# MARK FISH VEHICLE ENGINEERS

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## Comprehensive guide notes for fitting a Safety Devices R017 roll cage into a Renault Clio 172 or 182.

When welding take normal precautions with fire risk and disconnect the battery etc.
I need to advise standard practice is to remove the fuel tank etc before welding due to the close proximity of the welding to the tank. However, BUT entirely at your own risk, a second person observing the weld areas underneath with the necessary safety equipment at hand will suffice. PS. The underseal does catch alight.

**These instructions are for a front and rear cage installation. For rear cage only adapt as necessary etc.**

**Strip down interior;**

- Remove front and rear seats.
- Remove both rear side trim panels, rear view mirror, (both sun visors and grab handles front and rear, these won't be refitted).
- Remove both inner sill and B post trims, including the front seat belts and shoulder sliding posts. These can be refitted as the cage is finally bolted in place.
- Move the front and rear carpet back from where the roll cage towers will be welded in (use bungee straps to hold out of the way etc.).
- For the front cage, make a decision ref the glove box as once in place the lid will not open. I.e. leave empty and shut, or remove lid, or cut a 35 mm section off down the outer edge and it will still function as a glove box.

**Trial fit of the cage;**

- Two persons lift the rear cage in from passenger side, slowly does it, watch the four feet ref paint and trim damage. Lift over the folded carpet and handbrake in the centre. Put cage at "angle" to achieve this, the cage should go in relatively easily. Then put the main hoop feet on the rear floor and lift the cage rear wheel arch stays towards the arches (be careful of the wires and tubes).
- Once all the way back put the two towers in place (they are sided) and nip up two of the four bolts each side onto the main hoop feet.
- Mark around the two towers to the floor/sill. Then either; mark round and cut out the rear arch carpet/felt sections to allow the feet to make contact with the metal wheel arch, or remove arch carpets completely.
- Now fit the front cage assembly with the door bars. This includes the windscreen header bar.
- Position the front cage legs onto the front towers and nip up two of the three bolts.
- All the other front cage and door bar bolts are not tightened. Just light finger tight. For this you will ideally need plain nuts (to save time and the thread lock on the nyloc nuts.)

**Note: Be careful of the windscreen header bar it typically has approx 7mm clearance to the screen.**

- Mark around the front towers to know where to remove paint etc., so the welding can take place.
- Release the whole cage assembly enough so you have room to prepare the areas to be welded, which is all round the towers.
- Now position the complete cage and the towers in their final positions;
- This time put all the cage feet bolts in and fully tighten.(14 in total) Push the rear cage as far back as possible and then use typically a scissor jack and wood, to spread the main hoop apart to get the towers on to the inner sills. Check the towers fit close on all sides, floor, rear bulkhead and inner sills. This is crucial

for allowing enough clearance to the dashboard, and screen header bar to the windscreen. At this point the rear arch stay bar feet should be close (0mm to approx 8mm) to the metal wheel arch panel. There will be some gaps, this will pull in later when bolted tight.

- Then refit the front cage assembly and door bars with the bolts finger tight only. This allows the front towers to touch the floor and inner sills more easily.
- Double check all clearances, screen, dashboard, head lining, and the tower positions. Rear cage, wheel arch, feet etc.
- Now tack weld each tower going from one to the other a few tack welds at a time, until you have approx six on each. Drift the floor up to meet the towers where necessary.
- Now it is time for the rear stay bar feet to wheel arch. Use a sharp dot punch and dent the arch through the three cage feet holes. Now use a hot air gun and scraper, or wire wheel etc. to clean the OE underseal from this area under the arch. You should now see the dot punch dents. Now use the dot punch to punch the same points the other way. This allows the holes to be drilled from underneath. Use 6mm, then 10mm drills through into the cage stay bar feet holes. Now use an 11mm drill only go through arch panel (for clearance).
- Fit the two plates with 3 x captive nuts. Use longer bolts at this stage to help feed the bolts into the threads (two man job). Check all OK and tighten down temporarily.
- Add some more substantial welds to the four towers before removing the cage to allow the welding all around the towers and the splits on the tower corners without burning the cage paint etc. and to allow for painting of the towers and floor (typically removing all of the front cage out of the car).
- You are then ready for the final assembly.

**Final Fitting;**

- First refit the B post seat belt height adjusters then rear side trims and B post trims then both inner sill trims, as required.
- Cut carpet and underlay around towers as required.
- Reassemble the cage without the door bars into the car. Checking your glove box option FIRST!

**Important note:**

Ref the screen header bar, tighten the lower bolts first to twist away from the screen. WATCH CLEARANCE

- Seat belts and rear view mirror.
- Seats then door bars.
- Roll cage foam.
- Now under seal the welded burnt areas underneath and seal off the rear wheel arch plates and bolts to stop water ingress.

**Now stand back and admire the finished job and trust you never have to use it, but it is there if you do!**

**Fitting Notes;**

Sometimes the alignment of the captive nuts on the towers and the roll cage feet bolt holes after being welded in do not quite line up. If this is the case use a round file to elongate the hole in the offending cage foot plate to allow the bolt to engage the thread.

**Additional notes for the 9 point cage;**

This cage B post weld in bracket will require the seat belts etc to be removed and the threaded lug to be welded in place.

The transverse tunnel bar requires the central bracket plate to be tack welded in place at the same time as the main cage bracket/platforms are tack welded in place (with the two short connecting tubes slid in place).

Note: The pinch bolts/holes for the short tubes should be drilled only when the cage is in its final bolted in position. (The same applies for the roof cross four short tubes).