

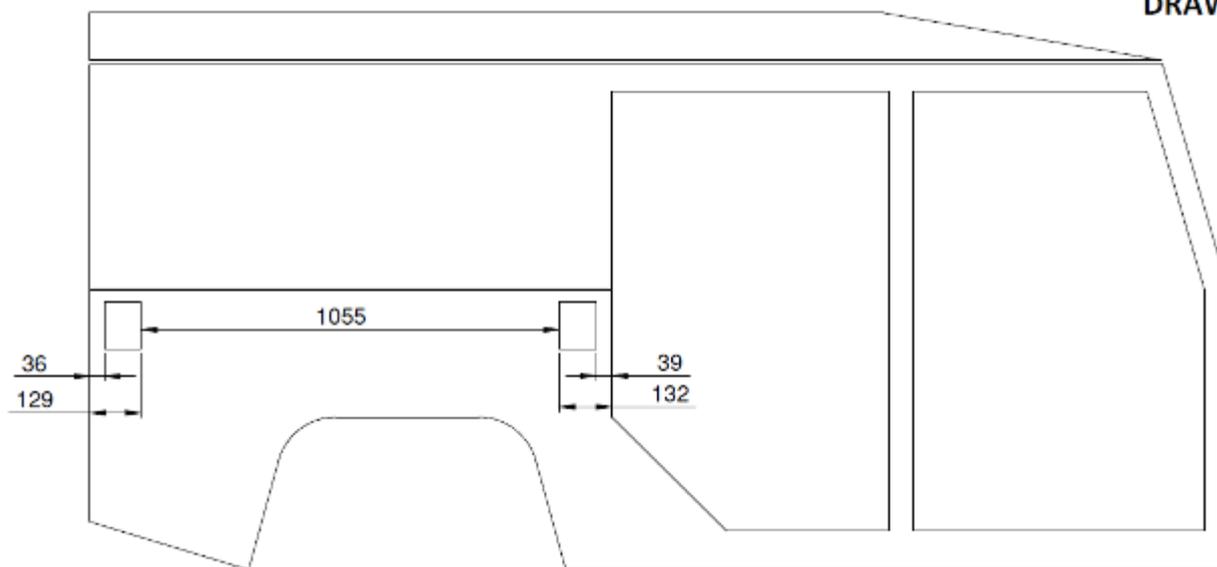
## Land Rover Defender 110 Station Wagon (L172) Fitting Instructions

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 12 of these instructions. Should any parts or fixings be missing at this stage, or during installation, please contact your stockist.

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

<b>Section 1 - Mid and Rear chassis/body mountings</b>	<b>pg 2 - 4</b>
<b>Section 2 - Front chassis/body mountings</b>	<b>pg 5 - 7</b>
<b>Section 3 - Internal Hoop installation</b>	<b>pg 8 - 9</b>
<b>Section 4 - External components installation</b>	<b>pg 10</b>
<b>Section 5 - Completion of Installation</b>	<b>pg 11</b>

**DRAWING A**



**Section 1** - The first step when installing the roll cage is to prepare all mounting points on the curved section of the body, just below the waist rail.

**1.1** - Using drawing 1.0 (page 1) and through locating the slave plate, position masking tape onto the body and mark holes for the C and D hoop chassis mounts. Once marked, the four holes can be drilled out to 12mm and the centre cut out – **Please note only the centre dimensions of the slave plate should be cut out, not the outer profile.** The images below show the process for the rearmost ‘D’ hoop, though the process is the same for the ‘C’ hoop. Repeat this process for all 4 holes in the N/S and O/S rear panels (2 on each side).



Fig 1.1a



Fig 1.1b



Fig 1.1c

**1.2** - With the holes completed, insert the **C hoop** support from the inside of the vehicle, removing and rivets causing obstruction. The inner edge which mates against the inside of the body should have sealant (Wurth PU 08901001) applied before manoeuvring into position. From the outside the gripper/slave plate should be bolted and tightened to hold the mount in place.

**1.3** - With the **C Hoop** plate supported in the correct location, the two angle brackets should be positioned and the 3 holes drilled as required. They should then be attached and bolted through to the bulkhead and doorframe using the nut plate, washers, nuts and bolts provided in the specific fitting kit.



