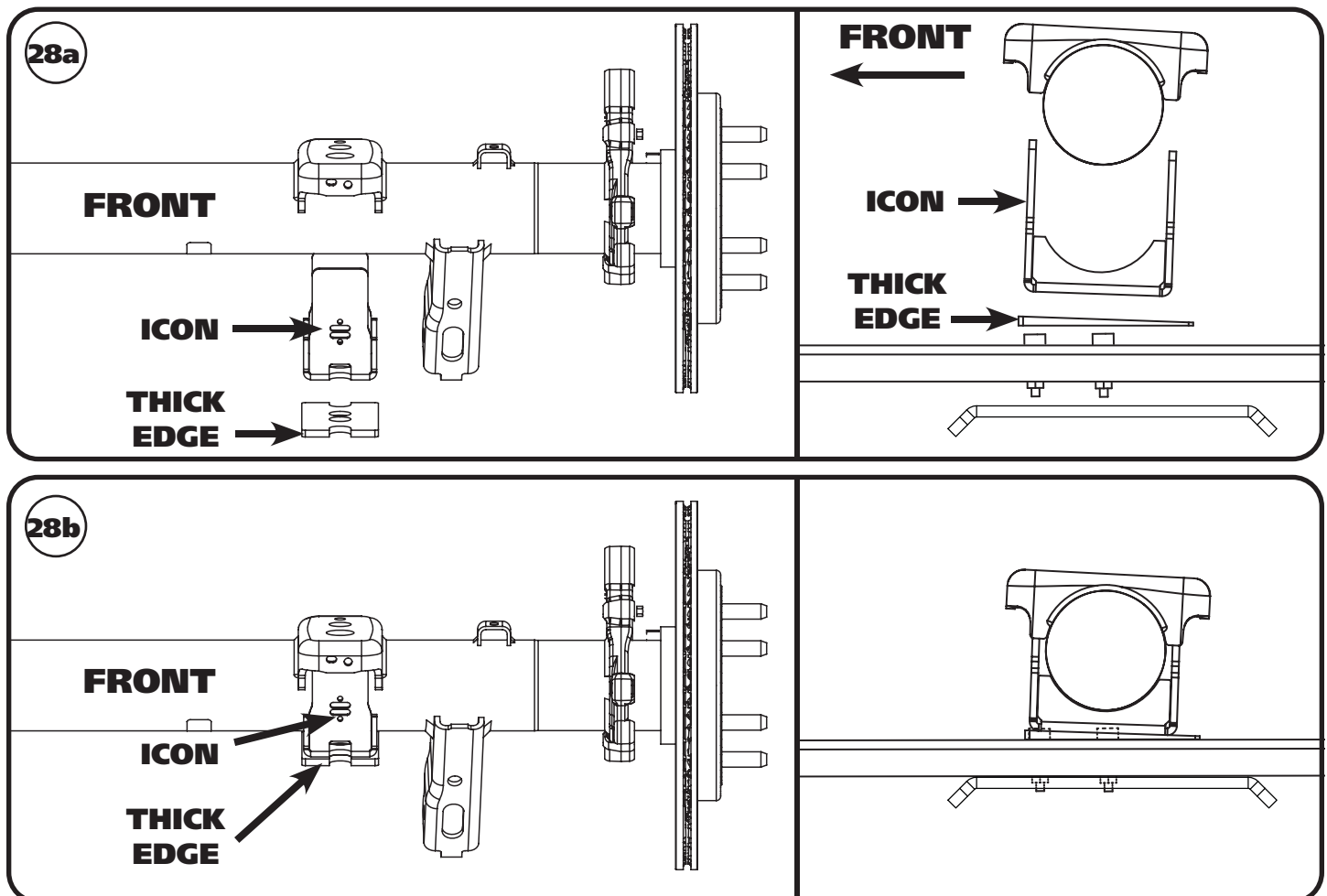
27. **Image 27** is a representation of how the brackets will be used on the leaf spring. If you have steel leaf springs, refer to Page 21 for the correct orientation. If you have a composite overload spring, refer to Page 22 for correct orientation of the brackets.



