

NOTES ON FITTING CARBON FIBRE COMPOSITES

- 1) *Cutting:* We use offset metal cutting scissors, hacksaw or other fine toothed saws.
- 2) *To smooth:* Use a file with water to limit dust or we use fabric belt sanding paper cut down and put in a rubbing block, again with water.
- 3) *Drilling:* Use a drill on slow speed. Very sharp new drill bits are more likely to cause slight chipping around a hole, best to use a bit that is still sharp but used before. Enlarge hole slightly before withdrawing drill. Cutoff any torn fibres to stop them spreading. Support the area to be drilled (ie: drill onto a block of wood) so as not to split the laminated. Always drill from the side that will be visible.
- 4) While *sawing or rubbing* take care, as dust is generated. Always wear suitable protection ie: gloves (to protect against splinters), mask for dust, glasses while machining or drilling. Wash hands thoroughly after work. Dust can cause irritation.
- 5) **Carbon care:** We recommend regular use of our Easi-shine (black) or suitable plastic vinyl polish. This will help to reduce UV attack and water staining. Do not wash carbon composite with alkaline car wash soap. This can cause surface attack and whitening or dulling of the surface. Care must be taken using any product on carbon composites, always test first on a small area. We have found some plastic polishes have solvents that will remove a layer of resin from the surface, especially after some UV attack, allowing rapid deterioration in the future. **DO NOT** use ordinary car polish. It can fill any air bubbles with polish that will turn white when dry. We do not recommend the use of Mer Bumper polish as this has funny effects over time with moisture. All epoxy based composites decompose under ultra violet light. Most of our composites have a resin rich surface to help slow down any deterioration. To help limit the attack by UV we suggest limiting exposure to intense sun and regularly coating with Easi-shine. Do not wash carbon composite with alkaline car wash soap. This can cause surface attack and whitening or dulling of the surface. Care must be taken using any product on carbon composites, always test first on a small area. We have found some plastic polishes and solvents will remove a layer of protective resin from the surface, especially after some UV attack, allowing rapid deterioration in the future. Always protect from UV exposure whenever possible.
- 6) *Just a word of warning.* Although our material seems incredibly indestructible it can under force break cleanly but if the part is put under constant pressure or is not properly supported, it will distort with time. With our sandwich construction it gives the product a lot more rigidity and this has the effect of reducing the breaking point under certain conditions but something must still give - hence the surface deforms rather than just cracking. If the part is correctly fitted then there will be no problem. Remember do not force a part to fit and always support it properly.
- 7) To mark out a panel use either a coloured insulation tape for small areas or masking tape for dash holes. Any residue of adhesive can be removed later with alcohol. Use a felt tip pen to draw onto the tape.
- 8) A good idea is to use a light colour insulation tape along the line to drill. Mark with a felt-tip the holes onto the tape. Peel back just before you rivet each hole.

If you are unhappy with our product on receipt then please contact us straight away and we will try and find an acceptable solution. If you require any further fitting help please don't hesitate to call. We do want ALL our customers to be happy. ANY PROBLEMS ASK US.

For more carbon products please keep a look at our web site: www.carbon-bits.com or www.ca07bon.com

Tel: 013873 75777 E-mail: easyclad@tiscali.co.uk

These instructions are based on starting with a bare chassis.

For many pictures on the fitting of our products, go to www.ca07bon.com

HERE IS AN INDEX OF SUBJECTS IN OUR INSTRUCTIONS.

Enter the word in the search for quick referral.

ADHESIVE / MASTIC
ADHESIVE - EASI-STICK
ADHESIVE - MASTIC
AEROSCREEN AND MIRRORS
BACK PANEL (INTERIOR)
BACK PANEL (EXTERIOR)
BATTERY CUT-OFF SWITCH
BONNET
BOOT FLOOR SUPPORT
CARBON CARE
CRASH PROTECTION

CYCLE WINGS - FRONT
CYCLE WINGS - REAR
DASH
EXHAUST SHIELD
FLOOR
FOOTWELLS
FRONT TUNNEL TOP PLATE
HALF ROUND (EXTERIOR)
INTERIOR BODY PANELS
INTERIOR HALF ROUND
INTERIOR OUTER SIDE PANELS
INTERIOR TUNNEL SIDES
LUGGAGE BAGS
MIRRORS FOR AEROSCREEN
MIRROR ADJUSTMENT
MIRRORS FOR DOORS
MIRRORS FOR WINDSCREEN
MIRROR AD
PEDAL BOX
PROPSHAFT
REAR LIGHT BLOCKS
REAR WINGS
SEAMING
SIDE PANEL FITTING KIT (EXTERNAL)
SIDE SKINS (EXTERNAL)
SIDE SKIN PREPARATION (EXTERNAL)
SILL PROTECTORS
STONE PROTECTORS
SCUTTLE
TUNNEL TOP - PRE 96 + LIVE AXLE
TUNNEL TOP WITH HANDBRAKE - 96 ON
TURRETS
UNDER BOOT FLOOR

