



DIRECT-REPLACEMENT
INSTALLATION GUIDE

FORD RANGER RAPTOR 4WD | 2024 - ON

BILLET UPPER CONTROL ARM KIT

803-35-020 - Kit: Control Arm, 2024-ON Ford Ranger Raptor Upper Control Arm, Black
803-35-021 - Kit: Control Arm, 2024-ON Ford Ranger 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

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.

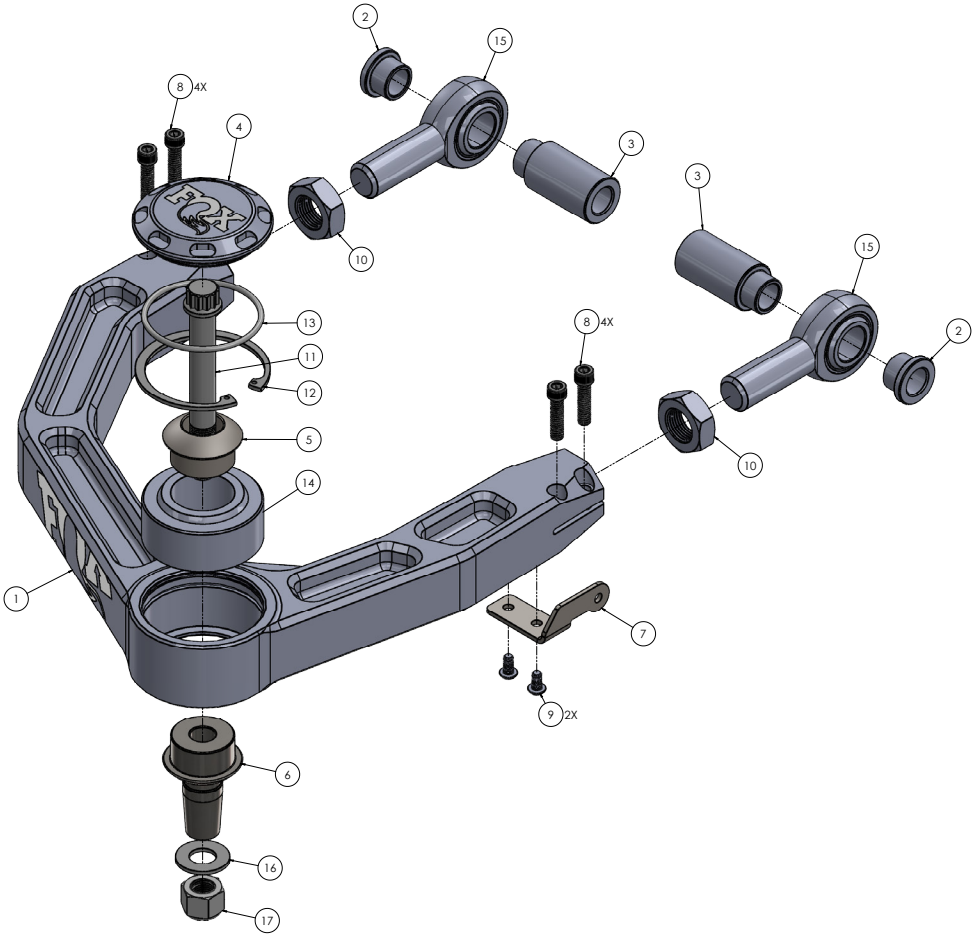
IN THE BOX

- Front Billet Upper Control Arms
- Supplied Hardware
- Installation Guide

UCA SUPPLIED PARTS

FRONT UCA ASSEMBLY			
FOX PN	DESCRIPTION	QTY	NOTES
B5168	Bag Kit: Taper Hardware	2	
	Hardware: O Ring Cap Seal	1	O-Ring seal for the cap to the billet control arm
	Misalignment: 1/2" Sunk Misalignment	1	Hardware to mount the billet control arm to the steering knuckle
	Misalignment: 2024+ Ford Ranger Raptor Taper Misalignment	1	
	Hardware: 1/2"-20 x 4" Bolt, 12 Point	1	
	Hardware: 1/2" Washer	1	
	Hardware: 1/2"-20 Nylock Nut	1	
	UCA Cap: Spherical Bearing Cap	1	Black: 803-35-020 Orange: 803-35-021
B5167	Bag Kit: Pivot Hardware	2	
	Hardware: 3/4"-16 Jam Nut	2	Hardware to mount the billet control arm to the frame.
	Rod End: 3/4"-16 PTFE Lined Rod End	2	
	Hardware: Bolt: 1/4"-20 x 1" Socket Head Screw	4	
	Bushing: 0.162" Stepped Boss	2	
	Bushing: 1.688" Stepped Boss	2	
A5141-BLK	FOX UCA: 2024+ Ford Ranger Raptor - Billet Front UCA w/Logo - DS - Black	1	Black: 803-35-014
A5142-BLK	FOX UCA: 2024+ Ford Ranger Raptor - Billet Front UCA w/Logo - PS - Black	1	
A5141-ORG	FOX UCA: 2024+ Ford Ranger Raptor - Billet Front UCA w/Logo- DS - Orange	1	Orange: 803-35-015
A5142-ORG	FOX UCA: 2024+ Ford Ranger Raptor - Billet Front UCA w/Logo- PS - Orange	1	
B5170	Bag Kit: UCA Position Sensor Mount Kit	1	
	Hardware: 10-32 x 3/8" BHSCS	4	Bracket and hardware to mount the OE upper control arm sensor linkage to the billet control arm
	Bracket: 2024+ Ranger Raptor - Billet UCA Sensor Bracket - DS	1	
