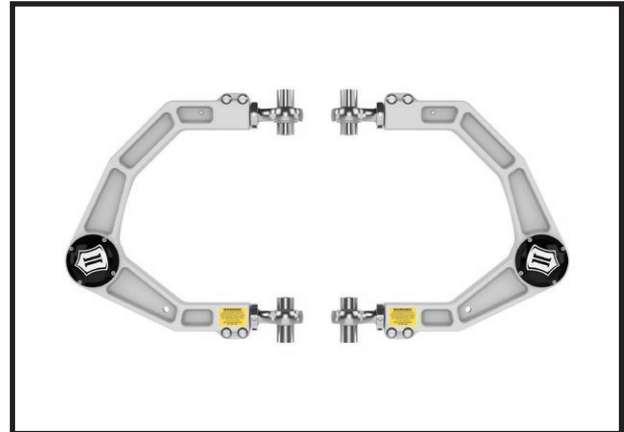


7929 Lincoln Ave. Riverside, CA 92504  
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PART #	DESCRIPTION
98564DJ	21-23 RAPTOR BILLET UCA DJ PRO KIT

COMPONENTS INCLUDED	
(1) 197512 RAPTOR BILLET UCA (DRVR) (1) 197513 RAPTOR BILLET UCA (PASS)	(2) 190012 19-20 RAPTOR SENSOR BRACKET
HARDWARE INCLUDED	
(2) 297165 DELTA PRO BILLET UCA DUST COVER (2) 177158DJ 21-23 F150 DELTA JOINT PRO (4) 197502 HEIM SPACER .625 WIDE (4) 197503 HEIM SPACER .950 WIDE (4) 217520 L-R ADJ SLEEVE 1 1/8-12L 7/8-14 (4) 295514 RSMX12T ROD END	(8) 605002 6-32 X .500 SHCS 18-8 (2) 605053 1/4 FLAT WASHER (2) 605069 1/4-20 X 1.25 BOLT (8) 605145 3/8-16 X 1.000 12PT (1) 605968 BLUE THREAD LOCKER 2ML BULLET
TOOLS REQUIRED	
JACK JACK STANDS SMALL SLEDGE HAMMER TORQUE WRENCH 9/16" SOCKET / WRENCH	15/16" SOCKET / WRENCH 15MM SOCKET / WRENCH 21MM SOCKET / WRENCH 27MM SOCKET / WRENCH 30MM SOCKET / WRENCH
TECH NOTES	
<p>1. ALL ICON UPPER CONTROL ARMS HAVE BEEN ENGINEERED TO ALLOW FOR THE MOST POSSIBLE CASTER, WHILE STILL ALLOWING THE VEHICLE TO BE PROPERLY ALIGNED. NOTIFY YOUR PROFESSIONAL ALIGNMENT SHOP OF THIS INFORMATION SO THAT MAXIMUM RIDE QUALITY CAN BE ACHIEVED.</p> <p>2. DO NOT EXCEED 2.375" ADJUSTMENT FROM THE CENTER OF THE ROD END TO THE EDGE OF THE BILLET UPPER CONTROL ARM. FAILURE CAUSED BY EXCESSIVE ADJUSTMENT WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY. REFER TO TECH NOTE PHOTO #2.</p> <p>3. ICON DELTA JOINTS ARE PRE-GREASED FROM THE FACTORY. ICON RECOMMENDS GREASING THE DELTA JOINT EVERY 3,000 MILES (OR EVERY OIL CHANGE). ADD NEW GREASE UNTIL ALL OF THE OLD GREASE IS EXPELLED FROM THE BOTTOM OF THE DELTA JOINT ASSEMBLY, WIPE AWAY EXCESS WITH A RAG OR SHOP TOWEL.</p>	



WARNING!
<p>** READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS.</p> <p>** ICON VEHICLE DYNAMICS RECOMMENDS ALL INSTALLATION TO BE PERFORMED BY A PROFESSIONAL SHOP/SERVICE TECHNICIAN. PRODUCT FAILURE CAUSED BY IMPROPER INSTALLATION WILL NOT BE COVERED UNDER ICON'S WARRANTY POLICY.</p>

## INSTALLATION

**1.** Using a properly rated jack, raise the front of the vehicle and support the frame rails with jack stands. Ensure the jack stands are secure and set properly before lowering the jack. NEVER WORK UNDER AN UNSUPPORTED VEHICLE. Remove the front wheels.

