

# Roll Cage Installation Notes

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## Introduction

The regulations state that you have to fit one of 3 versions of Safety Devices 6 point bolt-in cage. The items you need are shown below:

### Option 1

Part Number	Description
RBC052 3SSU	Front roll cage with windscreen reinforcement bar for unique single door bars, no roof cross.
RBC052 5SSU	Rear roll cage, single fixed diagonal for single door bars, no roof cross.
RBC052 DSUN	Unique single door bar, near side (left hand side).
RBC052 DSUO	Unique single door bar, off side (right hand side).
RBC052 SB	Rear strut brace/harness mount.

### Option 2 (This configuration is supplied by C1 Racing Club Limited)

Part Number	Description
RBC052 3SXU	Front roll cage with windscreen reinforcement bar for unique single door bars, with roof cross diagonals.
RBC052 5XSU	Rear roll cage, single fixed diagonal for single door bars and roof cross.
RBC052 DSUN	Unique single door bar, near side (left hand side).
RBC052 DSUO	Unique single door bar, off side (right hand side).
RBC052 SB	Rear strut brace/harness mount.

### Option 3

Part Number	Description
RBC052 3SXX	Front roll cage with windscreen reinforcement bar for cross door bars and roof cross.
RBC052 5SXU	Rear roll cage, cross diagonal, lower backstays, for roof cross and cross door bars.
RBC052 DXUN	Cross door bar, near side (left hand side).
RBC052 DXUO	Cross door bar, off side (right hand side).
RBC052 SB	Rear strut brace/harness mount.

## Procedure

Fitting the cage requires a complete strip out of all interior panels, including the roof lining. You will need 2 people to put the rear cage into the car. You will need to weld the front and middle cage feet mountings onto the sills, ideally using TIG welding to get good penetration and a tidy weld.

Remember, your car will be scrutineered and poor quality welding will fail.

This was the sequence we followed for cage installation. Take lots of photos as you are dismantling things so you can see how it all goes back together.

1. **Disconnect the battery** – this is really important to ensure you don't accidentally set-off the airbags.
2. Remove both front seats.
3. Remove rear seat squab.
4. Remove both rear seat backs.
5. Remove both front door panels.
6. Remove instrument pod cover.
7. Remove instrument pod.
8. Remove rev counter (if fitted).
9. Remove top dashboard panel.
10. Remove bottom dashboard panel.
11. Remove both rear passenger side panels.
12. Remove both rear boot side panels.
13. Remove rear seat belt units.
14. Remove front seat belt units.
15. Remove carpet.
16. Remove 3 white foam plastic mouldings from foot wells.
17. Remove throttle pedal.
18. Remove sound insulation from front bulkhead.
19. Remove the roof lining. This needs some care and read the instructions fully.
20. Remove the radio aerial.

The above requires a set of spanners and sockets and a bit of patience. The electrical connectors all have different designs and most have interlocks, such that you have to move part A before you can move part B before you can separate the 2 parts. So far you have not had to modify the vehicle in any way – just remove stuff, some of which will be put back after the cage has been fitted.

There are some small modifications that have to be made to install the cage, as follows:

1. Undo the 2 nuts on the top of each rear shock absorber, jack the car up using the rear jacking points and support car on 2 axle stands. The shock absorbers can be withdrawn from their towers.
2. Remove the reinforcing cup on the top of the rear shock absorber towers on both sides. This is spot welded in 4 places and these need to be carefully drilled out, but don't go through the bottom layer. Carefully grind any residual spot welds off the top face so it is flat.



3. You will need to cut off the 2 lugs the stick out backwards from the steering wheel support cross member. These get in the way of the cage front legs.



4. Follow the general instructions supplied with the cage. Read them all the way through because there are several things that rely on the instructions being followed correctly.
5. You can now put the rear cage into the car and line-up the rear back stay feet with the suspension towers. You may need to push the feet apart to get the cross member in place and to get the holes in the towers to line up with those in the back stay feet.
6. Assemble the cage in the following order. We found it useful to have a bag of M10 plain nuts so you don't have to spend ages doing up and undoing the Nyloc nuts they supply.
  - a. Rear cage
  - b. Rear cage feet spacer tube
  - c. Near side front member
  - d. Off side front member

- e. Front roof tube
  - f. Near side door bar
  - g. Off side door bar
7. Make sure the cage is centralised and the rear cage front feet are equally spaced on the sills and the front cage feet are tight to the front sills. Use clamps to make sure everything stays in the correct position.
  8. Mark through the holes in the plates welded to the bottom of each cage tube with a felt tip pen. There are 2 plates at the bottom of the rear legs, 2 plates just behind the B pillar and 2 in the front foot well.
  9. Dismantle and remove the whole cage from the car. This is required so you can drill the holes needed for the cage feet without the cage being in the way – it's a pretty tight fit.
  10. Drill 2 holes on each side of the rear suspension tower with a 10.5mm drill to line up with the holes in the foot.
  11. Drill 3 holes 25mm with a fine tooth hole saw (Starrett hole saws are better than cheap ones, which just lose their teeth) through the sill for each foot plate. Deburr the holes and try to remove as much swarf from inside the sill cavity with a magnet on a stick. This will help prevent the sills from rusting from the inside.
  12. Remove all the paint from the area where the cage foot plates will be welded. Paint stripper gets the seam sealer and paint off quite well with a paint scraper. The seam sealer needs to be removed as best you can where the weld will cross a seam. We found the seam sealer made it difficult to get a good quality weld unless it was all removed.
  13. Put the rear cage back in the car and then assemble all the tubes in the same sequence as before. Don't tighten any bolts until the whole cage is roughly in place – you can still use plain nuts because the cage will have to be removed again for final welding. Fit the 4 loose cage foot plates under the cage feet and tighten the bolts – 3 in each foot and 2 in each rear backstay foot. You may need to dress the sills to get the cage foot plates to sit snugly to the sills where the nuts are welded.
  14. Clamp everything in place and check that the cage foot plates are a snug fit to the sills. Tighten all the nuts and bolts.
  15. Tack weld the 4 cage foot plates in position, making sure you have a tack in each corner and in both planes.
  16. Remove the cage completely.
  17. Tie the looms running along each side of the car out of the way so they don't get damaged during welding.

18. Weld the cage foot plates in position. Good quality welds are required with full penetration. The best results will be obtained from TIG welding.



B pillar (middle of cage) foot plate.



Foot well (front of cage) foot plate.

19. Trim all the seam sealer that will appear during welding and clean the welds in preparation for painting.
20. Clean the welds with a wire brush and paint the plates to prevent corrosion. We painted the whole of the inside of the car because the paint from the factory is really thin (I mean just a fine mist) and with no carpets for protection it will get damaged.
21. Refit the cage in the same sequence as described above using the supplied Nyloc nuts. Fit loosely to start with and then go round tightening each joint a bit at a time. Use a torque wrench and make sure that you follow the manufacturer's instructions on tightening the joint bolts. Make sure the gaps between the flanges on each side of the joint are equal. Do not exceed the tightening torque they specify.

## **Refitting the interior**

The upper and lower dash and door panels will have to be cut and shaped to fit around the front cage tubes.