

PART #	DESCRIPTION
95120	2010+ RAPTOR REAR BUMPSTOP SYSTEM

**** 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! ****

**** WARNING! ICON VEHICLE DYNAMICS RECOMMENDS THAT YOU EXERCISE EXTREME CAUTION WHEN WORKING UNDER A VEHICLE THAT IS SUPPORTED WITH JACK STANDS. ****

SYSTEM COMPONENTS		
(2) Bumpstop Assemblies (1) Driver Side Bumpstop Mount (1) Passenger Side Bumpstop Mount (1) Driver Side Inside Bumpstop Mount (1) Passenger Side Inside Bumpstop Mount	(1) Billet Crossmember (2) Striker Plates (2) Nut Plates (2) Crossmember Mid Plates (2) Tension Rods (2) Tension Rod Strut Tabs	
HARDWARE INCLUDED		
BAG 1 (1) 3/8" x 1.25" Bolt (1) 3/8" Retainer Nut Clip (1) 3/8" Flat Washer (4) 1/2" x 1.25" Bolts (12) 1/2" x 1.50" Bolts (6) 1/2" Nylock Nuts (4) 1/2" C-Lock Nuts (2) 1/2" Nylock Flange Nuts (26) 1/2" Flat Washers	BAG 2 (2) Left-Hand Rod Ends (2) 1/2" Clevis (2) 3/8" x 1.25" Bolt (2) 3/8" Nylock Nuts (4) 3/8" Flat Washers (7) 1/2" x 2.75" Bolts (7) 1/2" Nylock Nuts (17) 1/2" Flat Washers (2) 1/2" Jam Nuts (2) 1/2" Left-Hand Jam Nuts	BAG 3 (2) 2.25" x 1" Sleeves (4) 1/4" Nylock Nuts (4) 1/4" x 2" Bolts (4) 3/8" Nylock Nuts (4) 3/8" Flat Washers (2) 3/8" U-Bolts



TOOLS REQUIRED:

Floor Jack	Jack Stands
10mm Socket	13mm Socket
21mm Socket	9/16" Wrench & Socket
3/4" Wrench & Socket	7/16" Wrench & Socket
Large Flat Blade Screwdriver	(Optional) Panel Popper

INSTALLATION

1. Remove spare tire from underneath bed per owner's manual instructions. This is best done on the ground before jacking up the vehicle.
2. Jack up the rear of the vehicle and support on jack stands under the frame rail. Remove tires and slowly droop the suspension.
3. Remove the factory bumpstops. The rubber bumpstop snaps in, to remove twist and pull out. Remove the bolt and bump cup. Save the bolt for reuse. (FIG.1)

FIG.1



FIG.2



4. Move brake line bracket and wire harness on driver's side. Remove the bolt holding the brake line bracket to the inside of the frame and set aside for reinstallation later. Using a panel clip tool or large flat screwdriver pop the plastic retaining clips out of the inside frame rail. Remove all clips 10" forward and 20" rearward of the bump stop on the driver's side frame rail. You can now flex the lines and harness away from the inside of the frame. (FIG.2)

5. Move the exhaust on the passenger's side. Remove the 2 bolts from the rear exhaust hanger and 1 bolt from the hanger on the crossmember just forward of the axle. Slide the hangers off the support rod of the exhaust. Set aside for reinstallation later.

6. Insert the supplied retainer nut clip in passenger side frame rail (Hardware Bag 1). (FIG.3)

7. Inspect the frame, some factory welds may protrude above the frame surface. For ideal fitment you may want to sand the welds so surfaces meet well. When installing the bracketry system it is best to leave hardware loose until all hardware is started to assist in alignment. Raptors that have been driven hard off road often experience some degree of frame damage just above the factory bump stop. This bump system can tolerate some frame distortion and still install well and align correctly, but it may be necessary to leave some hardware very loose or slowly tighten hardware to pull the bracketry into place.

NOTE: If significant sanding is required, spray paint is recommended to prevent frame from rusting.

