



**DIRECT-REPLACEMENT
INSTALLATION GUIDE**

FORD F-150 RAPTOR (2021.5-ON)

FACTORY RACE SERIES 3.2 LIVE VALVE INTERNAL BYPASS

883-06-182 - Kit: 21.5-ON Ford Raptor Front, Coilover, Live Valve, Internal Bypass, 3.2 Series, R/R, 35"/37" Tire 0-1"/0-.5" Lift

883-06-183 - Kit: 21.5-ON Ford Raptor Rear, Live Valve, Internal Bypass, 3.2 Series, P/B, External Cooler, 0-1" Lift

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INTRODUCTION

Thank you for choosing FOX direct-replacement shocks for your vehicle. FOX products are designed, tested, and manufactured by the finest professionals in the industry.

FOX recommends that you become completely familiar with the handling characteristics of your modified vehicle before operating it under rigorous conditions, helping to avoid potential rollover situations and other loss of control events. FOX further recommends that you use appropriate protective equipment at all times when operating your vehicle.

To achieve the best performance and product longevity, periodic service and maintenance is required. Please refer to the Service and Upgrades section for more information.

IN THE BOX

- Front Shocks or Rear Shocks
- Supplied Hardware
- Installation Guide

WARNING

SAFETY INSTRUCTIONS

- FOX direct-replacement shocks are designed to fit and allow proper clearance with the stock suspension. If aftermarket suspension components are installed it is the customer's responsibility to ensure that interference between the FOX shocks and other vehicle components does not occur at any point in the shock stroke.
- FOX direct-replacement shocks should always be installed as a set for maximum performance.
- Proper installation and service procedures are essential for the safe and reliable operation of the suspension components, requiring the experience and tools specially designed for this purpose. Installation and maintenance procedures for this product must be performed by a qualified service technician to avoid potentially unsafe vehicle handling characteristics, which may result in **SERIOUS INJURY** or **DEATH**.
- Modifying your vehicle's suspension will change the handling characteristics of your vehicle. Under certain conditions, your modified vehicle may be more susceptible to loss of control or rollover, which can result in **SERIOUS INJURY** or **DEATH**. Thoroughly familiarize yourself with the modified vehicle handling characteristics before any rigorous vehicle operation. Wear protective body gear and a helmet when appropriate. Installation of vehicle roll bars or cage is highly recommended.
- FOX direct-replacement shocks are gas-charged and are highly pressurized. Placing shocks in a vise or clamp, applying heat, or attempting to open or service the shock without the proper tools and training can result in **SERIOUS INJURY** or **DEATH**. Do not attempt to modify, puncture or incinerate a FOX direct-replacement shock absorber.
- Any attempt to misuse, misapply, modify, or tamper with any FOX product voids any warranty and may result in **SERIOUS INJURY** or **DEATH**.

WARNING

INSTALLATION GUIDELINES

- Always use a chassis lift for the installation of shocks, and make certain that the raised vehicle is securely attached to the lift to prevent the vehicle from slipping, falling, or moving during the installation process.
- DO NOT install any FOX product without the necessary special tools, expertise and chassis lift or you will subject yourself to the risk of SERIOUS INJURY or DEATH. If you elect to not use a chassis lift (which may result in SERIOUS INJURY or DEATH), ensure that the vehicle is: (1) on level ground, (2) that all tires on the ground during installation are blocked to prevent vehicle movement, (3) that at least two tires are on the ground at all times, and (4) that adequately secured jack stands are used to support the vehicle. NEVER get under the vehicle until you have checked to ensure that the vehicle will be stable during installation.
- FOX direct-replacement shocks are designed to fit your vehicle's shock mounts without modification except the reservoir placement on specific models and applications.
- If a preload adjustment is necessary for your application DO NOT adjust preload with the coil-over on the vehicle. Remove the coil-over from the vehicle and use a spring compressor to remove the lower spring hardware and spring. Once the spring is removed, you can adjust the preload ring. DO NOT EXCEED the existing preload, you will need to go up in spring rate or get a longer spring that fits the application.

FRONT SHOCK INSTALLATION

NOTICE: Medium-strength thread-lock is recommended on all bolts.

1. Please read the installation guidelines on page 3 for instructions on how to properly lift and secure the vehicle.
2. Record the front vehicle ride height to ensure the proper lift is attained after kit is installed. READ INSTALLATION GUIDELINES ON HOW TO PROPERLY ADJUST PRELOAD.

