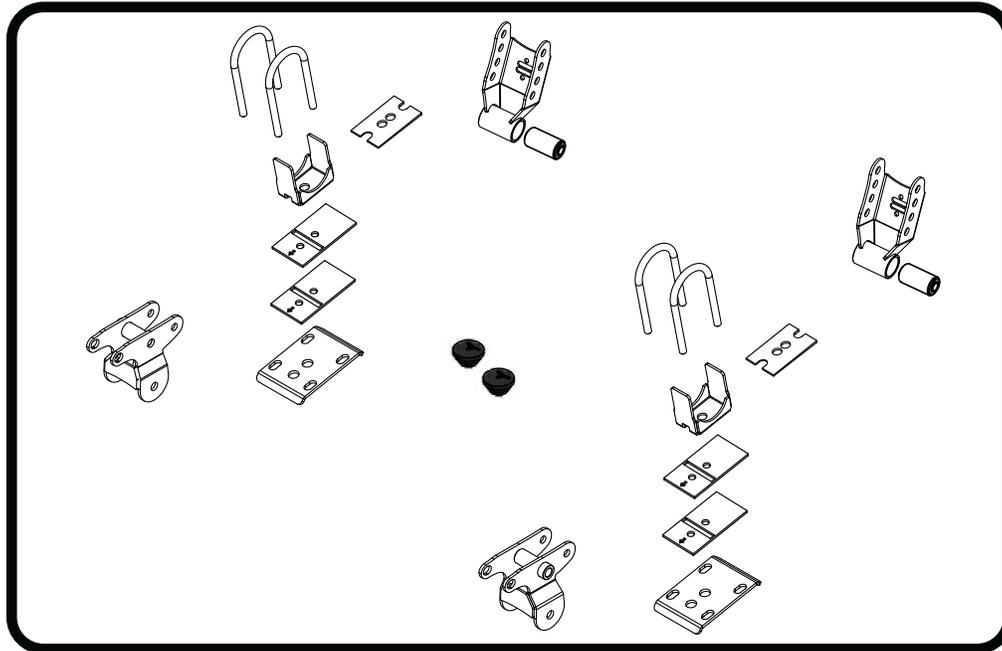




Part # 12299511 - 2015-2022 Ford F150 Rear Lowering Kit



Recommended Tools



**2015-2022 Ford F150 Rear 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 OR 2022 WITH HEADLIGHT SENSORS, YOU WILL ALSO NEED KIT # 12299501.

