



DIRECT-REPLACEMENT  
INSTALLATION GUIDE

FORD F150 RAPTOR 4WD | 2021+

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# BILLET UPPER CONTROL ARM KIT

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803-35-018 - Kit: Control Arm, 2021+ Ford F150 Raptor Upper Control Arm, Black  
803-35-019 - Kit: Control Arm, 2021+ Ford F150 Raptor Upper Control Arm, Orange



FOX products are subject to continuous development and improvement. To find the most up to date product information such as color installation manuals, videos, and FAQs please visit:

<http://ridefox.com/manuals>

To locate the correct installation manual, use the 8-digit part number found on the end of the packaging box (see illustration below):



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# INTRODUCTION

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Thank you for choosing FOX direct replacement, upper control arms 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 Billet Upper Control Arms
- Supplied Hardware
- Installation Guide

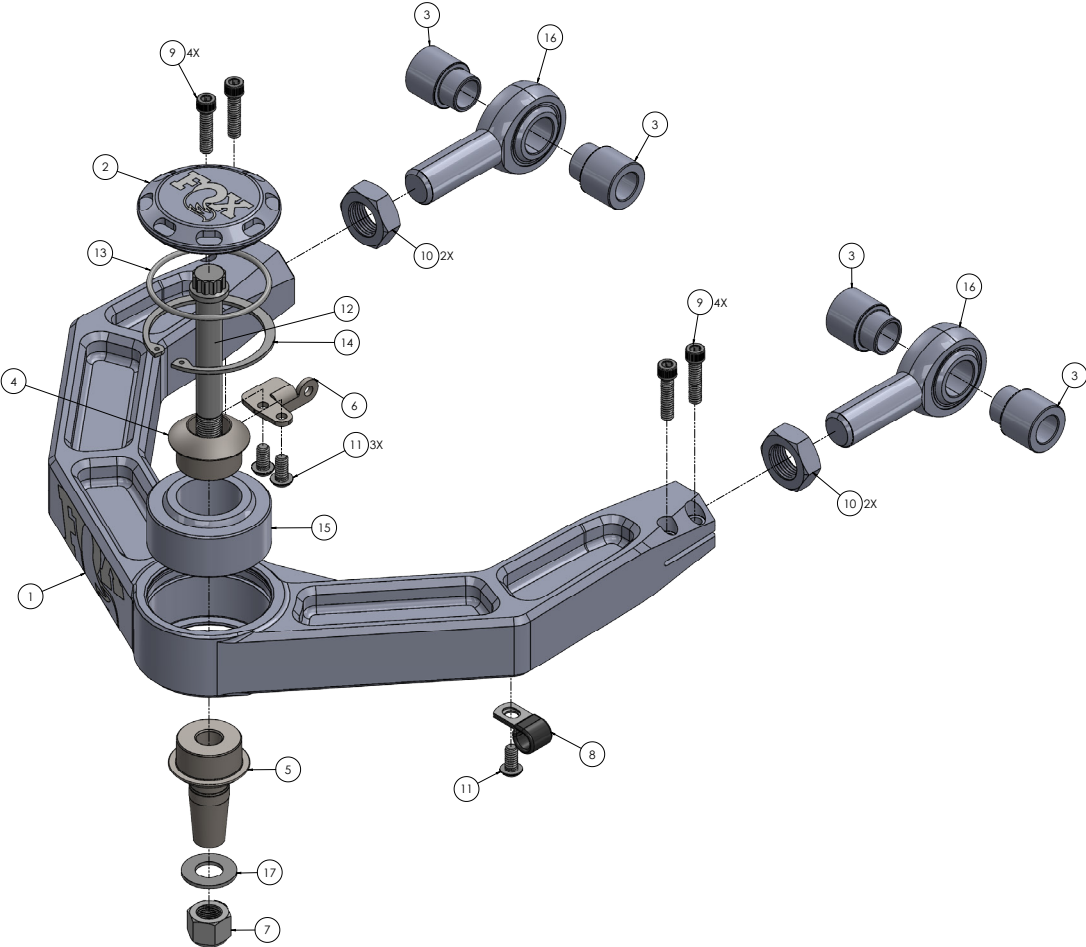
# UCA SUPPLIED PARTS

803-35-018			
FOX PN	DESCRIPTION	QTY	NOTES
A5133-BLK	UCA: 2021+ Ford F150 Raptor - Billet Front UCA ASSM - DS - BLK	1	Black: 803-35-018
A5134-BLK	UCA: 2021+ Ford F150 Raptor - Billet Front UCA ASSM - PS - BLK	1	
B5143	Bag Kit: 2021+ Ford F150 Raptor - Rod End UCA - Hardware Kit	2	
	Hardware: 3/4"-16 Jam Nut	4	Hardware to mount the billet control arm to the frame
	Hardware: 3/4"-16, PTFE Race, Male Right Hand Rod End	4	
	Hardware: 1/4"-20 x 1" Socket Head Screw	8	
	Misalignment: 0.75" X 0.563" X 0.783" Stepped Boss	8	
	Hardware: 3/8" x 1 -3/8" Loop Clamp	2	
	Hardware: 1/4"-20 x .1/2" Button Head Hex Drive Screw	2	
B5133	Bag Kit: 2015+ Ford F150 - Billet Front UCA - Misalign Kit - BLK	2	
	UCA Cap: Billet UCA 1.25" Uniball Cap - FOX Logo - Black	2	Hardware to mount the billet control arm to the steering knuckle