**LIVE VALVE:** Measure the position of the height sensor. With the suspension at full droop, measure the position of the sensor arm to the lower tang of the sensor bracket as shown on each side and record. DRIVER: \_\_\_\_\_, PASSENGER: \_\_\_\_\_. Unbolt the sensor link bracket from the bottom of the stock arm. Unbolt the link ball joint from the bracket and keep the nut for reattachment later. The sheet metal bracket from the stock arm will not be used. [FIGURE 1 & 2]

FIG.1



FIG.2



**2.** Remove the coilover/strut to gain access to the upper control arm bolts: Remove the lower shock bolt and then remove the (3) nuts on top of the coilover (use a 15mm, 27mm & 30mm socket/wrench for stock assembly, 9/16" & 15/16" socket/wrench for ICON assembly). Removing the lower shock end out of the pocket in the arm can be difficult because you are fighting the bushing stiffness from the lower control arm and sway bar tension. Disconnect the swaybar links and/or the top of the other shock to relieve some of the tension.

**3.** Loosen the taper on the upper ball joint and the tie rod end using an 18mm socket/wrench. Use a hammer to separate the upper ball joint taper and tie rod end. Take care not to damage the threads. Support the spindle so that it does not over extend the CV joints when detached.

**4.** Using a jack, slightly lift the lower control arm to prevent the suspension from being at full droop.

5. With the upper control arm detached from the spindle, begin to loosen the upper control arm from its mounts in the frame using a 21mm socket/wrench and remove the OEM assembly.
6. Before installing the new ICON upper control arms, make sure that the heim spacers are pointing in the right direction. The shorter one goes on the inside and the long one goes on the outside.
7. Place the driver side upper control arm into the mounts on the chassis and loosely fasten the OEM hardware.
8. Reinstall the factory shock assembly or refer to the ICON coilover installation instructions now.

**LIVE VALVE:** Attach the supplied sensor link bracket to the link ball stud and attach the bracket to the bottom side of the ICON arm with the supplied 1/4" x 1.25 bolt and washer through the slotted hole. As you lower the arm to reconnect to the spindle check the clearance to the brake line and ABS bracket. Bend away from arm slightly as shown if necessary. [FIGURE 3 & 4]



FIG.3



FIG.4

9. Take care when inserting tapered pin into the spindle to not damage the threads. Use a 21mm socket/wrench to fasten the supplied lock nut onto the tapered pin to get it to seat properly. [Torque to 75 ft-lbs]

10. Tighten the upper control arm bolts using a 21mm socket/wrench. [Torque to factory spec]

11. ICON billet upper control arms utilize heim joints at each pivot to allow alignment using the adjusters on the upper control arms as well as cam adjusters on the lower control arms. The heims can be extended or contracted by turning the collar. Make sure that the slit in the collar lines up with the slit in the housing and then tighten the pinch bolts in an opposing pattern at least 3 times. [Torque to 35 ft-lbs]

12. Repeat steps on opposite side.

**LIVE VALVE:** Reset sensor position. Slide the sensor bracket in its slotted hole until the clearance dimension is the same as you recorded previously. Tighten the bolt, but do not overtighten or else the bracket will be distorted. This will make sure the sensor moves within its range of motion but does not guarantee that the system knows ride height especial if lift is being added at the same time. It is highly recommended that the curb ride height be reset in the computer to insure proper functions of other systems including headlight aiming and scales. This can be done by a dealer or by using Forscan software.