NOTICE: The spring preload is set by FOX for a stock weight vehicle to last the life of the product. Any additional spring preload may negatively affect the life of the spring.

STOCK SHOCK REMOVAL

3. Remove both front wheels from the vehicle.
4. Remove the three top hat nuts that secure the stock shock assembly to the vehicle (Fig. 1). DO NOT remove the center nut. Removal of the center nut will release the spring from the stock assembly and may result in SERIOUS INJURY or DEATH!
5. Take off the bolt connecting the shock to the lower control arm (Fig. 2).

NOTICE: Do not discard any OEM bolts, many are reused with the new FOX shock assembly.



Fig. 1: Remove the three top hat nuts.



Fig. 2: Remove the lower control arm bolt.

6. Detach the tie rod end link at the spindle steering arm on both sides of the Vehicle (Fig. 3).

7. Remove wires and the brake line from the spindle (Fig. 4 & 5).

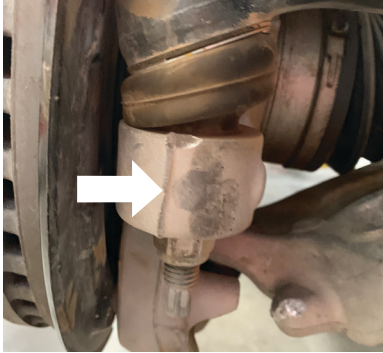


Fig. 3: Tie rod end link.



Fig. 4: Wires attached to the spindle.



Fig. 5: Wires attached to the spindle.

8. Disconnect the sway bar from the sway bar end link on both sides of the vehicle (Fig. 6).

9. Use a set of pliers to remove the CV axle nut cover located on the vehicle's hub (Fig. 7).

10. Remove the CV axle nut (Fig. 8).

11. Take off the nut connecting the upper control arm (UCA) to the upright. Tap the ball joint stem with a hammer to break it free. Proceed with caution, the UCA has spring tension (Fig. 9). Detach the UCAs on both sides of the vehicle.



Fig. 6: Remove the sway bar from the end link.

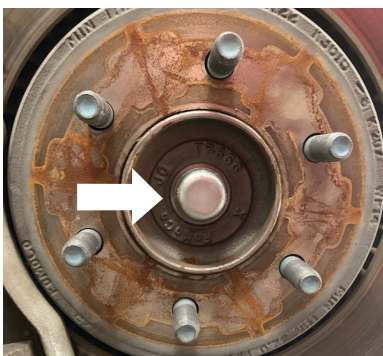


Fig. 7: CV axle cover.

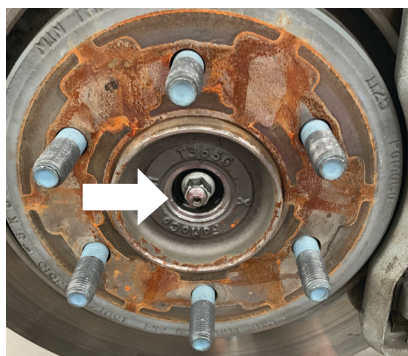


Fig. 8: CV axle nut.



Fig. 9: Disconnect UCA.

12. Unseat the CV axle from the knuckle by supporting the CV housing and allowing the knuckle to slowly pivot away from the vehicle (Fig. 10).

13. Unindex Live Valve coil wires from the shock body using a trim pry tool (Fig. 11-13).



Fig. 10: Unseat the CV axle.



Fig. 11: Unindex coil wires.



Fig. 12: Unindex coil wires.



Fig. 13: Unindex coil wires.

14. Use an open-end wrench remove the Live Valve coil cap from the back side of the coil by turning the cap counter clockwise (Fig. 14 & 15).



Fig. 14: Remove the Live Valve coil cap.



Fig. 15: Remove the Live Valve coil cap.

15. Slowly remove the shock from the lower control arm using a pry bar while supporting the coil-over to prevent it from falling. Once the coil-over unseats, slide the Live Valve coil off the back side of the shock and place it out of the way on the lower control arm. Remove the shock from the truck (Fig 16 & 17).



Fig. 16: Remove the shock.



Fig. 17: Slide the Live Valve coil off.

16. Route the driver side Live Valve coil wire over the frame bucket towards the front of the vehicle. Use a trim pry tool to remove it from the frame, routing the wire over the frame bucket. Attach the wire to vehicle's existing electrical routing with the provided zip ties (Fig 18 & 19).