### Flip Bracket Installation - All Steel Leaf Spring

**28a & 28b COVER THE INSTALLATION OF THE FLIP BRACKET & WEDGE SHIM ON STEEL LEAF SPRING TRUCKS. ALL THE SPRINGS IN THE LEAF PACK WILL BE STEEL. IF YOUR TRUCK HAS A COMPOSITE OVERLOAD SPRING, SKIP TO 33a & 33b.**

**28a & 28b.** A STEEL leaf spring truck will require the flip bracket and wedge to be installed in the orientation in 28a & 28b. The flip bracket tab with the ICON will go to the FRONT of the truck. The THICK side of the wedge will go to the FRONT of the truck. Make sure you are using the 2 forward locating holes for proper axle placement.



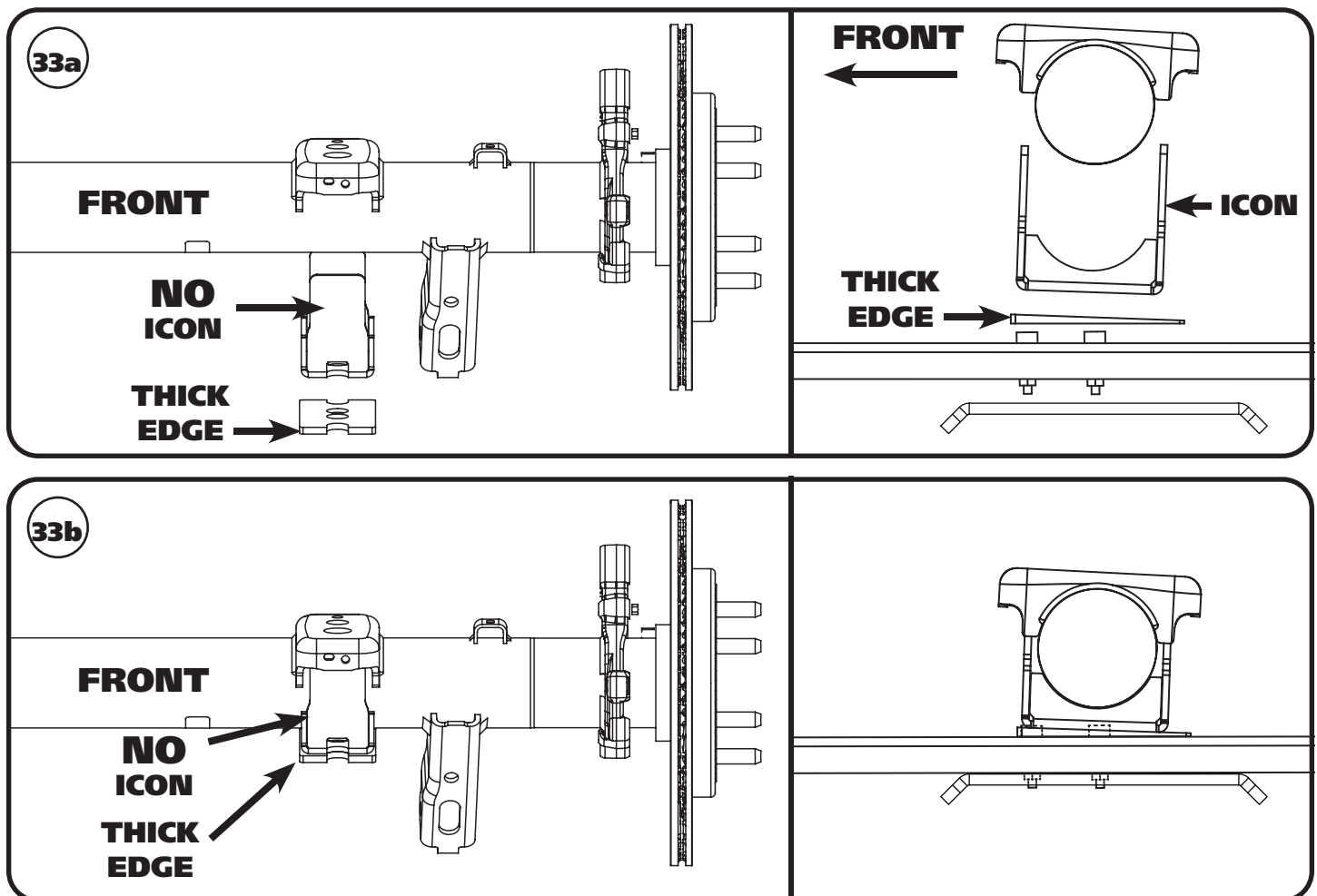
29. Raise the axle high enough to get the wedge shim & flip bracket positioned on the leaf spring.
30. Position the wedge shim & flip bracket on the locating pins using the above images as a guide. The thick end of the wedge and icon on the flip bracket will go to the front of the truck. Again, the locating pin holes go to the front of each one.
31. 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.
32. Skip ahead to **Step 37**.