	Hardware: O Ring	2	
	Misalignment: 1/2" Sunk Misalignment	2	
	Misalignment: 2021+ Ford F150 Raptor UCA Taper Misalignment	2	
	Hardware: 1/2"-20 x 4" - 12 Point Bolt	2	
	Hardware: 1/2" Washer	2	
	Hardware: 1/2"-20 Nylock Nut	2	
B5145	Bag Kit: 2021+ Ford F150 Raptor - Sensor Mount Kit	1	
	Bracket: 2021+ Ford F150 Raptor UCA Position Sensor Bracket - DS	1	Ride Height Sensor mounting hardware
	Bracket: 2021+ Ford F150 Raptor UCA Position Sensor Bracket - PS	1	
BP1062	Bolt Pack	1	

# UCA SUPPLIED PARTS

803-35-019			
FOX PN	DESCRIPTION	QTY	NOTES
A5133-ORG	UCA: 2021+ Ford F150 Raptor - Billet Front UCA ASSM - DS -ORG	1	Orange: 803-35-019
A5134-ORG	UCA: 2021+ Ford F150 Raptor - Billet Front UCA ASSM - PS -ORG	1	
B5143	Bag Kit: 2021+ Ford F150 Raptor - Rod End UCA - Hardware Kit	2	
	Hardware: 3/4"-16 Jam Nut	4	Hardware to mount the billet control arm to the frame
	Hardware: 3/4"-16, PTFE Race, Male Right Hand Rod End	4	
	Hardware: 1/4"-20 x 1 Socket Head Screw	8	
	Misalignment: 0.75" X 0.563" X 0.783" Stepped Boss	8	
	Hardware: 3/8" x 1 -3/8" Loop Clamp	2	
	Hardware: 1/4"-20 x 1/2" Button Head Hex Drive Screw	2	
B5135	Bag Kit: 2015+ Ford F150 - Billet Front UCA - Misalign Kit - ORG	2	
	UCA Cap: Billet UCA 1.25" Uniball Cap - FOX Logo - Orange	2	Hardware to mount the billet control arm to the steering knuckle
	Hardware: O Ring	2	
	Misalignment: 1/2" Sunk Misalignment	2	
	Misalignment: 2021+ Ford F150 Raptor UCA Taper Misalignment	2	
	Hardware: 1/2"-20 x 4" - 12 Point Bolt	2	
	Hardware: 1/2" Washer	2	
	Hardware: 1/2"-20 Nylock Nut	2	
B5145	Bag Kit: 2021+ Ford F150 Raptor - Sensor Mount Kit	1	
	Bracket: 2021+ Ford F150 Raptor UCA Position Sensor Bracket - DS	1	Ride Height Sensor mounting hardware
	Bracket: 2021+ Ford F150 Raptor UCA Position Sensor Bracket - PS	1	
BP1062	Bolt Pack	1	