NOTICE: This is only required for the driver side of the vehicle.

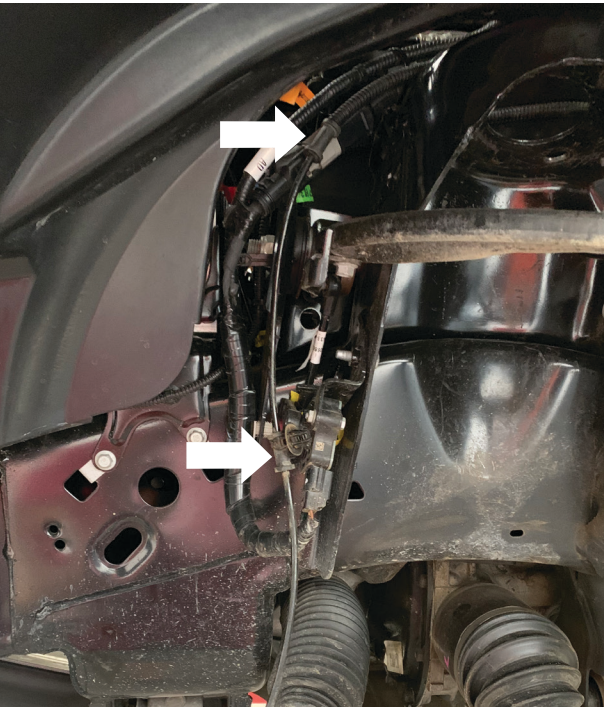


Fig. 18: Route the wire over the frame bucket.

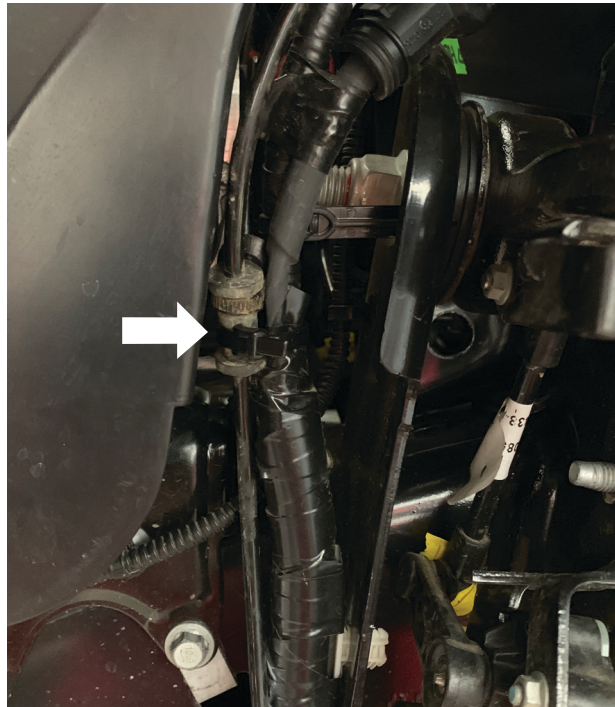


Fig. 19: Attach the Live Valve wire with zip ties.

FOX SHOCK INSTALL

17. Identify the difference between driver and passenger shocks. The hose bridge on the shock clocks away from the center of the vehicle. The reservoir points toward the front of the vehicle.

18. Begin installing the shock by first sliding the top of the shock into the frame bucket. Secure it with the washers and nuts included in the kit. Torque to 24 ft-lbs (Fig. 20).

19. Reinstall the bolt and nut connecting the shock to the lower control arm. Torque to OE specification (Fig. 21).

NOTICE: The head of the bolt faces the front of the vehicle.

NOTICE: The larger eyelet reducer faces toward the rear of the vehicle.



Fig. 20: Torque nuts to 24 ft-lbs.



Fig. 21: Torque the LCA bolt.

20. Install the provided clip nuts at the front and rear facing holes on the sides of the body mount. Make sure the nut end is closest to the center of the body mount (Fig. 22 & 23).



Fig. 22: Install clip nuts.



Fig. 23: Install clip nuts.

21. Install the reservoir mounting brackets onto the reservoir by sliding them over the dovetail rail. Ensure that the included pinch bolts facing down (Fig. 24).