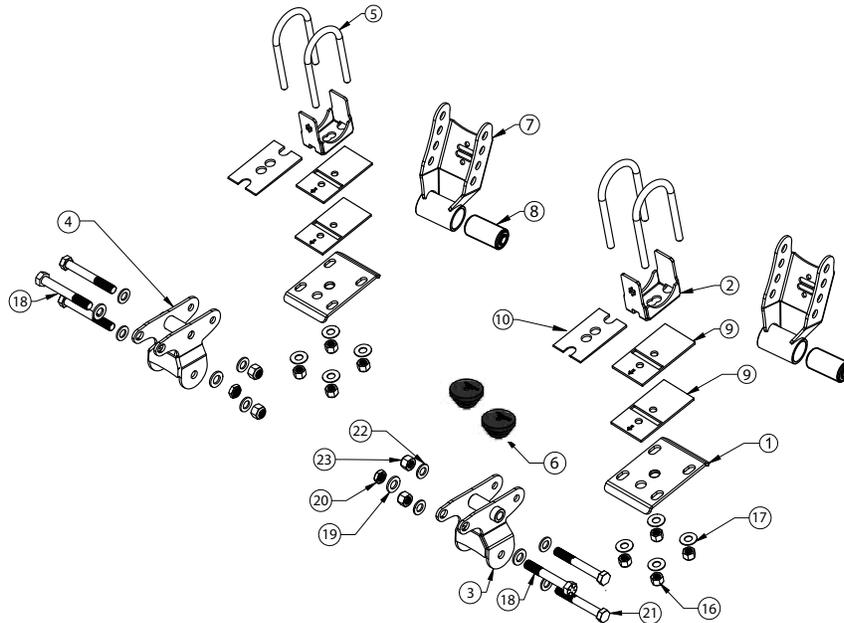
www.ridetech.com 

REV6 12/8/23



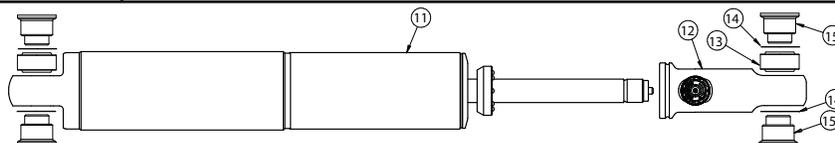
Major Flip Kit ComponentsIn the box

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 ComponentsIn 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	Item #	Part #	Description	QTY
U-BOLT				LEAF SPRING TO HANGER			
16	99622001	5/8"-18 Nylok Nut	8	21	99181001	M18-2.5 X 130 Hex Bolt	2
17	99623001	5/8" SAE Flat Washer	8	22	99183001	M18 Flat Washer	4
PASSENGER FRONT LEAF SPRING MOUNT				23	99182001	M18-2.5 Nylok Nut	2
18	99751011	3/4"-16 X 5" Hex Bolt	2	BUMPSTOP			
19	99753004	3/4" SAE Flat Washer	4			M10-1.5 X 30mm SHCS	2
20	99752013	3/4"-16 Thin Nylok Nut	2			M10 Flat Washer	2
HANGER TO FACTORY LEAF SPRING HOLE							
21	99181001	M18-2.5 X 130 Hex Bolt	2				
22	99183001	M18 Flat Washer	4				
23	99182001	M18-2.5 Nylok Nut	2				

Notes

THIS KIT CAN BE SETUP TO LOWER THE REAR OF YOUR TRUCK 4 DIFFERENT HEIGHTS. THERE IS 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). 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

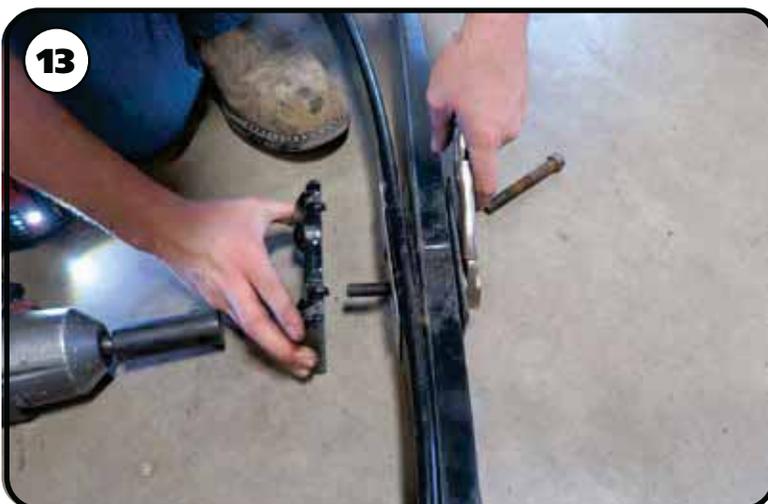


11. The rear of the leaf springs will need to be disconnected to move the springs under the axle and to also replace the shackle. Support the rear of the leaf spring and remove the bottom leaf spring shackle bolt. Remove the rear shackle from the leaf spring.

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.



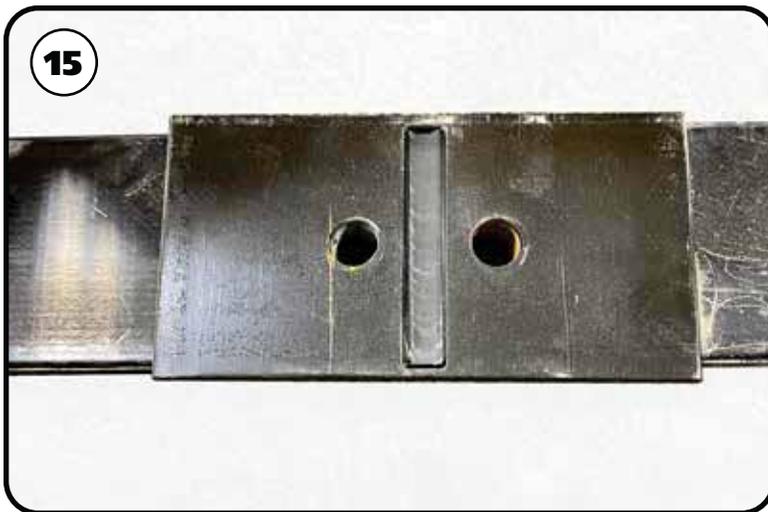
13. Next, remove the u-bolt locator and discard it.



