

## SECTION 11

### ATTACHMENT OF LIGHTING KIT

- 11.1 *Rear Lights*
- 11.2 *Reversing Lights*
- 11.3 *Rear Fog Lights*
- 11.4 *Rear Number Plate Light*
- 11.5 *Front Indicator Repeaters (Flared Wings Only)*
- 11.6 *Headlights*
- 11.7 *Front Indicators*
- 11.8 *Final Testing*

The lighting kit includes all the parts needed to make the Seven comply with lighting requirements under United Kingdom Construction and Use regulations. If the instructions in this section are followed, all legal requirements will be fulfilled.

If alternative parts are used they must be 'E' marked and fitted in accordance with diagram 11.1 or your vehicle will not comply with Construction and Use regulations. (See also wiring diagram at rear)

#### 11.1 Rear Lights

1.1 The kit includes two identical rear light assemblies which comprise rear, brake and indicator lights. They are mounted on rubber blocks which ensure that the lights are vertical when fitted. These units can be turned around on the blocks to enable the amber indicator lights to be on the outside.

1.2 The rear wings are marked with two dots which give the position for the rear lights. Drill the lower innermost hole to 4mm and the outer mark 8mm to take the wiring.

1.3 Remove the lenses from the rear lamps along with the bulbs noting that the indicators use a single filament and the rear/brake lights a double filament bulb. You will see that there are four square holes in the metal base plate which tie in with dimples in the rubber block. Drill these through the rubber with a 4mm drill ensuring this is at 90° to the base plate.

1.4 Each rear light unit is attached using four long self tapping screws, the upper ones being longer. Feed the wiring through the 8mm hole you have drilled and attach the rear light with one of the shorter screws at its bottom inside corner. Adjust for levelness and drill through into the wing using the 4mm drill for the remaining three holes. We suggest that you remove the unit and clear away the swarf before finally fixing in place. Replace the bulbs and lenses.

1.5 The wiring is connected to the main loom using 'bullet' connectors into insulated sleeves provided with the kit. Fit the sleeves onto the exposed bullets on the loom checking that they have been pushed fully home. A fine nosed pair of pliers may be useful here. Feed the wires from the light unit through the grommet under the wheel arch and connect to the loom as follows:-

Function	Loom Wires	Light Unit Wires
Rear light	red/white	red
Brake	green/mauve	green/mauve
Left Indicator	green/red	green
Right Indicator	green/white	green
Earth	black	black

1.6 For neatness, bind the wires from the light unit together with insulation tape and clip them out of harm's way with a tywrap to a block screwed onto one of the protruding ends of the light mounting self tappers.

## 11.2 Reversing Lights

2.1 The reversing lights are fixed to the rear wings below and slightly inboard of the rear light units. The builder has flexibility with their exact location, but we suggest that the bottoms of the reversing lights are 1" above the bottom of the wings, and the inner edge 2" outboard from the beading at the inner edge of the wing.

2.2 Dismantle the reversing light unit, removing the lens and bulb and reveal two holes in its metal base. Having established the correct positioning on the wing, mark and drill two 5mm holes for the fixing bolts and a further hole large enough to take the live wire connection.

2.3 The reversing lights are bolted to the rear wings using two 5mm x 16mm screws and nylocs noting that the green/brown earth lead fitted with an eyelet connector should be fed through the grommet from the car and secured to the reversing light by one of these.

2.4 The live green/brown wire from the light unit is connected to the green wire on the main wiring loom using the bullet connectors provided.

2.5 Replace the bulb and lens, taking care not to overtighten the lens retaining clips which may crack.

## 11.3 Rear Fog Lights

3.1 The twin rear fog lights are attached to the back panel of the car and again the exact positioning is down to the builder. We suggest they are fitted with their bottom

edges 1" up from the bottom of the back panel and with their inner edges 2<sup>1</sup>/<sub>2</sub>" outboard of the outer edge of the spare wheel carrier. It is wise to check their position relative to your spare wheel prior to fitment, especially if oversize wheels are being used.

