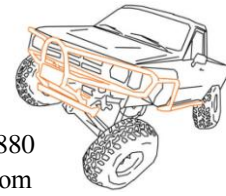


4x Innovations

Custom Toyota Truck Tube Works

• 52 Means Drive Suite 110. • Platteville, WI 53818 • (608) 348-4880

• Web: <http://4xinnovations.com> • Email: Adam@4xinnovations.com



84-89 4 Runner Roll Cage Install Guide

Congratulations on purchasing your new 4x Innovations Internal Roll Cage. Included in this manual are package contents, surface coating recommendations, and installation procedures. This document consists of a guide and is not an absolute instruction manual. Professional installation and attention to details is required.

Package Contents:

1 x Driver's Side A Pillar	A	2 x B Pillar Lower Plates	N
1 x Passenger's Side A Pillar	B	2 x C Pillar Upper Plates	O
1 x B Pillar (in 2 parts)	C	2 x C Pillar Lower Plates	P
1 x Front Cross Bar	D	24 x 3/8x1.5 Hex Bolts	
1 x Front Center Bar	E	6 (14) x 3/8x1.0 Hex Bolts	
1 x Driver's C Pillar	F	30 (38) x 3/8 Flat Washers	
1 x Passenger's C Pillar	G	30 (38) x 3/8 Hex Nuts	
1 x Rear Top Cross Bar	H	6 x Tube Gussets	
1 x Rear Lower Cross Bar	I	2 x Front Handles	
1 x Rear Center Bar	J	2 x Rear Handles	
2 x A Pillar Upper Plates	K	(Parenthesis display quantities for 5RIC kit.)	
2 x A Pillar Lower Plates	L	(Photo of 5RIC contents is located in	
2 x B Pillar Upper Plates	M	Appendix A.)	

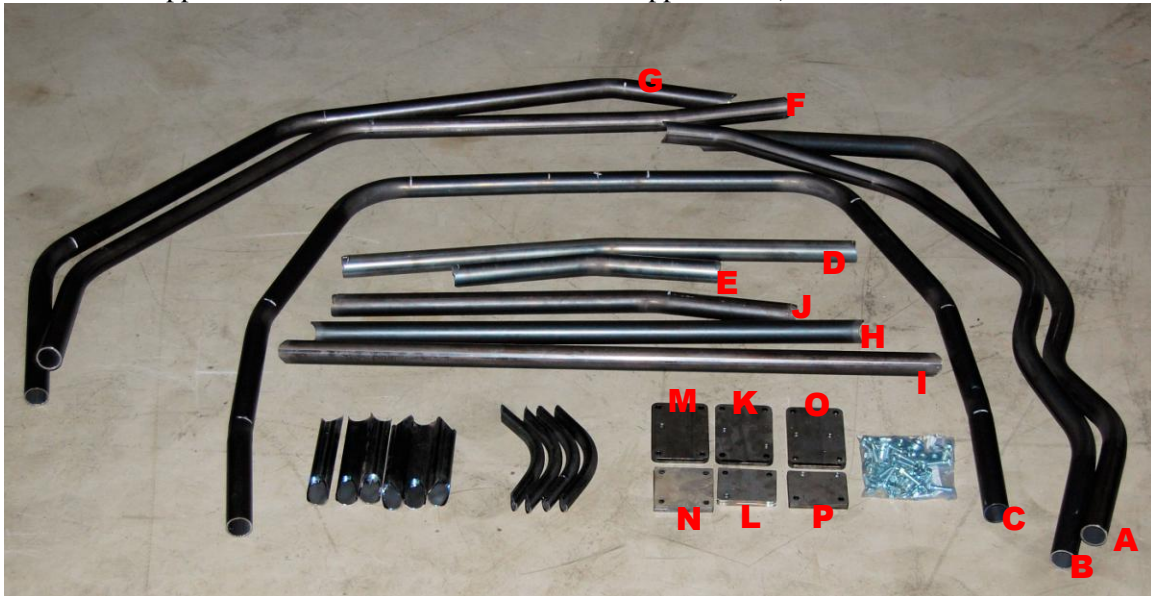


Figure 1 – 4RIC Kit Contents

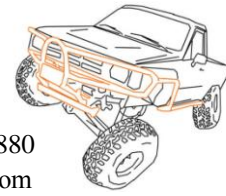
Caution:

1. Installation must be performed by qualified professional metal worker, and welder.
2. Always wear proper Personal Protective Equipment, including but not limited to Safety Glasses, Ear Protection, Face Shield, Weld Coverings, and a Welding Hood.
3. Always have a fire extinguisher in reach while working in and around your vehicle. Interior panels are made from vinyl and other plastics which burn VERY easily; under carriages can be covered in oil and road grime which also burns easily.
4. Working around vehicles is inherently dangerous. You and the installer are responsible for your actions. Take general care while working on a vehicle.

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Coatings: Note: For optimum coating performance follow coating manufacture's instructions.