8. Refer to Diagram 1 for correct bolt location and direction. (DIA.1)

9. Position the outer bumpstop brackets (See DIA.2, #3 & #4) on the frame. Install the factory bumpstop bolt through the center bottom hole of the bracket into the frame. Do not tighten. (FIG.4)



FIG.3

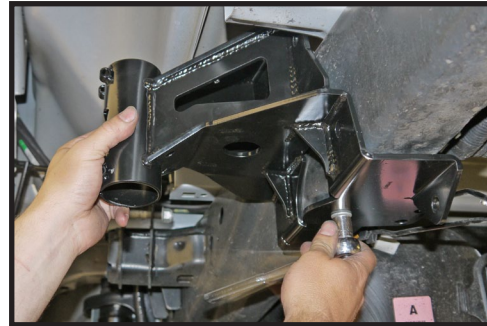


FIG.4

10. Position the nut plate (See DIA.2, #8) on the inside of the frame. With the arrow pointing toward the front of the truck, pass the long end of the nut plate through pocket on the inside of the frame. Holding the handle, rotate the rest of the nut plate into the frame and position behind the oval holes in the frame. Install (2) 1/2" x 1.5" bolts with washers through bracket into nut plate. Do not tighten. (FIG.5, FIG.6)



FIG.5



FIG.6

11. Install driver side inner bracket (See DIA.2, #5). Starting rearward of the bed crossmember behind the axle, pass the crossmember portion of the bracket up behind and rotate over the top of the wire and brake line harness. Move the bracket forward and into position. Install (2) 1/2" x 1.5" bolts and washers in the upper holes joining the inner and outer brackets. The front upper uses a washer and a nylock nut. The rearward upper nut is more difficult to get to. Using the flanged nylock nut, place the nut in the socket with an extension to reach in-between the bracket and bed. Install (2) 1/2" x 1.25" bolts, washers, and C-lock nuts in the lower front and lower rear holes with the nuts facing toward the outside of the vehicle. (FIG.7, FIG.8)



FIG.7



FIG.8

12. Install passenger side inner bracket (See DIA.2, #6). Before positioning bracket install the U-nut plate into the frame rail directly across from the factory brake line bracket hole (See FIG.3). It may be helpful to hold the exhaust out of your way with a heavy bungee cord or strap pulling it toward the center of the vehicle. Starting forward of the axle, pass the crossmember portion of the bracket up behind and rotate over the top of the exhaust. Move the bracket backward into place. Install bolts in the same orientation as the other side, including the use of the flanged nylock nut in the upper rearward hole of the bracket. (FIG.9, FIG.10)



FIG.9



FIG.10

13. Install (2) 1/2" x 1.5" bolts with washers down the 2 remaining lower holes through the inner and outer brackets, slide the tension plates up underneath. Retain with nylock nuts. Do not tighten.

14. Install aluminum cross member (See DIA.2, #9) between inner brackets using (4) 1/2" x 2.75" bolts, washers and nylock nuts. Do not tighten.

15. Now that all the bolts have been started you can start the tightening procedure. First tighten the outer brackets to the frame with the factory center lower bolt and the (2) outside bolts that go into the nut plate. Go back and forth between the bolts to remove the slack evenly. Tighten the lower bolt to 30 ft-lbs and the side bolts to 54 ft-lbs. Now tighten the (4) lower bolts (2 vertical and 2 horizontal) going back and forth between them to take up the slack evenly; torque to 78 ft-lbs. Tighten the last 2 upper bolts to 78 ft-lbs.

16. The crossmember is in slotted holes. Center it left to right and tighten the 4 bolts to 78 ft-lbs.

17. Pre-assemble the tension strut bars. The rod ends are left hand thread and the clevis is right hand thread. Spin the jam nuts up the shank, note left and right hand thread. Install into the tension rod, there is a notch on the bar to indicate the left hand threaded end.

18. Install the strut rod center plates to the cross member with (2) 1/2" x 2.75" bolts, washers and nylock nuts. Install the rod ends of the tension rods between the center plates with (1) 1/2" x 2.75" bolts, washers and nylock nuts and 3 additional washers - 1 between the rod ends and 1 between each rod end and the plates. Tighten the 2 upper bolts to 78 ft-lbs.

19. Reinstall exhaust hangers. It is common for the rubber in the hangers to compress over time. It may be necessary to bend the rods that go through the hangers to position the exhaust higher for clearance of the strut rods. (FIG.11)

FIG.11



FIG.12



NOTE: On some trucks it may also be beneficial to position the exhaust rearward a bit. Loosen the clamp rearward of the resonator and flange forward of the resonator. Rotate the resonator slightly to disengage the locking pin (FIG.12). Slide the back half of the exhaust out of the junction to the resonator to optimize exhaust clearance.

NOTE: Use of aftermarket exhaust may require custom fabrication to allow clearance of tension rods.

