

# Toyota Land Cruiser HZJ78 Internal/External ROPS (T070) Fitting Instructions

Unwrap the roll cage and unpack the individual fitting kits. At this point it is recommended that all components are checked against the assembly drawing on page 8 of these instructions. Should any parts or fixings be missing at this stage, or during installation, please contact your stockist. After every process in the fitting of the roll cage that requires drilling, clean away the swarf.

The assembly process of this roll cage is separated into several different sections, each section having its own fitting kit (ensure all fitting kits remain separated until use) containing all nuts, bolts, washers and fitting plates required:

Section 1 - Removal of exterior bodywork and interior trim	Page 1
Section 2 - Installing front under wing mounts	Pages 2-4
Section 3 - Installing external cage sections	Pages 5-6
Section 4 - Installing internal cage parts	Pages 6-10
Section 5 - Finishing procedures	Page 11
Section 6 - Drawings and templates	Page 12-14

## **Section 1 - Removal of exterior bodywork and interior trim**

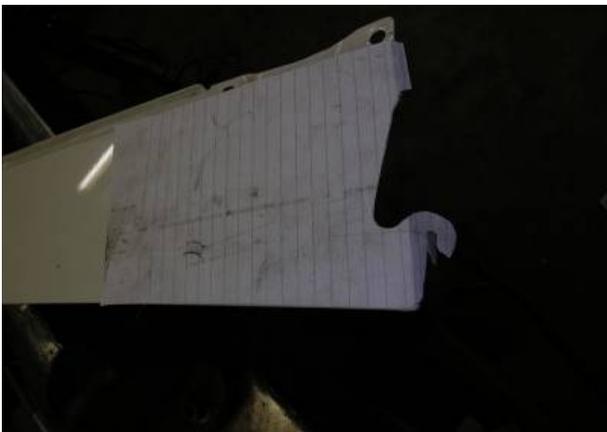
- 1.1 Remove front bumper, bonnet, grill, wing liners, scuttle panel, window wipers, headlights and wings.
- 1.2 Remove all seats. Remove rear carpet, leaving the front carpet in the vehicle. From the rear of the front carpet, remove the sound deadening from the underside, approximately 200mm forwards across the whole width of the vehicle. Remove all rubber mats and all plastic trim from rear of vehicle. Drop rear section of headlining above the rear door - do not remove. Drop right hand side of the centre headlining but do not remove. Move the wiring for the internal light out of the channel in the roof reinforcement section towards the rear of the vehicle. Remove triangular plastic panel from footwell of both driver and passenger sides. Remove jack and its plastic carrier.

## Section 2 - Installing front under wing mounts

2.1 Use templates provided to trim the upper rear corner of the wings as detailed in the following photos:



2.2 Use templates provided to trim the outer edges of the windscreen scuttle panel as detailed in the following photos:



2.3 Fit rubber strip to cut edges of above panels. Panels will look like photos below after fitting.



2.4 Trim inner wing seam flange on both left and right hand sides, to allow for front under wing mounts to be fitted.

Remove bonnet hinge bolts and door hinge bolts. Ensure doors are locked to prevent them being opened whilst no bolts are in place.



2.5 Fit front under wing mounts to both left and right hand sides using backing plates supplied (refer to the assembly drawing for correct orientation of these plates). Do not use a washer on the centre bolt to avoid interference with the door. Tighten these bolts fully.



2.6 Refit trimmed scuttle panel to vehicle. The windscreen wipers can now be refitted also.



2.7 Refit both left and right hand front wings, bonnet and front bumper. (All front bodywork)

### Section 3 - Installing external cage sections

- 3.1 Cover vehicle roof with a soft cloth or cardboard to prevent any damage being sustained during roll cage fitment.
- 3.2 Insert bush assemblies into the front of both legs.
- 3.3 Loosely position either leg onto the vehicle, loosely bolting the front to the wing mount, and positioning the rear onto the roof skin. Pass the bolt through the front wing mount from the outside and tighten using a nyloc nut on the inside.
- 3.4 Assemble front roof section and rear section into position on the roof, attaching to the fitted leg at the 4 saddle brackets along its length. Do not tighten bolts fully.
- 3.5 Position the remaining leg onto the vehicle, mounting at front and rear as before. Then attach to the other roof assemblies loosely.
- 3.6 Run all roof assembly bolts through the nyloc in the nuts to ensure no movement in the bolt but not to the final torque setting.
- 3.7 Measure from the gutter to the outer hole on both rear mounting plates. Ensure that this measurement is exactly equal on both sides of the vehicle for central mounting.
- 3.8 There are 4 holes in each rear mounting plate; the outer 2 on each side should be drilled out to 10mm, taking care not to go through the headlining underneath. Place a bolt into each of these 4 holes.
- 3.9 Mark through the two holes in each of the C Hoop outer roof mounting plates.
- 3.10 Remove four bolts that have been placed in the rear roof mounting plates and tilt the whole cage assembly upwards and forwards safely, pivoting on the front under wing mount bolts before securing in the lifted position.
- 3.11 Drill a 6mm pilot hole through each of the marked points on the roof skin, ensuring that you go right through the roof and the headlining. This must be drilled accurately and perpendicular to the roof skin.
- 3.12 Carefully lower the roll cage assembly back down to the roof of the vehicle.
- 3.13 Apply sealer to rear outer roof backing plates and pass these plates inside the headlining at the rear of the vehicle. Insert the four bolts through the plate on the roof of the vehicle and into the backing plate. Tighten these bolts fully to their final torque setting.
- 3.14 Reposition the headlining in the back of the vehicle, ensuring it is back in the correct location.



