



Lotus Sport & Performance Centre – Fitting Instructions
Roll Cage Assy. (ALS3V0022J RHD or ALS3V0023J LHD) – Issue 1

These fitting instructions are aimed at Elise S2 and S3 owners as well as Exige 2 owners.

Note 1: This Roll Cage Assy is only suitable for fitment with ALS2V0002F Roll Hoop and Struts. Ideally this part should be fitted at the time of vehicle manufacture. ALS2V0002F can be identified by its central mounting boss located underneath the roll hoop cover.

Note 2: *Kit contents:*
ALS3V0014F - A Frame
Machined Aluminium inserts (x2)
ALS3V0015/16F – Front Roll Cage
ALS3V6020F – Roll Hoop Padding
M16 Cap Head Bolt
ALS3U0001F – FIA/MSA Approval label
MSA Approval Certificate Booklet

(Fitting Kit is not included in the Roll Bar Kit, see P5 for contents.)

Note 3: Should it be desired to retain the Sill Covers, ABS Bulkhead and Speakers it will be necessary to fettle this component to allow the 'A' Frame to pass through it. A length of edging strip has been supplied in the ALS3V0024J fitting kit. This should be applied to the fettled area.

Note 4: Refer to Torque reference chart when tightening all bolts (see Page 6 of these instructions).

Note 5: Cover Bodywork and Chassis with a protective sheet/tape to prevent damage before commencing any work.

Fitting Level (1=Easy, 5=Hard) - 4

Tools Required

Roll Cage Fitting Kit – BLS3V0024J

9.0mm Drill Bit

13.0mm Drill Bit

Safety Goggles

Rule

Centre Punch

Star Key Set

Socket Set

Ratchet

Half Round File

8.5mm Drill Bit

40mm Hole Saw

10.1mm Drill Bit

Drill

Various Spanner sizes

Scriber

Metric Allen Key Set

Torque Wrench

Screwdrivers

Junior Hacksaw

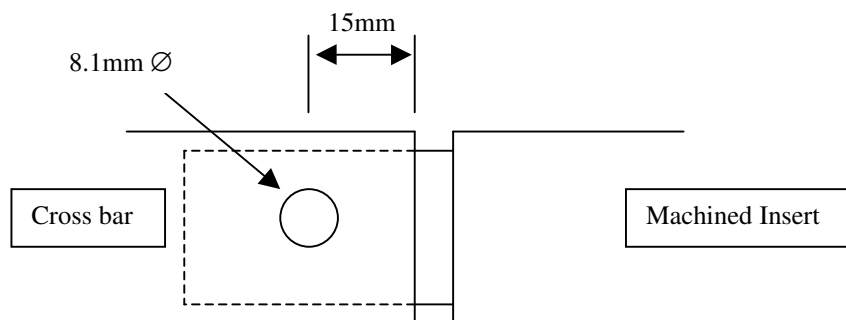
M10 x 1.25 Tap

Plexus Gun to take MA920

Workbench and Vice

Instructions – Fitting the A Frame

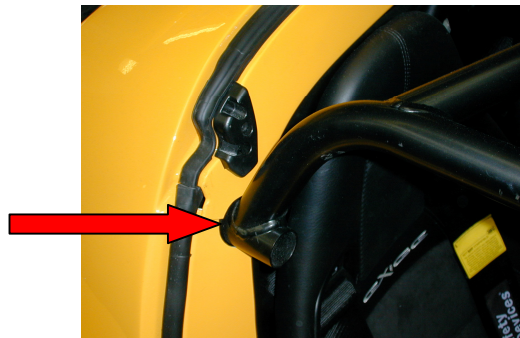
1. Lay the Roll Cage out on a covered bench and ensure the kit is complete.
2. Referring to the Service Handbook remove the following: -
 - a) Remove the Hardtop from the vehicle.
 - b) Remove both drivers and passengers' seats from the vehicle.
 - c) Remove the ABS Bulkhead and speakers.
 - d) Remove the Inertia reel seatbelts.
3. If retaining the bulkhead this should be fettled and refitted at this point.
4. Top of 'A' Frame - Place the 'A' frame between the main roll hoop and use the M16 Cap Head Bolt to loosely locate it into the central mounting boss on the main roll hoop.
5. Middle Section of 'A' Frame - Slide the machined Aluminium Inserts into the Crossbar of the 'A' frame and loosely bolt into the threaded section on the rear of the main hoop using the A075W5052Z bolts and A075W4024Z washers.
6. Lower Section of 'A' Frame – Using the A075W9000Z Bolts and A075W4005F Washers, loosely bolt the lower section of the 'A' Frame to the Inertia Reel Seat belt Mounting hole of the Main Hoop.
7. Tighten all bolts to the specified torques.
8. The machined Aluminium Inserts are required to be bolted to the 'A' Frame. Due to tolerances this can only be achieved on the vehicle. Therefore, measure 15 mm from the end of the cross bar (refer to sketch below) and Centre Punch and Drill an 8.1mm hole through the cross bar and machined insert and bolt together using the A111W1166F bolts, A075W4020Z washers and A111W3154F nuts. This is required on both mounting points of the cross bar.