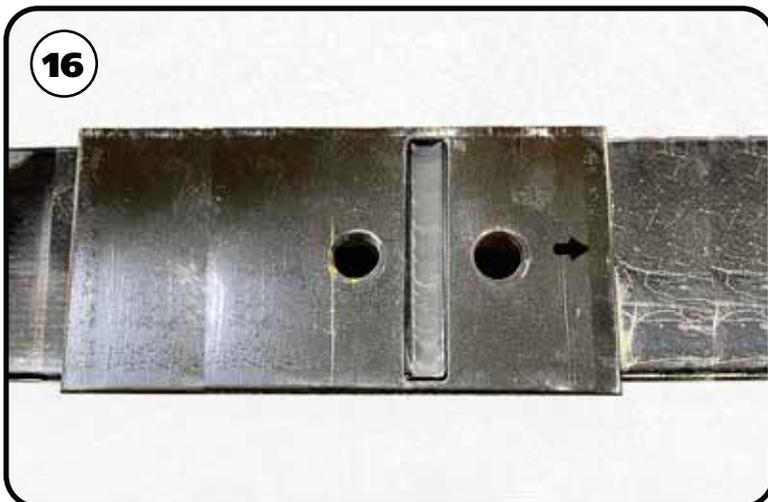
Disassembly



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.



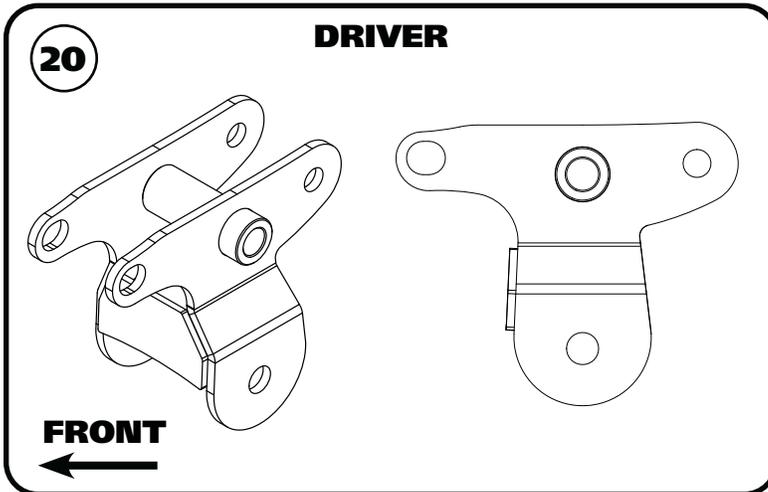
18. The OEM bump stop mount will need to be removed.



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.



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

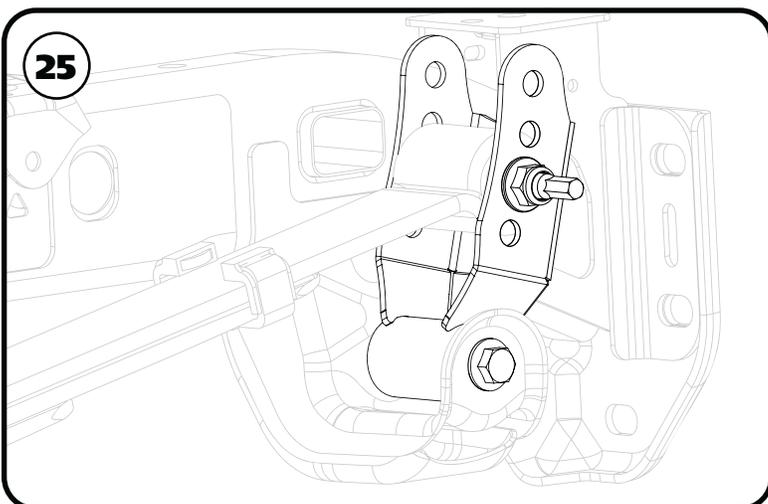


23. Make sure the holes in the front tab line up with the front hole of the OEM leaf spring mount. Install a 3/4" flat washer on a 3/4"-16 x 5" bolt. Insert the bolt/washer through the front hole of the leaf spring mount. Install a 3/4" flat washer & 3/4"-16 thin nylok nut on the threads of the bolt.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



