



Custom Toyota Truck Tube Works

•5801 Pleasant Valley Rd
 •Platteville, WI 53818
 •Phone: (608) 348-4880
 •Web: <http://4xinnovations.com>
 •Email: Adam@4xinnovations.com

90-95 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.

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 Closed Toed or Safety Shoes, Safety Glasses, Hearing Protection, Face Shield, Gloves, 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.

Coatings: Note: For optimum coating performance follow coating manufacturer'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. 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.

Package Contents

Driver A Pillar DOM Tubing	1	Rear Cross Bar	1
Pass A Pillar DOM Tubing	1	Rear Driver Angle Brace	1
Front Center DOM Tubing	1	Rear Pass Angle Brace	1
Front Cross DOM Tubing	1	1" Tube Front Handle	1
B Pillar (2 pieces) DOM Tubing	1	1" Tube Rear Handle	1
C Pillar (2 pieces)	1	1.5 x 6" DOM Tube Inner Sleeve	2
B-C Connection Center Tube	1	1.5 x 8" HREW Tube Corner Gusset	4
B-C Connection Outer Tube	2	4 x 9 Mounting Plate (A & B Pillar Inside	4
Driver D Pillar	1	4 x 4 Mounting Plate (A & B Lower & C F	8
Pass D Pillar	1	D Pillar Upper Plate (4 x 6 Center hole)	2



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D Pillar Lower Plate (1.5 x 4)	4
3/8 x 1.5" Hex Bolt Grade 5	40
3/8" Nut Grade 2	40
3/8" Washer	48
3/8 x 4.5" Hex Bolt Grade 5 (A Pillar Body Mount Replacement)	2
3/8 x 6" Hex Bolt Grade 5 (D Pillar Body Mount Replacement)	2
Grade 5 Hex Nut	4
7/8" x 3/4" Tube Body Mount Spacer (insert in A Pillar Body Mount well)	2
13/16" x 3/4" Tube Body Mount Spacer (insert in D Pillar Body Mount well)	2

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 4 x 9 top plate sits inside the cab with the hole that is at one end of the plate centered across the short dimension right over top of the body mount bolt. See Fig 1. A new body mount bolt and shims are supplied if you wish to replace the bolt and be able to remove the cab at a later date. To replace the body mount bolt remove the stock body mount bolt, place a washer over the bolt hole, place the 7/8" tall 3/4" diameter spacer sleeve on top of this washer. Place the mounting plate over top of this sleeve and make sure the new 3/8 x 4.5" body mount bolt passes through the sleeve and washer.
2. The 4x4 lower plate lines up with the 4 mounting holes to the back of the cab.
3. Mount the A pillar plates using 3/8x1.5 through 6 holes.
4. The B pillar uses a 4x9 plate with the 4x4 pattern holes towards the back of the cab and located as shown in Figure 2.
5. A 4x4 plate is used under the cab towards the back to support this plate.
6. Mount the B pillar plates using 6x 1.5x3/8 bolts each.
7. The C pillar plates are 4x4 plats for inside the cab and under the cab. They are located on top of the wheel wells by the location of the C pillar tubes.
8. Mount the C pillar plates using 4x 1.5x3/8 bolts.



Fig 1 – A pillar mounting plate location



Fig 2 – B pillar mounting plate location



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9. The D pillar plates are the 4x6 plates with a hole in the middle of the plate. They mount similar to the front plates, as shown in Figure 3. The D pillar plates offer the same body mount bolt replacement as the front using the 13/16 x 3/4" sleeve and 3/8 x 6" bolt.
10. Each D pillar bottom uses 2 of the 1.5 x 4 plates, one towards the front and one towards the back.
11. Mount the D pillar plates with 4 3/8 x 1.5.
12. 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.
13. 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.
14. Slide the two halves together. Lay the assembly on a flat surface and tac weld the B pillar assembly together.
15. 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.
16. Remove the B pillar and fully weld the split joint.
17. Repeat this process for the C pillar. You will need to trim the bottom of the C pillar to fit the tops of the wheel wells.
18. 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.
19. Place the A pillars in the cab in their approximate positions.
20. Plumb and align the A and B pillars
21. Lightly tac the A pillars to the B pillar.
22. Place the front Cross Bar in place using a ratchet strap across the A pillars to help hold the cross bar in place.
23. Insert the front center bar.
24. Align the front cross bar making it parallel with the B pillar.
25. Tac the cross bar, and center bar in place.
26. Continue with the rear portion of the cage kit.



Fig 3 – Upper D pillar mounting plate orientation



Fig 4 - B pillar and B-C connection tubes



Fig 5 - Rear Section of cage