INSTRUCTIONS BELOW ARE IN THE ORDER OF ASSEMBLY, STARTING WITH A BARE CHASSIS

PROPSHAFT FITTING

For fitting to a Caterham 7 or a similar vehicle using a Sierra differential then it may be necessary to reduce the length of the threaded bolt that protrudes towards the jointing plate of the propshaft. Normally angle grinding a small amount of will stop the thread fouling if there is any movement in the universal joint of the propshaft. By holding the propshaft against the diff it will be obvious if they are likely to touch. It is not always the case but it is easier to check at this stage.

We recommend that you use new bolts that are Loctited. The universal joints are pre-greased but should be re-greased at regular service intervals.

INTERIOR PANELS

It is recommended that you use either a large sheet of paper or plastic, laid over an original panel and mark all of the drilled holes. This can be transferred to the carbon. It is a good idea to only drill a couple of holes in advance and make sure that they align either with your old holes or correctly with the chassis tubes. By using some of the heavy duty pegs you can align panels and hold them securely in place. Alternatively use a couple of self-tapping screws.

BACK PANEL

This is made oversized and universal. You need to cut so that the panel fits correctly. Top and bottom edges may also need reducing in length. It has been found on some chassis's that the chassis tubes are not necessarily in line and that the rear panel may not lay flat. If this is the case we would recommend packing out so as not to stress/distort the carbon panel. On rivetting it is advisable to start from one corner and work across and then down. Do not start at the top and the bottom at the same time as you will end up with a big curve. Using a few self-tapping screws can help in roughly fitting.

FOOT WELLS

The carbon foot wells that we supply may not fit the many combinations of chassis but from what we understand they can be adjusted to fit reasonably well. Rivet the centre part to the top and the bottom of the chassis. It would be advisable to mastic all joints to stop any water entering. Add the internal sides (gear box) to the foot wells. Leave the outer panels until you have installed the internal tunnel side skins to allow for easy access. Add these two sides straight after the internal tunnel sides. You will find that the LH side will need to be pegged, under stress, in place so that it will touch the chassis. Fill all gaps with mastic.

INTERNAL TUNNEL SIDE SKINS

You will need to adjust and cut the panel together with drilling access holes for the speedo drive and reverse light switch. You may find that at the diff end that the reinforcing plates on the chassis are heavily curved and will stop the panel fitting correctly into the corner without distortion. If this is the case do not force the carbon but let it fit to as much of the chassis as possible even if the lower part near the seat belt mounting cuts the corner and is not touching the chassis. This will be hidden and any gap can be filled with mastic from under the car. Align the flanged edge flush against the back panel, start to rivet at the top of the flange and then along the top of the chassis rail. Only work on this corner to start with, so once you have rivetted some of the top it is advisable to do some of the diagonals and the bottom. You may need to do the lower rivets on the flange after getting some of the side rivets in place. Make sure that the panel has not moved before continuing to the front end of the panel. Once fully fitted you may need to carefully file any overlap of the chassis before mounting the floor or the tunnel top.

FLOORS

Place template over the floor, check alignment with chassis tubes and hold firmly in place. Pre drill some of your holes. It is worth placing a self-tapping screw or just a rivet (not popped) in several of the holes as you drill to make sure the panel does not move. Make sure that the overhang of the floor is not excessive.

It is worth putting some mastic on to the chassis prior to rivetting. Remember where the seat U section goes not to rivet the floor in place prior to fixing this section. This U section should be rivetted at either end to the chassis with stainless steel rivets. It may be an idea to also use stainless steel pop rivets for the whole of the floor anyway. Mastic any gaps that there might be if you have installed the internal side panels.

If you are mounting our carbon side skins then the L shape section needs to be cut and placed on the sides of the floor prior to rivetting the floor in place. In other words the floor rivets will hold the L section in place.

UNDER BOOT FLOOR PANEL

This panel needs to have a final trim so that the edge nearest the diff will sit on the lower chassis rail and the edge nearest the rear of the car attaches to the underside of the rear chassis rail. Attach using mastic and pegs. Mastic around all edges to seal the panel in place. For the region where the fuel tank mounting threaded bolt attaches, it is necessary to cut an inch square hole to allow access to these fixings (worth cutting these prior to gluing in place). Use some scrap carbon and more mastic if you wish to totally seal the boot floor around the fuel tank mountings. If you wish to have holes for a spare wheel carrier then it is possible to cut the boot floor to facilitate placing a nut on the back of the fitting. Again one can build a covering to seal these in. If this is the case then it may be necessary to move the fuel tank as far to the front as possible by adding a packing piece to retain it in this position so that there is enough space.