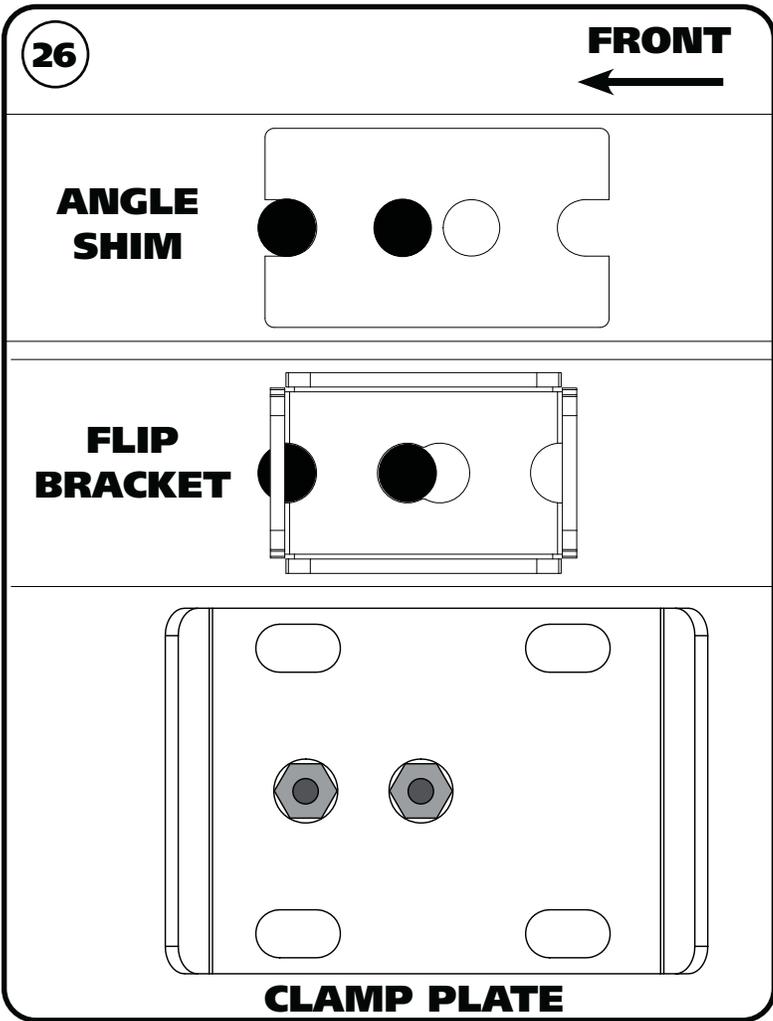
24. Insert the front of the leaf spring in the new bracket. Install a M18 flat washer on a M18-2.5 x 130mm bolt. With the mounting holes aligned with the inner sleeve of the leaf spring, insert the bolt/washer. Install a M18 flat washer and M18-2.5 nylok nut on the threads of the bolt. Repeat on the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



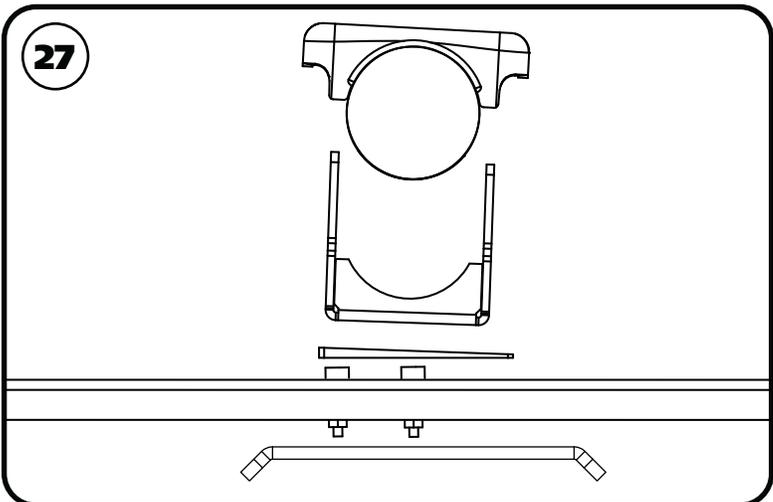
25. Make sure the rear differential is raised high enough to get the leaf springs in position. The shackle will need to be bolted to the leaf spring with the OPEN side to the FRONT of the truck. Use the info on **Page 3** to help determine which holes to use. Line up the holes in the shackle with the 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.