	Bracket: 2024+ Ranger Raptor - Billet UCA Sensor Bracket - PS	1	

UCA DIAGRAM



PART NO.	NAME	PART NO.	NAME
1	BILLET UPPER CONTROL ARM	11	12 POINT BOLT
2	STEPPED BOSS	12	INTERNAL RETAINING RING
3	STEPPED BOSS	13	O RING
4	UNIBALL CAP - FOX LOGO	14	SPHERICAL BEARING
5	SUNK MISALIGNMENT	15	HEIM
6	UCA TAPER MISALIGNMENT	16	WASHER
7	UCA POSITION SENSOR BRACKET	17	NYLOCK NUT CLEAR
8	SOCKET HEAD SCREW		
9	BUTTON HEAD HEX DRIVE SCRW		
10	JAM NUT		

 **WARNING**

SAFETY INSTRUCTIONS

- 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).
- 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)	803-04-671

- Wheel / Tire Fitment Information:

Wheel Specification	Tire Specification	Fitment Notes
17" x 8.5", 6.92" backspacing	285/70R17	Stock wheel and stock tire combination.
17" x 8.5", 6.92" backspacing	Up to 305/70R17 or equivalent	Stock wheel and aftermarket tire combination. Aggressive tire sidewall profiles may rub on the Billet Fox UCA when turning and during full suspension travel.
17" x 8.5", 6.2" backspacing	Up to 35" x 12.5" x 17" or equivalent	Aftermarket wheel/tire combination. Removal of front wheel well front/rear intrusion bars and fender lining trimming required.

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)

STOCK UCA REMOVAL

1. Park the vehicle on a clean, flat surface and block the rear wheels for safety.
2. Raise the front of the vehicle and support with jack stands at the frame rails.
3. Remove the front wheels.
4. Complete the remainder of this installation on one side at a time.
5. Support knuckle assembly so that the CV shaft and ABS/brake lines are not overextended when removing the UCA.
6. Disconnect the position sensor linkage from the stock UCA bracket. Retain the OE ball stud and nut for reuse (Figure 1).
7. Remove the upper ball joint nut. Then, using an appropriate separator, dislodge the upper ball joint from the steering knuckle (Figure 2 and 3).