22. Slide the first bracket down until it is flush against the lock ring. Torque to 18 ft-lbs. (Fig 25).

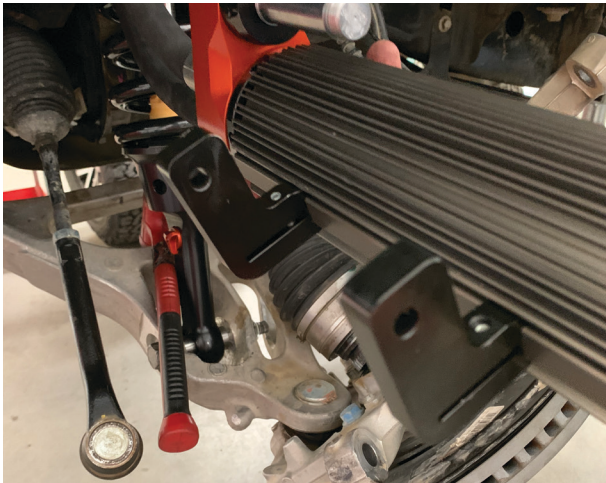


Fig. 24: Slide the brackets over the dovetail rail.



Fig. 25: Torque bolts to 18 ft-lbs.

23. Hold the reservoir in place and mount the first reservoir bracket to the body mount using the provided bracket bolt. Torque to 20 ft-lbs. (Fig. 26).

24. Slide the second reservoir bracket up against the body mount. Secure the supplied bracket bolt with an allen socket. Torque to 20 ft-lbs. Torque the second reservoir bracket pinch bolt to 18 ft-lbs (Fig. 27).

25. Slide the Live Valve coil over the stud and clock it so the wire is centered between the coil cover mounting holes. Keep the coil wire routed above the reservoir brackets.

NOTICE: Only Raptor models 2024 and newer use the Live Valve coil washer. The washer goes between the coil and coil cap (Fig 28).



Fig. 26: Mount the bracket to the body mount.



Fig. 27: Torque the pinch bolts to spec.

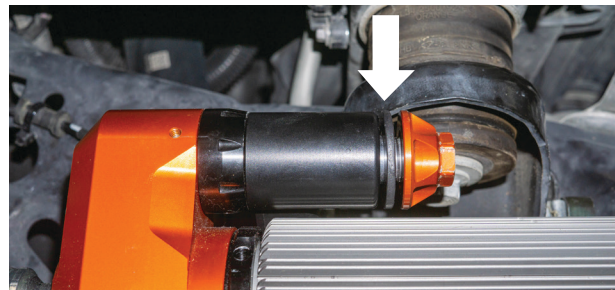


Fig. 28: Only 24-ON models use the coil washer.

26. Install the new Live Valve coil cap using an open-end wrench and torque to 100 in-lbs (~8 ft-lbs) with medium-strength thread locker (Fig. 29).

27. Slide the Live Valve cover slot over the coil wire. The Live Valve decal faces outward. Use an allen key to install two of the supplied cover bolts securing it to the reservoir assembly. Torque to 22 in-lbs (Fig. 30).



Fig. 29: Tighten the coil cap.



Fig. 30: The Live Valve decal faces outward.

28. Secure the driver side's loose coil wire by attaching it to the frame with a provided zip tie (Fig. 31 & 32).

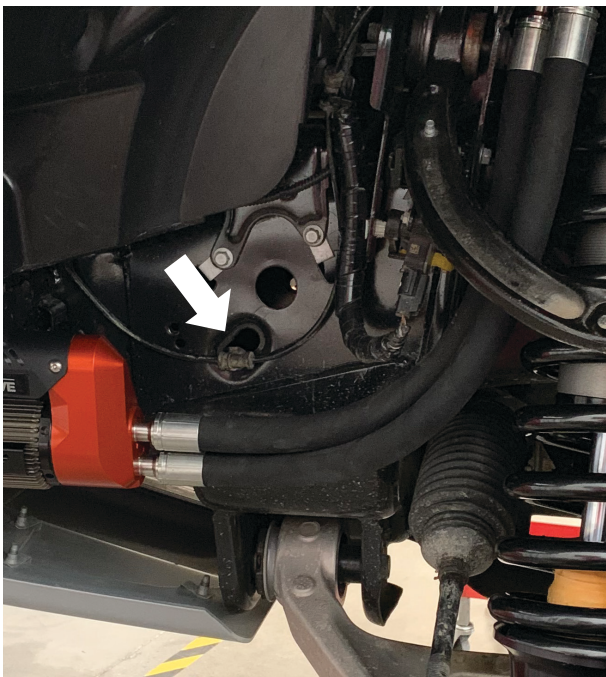


Fig. 31: Locate the coil wire here.