13. Reinstall wheels and tighten lug nuts. [Torque to factory spec]

14. Install the dust cover: Apply anti-seize to the (4) allen head screws. DO NOT over tighten.

15. Have the vehicle professionally aligned.

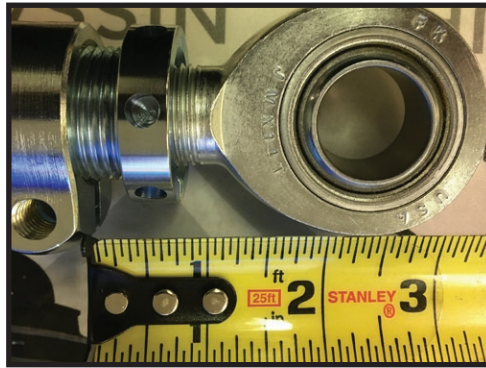
16. Once aligned, apply BLUE thread locker to the outer pinch bolts located on the sides of the arm. Tighten the pinch bolts in an opposing pattern at least 3 times. [Torque to 35 ft-lbs]

**VERIFY ALL FASTENERS ARE PROPERLY TORQUED BEFORE DRIVING VEHICLE.**

**RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.**



[TECH NOTE #2]



**ALIGNMENT NOTE**

ICON SHIPS THE BILLET UPPER CONTROL ARM AT THE MOST COMMON ALIGNMENT SETTING. ONE OF THE MAJOR PERFORMANCE ADVANTAGES OF AN ICON BILLET ADJUSTABLE UPPER CONTROL ARM IS THE ABILITY TO IMPROVE WHEEL POSITION. IMPROVING WHEEL POSITION IMPROVES FIREWALL CLEARANCE ALLOWING FOR LARGER TIRES AS THE SUSPENSION CYCLES. IN ORDER TO TAKE ADVANTAGE OF THIS FEATURE, DISCUSS WITH YOUR PROFESSIONAL ALIGNMENT SHOP THAT YOU WOULD LIKE TO CAM THE LOWER CONTROL ARM TO MAXIMIZE WHEEL POSITION FORWARD AND THEN ADJUST CAMBER AND CASTER WITH THE UPPER THREADED ADJUSTERS.

A MAJOR PERFORMANCE ADVANTAGE OF ALL ICON UPPER CONTROL ARMS IS INCREASED CASTER OVER STOCK. DISCUSS WITH A PROFESSIONAL ALIGNMENT SHOP THAT YOU WANT THE VEHICLE ALIGNED WITH THE CASTER AT THE MAX OF THE FACTORY RECOMMENDED SETTINGS IF YOU WANT TO TAKE ADVANTAGE OF THE DYNAMIC EFFECTS OF INCREASED CASTER.

**ICON VEHICLE DYNAMICS LIMITED LIFETIME WARRANTY**

ICON Vehicle Dynamics warrants to the original retail purchaser who owns the vehicle on which the product was originally installed. ICON Vehicle Dynamics does not warrant the product for finish, alterations, modifications and/or installation contrary to ICON Vehicle Dynamics instructions. ICON Vehicle Dynamics products are not designed, nor are they intended to be installed on vehicles used in race applications, for racing purposes or for similar activities. (A "race" is defined as any contest between two or more vehicles, or a contest of one or more vehicles against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America and Canada.

ICON Vehicle Dynamics' obligation under this warranty is limited to the repair or replacement, at ICON Vehicle Dynamics' discretion, of the defective product. Any and all costs of removal, installation or re-installation, freight charges and incidental or consequential damages are expressly excluded from this warranty. Items that are subject to wear are not considered defective when worn and are not covered.

ICON Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty. Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse.



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PERFORMANCE SUSPENSION SYSTEMS AND SHOCK ABSORBERS

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