FRONT TUNNEL TOP PLATE

The wiring loom passes through this plate. You will need to push the big grey plug through the hole first, this is on one of the shorter lengths of wiring loom. Then the middle length with its plugs need to be pushed through and finally the longest length.

DASH FITMENT

The dash may be oversized so take care on cutting. We would suggest covering the front surface with masking tape so that you can sketch your desired layout on to the dash in advance. The first hole to be cut is for the steering. It is worth cutting this undersized so that you can enlarge in any direction to make sure that the dash is fitting in the correct place. If you are mounting 80mm diameter dials in the normal place you must be careful that they do not touch the chassis rails. There is not a lot of space. It is

advisable to drill a pilot hole and double check that once the dial is mounted at an angle there is plenty of space in all directions. Metal working hole cutters are ideal for cutting these holes. If you are mounting rocker switches that require a rectangular hole, it has been found that a Dremel type cutting tool is the easiest answer. Fixing can be by either rivets, glue or screws. Many customers mastic the dash in place. Remember that any mastic type adhesives only cure 3mm in depth per 24 hours. To clean off any residue of tape, use alcohol (something like methylated spirits but always try on a small off cut first).

Where the dial clamps touch the dash it is recommended to glue a piece of scrap carbon to help spread the load as the sharp square edges of the bracket could damage the outer surface with time. Do not over tighten any instrument or switch. (If you need any toggle switches we can supply them.)

SCUTTLE

Mark and drill the side sections for bolting on. Make sure that the side bolting areas fit past the wiper motor, otherwise trim the carbon around the chassis mounting plate. If you have a heater the front vertical scuttle edge may need to be cut down slightly. The scuttle is designed for the vertical panel at the front to be bolted /rivetted/screwed/riv-nut in place with the vertical panel being at the front and sitting in to the very small rebate. For drilling any of the holes for the windscreen wipers, etc. take measurements off your original scuttle and mark onto some tape on the carbon scuttle. It is recommended you drill a smaller hole than required to start with and enlarge in whichever direction is necessary once you are 100% sure the hole is in the correct place.

TURRETS

Align with back panel and the edge of the metal triangle (for seat belts). You may need to cut some of the edge to fit against the back panel and in the corner of the metal triangle. With some insulation tape mark the back panel from inside the cockpit where to drill. Rivet to back panel first. Then rivet to chassis in boot. You may find there is a difference on the fit to the vertical chassis tube as this is not always in exactly position.

BOOT FLOOR SUPPORT TO BACK PANEL

Pre drill where necessary. Align to the underside of the turrets bottom edge. Mark holes from inside the cockpit for rivetting. Rivet in place. Then rivet the turret to the support.

INTERIOR OUTER SIDE PANELS

These must be fitted BEFORE the outer side skins, so as to reduce the risk of drilling through the outer skin!!!! Fitted as per the above panels: trim to fit, align holes / drill holes, hold in place with self tapping screws, rivet from bottom working along steadily.

EXTERNAL BACK PANEL

Prepare the fitting kit U sections. The rear view section should be cut to 78cm with the sharper edge pointing towards the back panel and the more curved edge in towards the boot. On the sides we recommend you cut 2 pieces 10cm long so that they butt up with the turret edge. For the bottom if you are using one of our lower boot floor panels. We would recommend a length of angle cut to 79cm. This would be rivetting in advance after assembly of the lower boot floor. Cut holes in the back panel for the 2 suspension fixing points taking care to make sure these are in the right place.

Trim the bottom side edges where they are turned over and also mark the vertical edges that run behind the wheels. These are left oversized as this chassis member varies on each car. You will wish to rivet it in place so trim accordingly. The top side corners need to be cut so that if they are joining onto the carbon half rounds that one can fix a small off-cut of carbon behind to make an invisible joint. We recommend on later chassis

(97 onwards) to cut in line with the little hole by the side of the roll bar alignment hole.

By masking up with tape to give a visible cutting line, work out where you wish your finishing edges to be. Trim accordingly the top and bottom edges to look neat once glued in place with the fitting kits.

SIDE PANEL FITTING KITS

The half round part needs to be trimmed to fit neatly in place around the roll bar/roof triangle finishing somewhere around the triangle.

The sill protector should be trimmed to fit between the 2 welds snugly.

A piece of angle should be cut to fit from the scuttle vertical back to the dash and holes drilled for the scuttle mounting.