## Section 4 - Installing internal cage parts

- 4.1 Working inside the vehicle using a 19mm hole saw, drill out the roof lining using your 6mm hole as a pilot hole and where necessary, the roof reinforcement bars ensuring you do not drill through the roof skin itself. Repeat for all 20 internal roof mounting points.
- 4.2 From the inside of the vehicle, drill through the 6mm pilot holes in the C Hoop outer roof mounting brackets, using a 10mm drill.
- 4.3 From the outside of the vehicle, using the 10mm drill, drill through all of the remaining pilot holes in the roof skin.
- 4.4 Using a spot weld drill, remove the existing rear seat mount brackets from the rear inner wheel arch.
- 4.5 Position the D Hoop roof spacers into the holes. Bring the D hoop into the vehicle through the rear side door as it will not go into the vehicle through the rear door.
- 4.6 Align the holes of the D hoop with the spacers, apply sealant to the bolts and pass them through the plate from above. Pass a washer and a nyloc onto the end of each bolt and do not tighten.
- 4.7 On the right hand side of the vehicle, at the back corner of the rear wheel arch, relieve the metal to clear the backstay.
- 4.8 Position the C hoop roof spacers into position ensuring that they are in the correct location and the right orientation. Bring the C hoop into the vehicle through the rear side door ensuring the backstay brackets are facing to the rear of the vehicle.
- 4.9 Manoeuvre the C hoop into position so that the holes line up with the roof spacers. Using a dead blow hammer, tap the front plates up into position.
- 4.10 Apply sealant to the roof bolts. Pass two bolts through each of the outer roof mountings from the inside and pass a washer and a nyloc nut onto the end from the outside of the vehicle.
- 4.11 From above the vehicle, pass two bolts through each of the inner roof mountings and pass a washer and a nyloc nut onto the end from the inside of the vehicle. Do not tighten the bolts at this stage.

- 4.12 Bring the first backstay into the vehicle and slide the foot plate underneath the D hoop foot plate until it locates onto the stubs on the C hoop. Pass two of the cap head shoulder bolts into the lap joint and tighten fully. Repeat this process for the backstay on the other side of the vehicle.
- 4.13 Position the B hoop roof spacers ensuring that they are in the correct location and the right orientation. Bring the B hoop into the vehicle through the rear side door ensuring this again is in the correct orientation. Using a dead blow hammer, tap the brackets into position so that they are parallel with the spacers.
- 4.14 Underneath the carpet, ensure that the fuel filler cap release cable is not trapped underneath the foot plate.
- 4.15 From above the vehicle, pass the sealant covered bolts through the roof, revealing the thread on the inside. Pass a washer and nyloc nut onto each of these eight bolts but do not tighten.
- 4.16 Looking inside the vehicle, locate the spot weld which is mounting the underbody stiffener. This can be found in front of each B hoop foot plate. Ensure there is at least 15mm from this spot weld to the front edge of the plate.
- 4.17 Using a 10mm drill, pass through the 3 accessible holes on each B hoop foot plate making sure that the carpet is out of the way.
- 4.18 Place a bolt with washer on through each of the drilled holes through the B hoop foot plate in the floor of the vehicle.
- 4.19 From the underside of the vehicle, place a spreader plate onto the three bolts sticking through the floor. Pass a washer and nyloc nut onto each and tighten to the final torque setting.
- 4.20 Using a 10mm drill, drill through the fourth hole in each foot plate from the underside of the vehicle. Pass a bolt through these holes and a washer and nyloc nut on the underside and tighten to the final torque setting.
- 4.21 Moving to the inside of the rear of the vehicle, pry the left hand D hoop foot across the vehicle until the plate comes up against the swage in the floor.
- 4.22 Drill through the front inner hole with a 10mm drill and pass a bolt through the hole to locate the plate.
- 4.23 The D hoop must now be pry barred forward to align the holes in the two foot plates. The remaining holes can then be drilled and a bolt passed through each hole.
- 4.24 Repeat this process on the right hand side, ensuring all holes now have bolts through them.
- 4.25 Position the correct spreader plate on the underside of each side of the vehicle and fasten in place with washers and nyloc nuts. These can then be tightened to their final torque setting.
- 4.26 Moving forwards in the vehicle, it may be necessary to use a ratchet strap around the base of the C hoop to bring the legs towards the centre of the vehicle, enough to clear the inner trim. Drill through all four holes in each C hoop foot plate using a 10mm drill.