### Flip Bracket Installation - Composite Over Load Spring

**33a & 33b COVER THE INSTALLATION OF THE FLIP BRACKET & WEDGE SHIM ON COMPOSITE LEAF SPRING TRUCKS. THE OVERLOAD LEAF SPRING IS A THICK COMPOSITE LEAF SPRING. IF YOUR TRUCK HAS AN ALL STEEL SPRING PACK, GO BACK TO STEP 28a & 28b.**

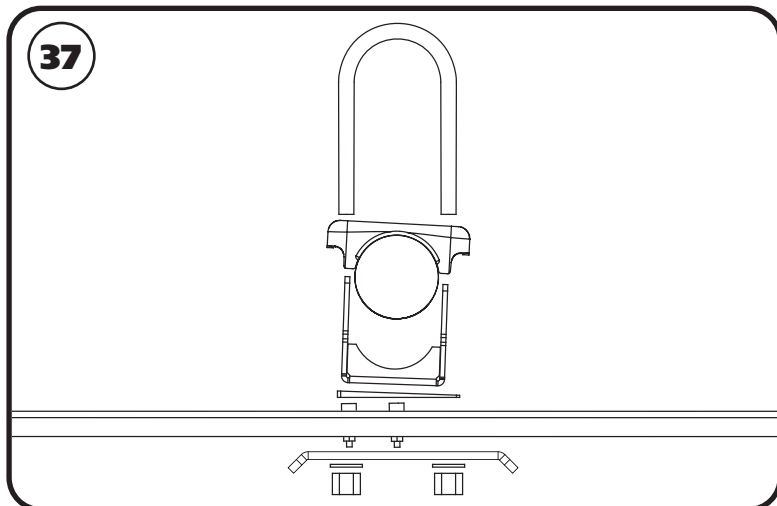
**33a & 33b.** A COMPOSITE leaf spring truck will require the flip bracket and wedge to be installed in the orientation in 33a & 33b. The flip bracket tab with the **ICON** will go to the **REAR** of the truck. The **THICK** side of the wedge will go to the **FRONT** of the truck. Make sure you are using the 2 forward locating holes for proper axle placement.