# UCA DIAGRAM



PART NO.	NAME	PART NO.	NAME
1	Billet Upper Control Arm	10	Jam Nut
2	Cap	11	Button Head Hex Bolt
3	Pivot Misalignment	12	12 Point Bolt
4	Sunk Misalignment	13	O-ring
5	Taper Misalignment	14	Snap Ring
6	Sensor Bracket	15	Spherical Bearing
7	Nut	16	3/4" Rod End
8	Loop Clamp	17	Washer
9	Pinch Bolts		

 **WARNING**

# SAFETY INSTRUCTIONS

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- FOX direct-replacement UCA's 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 UCA's and other vehicle components does not occur at any point in the shock stroke.
- FOX direct-replacement UCA's 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.
- 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 any aftermarket parts, 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.
- Control arms with sensor are designed to keep the sensor arm in the stock position (same position as the OE control arm).
- Will work with driver and passenger side upper control sensors (including CCD trucks).
- Do NOT hit the aluminum knuckle with a hammer to separate the ball joint, use appropriate ball joint separation tool.

- Service Kit Information:

Part Type	Part Number
Single Spherical Rod End Bearing	001-01-003
Single Spherical Uniball Bearing	001-00-015
Pair Spherical Uniball Bearing Cap - Black	006-00-065
Pair Spherical Uniball Bearing Cap - Orange	006-00-066
UCA Complete Rebuild Kit (X2 Control Arms)	803-04-369

- Wheel / Tire Fitment Information:

Wheel Specification	Tire Specification	Fitment Notes
Stock Wheel	Stock Tires - BFG KO2 37x12.5R17	Wider tires than stock (12.50 wide) on stock wheels may rub on the Billet Fox UCA when turning.
17" x 9" 5" Back Spacing	Up to 12.50" Wide Tire	Tire diameter is relative to lift height

# UCA INSTALLATION

## PREPARATION

1. Please read the installation guidelines on page 5 for instructions on how to properly lift and secure the vehicle.

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

## TOOLS REQUIRED

- Manufacturer Torque Specs
- Basic Hand Tools / Socket & Wrench Set
- Jack Stands
- Tape Measure
- Medium-Strength Thread Locker
- Torque Wrench
- Ford Service Tool: 204-592 Separator (or Equiv)

## DISASSEMBLY

1. Working on a clean flat surface, block the rear wheels and raise the front of the vehicle.
2. Support the vehicle with jack stands.
3. Remove the front wheels and tires.
4. Disconnect tie rod. - 21mm Socket. **(Fig. 1)**
5. Disconnect brake line brackets from the knuckle. 10mm and 8mm socket. **(Fig. 2)**



Figure 1: Disconnect tie rod.



Figure 2: Disconnect brake line bracket.

6. Disconnect ABS lines from the brake line inline clips. **(Fig. 3)**
7. Loosen the UCA ball joint nut. Thread nut down close to the end of the threads. **(Fig. 4A, 4B)**



Figure 3: Disconnect ABS lines.



Figure 4A: Loosen ball joint nut.



Figure 4B: Loosen ball joint nut.

8. Use the appropriate ball joint dislodging tool to unseat the OE ball joint taper from the steering knuckle. Use SST: 204-592 Separator or equivalent. **(Fig. 5)**
9. Remove the lower strut bolt. Use a 27mm socket. **(Fig. 6)**
10. Remove the 3 top strut nuts and remove the coilover assembly. Make sure the lower control arm assembly is supported such that it cannot fall. Note the sway bar link may need to be disconnected to remove the coilover. **(Fig. 7)**