20. Adjust tension rods to line up the hole in the clevis with the tension plates on the brackets. Install 3/8" bolts, washer, and nuts in clevis - do not tighten. Adjust the tension rods to take out all the slack, make sure they are pulling (towards the center of the vehicle), not pushing. With the slack removed from each side tighten each rod an additional 1/2 turn to pre-tension and stabilize the bracketry system and tighten the jam nuts. Tighten the 3/8" bolts to 45 ft-lbs.

21. Install the bump stops. Slide the 1" spacer ring over the bump stop. Slide the bump stop up into the mount. Install the 1/4" bolts and nuts in the mount can pinch tubes and tighten. Do not over tighten the pinch bolts or the bump stop could bind and not extend fully. Installation of spacer ring is mandatory to limit suspension compression to factory up-travel. (FIG.13)

FIG.13



FIG.14



22. Install the striker pads (See DIA.2, #7) on the axle tube. The lower portion of the striker plate hooks under the leaf spring pad on the axle. Install u-bolt up under the axle and through the pad and secure with 3/8" nylock nuts and washers. Tighten until the pad is in full contact with the axle tube but do not over tighten. (FIG.14)

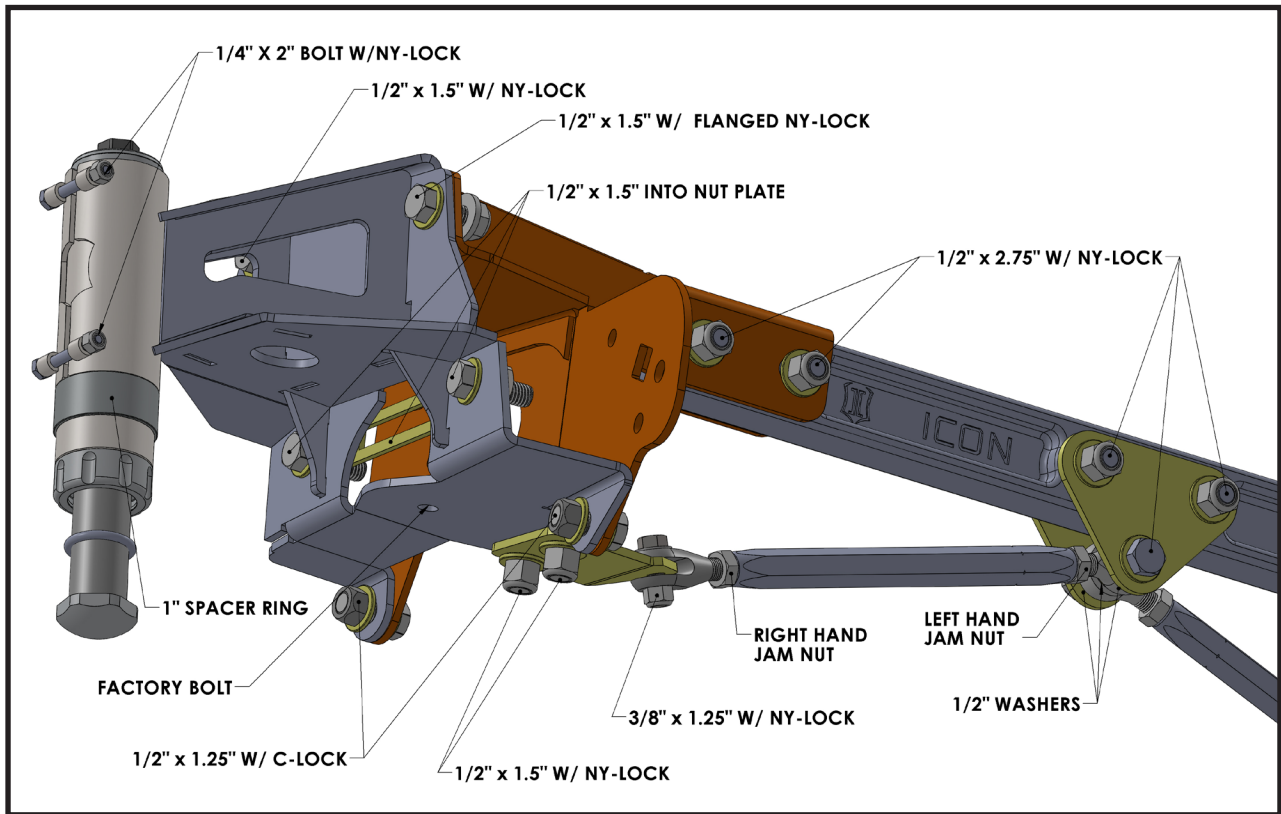
NOTE: Due to slight variances in factory tolerances, OE u-bolts may be too close to axle housing to allow striker plate fitment. If this occurs, OE u-bolts may need to be loosened slightly to allow for install. Re-torque to factory specifications.