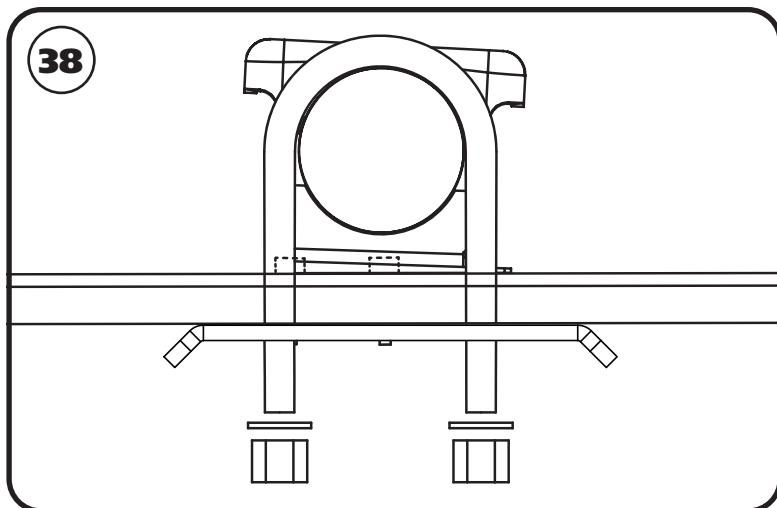
- 34.** Raise the axle high enough to get the wedge shim & flip bracket positioned on the leaf spring.
- 35.** Position the wedge shim & flip bracket on the locating pins using the above images as a guide. The thick end of the wedge will go to the front of the truck. The icon on the flip bracket will go to the rear of the truck. Again, the locating pin holes go to the front of each one.
- 36.** 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.**



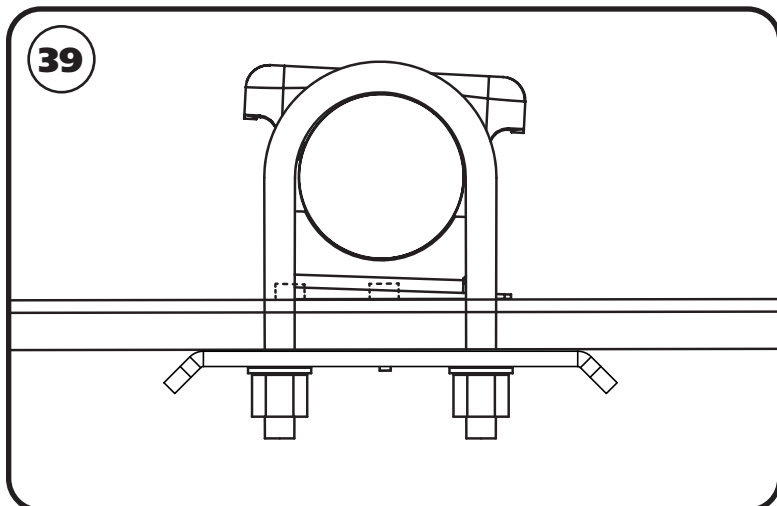
### Flip Bracket Installation



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



**38.** Slip the leaf spring bracket up onto the u-bolts WITH THE OFFSET HOLES FORWARD.



**39.** 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 ft-lbs.



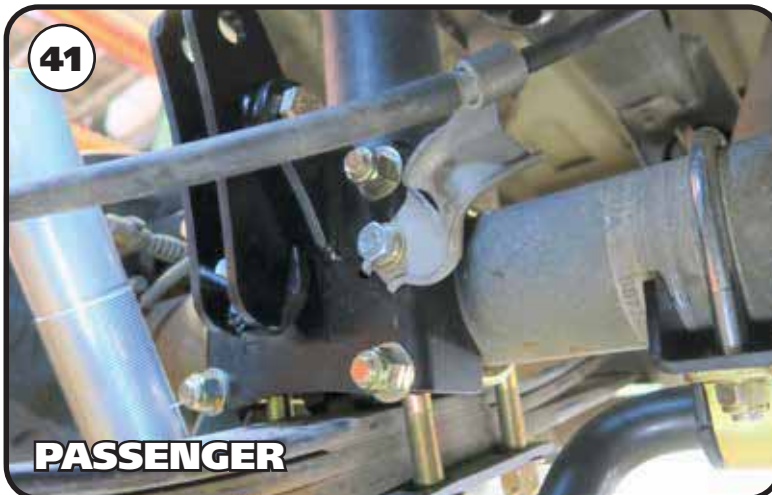


### 2015-2017 Emergency Brake Cable Brackets



#### 2015-2017 WITH CABLE OPERATED EMERGENCY BRAKE ONLY!

**40.** Reattach the drivers side emergency brake cable bracket to the front leaf spring mount. You may need to trim the back edge of bracket to clear the leaf spring mount. Use the OEM hardware to reattach the bracket.