Fig 1.2a



Fig 1.2b



Fig 1.2c



Fig 1.3

**1.4** – Repeat process 1.2 for the **D hoop** support. The upper part of the upright mounts to the floor. However, due to manufacturing tolerances between vehicles it may be necessary to insert some spacers as shown in Fig 1.4. The spacers are provided in several different thicknesses as part of the fitting kit. Using the D hoop support as a template, the two holes should be marked and drilled through the floor. This will aid the positioning of the corresponding bracket below the vehicle floor.



Fig 1.4



Fig 1.5

**1.5** – Temporarily remove the rear chassis cross member plastic cover to allow access to the upper mounting flange. The upper mounting flange should then be cut vertically alongside the last captive fastening on this plate and along the top as required (marked in yellow in Fig 1.5).

**1.6** – The chassis bracket can now be located against the chassis and aligned with the holes drilled through the vehicle floor in step 1.4. The spacer tube assembly can be inserted into the end of the chassis and the bolts inserted loosely. As per 1.4, spacers should be used if required.



**Fig 1.6a**



**Fig1.6b**

**1.7** – The D hoop support bracket and chassis brackets should be bolted together and tightened up fully. Only when this assembly has been fully tightened against the floor should the chassis bolts be tightened.

**1.8** – The plastic cover should then be reinstalled to fit around the lower mounting bracket and fastened into position using original fixings.

**Section 2** - The next step in installing the roll cage is to prepare the two mounting points on the front wings of the vehicle.

**2.1** - Remove front wing eyebrows and outer skins (split wing)

**2.2** – Located in the top corner of the outer wing skin is a gusset pop riveted to the wing itself. Drill these pop rivets and remove the gusset.



**Fig 2.1**



**Fig2.2**

**2.3** – Mask the upper rear corner of the front wings. The square hole for the front roll cage leg should be marked using the front leg gripper/slave plate. The edges of the mounting plate should be aligned with the edge of the outer wing skin.

**2.4** - Mark all 4 holes in the front wing, then drill to 12mm before removing the centre section, creating a square hole.



**Fig 2.3**



**Fig2.4**

**2.5** - On the vehicle there is a lower flange that runs rearwards under the doors. The edge of this flange should be cut away completely from just rearward of the hole for the retaining strap, all the way back to the hinge pillar. Leave 6mm (0.25") on the top of flange, i.e. cut 6mm (0.25") away from the bend. The corresponding material can now be cut out of the wing flange also.



**Fig 2.5a**



**Fig 2.5b**

**2.6** – With the front wing supported on a work bench, locate the under wing support into position to achieve the best fit, the square mount should protrude through the square hole. Mount and tighten the gripper plate to ensure the support is positioned correctly. Drill a 3mm hole through both the lower part of the rear wing flange and under wing support. This should then be pop riveted to attach the two parts together.



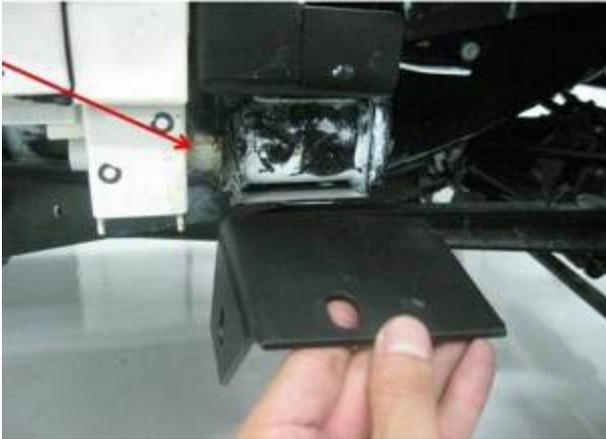
**Fig 2.6a**



**Fig 2.6b**

**2.7** – To allow fitment of the lower chassis outrigger bracket you will first need to remove the long bolt that passes through the outrigger from front to rear. At this point you may find a selection of washers between the outrigger and the bulkhead, or on more recent vehicles a tube welded to the outrigger. If washers are present they should be removed to create sufficient clearance for the bracket. If a welded tube is present then it must be trimmed down to allow the bracket to drop into position.