The square U section needs to be cut around the chassis tubes, light bracket, nose cone bracket. Don't forget to cut some slots for the suspension on the sides. For the right hand side with the pedal box I found it necessary to cut the U section at this point and then trim a second piece down the length of the pedal box and a third piece from pedal box to scuttle. For the left hand side I managed to use one length to the vertical scuttle panel. Using some mastic adhesive I glued this U section and the L sections from the front of the car back to the L underneath the scuttle in place to stop them moving and also stop puddles of water. This is optional.

FRONT CORNER PANELS BY NOSE CONE

Drill and fit these panels.

SIDE SKINS

Cut holes for suspension and steering. Peg the bottom to the chassis rail. Make sure the area that turns under fits the floor and that the front aligns correctly. If the bottom is pegged firmly in place and the front is level with the plates, without stressing the panel clip with more pegs the front top to the chassis rail, by the pedal box to the chassis rail, again by the scuttle bolts and eventually at the far end of the panel. Do make sure that you are not twisting or forcing the panel to shape. Mark up with tape the preferred finishing lines for trimming too. Trim to size. Don't forget to cut the holes at the rear of the panel for suspension and exhaust mounting. Drill from inside the car just underneath the horizontal scuttle 2 holes for the bonnet catches through the metal plate attached to the chassis. You will need to add in a packing piece, glued to the metal plate to make up for the depth of carbon U. If you do not add a packing piece in here, then when the bonnet catch is riveted in place it will distort the side skin. The front bottom corners do need to fit behind the lower suspension mounting (below the front plates).

SIDE SKIN CRASH PROTECTION

Lefthand side trim to fit from inside the car, chamfer the top edge of the piece that goes down the foot well and also the vertical edge at the bottom of the foot well so that it does not damage the carbon panels.

Right-hand side trim to fit from inside the car, but on RH drive car it is recommended you cut the panel towards the foot wells in half so that the internal panel will fit flatter giving more space in the foot well. Glue all the crash protection into place to stop it rattling or moving with mastic adhesive.

INTERNAL OUTER SIDE PANELS

Trim to fit correctly and mark holes for drilling. Drill hole for suspension and seat belt mountings. Add rubber trim to the top edge and start drilling on the vertical underneath the dash. Hold in place with 1 rivet on this vertical but not the top. This top hole and the ones going underneath the dash at the top will be for self-tapping screws. Drill and rivet along the top edge where the sill protector is (rivetting sill protector in place at the same time) then work along the floor in both directions. Do not drill yet where the half round panel joins.

INTERNAL HALF ROUND PANEL

Trim to fit and drill holes where required for suspension. Prepare rubber trim by cutting V's out of it. Align and hold in place with pegs. Drill and rivet down back panel first and then from the bottom working around and up. This will be rivetted through the round U section at the same time.

FITTING SIDE SKIN FITTING KIT

Now these are trimmed to the correct sizes either glue along the top edges or rivet on the inside of the front engine bay U sections, leave to dry. Do the same with the ones for the rear panel making sure they are attached at the correct angle.

FITTING OF SIDE SKIN

Abrade all edges that are to be glued. Make sure they are clean and dust free. With some SuperGlue, attach the rubber U section along the side where the sill protector is. Follow this onto the end of the panel. This skin and the trim need to be on the outside of the half round external panel. This will give a neat joint when the rear wing is fitted. The best way to glue the rubber trim on is to put the nozzle of the SuperGlue between the carbon and the rubber on the back side of the side skin and run along squeezing the tube. Be careful not to get any of the SuperGlue onto the good side of the carbon panel.

It is recommended to mask along all the joints where you are going to place adhesive. Make sure you are set up and ready with a drill, mastic adhesive and rivet gum plus some tissue. In addition you will need some pegs and some wood or aluminium strips. Peg the panel into place making sure when the bottom is clipped to the chassis that you are happy with the edges all the way around. Loosen the pegs at the front so that you can place some mastic adhesive on the front edge joining the front plates, from base to approximately halfway up. You will need to bend the panel later so there is no point in glueing all the way up on this front edge. Press front bottom corner into the correct position and peg. I suggest a peg also half way up the front plate so that later you do not break the seal. Now pop rivet along the lower chassis rail. Next is to use our special adhesive (in a tin) to glue along the top edge of the engine bay. This adhesive will withstand a higher temperature than the mastic and hence is recommended for this engine bay area. Mix 30gms of paste and add 30mm of hardener. This 30mm bead should be roughly 3mm diameter. Exact mixing is vital to the mechanical properties and the gel time. At 20 degrees C you will have a maximum of 20 minutes. Using a blunt butter knife mix the adhesive on a rigid piece of cardboard. Place the adhesive along the top edge of the side skin going back only as far as the start of the horizontal scuttle. This should be wiped along with the knife to wet the surface out and then built up to be 2 to 3mm in thickness. Flex gently the front edge where it joins the plate and add some mastic adhesive. Press gently all the way along. Clean up excess adhesive. If there is any adhesive on the good side of the panels, this can be removed carefully with alcohol. With pegs and a piece of wood or aluminium hold tightly in place. The pressure needs to be even and not too extreme otherwise you will not get a flat finish. Do not clamp further than where you have glued. It is possible to continue doing the rest of the panel by flexing the panel gently and applying mastic adhesive to the next sections. We would recommend glueing to the bend in the panel as the next stage, press, cleanup and clamp the top edge and as soon as possible continue to glue the area below the sill protector. On glueing you are glueing top and bottom at the same time, do not only glue one of these areas by itself. The rear vertical edge should not be stuck as we have a half round panel to be inserted behind it later. Do make sure that good pressure has been applied along the bottom of the panel by the floor to establish a good bond.