9. Apply FIA/MSA Approval label to the lower right hand leg of the 'A' Frame, as illustrated in the FIA/MSA Approval Certificate Booklet.

Instructions – Fitting the Front Cage

1. Remove the lower Shroud from the Steering Column and the 2 sill protection panels from the chassis side.
2. From inside the Engine Bay, unbolt the 2 main Rear Support Stays from the main Roll Hoop.
3. From inside the vehicle, locate the inner face of the mounting lug on the Main Roll Over hoop for the rear Support Stays. Then using the 40mm Hole Saw cut a hole in the Sill panel to allow access to this lug. This should be undertaken on both sides of the vehicle.



4. Using the 10.1mm Drill Bit, drill the thread from each of the mounting holes for the Support Stays.
5. Carefully place the Front Cage into position ensuring that the spacers (ALS3V0025F) are positioned between the Main Hoop and the Cage locating points as indicated by the arrow in the above photograph, and that the Spreader Plates are positioned below the plates on the front legs of the Cage.



6. Once satisfied that they are in the correct position bolt the Rear section of the cage into place through the holes that mount the Stays and mark the area on the chassis where the spreader plate is to be bonded and the position of the four holes, in each foot, on the Spreader Plate. Once this is complete carefully remove the cage from the vehicle.

7. Ensuring that the surface is clean and free from any dust or foreign matters, mask the area where the Spreader Plate is to be bonded and smear a thin layer of Plexus PC120 Activator over this area and to the underside of the spreader plate. Give this 1 minute to dry and then apply the Plexus MA920 to the chassis and Spreader Plate ensuring an even coverage. Do not use too much but ensure that each surface is covered so as to achieve a totally bonded area. Tape this in place and leave to set overnight.
8. Once these are set in place centre punch the centre of each of the 8 holes for mounting the feet of the Front Cage to the Chassis and drill through both the plate and the chassis top plate using the 9.0mm drill bit. **BEFORE DOING THIS IT IS WORTHWHILE TO REFIT THE CAGE TO ENSURE YOU ARE ABOUT TO DRILL THE HOLES IN THE CORRECT PLACE**
9. The Front Cage is bolted through the chassis. These bolts locate into the Nut Plates (ALS3V0004F) supplied in the fitting kit. In order to get the Nut Plate into the Chassis it is necessary to drill and file 2 holes on the inner side of the Chassis (inside the vehicle), in line with each pair of Roll Cage Feet mounting bolts. Following the line down from each pair measure 7mm below the inner lip (see illustration) and drill 2x 13mm holes overlapping one another then file these out to ensure there is enough room for the Nut Plate to pass through. This needs to be completed once for each pair of bolt holes, 4 times in total. Remove any burrs and sharp edges.