**2.8** – The bolt can now be reinserted loosely, it will be tightened fully when the wing is back in position.



**Fig 2.7**



**Fig 2.8**

**2.9** - Replace the spire clips in the front bulkhead ('A' Post) with the 'J' nuts provided in the kit.

**2.10** - Bolt the wings back onto the vehicle using the existing mounting positions as well as the new chassis mounting on the outrigger.

**2.11** - The chassis cross member bolt can now be fully tightened.

**Section 3** - The next section of the roll cage to be installed is the internal B hoop.

**3.1** – Remove both front and centre headlining sections.

**3.2** – Remove the upper seat belt mountings from the B pillar, followed by the inertia reel from the rear of the seat riser. Reinstall the lower inertia reel bolts and fully tighten, these mounting positions will not be used once the roll cage is installed.

**3.3** - Position the 'B' hoop into the vehicle, locating the forward facing brackets at shoulder height against the seat belt mounts. Position the two spacers on the outside of the B hoop mountings and bolt into position using the original bolts.

**3.4** - The lower hoop angled floor brackets should be pushed forward against the riser of the vehicle. It may be necessary to support the floor brackets in their most forward position. The brackets located on top of the hoop should be parallel with the roof of the vehicle and positioned rearwards of the roof channel as shown. Due to vehicle build tolerances there are spacers supplied to prevent roof distortion.

**3.5** - Mark the hole positions through the roof brackets and floor brackets centrally in the slots, and remove the B hoop. All 4 roof hole positions should be drilled to 11mm. All 4 floor hole positions should be drilled to 13mm. It is important that the supporting brackets beneath are also drilled through at this time.



**Fig 3.5**



**Fig 3.6**

**3.6** – The B hoop should now be reinstalled and all bolts tightened. Between the inner floor of the vehicle and the brackets beneath there will be a gap into which the 4 spacers provided should be positioned to ensure the brackets won't be deformed when tightened.

**3.7** - The door check strap will need to be relocated onto the fixing provided on the B hoop and secured using the M8 nyloc nut provided. The nut should be tightened sufficiently for the check strap to be held in place whilst still being able to rotate on the thread when the door is opened and closed.



**Fig 3.6**

**3.7** – With the B hoop installed the headlining will need to be trimmed to suit - we do not provide specific details as each vehicle will be slightly different. The photos give a general idea as to what the headlining should look like when completed. This will not be reinstated until the external sections of the cage have been assembled and all bolts have been fully tightened.



**Fig 3.7**

**Section 4** – The external sections of the cage should now be installed onto the previously created mounting positions.

**4.1** - Remove all 6 gripper plates from the front wings, C hoop and D hoop mountings.

**4.2** – Locate the C hoop into position and insert the bolts loosely.

**4.3** - Locate the left hand front leg onto the wing support and into the front of C hoop. Insert but do not fully tighten bolts.

**4.4** - Position upper and lower screen rails and the roof connecting rail to front left leg. Insert but do not fully tighten bolts. The roof connecting rail has captive threads that will pass through roof and mate to the internal B hoop. It is important that sufficient sealant (Würth PU 08901001) is applied around these holes before the bar is finally positioned. The nuts and washers can be installed internally but not fully tightened.



**Fig 4.4a**



**Fig 4.4b**

**4.5** - Locate right hand front leg onto 'B' hoop, front wing support, upper and lower screen rails and roof connecting rail. Insert but do not fully tighten bolts.

**4.6** - The D hoop can be positioned onto its mountings and the bolts inserted loosely.

**4.7** - The roof section of the roll cage has a small rack which should be mounted with the 2 small lamp brackets closest to the C hoop. There are 4 side rails that interconnect the C and D hoops. These side rails are the same so may be fitted in any of the locations. These should all be bolted loosely to hold them in place.

**4.8** - With all components installed, the next task is to tighten all bolts on the roll cage. Due to vehicle tolerances it is not uncommon for the cage to be sitting slightly to one side or another, so the order in which bolts are tightened is critical in the final cage alignment.

To correct any misalignment on the vehicle the external joints should all be tightened gradually whilst checking the cage is central on the vehicle when viewed from front/rear and from the side. In the side view it is important to ensure that the hoops are upright and that there is sufficient clearance between the cage and the vehicle body at all points.