FITTING OF BACK SKIN

Abrade all edges to be glued and make sure they are clean. Mask up all edges. Apply mastic adhesive quickly to all the edges that are to be glued. Time is important as you do not want the mastic to start skinning over and curing. Do not place adhesive on the area opposite to the turret. This needs to be glued later and made to align the half round panel. Carefully place rear panel on. Press the panel into the adhesive and peg in place using a wooden or an aluminium strip. Clean up.

EXTERIOR HALF ROUND PANEL

Trim to size. Where it joins to the rear panel this should be a butt joint. This panel will need a bit of trimming on the bottom corner to fit behind the side skin. Be careful not to stress the side skin and break any of the glue. Glue rubber U trim onto the rounded edge. Mask up and abrade any edges to be glued. Glue and peg in place. Once cured, rivet the joint between the side skin and this panel but make sure that the rivets will be hidden by the rear wing. Where the back panel joins, abrade on the back surface and glue an off-cut of carbon approximately 50mm wide using 10gms of our adhesive. You will need to wedge out the edge of the back skin opposite the turret to give a level seam.

SEAMING

If required file down any edges to the desired position or radius. To finish all the edges mask up and place some more mastic adhesive along the edges, smooth out (saliva really does work the best!). Remove tape.

DASH FITMENT

They may be over sized (outer edges) so take care to measure all dimensions before cutting holes (like steering position hole). As the size does vary from car to car we have intentionally made them over sized. Note space, between the 2 chassis tubes before you cut any holes so that the instruments don't hit one of them! Caterham glue the dash in place but you can rivet or screw. If using our drawings we recommend getting the dash to fit first before cutting any holes. Then cut a hole undersized so that you can enlarge in either direction once you have checked that you clear the cross member tubes. Always double check, our diagrams are meant as a guide only. Where the dial clamps touch the dash it is recommended to glue a piece of scrap carbon to help spread the load as the sharp square edges of the bracket could damage the outer surface with time. Do not over tighten any instrument or switch. (If you need any toggle switches we can supply them).

STONE PROTECTORS

Usually are pre drilled. Use 4mm rivets at least 15mm long. If holes are over sized on the wings use washers on the rear side of the wing. Otherwise we suggest you use the rubber trim as per normal, around the edges. (We can supply rubber trim and rivets.)

PEDAL BOX COVER

If not pre-drilled, use a piece of paper or plastic over your existing pedal box cover and mark the holes and the pedal box shape. Transfer this to the carbon version and mark the holes onto the cover. Drill as above.

BODY PANELS

Use self tapping screws in a few of the rivet holes to aid positioning prior to rivetting. If the back of the rivet is being closed up onto just carbon it is advisable to place a small washer in between.

SILL PROTECTORS

Press in place and drill a hole, place rivet or screw in hole, check alignment before drilling additional holes.

TUNNEL TOP

Take care to make sure the parts are fully supported and are not stressed. Fix where necessary using rivets/screws or glue. For further info please ring as there are too many combinations of tunnel tops.

These instructions are based on the fitting of Racetech side and centre mirrors supplied with our own special bracket but will give a good guide for all other makes.

NB: As you are al the first to receive these mirrors (before I have had a set to try) please use additional precaution as these instructions are given in good faith based on me fitting only a set of prototypes!!!!