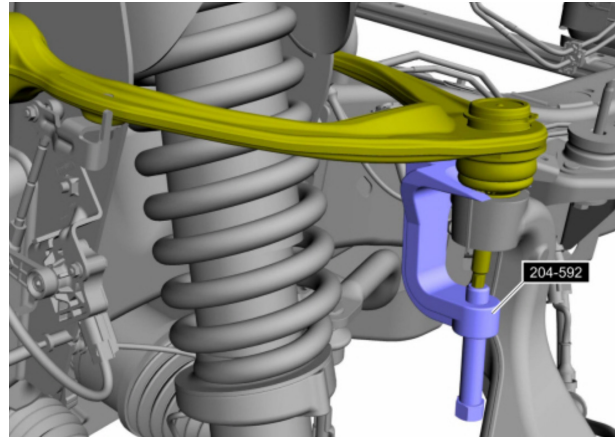


Figure 5: Dislodge ball joint.



Figure 6: Remove lower strut bolt.



Figure 7: Remove the 3 top strut nuts.

11. Remove the UCA bolts and nuts. 18mm bolt , 21mm nut side. Remove the UCA. **(Fig. 8A, 8B)**



Figure 8A: Remove the UCA bolt and nut.



Figure 8B: Remove the UCA bolt and nut.

## BILLET UCA ASSEMBLY

12. Install jam nut and anti seize threads. (Fig. 9A, 9B)
13. Install heims to 5/8" thread from arm to base of eye. (Fig. 10)



Figure 9A: Install jam nut.



Figure 9B: Anti seize threads.

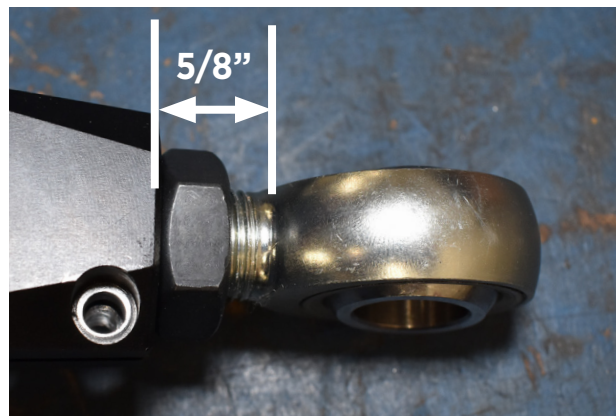


Figure 10: Install heims to 5/8".

14. Tighten jam nuts to 90 ft-lbs, ensuring that the rod ends are “vertical” as shown.
15. Use thread locker, install the 4 hex head pinch bolts. Tighten pinch bolts to 107 in-lbs. **(Fig. 11)**
16. Install the sensor bracket on the bottom of the UCA using the 2 button head bolts and thread locker. Tighten the button head bolts to 22 in-lbs. **(Fig. 12)**
17. Install misaligns. **(Fig. 13)**



Figure 11: Pinch bolts.

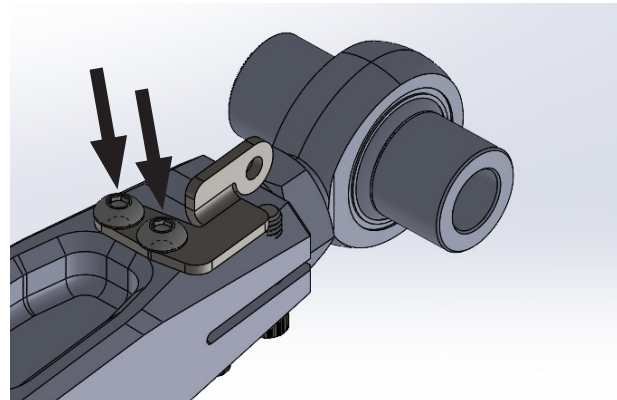


Figure 12: Install sensor bracket..



Figure 13: Install misaligns..