- 4.27 Pass a bolt through each of these drilled holes, place the correct spreader plate under each side and fasten with a washer followed by a nyloc nut on each. Tighten all 8 of these up to the final torque setting then remove the ratchet strap.
- 4.28 Tighten all of the through roof brackets to their final torque setting.
- 4.29 Screw the four rear seat mounting extension tubes onto the four studs on the side panels of the vehicle.
- 4.30 Loosely bolt the replacement seat bracket to the mounting point in the rear door aperture on each side of the vehicle.
- 4.31 To remove the existing rear seat mounting bracket, grind off the forward most end of the rivet to enable the bracket to be prised off.
- 4.32 Locate the centre of the rivet using a centre punch. Drill a 6mm hole centrally through the rivet and enlarge the hole using a 10mm drill.
- 4.33 Using the fine thread bolts from the seat mount fit kit, locate the two upper brackets on the seat back onto the stud extension tubes. Remember to replace the seat retaining strap on the forward most bracket. Do not tighten yet.
- 4.34 Using the original M8 seat mounting bolt, attach the forward lower bracket to the mounting stub on the C hoop foot plate.
- 4.35 Place an M10 bolt through the extended seat mount bracket and into the drilled out rivet in the seat frame. Pass a washer and nyloc onto the end.
- 4.36 Tighten all bolts to the final torque setting and place nut caps where necessary.
- 4.37 Move the B hoop cross brace into the vehicle and insert and loosely tighten into the B hoop to allow for hole locating.
- 4.38 Ensuring that the back edge of the B hoop cross brace footplate is 125mm forward of the carpet bolt. The B hoop brace lower holes (4 in the footplate) can then be marked and, with the B hoop brace moved out of position, drilled to 10mm through the carpet.



- 4.39 The B hoop can be repositioned and bolted loosely into place through the floor and through the roof. Ensure that the backing plates are in position under the vehicle.
- 4.40 Underneath the vehicle, remove the front two M6 bolts from the exhaust heat shield. Pass four bolts through the centre mountings on the B hoop from the inside of the vehicle and pass the small spreader plate onto each bolt from underneath followed by a washer and a nyloc nut.
- 4.41 Replace the heat shield back onto its original mounting and fasten with the M6 bolts that were removed.
- 4.42 Tighten bolts to correct torque setting.
- 4.43 Remove rear seat mounting brackets from each wheel arch by drilling rivets, shown below.
- 4.44 Position the C hoop as shown in the photo below ensuring that the top brackets line up with the holes in the roof lining.



- 4.45 Move the hoop out of position and mark and drill the holes in the C hoop base plates (4 on each side).
- 4.46 Reposition the C hoop and bolt loosely into position through the floor and the roof, ensuring that the fitting plates are in position under the vehicle.
- 4.47 Position D hoop on rear floor and line up with the holes drilled in the roof lining.
- 4.48 The D hoop LH foot plate will fit around existing hole as a datum point.

- 4.49 The foot plate will need to be levered up on each side to allow the backstay foot plate to be slid into position, as shown below.



- 4.50 The backstays can each be mounted on to the C hoop and fully tightened.
- 4.51 The backstay plate will mate with the D hoop foot plate and these holes can be marked and drilled in situ. They can then be bolted into position using the relevant backing plates in position under the vehicle. See below.



- 4.52 Working from the front of the roll cage, begin tightening all of the bolts to their final torque settings, ensuring that saddle brackets are tightened evenly both sides.
- 4.53 Once the torque setting has been reached, place a nut cap onto each nut and bolt assembly.
- 4.54 Replace interior in the vehicle. When replacing the carpet around the B hoop base, D hoop and backstays, trim carefully to ensure the carpet is a good fit around the tubes.
- 4.55 Place padding into vehicle.
- 4.56 Replace the rear side facing seats
- 4.57 Replace seat belts. Place the rear lap belt into the mounting provided on the D hoop foot plate each side.

## Section 5 - Finishing procedures

- 5.1 With cage completely fitted, start at the front of the vehicle at the top of the cage and tighten all cage bolts working towards the rear of the vehicle.
- 5.2 Again start at front of vehicle and then tighten all floor plate bolts, working rearwards.
- 5.3 Replace carpet and interior trim to original position and trim around cage as necessary.



- 5.4 Replace rear seats using modified brackets and spacers supplied in the fitting kit.