#### 2015-2017 WITH CABLE OPERATED EMERGENCY BRAKE ONLY!

**41.** Reattach the passenger side emergency brake cable bracket. If you are using the Traction Bar kit, it will go back in the OEM location. If you are using the traction bar kit, there is a provision for reattaching the bracket. Use the OEM hardware to reattach the bracket.

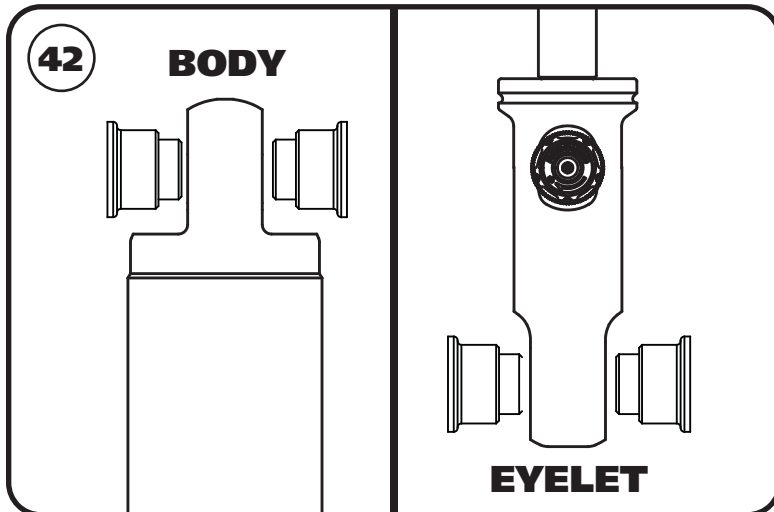
### Shock Installation

**A SHORTER BOLT (M12-1.75 X 70MM) IS SUPPLIED TO REPLACE THE DRIVER LOWER SHOCK BOLT.** A new driver lower shock bolt is supplied in the kit for better clearance of the flip kit brackets.

***DUE TO VARIATIONS IN THE OEM SHOCK MOUNTS, THE SHOCKS MAY NEED TO BE INSTALLED BODY UP OR BODY DOWN. CHECK FOR CLEARANCE AFTER YOU GET THE SHOCKS INSTALLED. IF IT LOOKS LIKE IT IS GOING TO HIT THE MOUNT, FLIP IT OVER. THIS SHOCK CAN BE RAN WITH THE SHOCK BODY UP OR DOWN, IT DOES NOT AFFECT THE PERFORMANCE.***



### Final Assembly and Tightening.



**42.** Insert the SMALL end of the bearing spacers into the shock bearings.

**43.** Position the BODY of the shock into the OEM mount.

**44.** Insert the OEM hardware and torque to 60 ft-lbs.

**45.** Insert the EYELET of the shock into the OEM shock mount. **We recommend having the adjuster knob pointing away from the differential for easier adjustment.**

**46.** Insert the OEM hardware and torque to 60 ft-lbs.

**47.** Set the truck on the ground and torque the leaf spring & shackle bolts to 167 ft-lbs.

**48. DOUBLE CHECK THE HARDWARE TO MAKE SURE IT IS TIGHT.**

### CoilSpring Adjustment

**49.** After entire weight of truck is on the wheels, jounce the suspension and roll the truck forward and backward to alleviate suspension bind. **THIS IS NECESSARY BEFORE TIGHTENING THE LEAF SPRING BOLTS AND MEASURING RIDE HEIGHT.**

**50.** Torque the leaf spring bolts to 167 ft-lbs.

**51. DOUBLE CHECK THE HARDWARE TO MAKE SURE IT IS TIGHT.**

**52.** If you determine you need to adjust the ride height of the front suspension after getting the truck on the ground, **Steps 52a - 52e** will assist you in adjusting the ride height.