Fig. 32: Secure the coil wire.

29. Secure the passenger side's loose coil wire by attaching it to the available electrical wire routing in the upper right of the wheel well (Fig. 33 & 34).

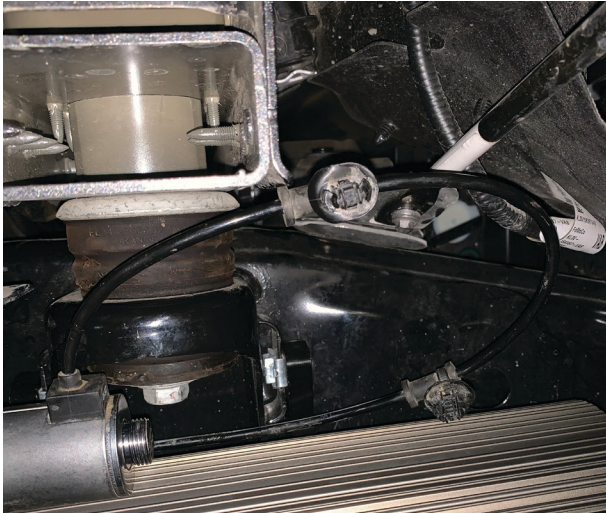


Fig. 33: Secure the coil wire.

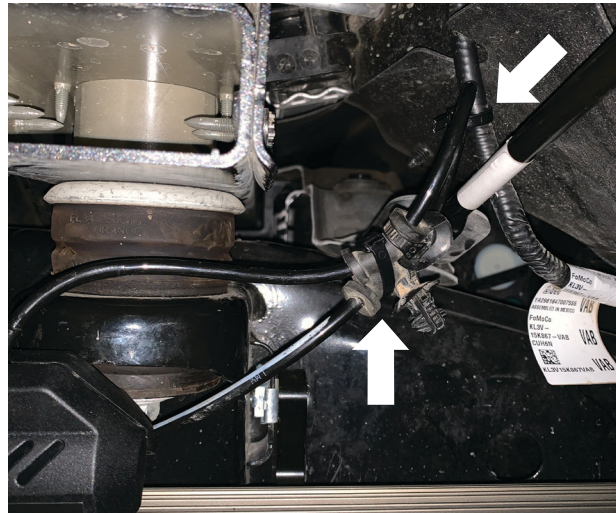


Fig. 34: Use zip ties to route the coil wire.

NOTICE: Reference the OE service manual during the assembly process to ensure the correct procedure is followed.

30. Re-index the CV axle into the knuckle (Fig. 35).

31. Reconnect the upper control arm to the knuckle. Torque to OE specification. (Fig. 36).

32. Install the CV axle nut and torque to OE specification. (Fig. 37).

33. Next, press the CV axle nut cover back into the vehicle's hub.

34. Reconnect the outer tie rod end to the knuckle. Torque to OE specification. (Fig. 38).



Fig. 35: Re-index the CV axle.



Fig. 36: Connect the UCA.



Fig. 37: Install the CV axle nut.

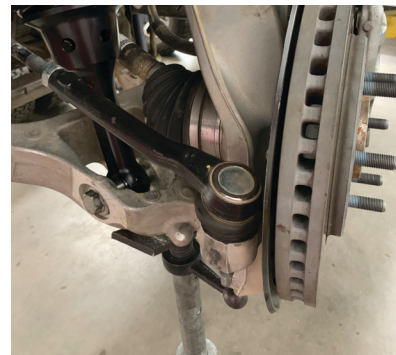


Fig. 38: Connect the tie rod end.

35. Reconnect the sway bar to the sway bar link. Torque to OE specification (Fig. 39).

36. Reconnect the wires and brake line to the knuckle (Fig. 40).

CHECK AND FINAL DETAILS

37. Reinstall the front wheels and torque to manufacturer recommended specification.

38. Set the vehicle back on the ground and drive it back and forth to allow the suspension to settle. Now measure the new ride height and make adjustments if necessary.

NOTICE: Read installation guidelines on how to properly adjust preload.

39. Check that the front suspension has proper clearance by steering completely in both directions.

40. Check hose routing to ensure there is clearance.

41. Check all wires are properly placed.

42. It is highly recommended that you have your wheel alignment checked.

43. After usage check hose routing to ensure there are no signs of clear contact.



Fig. 39: Install the sway bar.