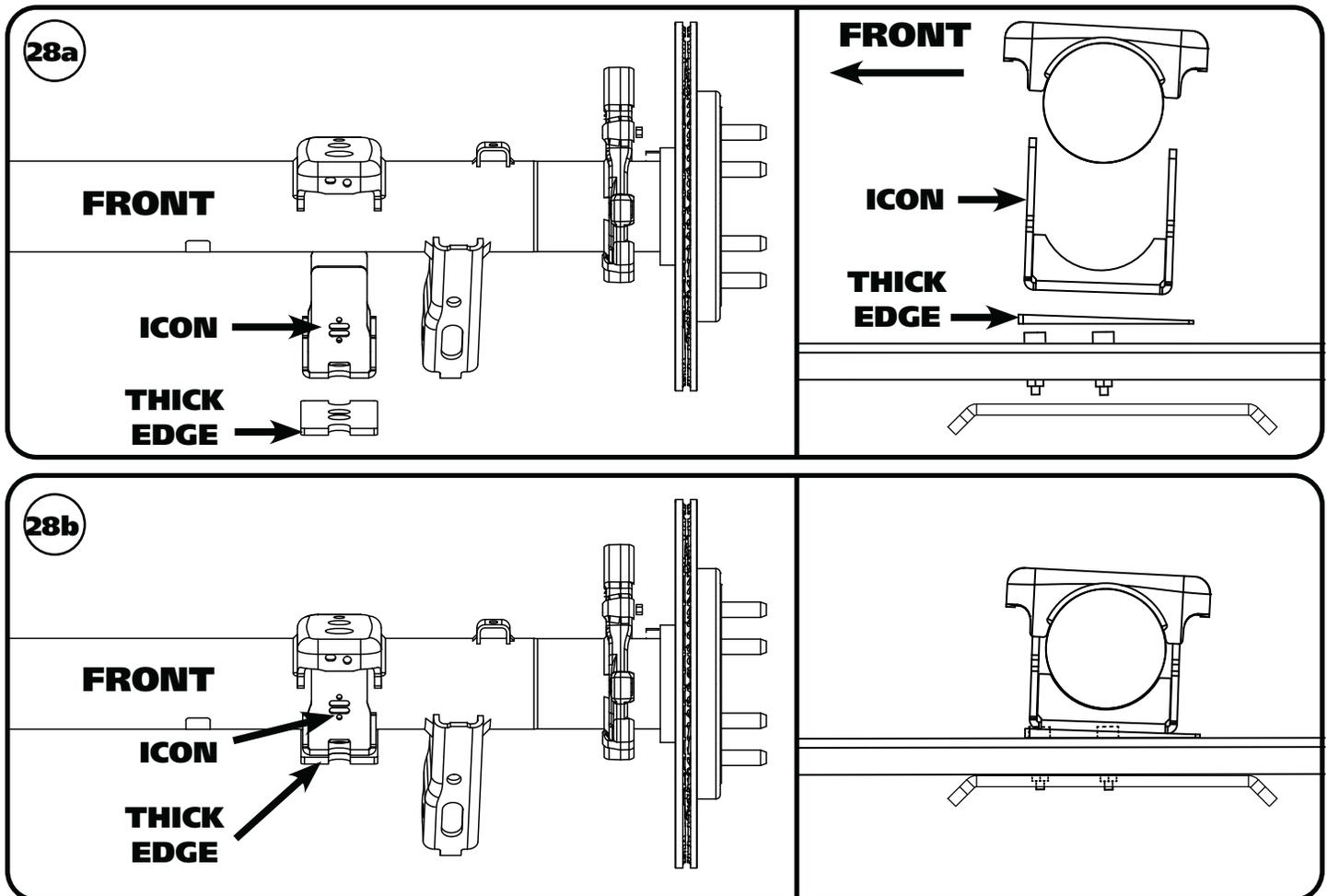
27. **Image 27** is a representation of how the brackets will be used on the leaf spring. If you have steel leaf springs, refer to Page 11 for the correct orientation. If you have a composite overload spring, refer to Page 12 for correct orientation of the brackets.