3.2 Having established your chosen positioning, drill two 5mm clearance holes for the locating bolts and a central 9/16" hole for the main body of the light. Bolt in place using M5 x 16mm screws with the bolt passing through from the boot area into the body of the light. A large plain washer should be used between the head of the bolt and the aluminium body. It will be necessary to dismantle the light, removing the lens, bulb and reflector in order to fit the unit.

3.3 Due to the proximity of the fuel tank, take great care to avoid damaging the tank whilst drilling. To get access to the foglight retaining bolts, loosen off the fuel tank retaining bolts and slide the tank forwards. Ensure that the fuel tank is securely fitted after bolting up and connecting the fog lights.

3.4 The live red/yellow leads are connected using 'bullet' connectors to the red/orange wires from the main loom on each side. The plastic loom protection should be stripped back to allow the black earth wire to be shortened and doubled back onto one of the fixing screws.

#### **11.4 Rear Number Plate Light**

4.1 Dismantle the light unit and note that there are two round and two square holes provided in its metal base. The upper square holes are used to secure the unit to the spare wheel carrier and one of the round holes will align with a similar one on the carrier to take the feed wire. It will be necessary to pierce the rubber backing before fixing, using two 5mm x 16mm posidrive screws, nuts and spring washers.

4.2 Feed the red wire through from the loom into the back of the unit and stripping back just sufficient insulation, attach to the screw connection provided in the centre of the light unit. The number plate light is earthed through its base so no other connection is needed.

#### **11.5 Front Indicator Repeaters (Flared wings only)**

5.1 These are attached to the outer edges of the front wings and are so located that the forward 5mm mounting bolt passes through the wing and holds the wing onto the wingstay. These should be aligned to suit the wingstay and ensure symmetry between both sides.

5.2 Dismantle the repeater assemblies removing bulb and lens. Drill through the front wings at the appropriate points with a 5mm drill for the outer holes and a 9/16"

drill for the centre hole where the bulbholder locates. The forward hole should be drilled down through the wingstay so that the repeater, wing and wingstay are all in alignment.

5.3 Remove the studs from the unit and bolt the repeaters into place using 5mm x 16mm Posidrive screws and nylocs. Attach the black earth wire to one of the mounting screws, enlarging the tag hole to suit, in the process and replace the bulb and lens.

5.4 The repeaters are wired in with the main front indicators - see section 11.7.

### 11.6 Headlights

6.1 The headlamp bowls are mounted upon brackets which are part of the upper front wing stays. The front indicator mountings (flasher brackets) also attach at the same point and are secured in place by the nut holding the bowl assemblies. (Cycle wing cars have separate headlamp/indicator brackets)

6.2 Mount the headlamp bowl on top of the front wing support with its cast base above the bracket. Fit the indicator mounting bracket or cone over the protruding thread of the headlamp bowl and secure into place underneath the wing support with the large nut and lockwasher.

6.3 Tighten until the headlamp bowl can move but does not flop about. Note that the flasher brackets for live axle cars are handed and that the indicator itself mounts in front of the bracket. The cones used on De Dion cars are not handed.

6.4 The wiring for both headlight and indicator is part of the main wiring loom which should be fed through rubber grommets provided in the outer skin of the chassis.

6.5 The head and sidelight wiring which consists of 4 wires terminating in bullet connectors, should be fed upward through the centre of the mounting stem into the headlamp itself where it can be connected to the short sub-loom provided. Take care to match the main loom colours with those of the sub-loom. The metal clamp and screw are not necessary.

6.6 The light unit is held into place by the rim which uses a clamping screw to hold it and the light onto the front of the headlamp bowl. This rim will need to be rotated in order to position the light the correct way up. You should be aware that with these bowls the wiring is a very tight fit up through the mounting stems, a little grease will help.

6.7 Connect the main headlamp wiring plugs and clip the sidelights into the back of the headlights. Hook the bottom of the rim into the lip on the headlamp bowl and



swing the rim/light assembly up into position, securing with the top screws. Check that the headlights are the correct way up in their mountings. Final alignment should be carried out using a headlight beam aligning device which all garages should have, but a close approximation can be achieved by positioning the car in front of a suitable wall or garage door and, having loosened the bowl securing nuts, aligning the beams to face slightly downwards and to the left.