Fig. 40: Fasten wires to the knuckle.

REAR SHOCK INSTALLATION

NOTICE: Medium-strength thread-lock is recommended on all bolts.

1. Please read the installation guidelines on page 3 for instructions on how to properly lift and secure the vehicle.

STOCK SHOCK REMOVAL

2. Remove the rear wheels from the vehicle and support the rear axle.

3. Un-index the Live Valve coil wires from the back side of the shock body using a trim pry tool (Fig. 41 & 42).



Fig. 41: Use trim pry tool.



Fig. 42: Un-indexed coil wire.

4. Use an open end wrench to remove the Live Valve coil cap from the backside of the coil (Fig. 43 & 44).

5. Slide the Live Valve coil off the back side of the shock and place it securely out of the way (Fig. 45).

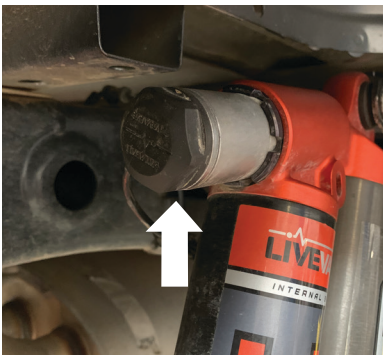


Fig. 43: Remove the coil cap.



Fig. 44: Remove coil cap.



Fig. 45: Slide the coil off.

6. Remove the lower bolt connecting the shock to the axle. DO NOT discard the bolt or nut. They are used for the installation of the new FOX rear shock (Fig. 46).

7. Use an open end wrench and remove the upper bolt connecting the shock to the frame. DO NOT discard the bolt or nut. They are used for the installation of the new FOX rear shock (Fig. 47).

8. Remove the shock from the vehicle.



Fig. 46: Remove lower shock mount bolt.



Fig. 47: Remove the upper shock bolt.

RESERVOIR BRACKET INSTALL

9. Driver side: Use one of the drill templates and fold it along the noted fold line. Place the template against the driver side truck bed wheel well and align the fold line against the bottom edge. Slide it forward until the edge aligns with the forward bed rail. Tape the template into place (Fig. 48).

10. Passenger side: Use one of the two provided drill templates and fold it along the noted fold line. Place the template against the passenger truck bed wheel well and align the fold line against the bottom edge. Slide it back until the edge aligns with the rear bed rail. Tape the template into place (Fig. 49).

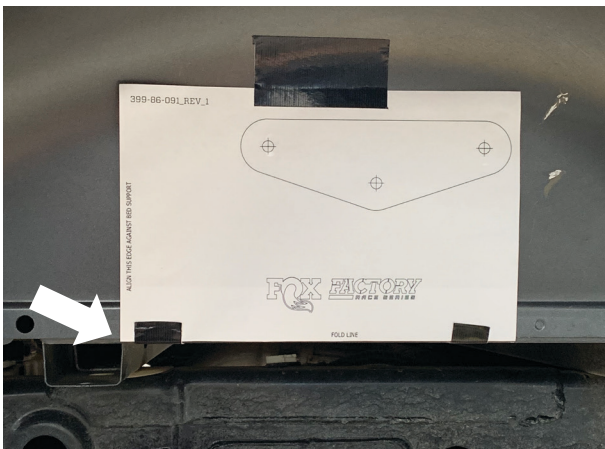


Fig. 48: Driver side alignment.

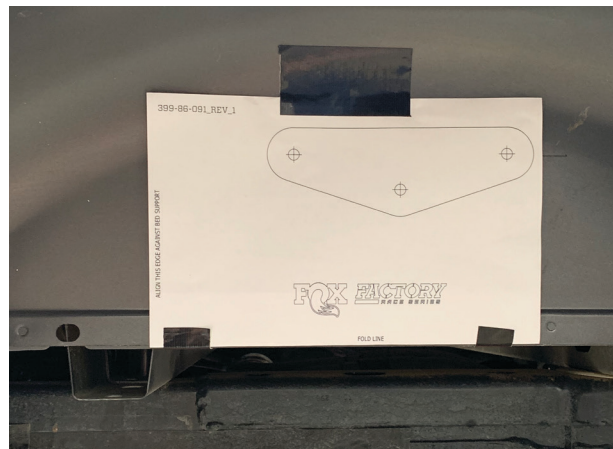


Fig. 49: Passenger side alignment.