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.



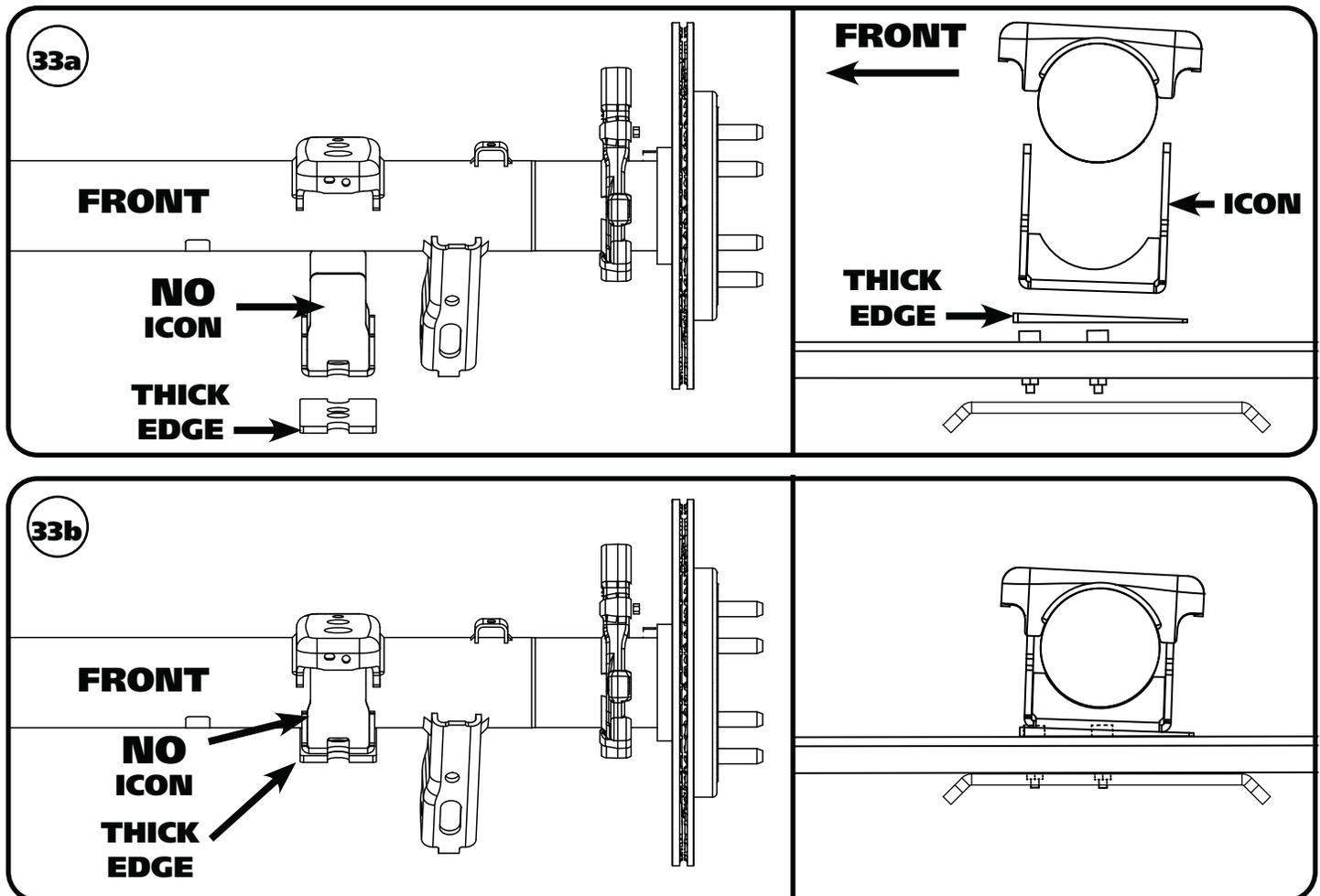
29. Raise the axle high enough to get the wedge shim & flip bracket positioned on the leaf spring.
30. Position the wedge shim & flip bracket on the locating pins using the above images as a guide. The thick end of the wedge and icon on the flip bracket will go to the front of the truck. Again, the locating 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.