AEROSCREEN FITTING

- a) Cut fillets out of the rubber trim supplied, keeping as one length (you will have to reduce the width on one side) . Glue to hold trim to the aeroscreen with a rubber type contact adhesive. If possible abrade the side of the rubber to be glued.
- b) Remove windscreen and the two tonneau poppers (these you will be refitting through the aeroscreen tongue later).
- c) Place aeroscreen over scuttle and position. Press hard down (pressing on the lower section not the top edges) and mark the hole to be drilled through the back side of the forward windscreen mounting hole. Remove aeroscreen. Drill with small drill from back, then enlarge from the front. The hole should be approximately in the centre of the carbon support. Re fit and press down to fit the bolts. Mark by measuring, the 2 popper holes and drill. It should fit quite well but it seems all scuttles are slightly different in shape. It should clear wipers and cut off switch. Do not tighten any bolts or screws.
- d) Fit centre mirror. This is done by placing the round mirror base in the centre of the tongue of the aeroscreen (tongue is the part that will be touching the scuttle and facing towards the cockpit of the car). Align this round base so that the mirror is equal distant and clears the cut out on the front of the aeroscreen (making sure it clears on moving the mirror too). Best to have the stem close to the cut out for the mirror but not touching. Mark and drill from the top surface. Double checking after marking the holes that the mount will not be touching the poppers. Pop rivet the base into place from underneath. This is so the head of the rivets will be closes to the scuttle and once covered with the rubber trim will be almost flat, so as not to damage your scuttle.
- e) Use the off cuts of rubber trim minus the bead (cut it off) and glue to the underneath area of the tongue thus covering the rivets and helping to stabilised the tongue once screwed down.
- f) Re fit, bolt up and screw the popper through the screen.
- g) We suggest the fitment of the side mirrors are done with some assistance. You will find that there is only really one position that is flat enough for the mounting of the side mirrors. Have a look. The mount fits at a diagonal. This is approximately 165mm up from the centre of the bolt hole used to fix it to the scuttle and the other hole is 185mm from the same bolt hole but is close to the cut edge of the aeroscreen. Get someone to hold one in place while you look from your driving seat. Make sure that the mount still offers you enough adjustment. When happy, drill and fix through the aeroscreen. Use the extra off cuts of carbon supplied to reinforce behind wing mirror bolts (see our web site for pictures) cut to the desired shape. This is required to give additional

- rigidity and strength to the fixing points. Repeat with the opposite side.
- h) Adjust mirrors and lock in place by using a spanner to tighten the mirror adjustment up.

EXHAUST SHIELD FITTING

You need to pop rivet the band on to the carbon. Rivet head can be on the outside as the insulation will stop the long part of the rivet touching the exhaust. Choose a position for the bands. The nearer the ends of the exhaust the more rigid the exhaust is. It may need a third one in the middle, have a look and see. If so please contact us.

The carbon cover should not be stressed on the top of the exhaust or by the insulation. It should fit tightly but not bow out the carbon.

2 sets of rivets on each.

Position the shield to give maximum protection.

- Ⓞ Take great care after fitting. We need you to keep a good eye on the heat build up. We do not give any guarantees or warranties on this product. On our testing it seems ok but we are unsure in extreme temperatures.

REAR LIGHT BLOCK FITTING

These should be bolted into place, with the bolts passing through the metal backing plate of the light assembly. **DO NOT OVER TIGHTEN** these fixings. Tightening will distort the block and lead to damage. The easiest way to drill the holes is to place the original rubber block with the two fronts facing each other and drill through the rubber block and into the carbon. We would recommend drilling the holes in the carbon light block slightly bigger than the bolt to aid alignment. The lense cover should fit inside the edge of the light block so careful alignment of the metal backing plate of the light is essential. You may find that the rubber U section nearest the light lense needs to be glued on to stop it coming off in the future. The easiest way is a few drops of super glue. The rubber edge will not form a weather tight seal but will reduce any water entering. On the standard Caterham fitment it is not sealed either. You may wish to add a few drainage holes to the bottom just to be safe. Care must be taken not to weaken the structure.

BATTERY CUT-OFF SWITCH CROWN FITTING

Care must be taken to ensure that the carbon crown fits your bodywork. If you have an aeroscreen fitting just to the front bolting point then you may need to add a spacer to the rear fixing. We would suggest a rubber grommet. **DO NOT** over tighten the bolts. The standard bolts are too short to be used and hence we sell a fitting kit which consists of 2 longer bolts and washers painted black. If you are not using our kit then we would recommend a washer be placed between the bolthead and the crown. Although there is considerable strength in this crown we do not guarantee that it will protect the cut-off switch in the case of an accident.

CYCLE WING FITTING

These instructions are given in good faith only, as a guide on the methods available for the mounting of cycle wings onto the metal wing stays. Secure mounting is vital as a wing will be a dangerous object if it becomes detached. Preparation is the most important part of mounting. Look at your surface preparation and be sure that whatever you are assembling with does not have a recognisable failing point (e.g. Powder coating). Goodville Engineering do not take any responsibility for failure or damage caused.