11. Mark and drill the cooler mounting hole locations with a 3/8 drill bit (Fig. 50).

12. Attach the cooler mounting bed plate to the inside of the bed through the center hole using the included bolt and a 1/2-inch socket. Torque bolt to 16 ft-lbs. (Fig. 51 & 52).



Fig. 50: Drill holes for cooler.



Fig. 51: Attach the bed plate.



Fig. 52: Bed view.

FOX SHOCK INSTALL

13. Lift the rear shock into the wheel well and install the upper shock mount first (Fig. 53). The Live Valve coil stud faces toward the center of the vehicle. Torque to OE specification.

NOTICE: Orient flag nut such that it will not contact shock while torquing.

14. Bolt the bottom of the shock to the axle bracket (Fig. 54). Torque passenger side to OE specification. The adjuster points toward the front of the vehicle.



Fig. 53: Install the upper shock bolt (driver side shown).

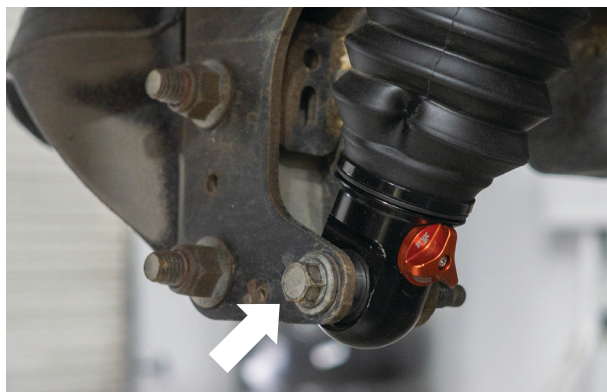


Fig. 54: Install the lower shock bolt (driver side shown).

15. Attach the shotgun cooler to the bed mounting plate using the included stand offs and bolts. Torque the bolts to 16 ft-lbs (Fig. 55-57).

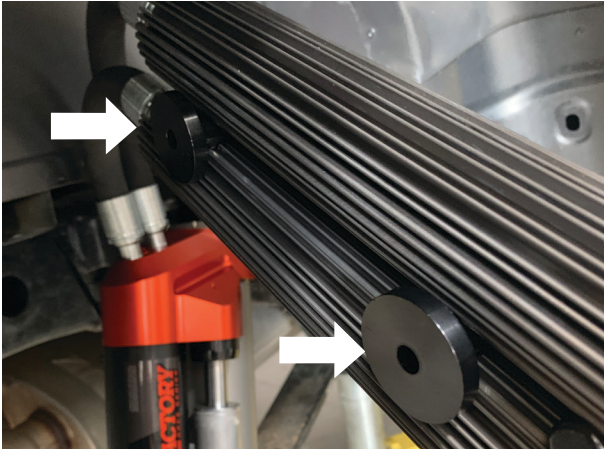


Fig. 55: Stand offs go between the cooler and bed.



Fig. 56: Install the bolts.



Fig. 57: Example of the final assembly.

16. Slide the Live Valve coil over the stud and clock it so the wire is centered between the coil cover mounting holes. Clock the coil so the wire faces the center of the vehicle.

17. Install the new Live Valve coil cap using an open end wrench and torque to 100 in-lbs (~8 ft-lbs) with medium-strength thread locker (Fig. 58).

NOTICE: Only Raptor models 2024 and newer use the Live Valve coil washer. Refer back to front shock installation for further clarification.



Fig. 58: Tighten the coil cap.

18. Secure the loose coil wire on both sides of the vehicle with a zip tie. Loop the zip tie through the cable tie mount on the top of the frame rail. (Fig. 59 & 60).

CHECK AND FINAL DETAILS

19. Reinstall the rear wheels and torque to the manufacturer's recommended specification.

20. Set the vehicle back on the ground and drive it back and forth to allow the suspension to settle. Now measure the new ride height and make adjustments if necessary.

NOTICE: Read installation guidelines on how to properly adjust preload.