## UCA INSTALLATION

18. Connect the UCA to the strut tower re-using the factory hardware. **(Fig. 15A, 15B)**

**Note:** *Ensure the rod ends are centered in their rotation.*

**If coilovers have been purchased, install them at this point according to manufacturer instructions.**

19. Install the sunk misalign into the top of the uniball joint. Drop in the 1/2" 12pt bolt. **(Fig. 16)**

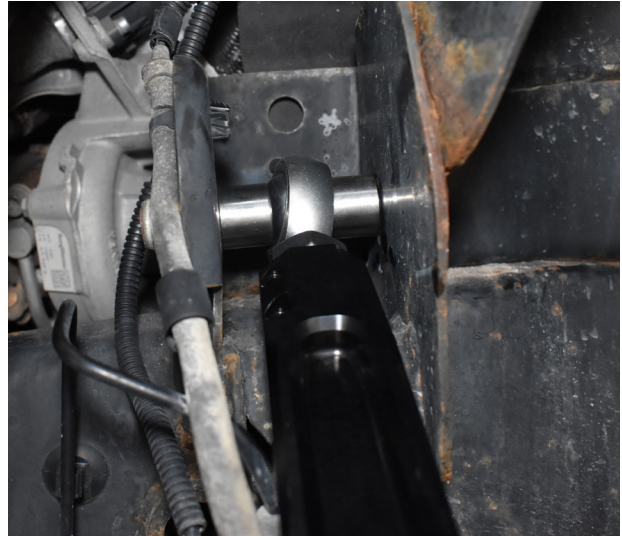


Figure 14A: Install billet UCA.

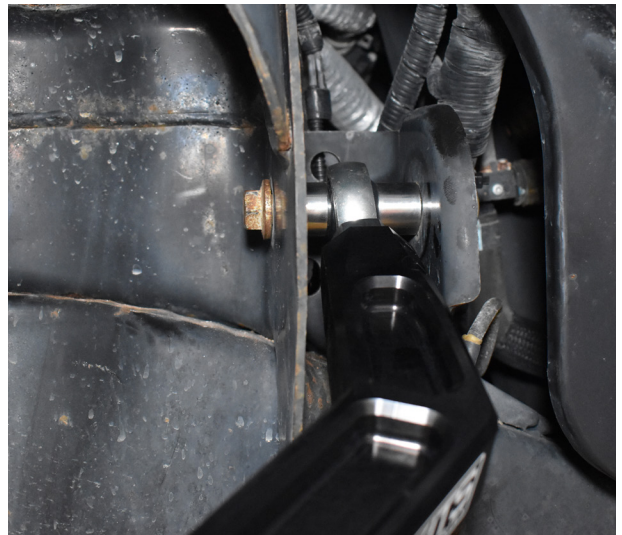


Figure 15B: Install billet UCA.



Figure 15: Install billet UCA.

20. Install the taper on to the threads and insert into the knuckle. **(Fig. 17)**
21. Install the 1/2" nylock nut and washer. Tighten the 1/2" hardware to 80 ft-lbs. **(Fig. 18)**
22. Install new or re-install coilovers at this point. Torque the lower mount to factory specifications. Torque the upper coil over mounts to factory specifications. **(Fig. 19)**



Figure 16: Install taper.



Figure 17: Install nylock nut and washer.



Figure 18: Install nylock nut and washer.

23. Re-attach tie rod end to the knuckle Torque to factory specifications. **(Fig. 20)**
24. Re-attach ABS and brake line brackets to the knuckle. Torque to factory specifications. Use the provided wire clamp and 1/4" hardware as needed to attach the ABS line to the upper control arm. Torque the provided 1/4" hardware to 76 in-lbs. **(Fig. 21)**
25. Reattach the height sensor to the new mount on the upper control arm using the OE hardware in the same orientation as OE. Torque the sensor mount hardware to 36 in-lbs. **(Fig. 22)**
26. Install the O-ring onto the cap and lightly grease the O-ring to help seal the cap to the control arm. Line up the groove on the cap towards the inside of the vehicle, such that the FOX logo is facing outwards towards the tire
27. Repeat the process on the other side of the vehicle
28. Replace wheels and tires. Torque lugs to OE specifications.
29. Vehicle will need a full alignment.

## POST INSTALLATION INSTRUCTIONS

30. Check all hardware for proper torque.
31. Check hardware after 500 miles.
32. Adjust headlights.
33. The vehicle will need a complete front end
34. alignment.
35. Cycle the steering to check for adequate ABS slack, adjust as necessary.
36. Remove the cap and clean the joint at regular service intervals.