Firstly you will need to determine the correct position of the wing on the wing stays. Normally the front edge to the wing stay centre is 65mm. Use a small piece of insulation or masking tape to mark the rough positions of the wing stays on the wings. To make fitting easier, now remove the wheel. Replace the wing and align to your desired position (see your markings on the tape). With a felt tip pen you can now mark the inside of the wing along either side of the wing stay and remove the tape. Do remember to double check that the wing is sitting on the wing stay correctly and is symmetrical from all directions.

Method 1:

SECURE WITH BOLTS. A very simple and effective method. We advise that a small piece of rubber or a rubber washer be placed under the head of the bolt before it passes through the wing and is secured with a nyloc nut. The bigger the head of the bolt, the less likely there will be for the wing to be damaged around this mounting point over time. It is advisable to stick some self adhesive foam strip to the edges of the wing stays in contact with the wings. This will reduce vibration and movement.

Method 2:

GLUING DIRECTLY TO THE WING STAY. This method can have several problems. Firstly, you will not be able to detach the wing easily in case of damage (a cheese wire will cut through the adhesive if needed). The other problem is that the joint will be only as good as the painted or powder coating on the wing stay. Over time this surface finish is likely to fail with all the vibration, corrosion, etc. To fit, simply abrade with 80 grit paper along the lines you have marked on the wing, and also around half the wing stays diameter (based on either side of the point of contact). Then make 100% sure it is clean, dry and dust free. To make a neat job it is worth putting some masking tape on the areas that you want protected (along the lines of where you have abraded). It should be noted that you want at least 15mm width abraded across the wing. Apply mastic adhesive Terostat 939 in black (supplied by us, see note below on opening) to the surfaces. Use a blunt butter knife to smooth out. Press wing lightly into place. You need to apply enough pressure to squeeze a small amount of adhesive out but not so hard that there is no adhesive left in contact where the stay touches the wing. Smooth out the mastic so that it creates a U shape from wing. In other words the sides of the wing stay become flat with excess adhesive. You can smooth this very sticky adhesive out with a strong soap solution or saliva. Be very careful where this sticky adhesive gets deposited as it is very difficult to remove off any surface. If in contact with a carbon surface then we suggest wipe off as much as possible with dry tissue and then use soap and water. On other surfaces acetone will help to clean.

Method 3:

BIGHEAD TYRAP SYSTEM. Abrade the back surface of the plate that will be in contact with the wing. Using small cable ties secure 2 of the Bighead fasteners to each wing stay in a suitable location. Place wing on top and align. Mark onto the wing where the Bighead is in contact with the wing. Thoroughly abrade with 80 grit paper a surface slightly larger than the Bighead plate on the wing. Make sure the Bighead and the abraded surface on the wing is clean, dry and dust free. Apply adhesive to the Bighead and the wing, making sure you are wetting the surfaces as you go (not just squeezing a bead that is not sticking to the surface). Place wing onto the Bigheads, align and lightly press. Make sure the wing is held in place using either masking tape or insulation tape to stop it moving. Remove excess adhesive and spread an even amount over the top of the Bighead where it has come through the perforations. Leave for a minimum of 24 hours but preferably longer. When hard cut off the small cable ties. It is advisable to stick some self adhesive foam strip to the edges of the wing stays in contact with the Bigheads. This will reduce vibration and movement. Remount the wings using the slightly bigger cable ties. These should loop in and out between either side of the Bighead loops and not wrap underneath the wing stay.

Method 4:

As above but with an **ADDITIONAL PLATE** stuck over the top of the Bighead to sandwich the Bighead perforated plate in place. These can be glued in place once the Bighead is fully glued and hard, prior to re cable tying on. To do this you will need to have made sure that the excess adhesive spread across the perforated plate is not too thick or lumpy, in other words just a minimum thickness left prior to cure. In addition when first abrading the wing, the patch that you are rubbing will need to be slightly bigger, in other words the size of the sandwich plate. When gluing use excess adhesive and press firmly into place. Be careful that this plate is not sticking up too much, stopping you installing the cable ties.

CHOICE OF ADHESIVE for method 3 and 4

We offer a choice of adhesives. The Terostat is basically a liquid rubber, extremely tough and flexible. We use this for industrial uses and to glue panels onto the 7, assembly of rear light blocks, etc. Sticks well to almost everything. There are other adhesive mastics available from other manufacturers.

TEROSTAT 939: To open the cartridge, tap the metal sealing plate inwards (at the wider end of the tube). Remove the granules that are there to absorb moisture and with a screw driver just press back and smooth out the lip from removing the plate. To open the nozzle end, simply tap the pointed end of a plastic nozzle into the small hole, to break the aluminium sealing. Withdraw and wipe nozzle before screwing onto the cartridge and cutting a slant of the desired size to the nozzle. These cartridges should fit in a normal cartridge gun. This adhesive mastic cures with humidity and temperature although neither should be forced. As a guide at normal humidity at 20 degrees C it will cure at a rate of approximately 3mm depth in 24 hours. For areas that are thicker it will take considerably longer. We would suggest a minimum of 3 days but ideally 7 days for the adhesive to cure.