6.8 If you find the headlights are a loose fit within the bowls after the rim has been tightened, the headlamp shell may need to be adjusted as follows. With the headlight unit removed, bend out the three locating tabs in the headlamp bowls slightly. This will force the headlamps forward slightly so they are tightly clamped by the ring.

### 11.7 Front Indicators

7.1 The indicator units are fitted with rubber insulator/protectors which must first be removed. At the back of these protectors are the holes through which the wiring is fed and these will need to be opened up.

7.2 Fit the rubber protectors onto the mounting brackets or cones and feed the wiring through from behind. There will be four wires to be connected: green/red LH (or green/white RH) and black from the loom and green and black from the repeater. Connect the black earth wires and the remaining pair of wires together.

7.3 There are several ways of connecting the relevant wires together including soldering or crimping into suitable 'bullets' but probably the easiest method is to push the bullets into a sleeved connector.

7.4 With the wiring attached, the indicator unit is slid back into its protective sleeve and secured to the bracket with 3/16" nyloc nuts.

### 11.8 Final Testing

When all connections are made to the engine and the battery is installed, all the electrical functions can be checked. If there are any problems, recheck your connections and check that the bulbs have not been damaged in transit. In addition check *EVERY* earth point on the chassis, both for the wiring loom and the battery earth leads. In the unlikely event that problems persist, either contact Caterham Cars or an automotive electrician.

At the rear of section 17 there is a wiring diagram provided which may be of assistance.