**52a.** Raise the vehicle and support it by the frame, allowing the suspension to hang freely. You do NOT need to remove the front wheels, but you may want to turn the steering wheel to gain better access to the CoilOver.

**52b.** Loosen the locking screw in the adjuster nut, but do not remove the locking screw.

**52c.** Measure from the bottom of the adjuster nut to the flat of the shock. You may want to write the measurement down.

**52d.** Using a spanner wrench, thread the adjuster up or down the shock to obtain the correct ride height. One complete revolution of the adjuster nut is approximately 1/8" at the wheel. Threading the adjuster nut up the shock will raise the ride height, threading it down will lower the ride height.

**52e.** Lock the adjusting nut in place by tightening the adjuster nut locking screw.

**53.** Turn the steering wheel until the front wheels are straight and set the front of the truck back on the ground.

**54.** After entire weight of truck is on the wheels, jounce the suspension and roll the truck forward and backward to alleviate suspension bind. **THIS IS NECESSARY BEFORE MEASURING RIDE HEIGHT.**

**55.** Recheck your ride height. If you need to readjust, repeat **Steps 52-54.**



### Pinion Angle - Composite Leaf Springs

IF YOUR INSTALL IS ON A STEEL LEAF SPRING TRUCK, YOU DO NOT NEED TO CHECK THE PINION ANGLE.



On composite leaf spring trucks, we have found some variation of the pinion angle. When measuring the driveline angles for our flip bracket purposes, we are simply looking at the rear pinion angle. It is important to note that these measurements should be taken at ride height and with the truck on the same surface every time. We used a Klein digital angle finder as shown. THE PINION ANGLE SHOULD BE APPROXIMATELY 1° DOWN.



When measuring pinion angle, please measure by placing the angle gauge on the flat as shown in the picture below. You may need to roll the truck forward or backward to ensure the angle gauge is not rotated. The angle finder rotated left to right will affect the angle measurement. THE PINION ANGLE SHOULD BE APPROXIMATELY 1° DOWN. If your pinion angle is not close to 1° down, use the chart below to help determine what combination and or orientation the shim and flip bracket need to be positioned to achieve 1° down.

PINION CHANGE FROM STANDARD	FLIP BRACKET	ANGLE SHIM	NOTES
5° UP	ICON TO FRONT	THICK EDGE TO FRONT	
3° UP	ICON TO FRONT	NONE	
1° UP	ICON TO FRONT	THICK EDGE TO REAR	
<b>STANDARD</b>	ICON TO REAR	THICK EDGE TO FRONT	COMPOSITE LEAF SPRING TRUCKS
2° DOWN	ICON TO REAR	NONE	
4° DOWN	ICON TO REAR	THICK EDGE TO REAR	

STANDARD is the way the parts should currently be installed on the truck. If you have a measurement other than approximately 1° down, determine the amount and direction the pinion angle needs to change. All of the angle changes listed above are from STANDARD. IF YOU CHANGE THE ANGLE, BE SURE TO RETORQUE THE U-BOLTS TO 130 FT-LBS IN A CRISS-CROSS FASHION.



### Alignment

Any time you replace front suspension components, you should have the alignment checked.

#### Suggested Alignment Specs:

Camber:	0 to -.75 degrees
Caster:	+5.5 to + 7.5 degrees
Toe:	1/16" to 1/8" toe in

#### Headlight Adjustment:

If you are doing the install on a 2021 F150, the headlight sensor will need to be adjusted at for your new ride height.