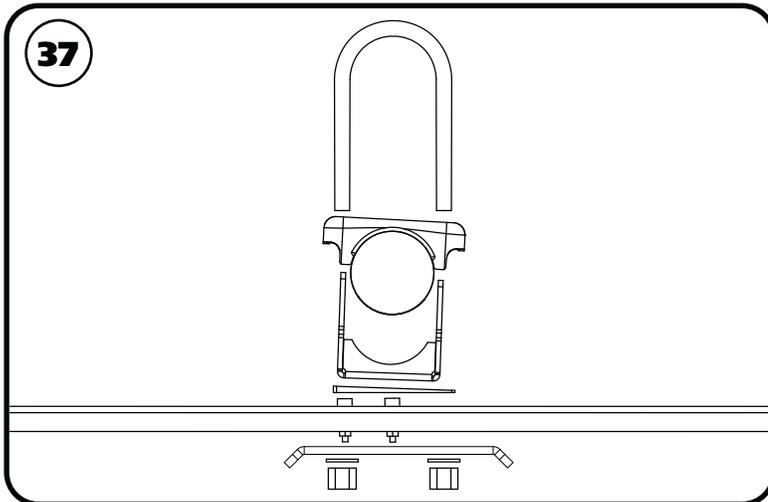
34. Raise the axle high enough to get the wedge shim & flip bracket positioned on the leaf spring.

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.

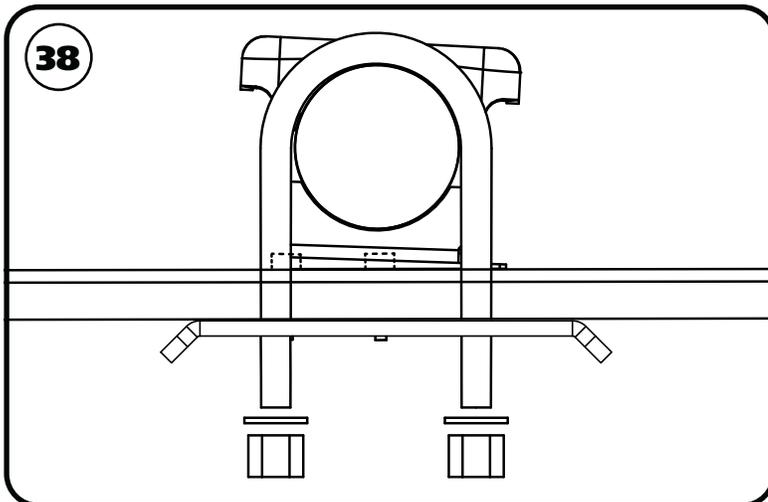
36. Slowly lower the axle into the flip bracket, making sure the tabs go up into the leaf spring saddle. THE FLIP BRACKET WILL POSITION THE PINION AT THE CORRECT ANGLE.



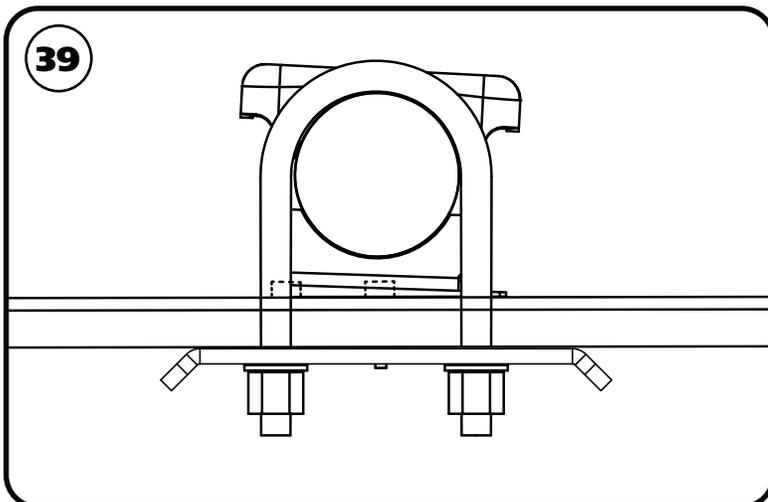
Flip Bracket Installation



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.