EASI-STICK: For rapid assembly. This is basically using an alternative adhesive to the Terostat 939. Both methods 3 and 4 are the same but this glue is a fast setting, 2 part adhesive called Easi-stick that we use for assembly of aeroscreens. This is manufactured by our company. This adhesive allows a certain

degree of flexibility but gives the impression it is rigid. The disadvantage is that we are unsure as to the durability when gluing a thin and flexible wing in place that will have a considerable amount of pressure and vibration placed on it over the years. From all of our tests it is good and the cable ties seem to break first. Again preparation is of paramount importance. Follow the instructions supplied with the adhesive. We would advise that you only glue one set of Bigheads at a time. This glue will gel in 20 minutes at 20 degrees, hard within 2 hours although full cure will need 24 hours.

BONNET FITTING

Carefully measure and drill the bonnet for the catches. You will want the bonnet to fit tightly but do not stress the bonnet or the catches by making it too tight a fit. It is advisable to add a foam rubber strip on the scuttle and nose cone ends to reduce vibration and also to take up any slack in the clips (giving a slight tension on to the clips as the foam squeezes in). Supplied are two products to reduce any heat affecting the bonnet over a period of time. The insulation material can be cut to size and glued either with contact adhesive or silicon above any manifold or hot spots. The mesh can be cut to any size or shape and also glued to the rear of any holes that you may wish to cut to reduce heat build-up.

Warnings:

The bonnet resin system is capable of withstanding up to 130 degrees C so under normal circumstances there will not be a problem but if a manifold is very close or passes through the bonnet this maximum temperature can easily be passed. Please keep an eye when first using for any temperature build-up or hot spots. These will occur after a drive and while the car is parked. We have done extensive tests in the UK but if you are using your car in very hot conditions the sun can increase your bonnet temperature by a considerable amount and again you will need to keep an eye on it.

Do not use any car polishes on this bonnet. See note on polish.

LUGGAGE BAGS

The luggage bags have been designed to attach to your roll bar. There are different versions of our bags depending on the roll bar and the age of your car. Please make sure that you have received the correct bags.

It is recommended that you wrap your clothes and goods in an additional plastic bag to ensure that they do not get damaged in the event of heavy or prolonged rain. As the bags sit on your boot cover that collects water, a capillary action is possible around the seams, drawing water through the base. It is not possible to make them 100% waterproof.

To maintain the good looks of your bags do not screw them up or store with heavy objects on top. Use a plastic polish to keep them shiny and clean. Interior trim cleaners and polishes work well.

Included with 3 bags are 3 straps. These are for attaching a packed hood or hood bag to the top of the roll bar with either end of the rolled up roof / roof bag sitting on the top of the 2 outer luggage bags.

When the hood is being erected on the car you will need to possibly push the bags around slightly out of shape. It is worth remembering not to put solid objects in the positions where the hood is likely to come in contact with the bag.

Do not overfill the bags or stress the opening. Do not carry by the handle if there is excessive weight in the bag. Do not place sharp objects in the bags without adequate protection. Always clean and dry the bags before storing.

EASI-SHINE (black)

After years of R&D carbon-bits can now offer a quality polish for carbon composites. This black polish does not dry white or dissolve with water and neither do the solvents soften the surface like many other polishes for plastics. It is also easy to apply and polish off.

Easi-shine offers improved resistance to UV and water staining from acid or alkaline rain. It is not a miracle polish but long term tests show regular use will help to maintain the carbon composites surface finish.

Clean the carbon with clean water, removing all deposits. Dry the surface. Shake bottle. Apply an even coat of Easi-shine with a clean dry soft cloth rubbing gently. Do not rub hard. Allow to lightly dry. Buff off. Repeat regularly.

Always test on a small inconspicuous area first. Do not apply in direct sunlight or to a hot surface. Avoid contact with the skin as it could effect persons with skin allergies, wear protective gloves when possible. Care should be taken not to get Easi-shine onto other surfaces. If so remove immediately with a detergent. Keep out of reach of children.

GENERAL NOTES RE: "CARBON CARE":

Do not wash carbon composite with alkaline car wash soap. This can cause surface attack and whitening or dulling of the surface. Care must be taken using any product on carbon composites, always test first on a small area. We have found some plastic polishes and solvents will remove a layer of protective resin from the surface, especially after some UV attack, allowing rapid deterioration in the future. Always protect from UV exposure whenever possible.