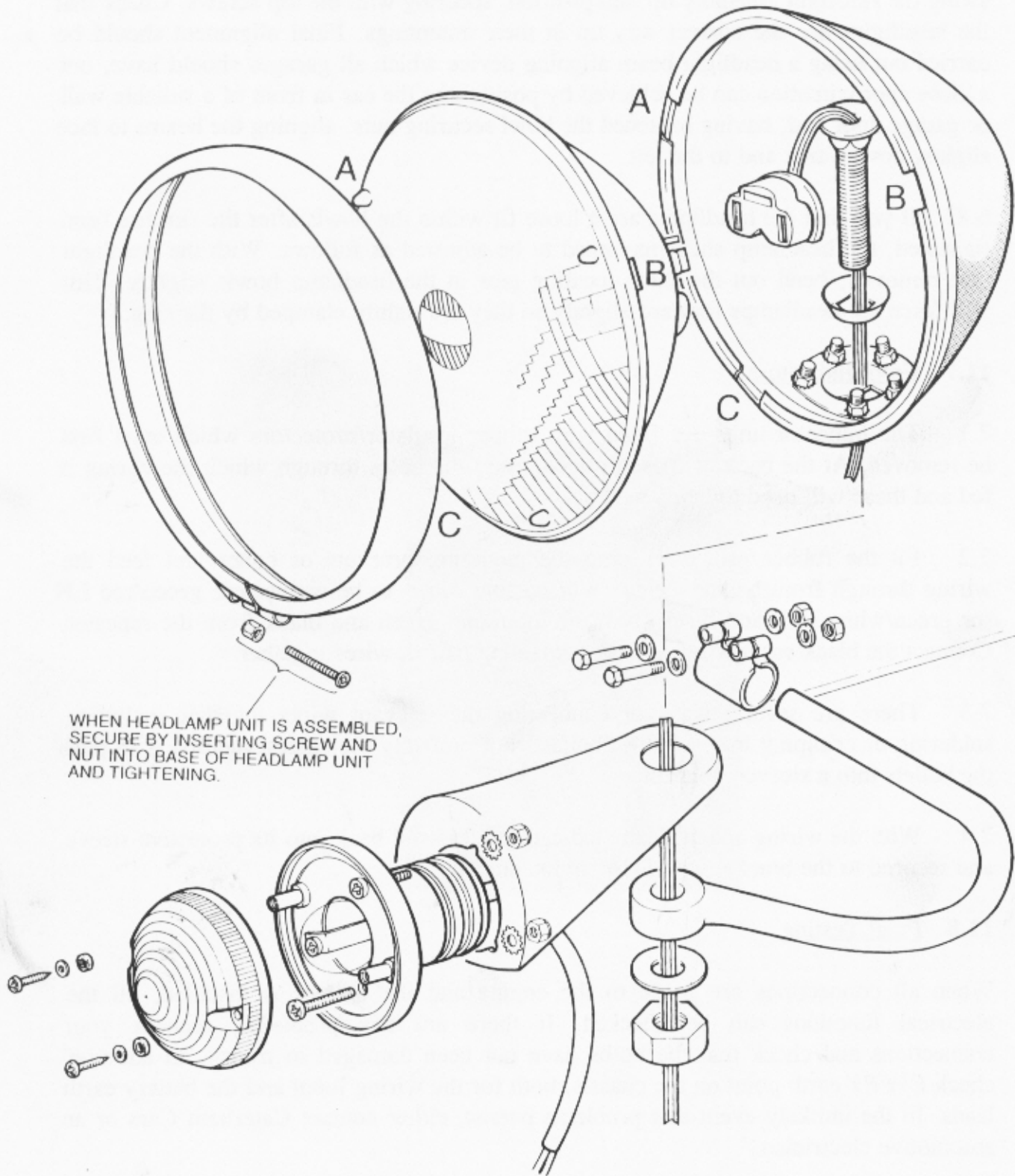
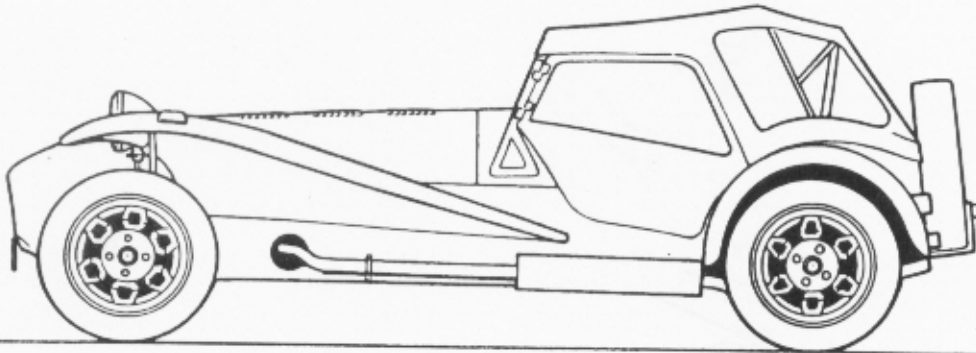
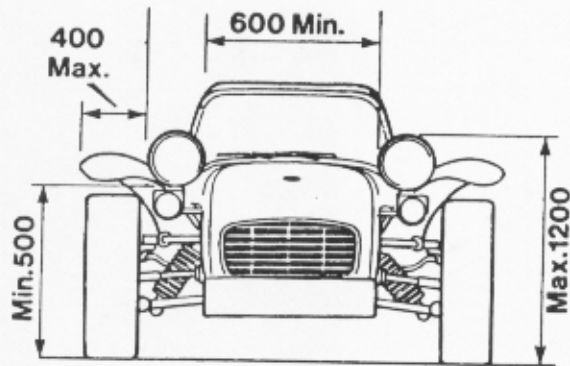


Figure 11.6 Cycle Wing Headlights (De Dion)

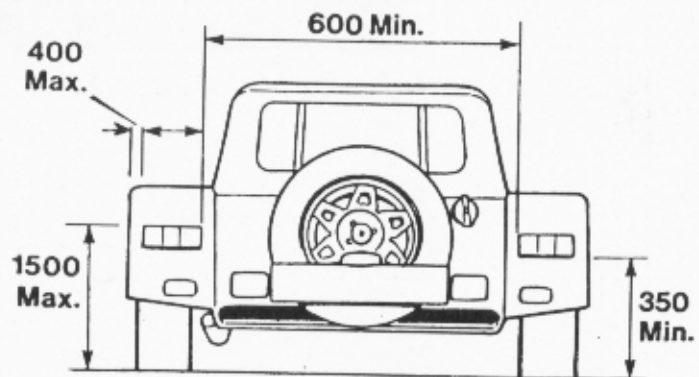
**Lighting - Legal Requirements**



Position of Headlamps



Position of Rear Lamps



Dimensions in millimetres unless otherwise stated

	<i>Min. height</i>	<i>Max. height</i>
Fog Lamps	250	1000
Direction Indicators	430	2290