



Custom Toyota Truck Tube Works

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96-02 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	1" Tube Rear Handle	2
Pass A Pillar DOM Tubing	1	1.5 x 6" DOM Tube Inner Sleeve	2
Front Center DOM Tubing	1	1.5 x 8" HREW Tube Corner Gusset	4
Front Cross DOM Tubing	1	4 x 9 Mounting Plate (A & B Pillar Inside)	4
B Pillar (2 pieces) DOM Tubing	1	4 x 4 Mounting Plate (A & B Lower & C F)	8
C Pillar (2 pieces)	1	D Pillar Upper Plate (4 x 6 Center hole)	2
B-C Connection Center Tube	1	D Pillar Lower Plate (1.5 x 4)	4
B-C Connection Outer Tube	2	3/8 x 1.0" Hex Bolt Grade 5	16
Driver D Pillar	1	3/8 x 1.5" Hex Bolt Grade 5	13
Pass D Pillar	1	3/8" Nut Grade 2	35
Rear Cross Bar	1	3/8" Washer	35
Rear Driver Angle Brace	1	3/8 x 2.5" Hex Bolt Grade 5	6
Rear Pass Angle Brace	1		
1" Tube Front Handle	1		

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 upper plate is a 4x6" plate with 4 holes offset towards one end of the plate. The lower plate is the smallest of the plates with 3 holes that will align to the rear most holes on the upper plate.
 2. The lower plate will be the primary locator for this upper plate, locating just behind the body support rib as shown in Fig 1.
 3. Mound the A pillar plates using 1 3/8x1 and 3x 3/8x1.5 through 4 holes.
 4. The B pillar uses a 4x6 plate with the 5 holes as shown in Figure 3. It will locate as far out in the cab as possible and just behind the seat belt mount bolt. Be careful to leave enough room for the bolts to not go into the lower rocker panel area. The 5th bolt, near the center of one edge, goes towards the outside of the cab.
 5. The lower B pillar plate is the larger of the plates that have 3 holes in them. This plate will locate as show in figure 4.
 6. Mount the B pillar plates using 1x 3/8x1 and 3x 3/8x1.5 bolts each.
 7. Begin assembling the B and C 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.



Fig 1 – A pillar lower mounting plate



Fig 2 – A pillar mounting plate location



Fig 3 – Upper D pillar mounting plate orientation



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8. 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.
9. Slide the two halves together. Lay the assembly on a flat surface and tac weld the B and C pillar assemblies together.
10. 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.
11. Remove the B pillar and fully weld the split joint.
12. 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.
13. Place the A pillars in the cab in their approximate positions.
14. Plumb and align the A and B pillars
15. Lightly tac the A pillars to the B pillar.
16. Place the front Cross Bar in place using a ratchet strap across the A pillars to help hold the cross bar in place.
17. Insert the front center bar.
18. Align the front cross bar making it parallel with the B pillar.
19. Tac the cross bar, and center bar in place.
20. The C pillar plates are 4x4 plates 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 and as shown in Figure 7.
21. Mount the C pillar plates using 4x 3/8x1 bolts.
22. The upper and lower D pillar plates are the 4x6 plates with a hole in each corner. They mount in the rear corner of the cab using 4x 3/8x1 bolts.

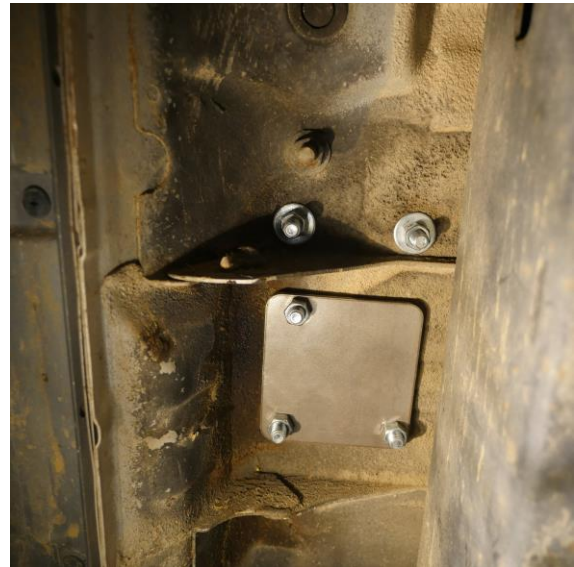


Fig 4 – Lower B pillar mounting plate orientation



Fig 5 – A pillar and front of cab detail



Fig 6 – B pillar and mid cab detail



Fig 7 - C Pillar upper mounting plate



Fig 8 - C pillar lower mounting plate



Fig 9 - D pillar lower mounting plate



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Fig 10 - Rear Section of cage