A. On the quick and easy: Simple spray paint.

This method is an economical method to coat your new cage. Any top quality spray paint rated for metals can be used. In our shop we use Rustoleum Professional Metal paint.

B. POR-15 or similar moisture cured polymers:

These professional coatings are highly durable and can be touched up if scratched. Most are formed as multi part primer, color, and top coats that are abrasion, and heat resistant. They are available online, usually directly from the manufacture.

Preparing 4 Runner:

1. Removing the seats from the truck is not required but makes working around the cab much easier. It also ensures the seats will not get burned.
2. Pull back carpet from cab walls to allow mounting plates to sit directly on the floor metal.
3. Flatten or remove the floor vibration damper located right behind the front seats. This damper is held on by the two tac welded circled in Figure 2.
4. Protect the glass and interior parts/panels by covering with non flammable material. Be sure to seal the edges with tape to keep sparks out. Hot sparks can crack glass panels.
5. Removing the rear toper assists with ease of installation.



Figure 2 – Vibration Damper

Installing the Cage:

Install Notes:

- Cover all flammable materials and glass surfaces with non flammable material.
 - A right angle drill or air drill will assist in the install process, however not required.
1. Begin by matching up the A pillar upper and lower mounting plates. The top plate sits inside the cab as shown in Figure 3. Exact placement is determined by the lower mounting plate position, with the front and outside edges against the body panels as shown in Figure 4.
 2. Mound the A pillar plates using 3x 1.5x3/8 through the rear holes and 1x 1x3/8 bolt through the front hole each side.

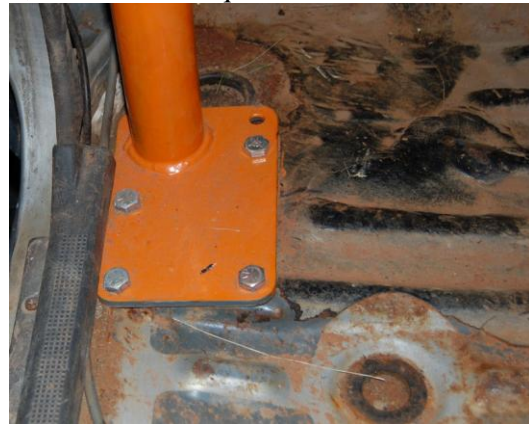


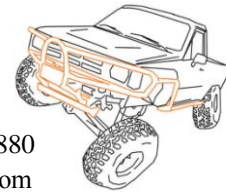
Fig 3 – A pillar top foot alignment

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3. Match the B pillar upper and lower mounting plates. The upper plate sits inside the cab as shown in Figure 5 and is located by the lower plate position. The lower plates fit under the cab as shown in Figure 6.
4. Mount the B pillar plates using 5x 1.5x3/8 bolts each.
5. Remove the stock roll bar.
6. Using an air chisel with flat chisel or a hammer and driver, remove the factory welded nuts under the rear most stock roll bar mounts and flatten the support rib.
7. Match the C pillar upper and lower mounting plates. The upper plates line up with the two stock roll bar mounting holes as shown in Figure 7. The lower plates line up with the orientation as the upper plate.
8. Mount the C pillar plates using 4x 1.5x3/8 and 2x 1x3/8.
9. Begin assembling the B pillar halves together by drilling two 3/8 inch through holes, at a 90 degree offset, in each half of the B pillar, and lightly bevel the edges of the joint.
10. Insert one end (half) of the supplied 1.5" DOM inner sleeve in the B pillar. Weld the sleeve via the plug welds. Do NOT weld the sleeve to the end of the tube.
11. Slide the two halves together. Lay the assembly on a flat surface and tac weld the B pillar assembly together.
12. Set the B pillar in place in the cab, behind the front seat area, to ensure the pillar is spread correctly. Adjust the pillar so there is clearance between the wall and the closest part of the pillar.
13. Remove the B pillar and fully weld the split joint.
14. Place the B pillar back into position. Tip: to help hold the pillar in place use a ratchet strap around the cab pillar on each side.
15. Place the A pillars in the cab in their approximate positions.