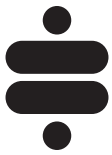
### Torque Specifications

COMPONENTS	TORQUE
ASSEMBLING UPPER MOUNT	75 FT-LBS
SHOCK MOUNTING BOLTS	75 FT-LBS
FRONT UPPER SHOCK MOUNT TO FRAME	50 FT-LBS
LOWER SHOCK MOUNT TO CONTROL ARM	75 FT-LBS
UPPER BALL JOINT (tighten to align cotter pin hole after torquing)	50 FT-LBS
UPPER CONTROL ARM TO FRAME HARDWARE	111 FT-LBS
LEAF SPRING LOCATING PIN	35 FT-LBS
REAR BUMPSTOP	35 IN-LBS
LEAF SPRING MOUNT TO FRAME	75 FT-LBS
LEAF SPRING U-BOLTS	130 FT-LBS
HEADLIGHT SENSOR RELOCATION BRACKET TO FRAME	22 IN-LBS
HEADLIGHT SENSOR BRACKET TO AXLE	169 IN-LBS
REAR SHOCK MOUNTING	60 FT-LBS
LEAF SPRING BOLTS	167 FT-LBS

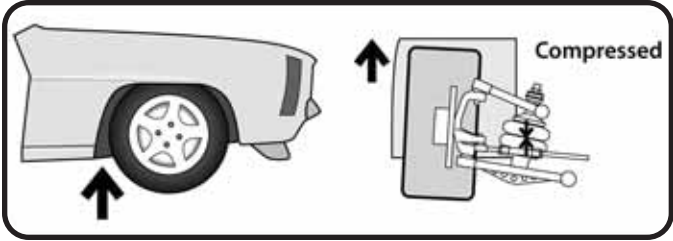


# TUNING GUIDE

## SINGLE-ADJUSTABLE SHOCKS

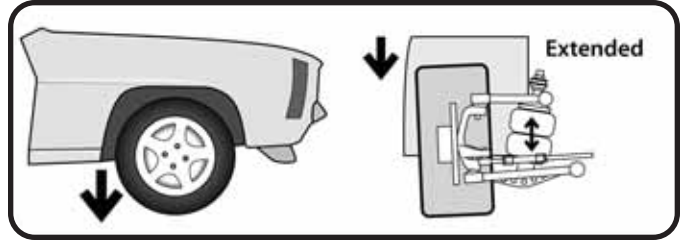


### The Basics...



#### 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.



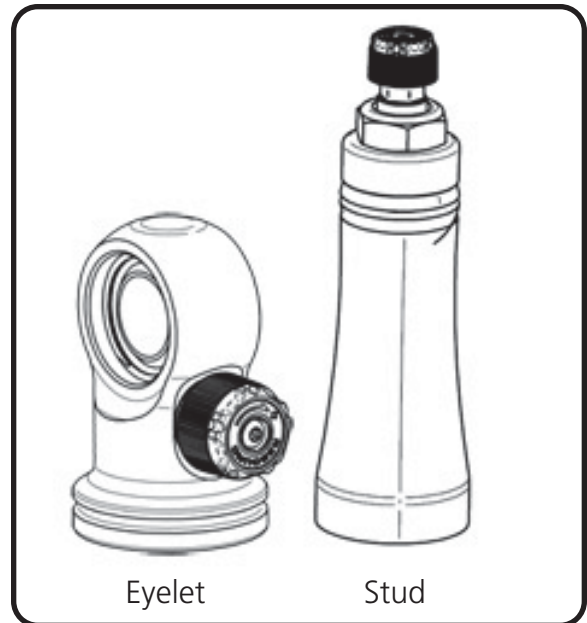
#### REBOUND

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

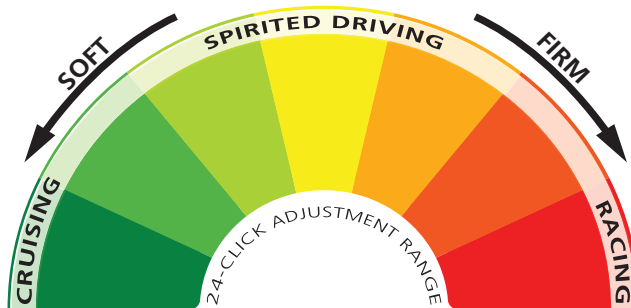
- The adjustment knob is located on the top of the shock, either protruding from the side of the eyelet, or atop the stud.
- This knob provides rebound adjustment only.



### 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.