**Section 5** – These are the final few processes to complete the installation.

**5.1** - The bolts through the seat belt mountings, B hoop roof and B hoop floor should all be tightened.

**5.2** - The headlining should be reinstalled.

**5.3** - The upper seat belt mounting should be located to the new locations on the two B hoop mountings.

**5.4** - The original inertia reel fixings will be obstructed by the base of the B hoop. As a result, the fixing should be bolted to the lower B hoop angle brackets using the replacement bolt provided.

**5.5** – On more recent vehicles the original plastic inertia reel cover may be obstructed by the B hoop base. A replacement surround for the inertia reel is available to prevent damage. The new surround should be assembled around the reel and bolted together. The complete assembly can then be bolted into position.



**Fig5.5a**



**Fig5.5b**

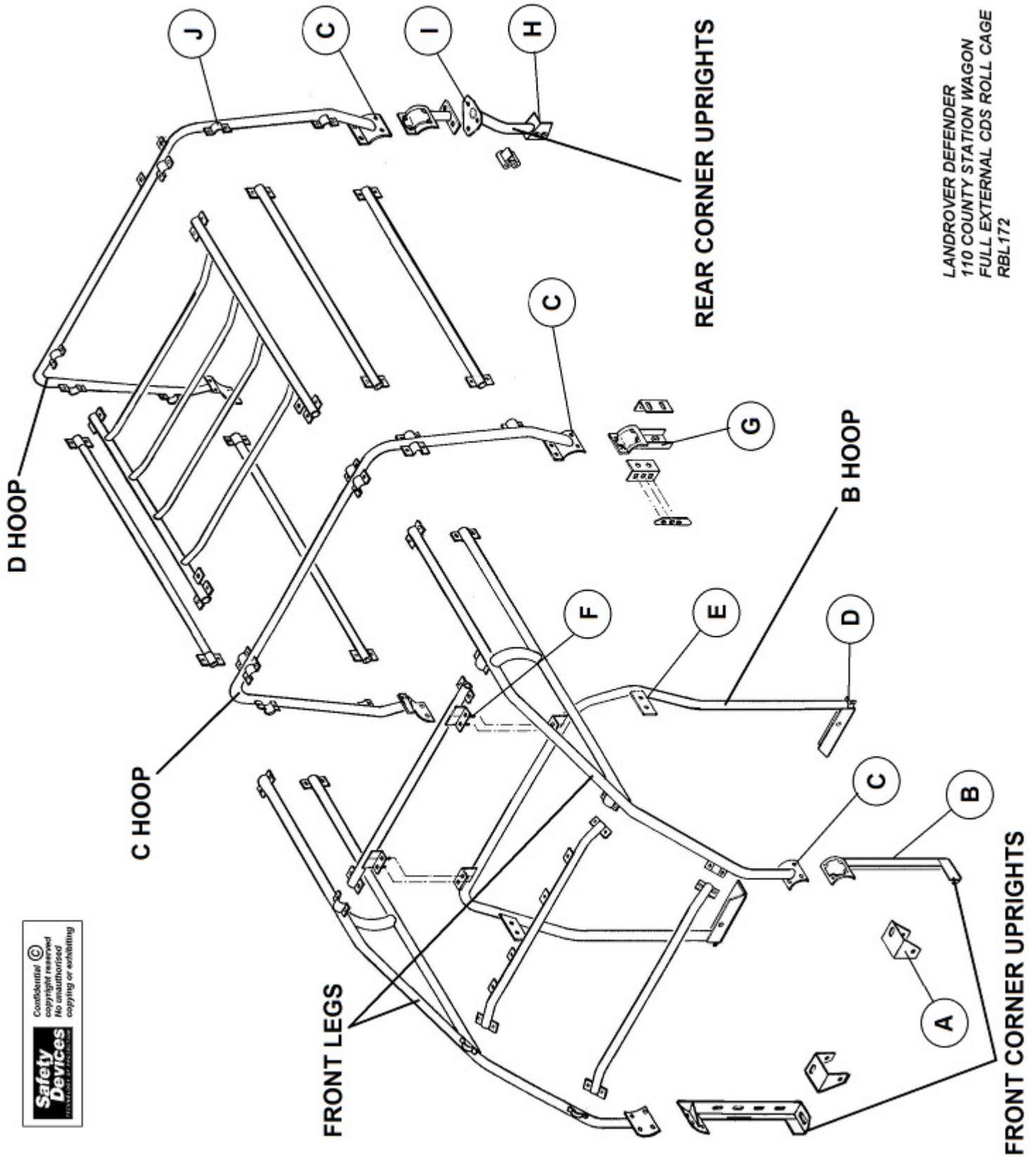


**Fig5.5c**



**Fig5.5d**

**Your Safety Devices roll cage is now fully installed!**



LANDROVER DEFENDER  
 110 COUNTY STATION WAGON  
 FULL EXTERNAL CDS ROLL CAGE  
 RBL172

FK1	FK2	FK3	FK4	FK5	FK6
FCU FK	BH FK	CH FK	DH FK	FL FK	RCU FK
<b>Assembly A</b>	<b>Assembly D</b>	<b>Assembly G</b>	<b>Assembly J</b>	<b>Assembly J</b>	<b>Assembly H</b>
M10 x 30 Bolt 2	M12 x 50 Bolt 4	CH Support 2	M10 x 30 Bolt 12	M10 x 30 Bolt 12	Spacer Tube Assy 2
M10 Flat Wash 4	M12 Flat Wash 8	Front Angle Brkt 2	M10 Nyloc Nut 12	M10 Nyloc Nut 12	M10 x 110 Bolt 4