Fig 4 – A pillar lower foot alignment



Fig 5 – Upper B pillar mounting plate orientation



Fig 6 – Lower B pillar mounting plate orientation

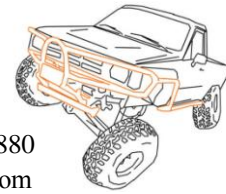


Fig 7 – Upper C pillar mounting plate orientation

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16. Plumb and align the A and B pillars
17. Lightly tac the A pillars to the B pillar.
18. Place the front Cross Bar in place using a ratchet strap across the A pillars to help hold the cross bar in place.
19. Insert the front center bar.
20. Align the front cross bar making it parallel with the B pillar.
21. Tac the cross bar, and center bar in place.
22. For 5RIC cages, locate the 4x C pillar sections, match the two tubes labeled 1 together and the two tubes labeled 2 together. The mating area is marked with two alignment marks. Within 3 inches of the mating surface, drill two 3/8 inch through holes, at a 90 degree offset, in each piece of the C pillar, and lightly bevel the edges of the joint. Insert 1/2 of the supplied 1.5 inch inner sleeve into one piece of the C pillar and tac it in place through the plug holes. Match up the mating section of C pillar, tac to the inner sleeve. Align the joint so it is straight and fully weld joint. Repeat for both C pillars.
23. Place the C pillars into the cab. The notched end rests on the B pillar in line with the front A pillar.
24. Place one tac weld on each B to C pillar joint to help hold it in place.
25. Place the rear most cross bar at the downward bend of the C pillar and hold in place with a ratchet strap. For 5IRC kits, begin with the center cross tube, which measures 40.5 inches in length and locates at the C pillar section joint.
26. Place the center support tube between the B pillar and the rear cross bar.
27. Square and straighten the center tube and rear cross bar.
28. Tac center and rear cross tubes in place.

For 5RIC: (4RIC users can skip to step 35)

29. Continue towards the rear by placing the rear most cross bar in place, the 40.75 inch straight tube. A ratchet strap can be used to hold it in place.
30. Insert the driver's side angle brace. This brace contains a double angle notch on one end and a single steep angle notch on the front end.
31. Insert the passenger's side angle brace by sliding the double notched end into the rear corner and sliding the shallow angle notched end along the driver's side brace, towards the middle cross bar.



Fig 8 – Lower C pillar mounting plate orientation



Fig 9 – Front Half Assembled



Fig 10 – Front Half Assembled

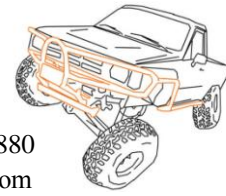


Fig 11 – 5RIC Rear Half being installed.

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32. Straighten and compress the rear cross bar and two angle braces. Check notches to insure acceptable fit is obtained. Slight trimming may be required in this section of the kit.

33. Tac rear cross brace and angle braces when acceptable fit is obtained.

34. Locate the rear vertical supports at the junction of the C pillar and the middle cross bar. One 4x4 mounting plate sits on the top of the wheel well and another mounts on the underside of the wheel well. Bolt plates in place. Tac bars in place.

35. Place lower cross bar in place and tac in place.

36. If topper was removed, test fit topper at this time to insure proper clearances for it's reinstallation after cage is complete. Adjust cage as required.

37. Tac tube gussets in the A to front cross bar, B to C pillar joint and the C pillar to mid cross bar.

38. Inspect all cage joints to insure proper joint fit. Once proper fit is verified and complete place heavy tacs on all joints except the A to B pillar joints and the front center support to B pillar joint.

39. Full welding of cage can now be performed. This can be carefully completed with the cage in the truck, or by removing the cage in two sections. To weld the cage inside the truck, first place heavy tacs at the A to B pillar joint and front center support to B pillar joint, then systematically complete welding process.

To remove the cage in two sections, support the A to front center support to A pillar span with scrap material. Cut the A to B pillar tacs and center support to B pillar tac. Unbolt mounting plates. The rear B pillar and back section can be lifted nearly straight out of the bed when the topper is removed. The front A pillar section will carefully slide rear wards, up and out of the rear of the truck. Full welding and painting process can then be completed outside of the truck. Remember do not paint around the area where the front and rear halves will be rejoined inside the truck.

40. Reinstall the two cage halves. Install mounting bolts and lower plates.

41. Weld sections together, touchup paint around the weld area.

42. Reinstall any cab components removed for cage install.



Fig 12 – 5RIC rear complete



Fig 13 – 4RIC rear complete

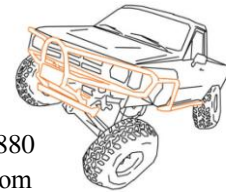
Congratulations You're done! Enjoy you new roll cage.

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Appendix A

5RIC Package Contents:

1 x Driver's Side A Pillar	A	2 x C Pillar Upper Plates	O
1 x Passenger's Side A Pillar	B	2 x C Pillar Lower Plates	P
1 x B Pillar (in 2 parts)	C	4 x Rear Vertical Support Plates	Q
1 x Front Cross Bar	D	1 x Rear Driver's Angle Support	R
1 x Front Center Bar	E	1 x Rear Pass. Angle Support	S
1 x Driver's C Pillar	F	2 x Rear Mid Vertical Support	T&U
1 x Passenger's C Pillar	G	1 x Rear Lower Cross Bar (not pictured)	
1 x Rear Mid Cross Bar	H	24 x 3/8x1.5 Hex Bolts	
1 x Rear Back Cross Bar	I	14 x 3/8x1.0 Hex Bolts	
1 x Rear Center Bar	J	38 x 3/8 Flat Washers	
2 x A Pillar Upper Plates	K	38 x 3/8 Hex Nuts	
2 x A Pillar Lower Plates	L	6 x Tube Gussets	
2 x B Pillar Upper Plates	M	2 x Front Handles	
2 x B Pillar Lower Plates	N	2 x Rear Handles	