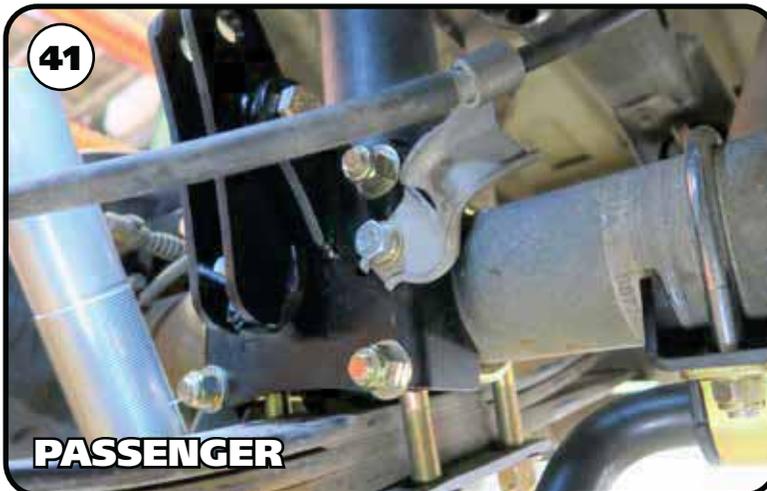


2015-2017 Emergency Brake Cable Brackets



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.

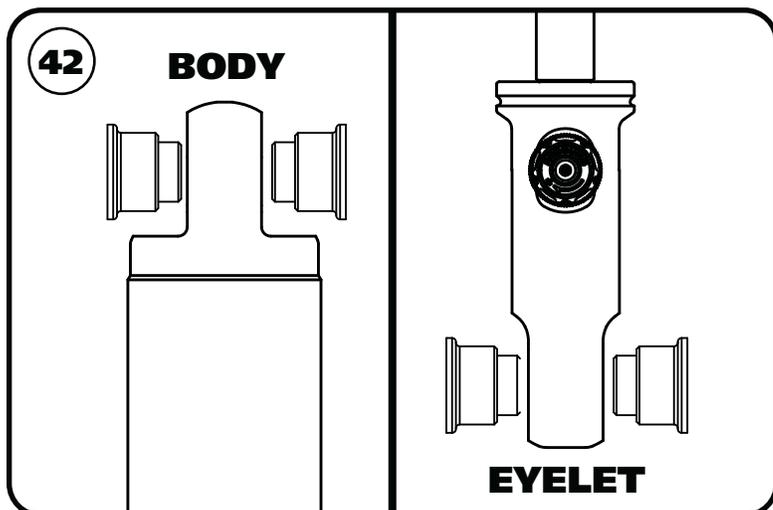
Shock Installation

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.

Final Assembly and Tightening.

47. Set the truck on the ground and torque the leaf spring & shackle bolts to 167 ftlbs.

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

Torque Specifications

COMPONENTS	TORQUE
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
REAR SHOCK MOUNTING	60 FT-LBS
LEAF SPRING BOLTS	167 FT-LBS



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	
STANDARD	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.**



Shock Adjustment

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.

Shock Adjustment:

We recommend starting with the shock adjustment at 12 clicks out from full stiff. Adjust the shock full stiff (clockwise) and count the clicks as you adjust the knob counter clockwise.

Shock Adjustment 101- Single Adjustable

Rebound Adjustment:

How to adjust your new shocks.

The rebound adjustment knob is located on the top of the shock absorber protruding from the eyelet.

You must first begin at the ZERO setting, then set the shock to a medium setting of 12.



-Begin with the shocks adjusted to the ZERO rebound position (full stiff). Do this by rotating the rebound adjuster knob clockwise until it stops.



-Now turn the rebound adjuster knob counter clock wise 12 clicks. This sets the shock at 12. (settings 21-24 are typically too soft for street use).

Take the vehicle for a test drive.



-if you are satisfied with the ride quality, do not do anything, you are set!

-if the ride quality is too soft increase the damping effect by rotating the rebound knob clock wise 3 clicks.

Take the vehicle for another test drive.



-if the vehicle is too soft increase the damping effect by rotating the rebound knob clock wise 3 additional clicks.



-if the vehicle is too stiff rotate the rebound adjustment knob counter clock wise 2 clicks and you are set!

Take the vehicle for another test drive and repeat the above steps until the ride quality is satisfactory.

Note:

One end of the vehicle will likely reach the desired setting before the other end. If this happens stop adjusting the satisfied end and keep adjusting the unsatisfied end until the overall ride quality is satisfactory.