M10 Nyloc Nut 2	M12 Nyloc Nut 4	Rear Angle Brkt 2	M10 Flat Wash 24	M10 Flat Wash 24	M10 Nyloc Nut 4
M10 Heavy Wash 8	10mm Spacer 4	M10 x 25 Bolt 6	M10 Nut Cap 24	M10 Nut Cap 24	M10 Flat Wash 8
Front Slave Plate 2	7/16th x 20 Bolt 2	M10 Flat Wash 6	<b>Assembly C</b>	<b>Assembly C</b>	Rear Slave Plate 2
<b>Assembly B</b>	M8 Nyloc Nut 2	M10 x 25 Bolt 6	EPDM Gasket Rr 2	EPDM Gasket Frt 2	<b>Assembly I</b>
M8 Lug Nut 8	M8 Flat Wash 4	Front Nut Plate 2	M10 x 30 Bolt SS 8	M10 x 30 Bolt SS 8	M10 x 25 Bolt 6
M8 x 30 Bolt 8	<b>Assembly E</b>	M10 x 25 Bolt 4	M10 Flat Wash SS 8	M10 Flat Wash SS 8	M10 Nyloc Nut 6
M8 Spring Wash 8	7/16th Flat Wash 2	M10 Flat Wash 8			M10 Flat Wash 12
M8 Penny Wash 8	7/16th x 20 Bolt 2	M10 Nyloc Nut 4			1mm Spacer 2
Pop Rivet 8	7mm Spacer 2	M10 Penny Wash 4			2mm Spacer 2
Chassis Bracket 1	<b>Assembly F</b>	M10 Nyloc Nut 4			3mm Spacer 2
Chassis Bracket 1	M10 Flat Wash 4	<b>Assembly J</b>			
	M10 Nyloc Nut 4	M10 x 30 Bolt 20			
	5mm Spacer 4	M10 Nyloc Nut 20			
		M10 Flat Wash 40			
		M10 Nut Cap 40			
		<b>Assembly C</b>			
		EPDM Gasket Rr 2			
		M10 x 30 Bolt SS 8			
		M10 Flat Wash SS 8			
		Rear Slave Plate 2			

Torque Values	Bolt Size	Nm	M = Manufacturers Original Torque Value	* = Refer to specific instructions
<b>Assembly A</b>	M10	45	M8	<b>Assembly C</b> M10 30
<b>Assembly D</b>	M12	70	7/16th	<b>Assembly F</b> M10 45
	7/16th	55	M10	<b>Assembly H</b> M10 45
	M8	*	M10	<b>Assembly J</b> M10 35