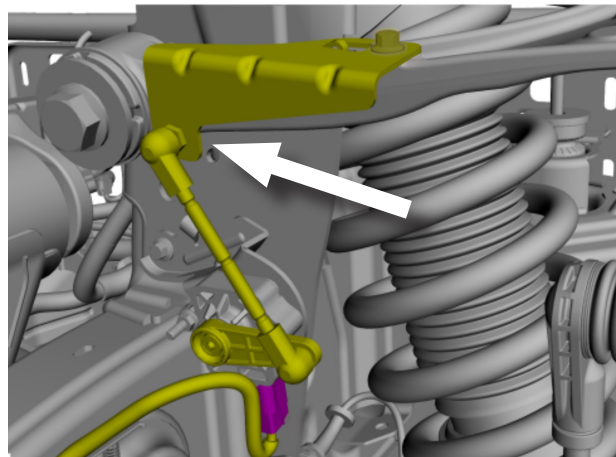


Fig. 1: Disconnect sensor linkage.

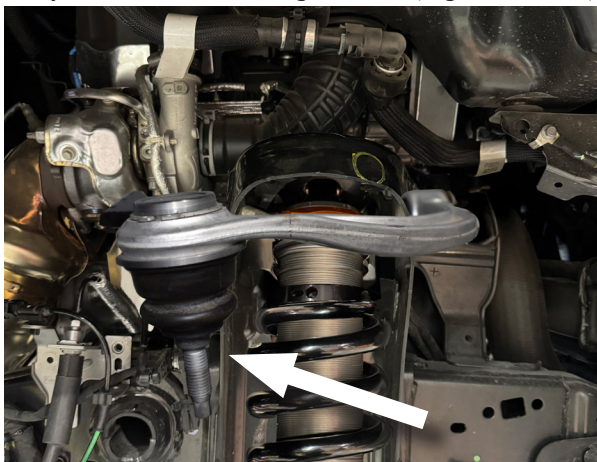


Fig. 3: Disconnect UCA and Knuckle.

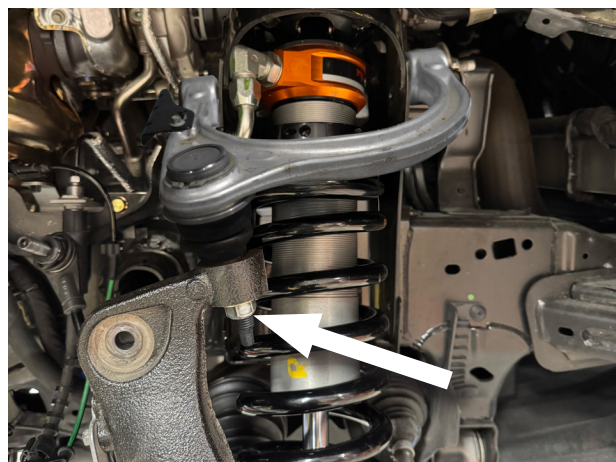


Fig. 2: Remove UCA ball joint nut.

8. Remove the long UCA bolt attaching the UCA to the vehicle. Retain OE hardware for reuse (Figure 4)

Note: You may have to undo part of the wheel well liner to remove the bolt.

9. Remove the stock UCA from the vehicle

FOX UCA ASSEMBLY

10. Install heim ends with jam nuts into the FOX UCA until the distance from the UCA end to the end of the exposed threads is 5/8" with the spherical oriented vertically. (Figure 5)

NOTE: Using a long rod or screwdriver, install through the arm ends to keep them from spinning when tightening the jam nut.

11. Using blue thread locker, install four supplied 1/4"-20 pinch bolts into the control arm (2 per rod end, 4 per arm). Torque to 107 in-lbs (Figure 7). After the pinch bolts are torqued, tighten the jam nuts to 90 ft-lbs. (Figure 6 and 7)
12. Using blue thread locker, install the supplied sensor bracket to the control arm with supplied 10-32 x 3/8" hardware such that the sensor link hole is towards the rod end and towards the top of the UCA. Torque to 30 in-lbs. (Figure 8, passenger control arm side shown)

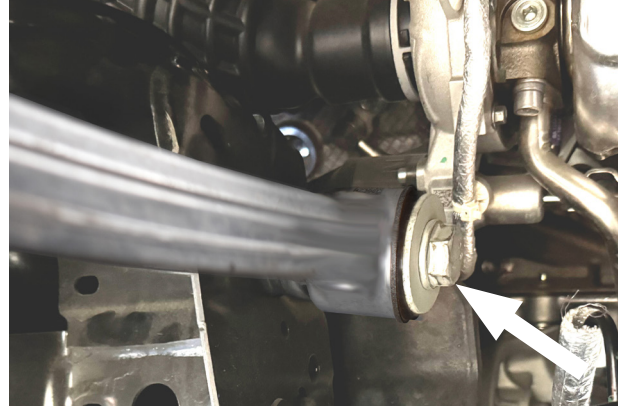


Fig.4: Loosen and remove the UCA bolt.