10. Scribe a line through the centre of the nut plate, longitudinally, then screw a 5mm bolt into the threaded end of the nut plate. Slide the Nut Plate into the slot made in 10. and line up the scribed line with the centre of the drilled holes. Mark the position of the holes onto the Nut Plate and remove it from the vehicle.
11. Centre Punch the Centre of the markings on the Nut Plate and Drill through the Nut Plate in both positions using the 8.5mm Drill Bit. Then Tap a thread into both of these holes using the M10 x 1.25 Tap.
12. Refit the Front section of the Cage, remembering to attach the Rear Support Stays at the same time, then taking care not to get any in the tapped holes, apply a small amount of PC120 Activator and Plexus MA 920 to the mounting face of the Nut Plate, following the same procedure as described in section 7. Slide the Nut Plate into position and bolt the front section into place. Once this has been achieved allow adequate time for the adhesive to set. It should then be possible to remove the bolts, when necessary, and the Nut Plates to remain in place.

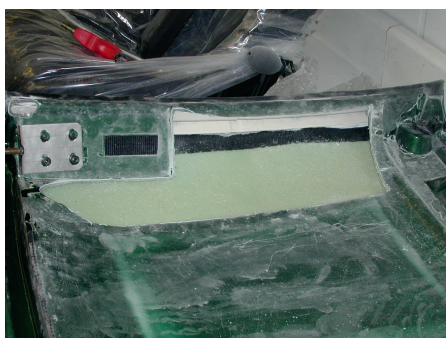
13. Refit all the Seats, Harnesses and panels removed (for hardtop see sections 15, 16 and 17). It will be necessary to fettle the Sill Covers and Lower Steering Column Shroud to make them fit. Please note that it is not necessary to refit the Sill Covers if not desired.



14. Fit Roll Hoop Padding as illustrated below taking care to cut it so that the padding joins together and looks neat and tidy.



15. Before refitting the Hardtop it will be necessary to remove a section of the inner hardtop panel to allow the roll cage to pass through it. This will be slightly different for each hardtop due to tolerances in Roll Cage manufacture however all fettling should be similar to that shown in the picture below.
16. Once fettled the hardtop will require retrimming if this service is available. If required but not available please contact Lotus Sport for assistance in this matter.
17. The roof is mounted in a slightly different manner to how it was originally mounted. The Brackets on the rear of the roof are deleted and 2 of new brackets (ALS3B0021K) are required. Although these have 4 bolt holes, only two of them are utilized, the rear ones. The front mounting remains as standard. When fitting the roof the front should be fitted first and then the rear slotted into place and the brackets then bolted into place.



Disclaimer

Lotus accepts no liability for any direct, indirect or consequential damage or loss (including as a result of negligence) arising from the application of these fitting instructions by any person. For the avoidance of doubt, this does not affect your statutory rights and Lotus does not exclude liability (if any) to you for death or personal injury arising out of Lotus' negligence.

Please note that the fitting of any Lotus approved part(s) by anyone other than a Lotus approved engineer may invalidate the vehicle warranty.

FITTING KIT REFERENCE PART NUMBERS (ALS3V0024J)

A FRAME

2X	A075W4024Z	WASHER, M10 X 20 X 2.0
2X	A075W5052Z	BOLT, M10 X 40, GRADE 8.8
2X	A075W9000Z	BOLT, 7/16 UNF X 1.25"
2X	A075W4005F	WASHER, 7/16 X 0.87" X 0.0525"
2M		RUBBER EDGING STRIP

FRONT CAGE

4X	ALS3V0004F	NUT PLATE
2X	ALS3V0003F	SPREADER PLATE
1X	A117B6091V	PLEXUS MA920
1X	A117B0209V	PLEXUS ACTIVATOR, PC120
8X	A075W1039Z	BOLT, M8 X 25, GRADE 8.8
8X	A075W4020Z	WASHER, M8
2X	ALS1W6004Z	BOLT, CAP HEAD, M10 X 80, GRADE 12.9
2X	A075W4024Z	WASHER, M10
2X	A089W3082F	K NUT, M10
2X	ALS3V0025F	SPACER, FIA ROLL CAGE MOUNTING
2X	ALS3B0021K	BRKT., ROOF MOUNTING

TIGHTENING TORQUE CHART

BOLT Ø	TORQUE (Nm)
M8	23
M10	83
M16	210
7/16 UNF	50