23. Secure brake lines and wires. Re-insert all the clips on the inside driver frame rail. The new bracket has all the same holes as the frame rail to replace everything back to the original position. Re-secure the brake line bracket using the original 8mm bolt through the inner bracket and into the factory nut plate.

24. Reinstall tires and lower vehicle to the ground. Reinstall spare tire.

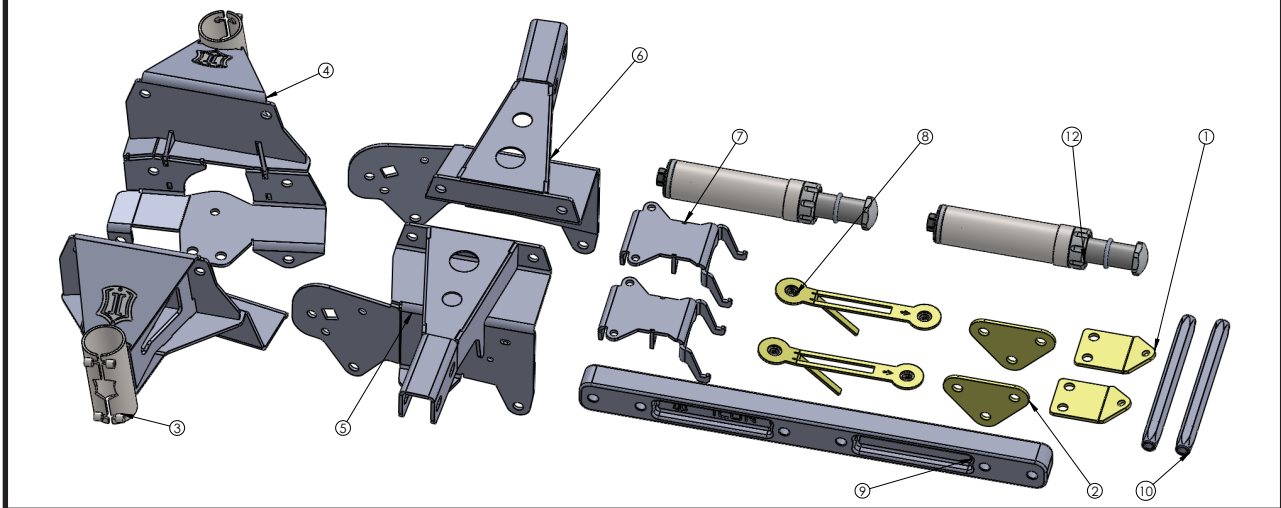
25. After first use, re-torque all hardware.

DIA.1



DIA.2

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	190005	RAPTOR RR BUMP STRUT TAB	2
2	190006	RAPTOR RR BUMP STRUT MID PLATE	2
3	194005	10+ RAPTOR RR AIR BUMP MNT DRVR	1
4	194006	10+ RAPTOR RR AIR BUMP MNT PASS	1
5	194008	RAPTOR AIR BUMP MNT INSIDE DRVR	1
6	194009	RAPTOR AIR BUMP MNT INSIDE PASS	1
7	194010	RAPTOR RR BUMP STRIKER PLATE	2
8	194011	RAPTOR RR BUMP NUT PLATE	2
9	197015	10+ RAPTOR AIR BUMP CROSS BAR	1
10	197016	10+ RAPTOR AIR BUMP TENSION ROD	2
12	204907	2.0 AIR BUMP 2.5 TRAVEL 1:1 HD	2
13	95120H	10+ RAPTOR AIR BUMP HARDWARE KIT	1



TECHNICAL INFORMATION

THE FOLLOWING ROUTINE MAINTENANCE CAN BE PERFORMED ON YOUR BUMPSTOPS TO HELP PROLONG THEIR LIFE:

1. Keep them clean. Make sure you hose off dirt, road salt and any other debris.
2. Remove ice and snow build-up from coil-springs.
3. Visually inspect the bumpstops periodically.

HOW DO I KNOW WHEN I NEED TO HAVE MY BUMPSTOPS REBUILT?

1. When the bump is leaking. Some oil dampness around shaft and shaft housing is normal. A bumpstop is considered leaking and in need of a rebuild when oil collects on the striker foot.
2. 2 years of service under normal driving conditions, earlier if they are put through many high heat cycles.
3. Extreme change in ride quality. Some change in ride quality may be due to temperature or additional vehicle weight.

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