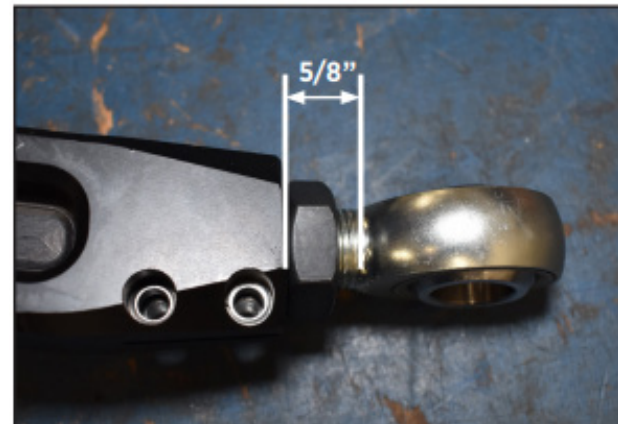


Fig.5: Set rod length.

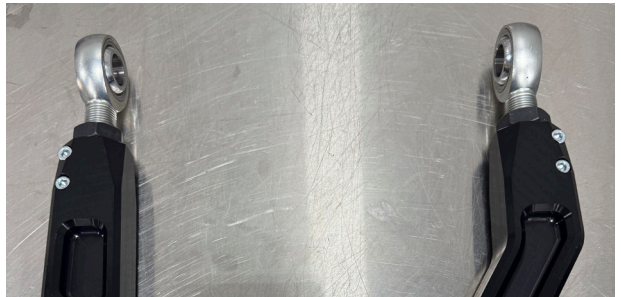


Fig.6: Tighten Jam nuts.



Fig.7: Install pinch bolts.

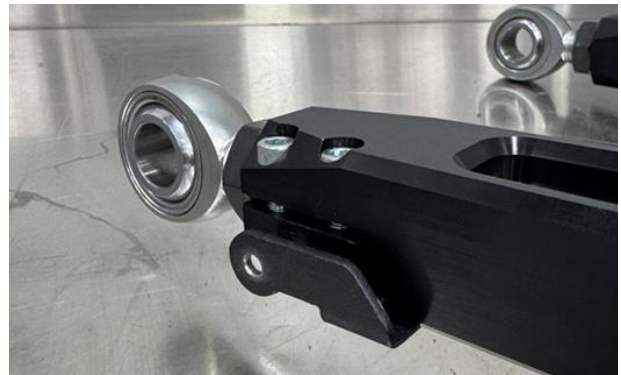


Fig.8: Install sensor bracket. Passenger side shown.

13. Insert the supplied long stepped spacers onto the inside of the FOX UCA heim ends and the short spacers to the outside. (Figure 9)

CONTROL ARM INSTALLATION

14. Install the FOX UCA to the vehicle using the OE long UCA bolt. Ensure that the FOX logo is facing upwards and towards the front of the vehicle to ensure proper orientation. Torque to OE specification. (Figure 10)
15. Install the supplied misalignment spacers into the FOX UCA. The spacers will be a tight fit to the COM bearing and may need to be tapped into the COM bearing. The bottom misalignment spacer will be longer and have a taper to go into the steering knuckle during final install. (Figure 11)
16. Angle the COM bearing / misalignments to help insert the FOX UCA to the steering knuckle. Initial movement of the COM bearing will be stiff until the joint is installed on the vehicle. Inserting the bolt into the misalignment and moving it may help to break free the COM bearing from its installed position.
17. Secure the tapered misalignment spacer into the steering knuckle using the provided 1/2"-20 bolt, nut, and washer. Torque to 90 ft-lbs (Figure 12)



Fig.9: Install Misalignments.