21. Check hose routing to ensure there is clearance.

22. Check all wires are properly placed.

23. It is highly recommended that you have your wheel alignment checked.

15. After usage check hose routing to ensure there are no signs of clear contact.

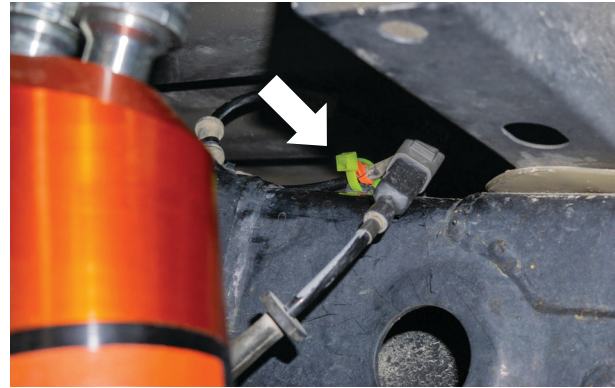


Fig. 59: Locate the cable tie mount.



Fig. 60: Zip tie the Live Valve wire.

NOTICE The suspension features a quick switch that allows both the front and rear shocks to be optimized for different driving environments. Adjust by turning the knob to the desired setting (Fig. 61-63).



Fig. 61: On-road performance.



Fig. 62: On-road comfort.



Fig. 63: Off-road performance.

WARRANTY INFORMATION

FOX LIMITED WARRANTY

FOX Factory, Inc., a Georgia corporation having an office at 2055 Sugarloaf Cir, Duluth, GA 30097 (“FOX”), makes the following LIMITED WARRANTY with respect to its suspension products:
LIMITED ONE (1) YEAR WARRANTY ON SUSPENSION PRODUCTS.

Subject to the limitations, terms and conditions hereof, FOX warrants, to the original retail owner of each new FOX suspension product, that the FOX suspension product, when new, is free from defects in materials and workmanship. Unless otherwise required by law, this warranty expires one (1) year from the date of the original FOX suspension product retail purchase from an authorized FOX dealer or from a FOX authorized Original Equipment Manufacturer where FOX suspension is included as original equipment on a purchased vehicle. If law requires a warranty duration of greater than one (1) year, then, subject to the other provisions hereof, this warranty will expire at the end of the minimum warranty period required by such law.

TERMS OF WARRANTY

This warranty is conditioned on the FOX suspension product being operated under normal conditions and properly maintained as specified by FOX. This warranty is only applicable to FOX suspensions purchased new from an authorized FOX source and is made only to the original retail owner of the new FOX suspension product and is not transferable to subsequent owners. This warranty is void if the FOX suspension product is subjected to abuse, neglect, improper or unauthorized repair, improper or unauthorized service or maintenance, alteration, modification, accident or other abnormal, excessive, or improper use.

Should it be determined by FOX in its sole and final discretion, that a FOX suspension product is covered by this warranty, it will be repaired or replaced, by a comparable model, at FOX’s sole option, which will be conclusive and binding. THIS IS THE EXCLUSIVE REMEDY UNDER THIS WARRANTY. ANY AND ALL OTHER REMEDIES AND DAMAGES THAT MAY OTHERWISE BE APPLICABLE ARE EXCLUDED, INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR PUNITIVE DAMAGES.

This limited warranty does not apply to normal wear and tear, malfunctions or failures that result from abuse, improper assembly, neglect, alteration, improper maintenance, crash, misuse or collision. This limited warranty gives the consumer specific legal rights. The consumer may also have other legal rights which vary from state to state or country to country. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages or warranties, and if dictated by law the above limitations or exclusions may not apply to you. If it is determined by a court of competent jurisdiction that a certain provision of this limited warranty does not apply, such determination shall not affect any other provision of this limited warranty and all other provisions shall remain in full effect.

THIS IS THE ONLY WARRANTY MADE BY FOX ON ITS SUSPENSION PRODUCTS AND COMPONENTS, AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION HEREIN. ANY WARRANTIES THAT MAY OTHERWISE BE IMPLIED BY LAW INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED.

SHOCKS NEED LOVE TOO

FOX SERVICE AND UPGRADES

HAVE YOUR FOX SHOCKS SERVICED BY FOX TECHNICIANS. CALL OUR OFF-ROAD AND TRUCK SERVICE CENTER AT 619.768.1800 TO GO OVER THE SERVICE AND UPGRADE OPTIONS AVAILABLE FOR YOUR PRODUCT. ONCE YOU'VE SETUP YOUR SERVICE AND/OR UPGRADES YOU WILL RECEIVE A RETURN AUTHORIZATION NUMBER AND SHIPPING INSTRUCTIONS.

COMPLETE SERVICES

100% street use: every 50,000 miles

50% street/ 50% off-road use: Every 10,000 miles

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