Figure 19: Install nylock nut and washer.



Figure 20: Re-attach ABS and brake line brackets.

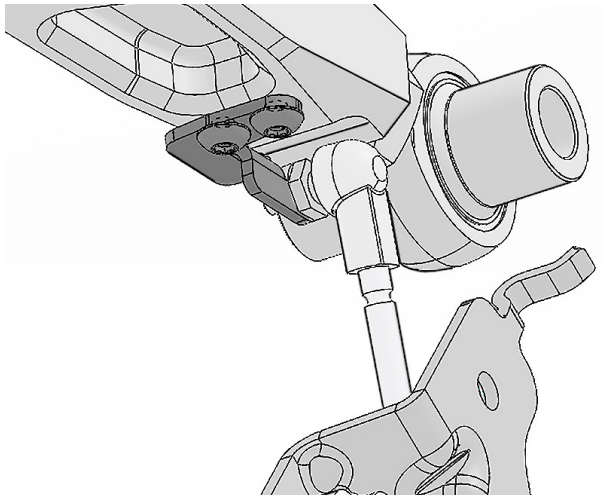


Figure 21: Reattach the height sensor to the new mount

# MAINTENANCE

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PROPER INSPECTION AND MAINTENANCE IS ESSENTIAL TO MAINTAIN THE PERFORMANCE AND RELIABILITY OF YOUR BILLET UPPER CONTROL ARMS.

To avoid corrosion, you should keep the billet upper control arms, free of dirt and moisture. The spherical bearing and rod ends are lined with a PTFE lubricant for long life when kept clean. Make sure you clean these areas completely to prevent corrosion on the joints. Avoid using a high-pressure washer near the O-ring cap seals, as this could drive dirt and moisture inside the cap.

Make sure the O-ring seal is lubricated with grease to prevent moisture from entering the sealed cavity and causing corrosion on the spherical bearing.

Clean the pockets of the control arm to prevent dirt from scratching the anodized coating to ensure a long life of the coating.

## FOX SERVICE AND UPGRADES

CALL OUR CUSTOMER SERVICE CENTER AT 800.269.7469 EXT. 2 OR EMAIL US AT [ORSALES@RIDEFOX.COM](mailto:ORSALES@RIDEFOX.COM) TO GO OVER THE SERVICE OPTIONS AVAILABLE FOR YOUR BILLET UPPER CONTROL ARM.

## COMPLETE SERVICES

ALL OF OUR SPHERICAL BEARINGS COME WITH A LUBRICANT INFUSED LINER, IT IS NOT RECOMMENDED TO FURTHER LUBRICATE THESE SPHERICAL BEARINGS AS THIS COULD CAUSE PREMATURE FAILURE

INSPECT FOR PLAY IN THE SPHERICAL BEARINGS AND SPHERICAL ROD END AFTER ANY OFF-ROAD USE

CLEAN OFF DIRT FREQUENTLY FOR LONGEST LIFE

INSPECT JAM NUTS AT LEAST ONCE EVERY THREE MONTHS



**WARNING: Cancer and  
Reproductive Harm –**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# WARRANTY INFORMATION

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## BILLET UPPER CONTROL ARMS

- Additionally, Fox Factory, Inc. offers a lifetime warranty except for (i) all serviceable components of the Upper Control Arms including spherical bearings, rod ends, other fabricated hardware and (ii) appearances and finishes based on issues with workmanship. Serviceable components and appearances/finishes are limited to a twelve (12) month warranty. Damage by use and abuse is not covered.
- Please note that certain sounds, including those resembling a “race car” noises such as squeaks or creaks, may be normal for specific models or configurations. These sounds are often associated with the design and operation of the vehicle and do not necessarily indicate a mechanical issue. However, if you hear noises such as clunks or thuds please bring your vehicle to a qualified mechanic for review.
- This warranty covers any repair or replacement necessary for defects in materials or workmanship, excluding sounds that result from standard operation of the vehicle’s performance features

# CONTACT

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