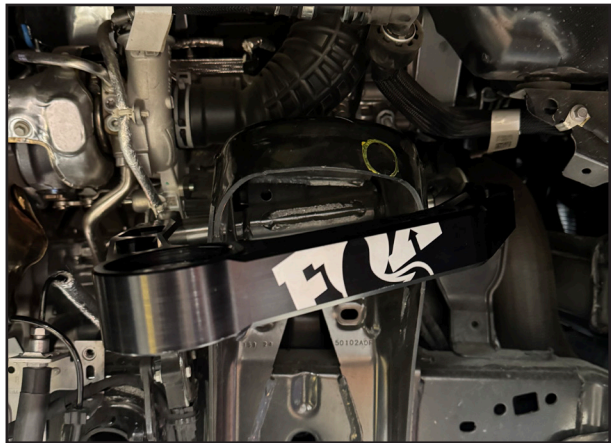


Fig. 10: Install UCA. Passenger side shown

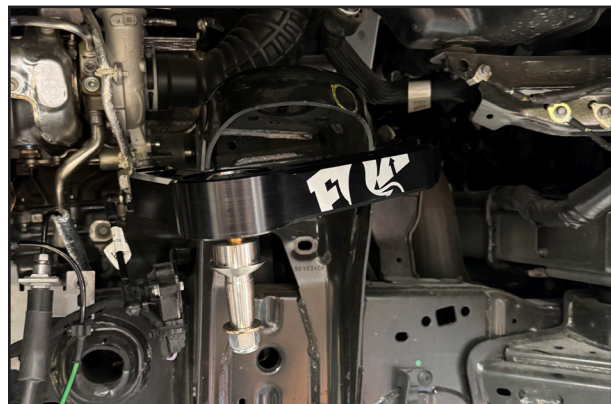


Fig. 11: Sunk and tapered misalignment with bolt.



Fig. 12: Install misalignment into knuckle.

18. Attach the position sensor linkage to the bracket using OE hardware. Torque to OE specification. (Figures 13, passenger side shown)
19. Use the supplied grease packet to lubricate the supplied o-ring. Then install o-ring onto the supplied dust cap and set aside. (Figures 14 and 15)
20. Install the supplied dust cap assembly to protect the COM bearing (Figure 16), such that the FOX logo is facing outwards towards the tire.
21. Repeat installation on the opposite side of the vehicle.
22. Reinstall the front wheels and lower the vehicle to the ground. Torque lug nuts to OE specifications. .

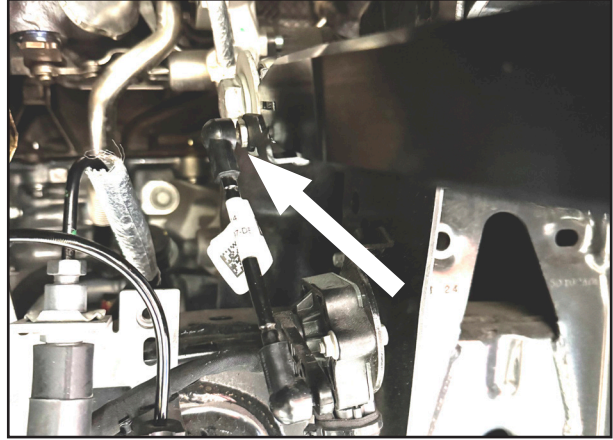


Fig. 13: Connect sensor to bracket.

POST INSTALLATION INSTRUCTIONS

23. Check all hardware for proper torque.
24. Check hardware after 500 miles.
25. Adjust headlights.
26. The vehicle will need a complete front end alignment.
27. Cycle the steering to check for adequate ABS slack, adjust as necessary.
28. Remove the cap and clean the joint at regular service intervals.



Fig.14: Grease O-Ring.



Fig. 15: Install O-Ring into cap groove.



Fig. 16: Install dust cap.

MAINTENANCE

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 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

WARRANTY INFORMATION

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

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