

SNAKE BUILD MANUAL

Prior to starting any assembly, purchase or borrow a copy of the current SVA manual. Then most importantly read it and familiarise yourself with all the technical details sufficient to know where and when to make reference during this your build. The time and heartache you stand to save is immense.

Assume nothing, double check everything.

In addition to the SVA Manual, familiarisation with the parts and procedures associated with the mechanicals of your donor vehicle or access to a manual such as Haynes will prove invaluable.

Support Chassis on trestles, or similar to enable easy access all round, over and under.

1. **Cockpit Alum Panels**, to clad and weather seal the cockpit area.
Note. fit all panels with a bead of external grade flexible mastic/sealer between all faces. This way minimum pop-rivets are required and the weather seal will be improved.
 - a. First fit the floor panel trays by dropping in and fixing from inside the cockpit. (No fixings along tunnel side for now).
 - b. Next fit the boot/cockpit bulkhead panel. Fit and fix from inside the cockpit.
 - c. The outer sides are best clad from the outside allowing for a simple flat panel, with turn in at back only (to upright tube).
 - d. The Tunnel sides are best clad from the cockpit side. Fix from inside cockpit with lower fixings also trapping the floor tray from a. above.
 - e. Cut and fit the forward sloping and front upper level tunnel cover. (stopping 100mm short at front).
 - f. Cut, trial fit and put to one side, pedal access, wiring and tunnel (lower level) covers.

2. **Brake Lines, Fuel Line(s) and Wiring Loom** etc
Plan the route and keep fuel and elects separated and consider prop movement, road debris, high curbs etc.
Also be very aware not to run the services under any potential jacking points, which could result in flattening and/or restriction of the pipes.
Pre-install lines through centre tunnel leaving plenty of spare at each end. Use plastic coated "P" clips or similar (to prevent chafing) and put in sufficient (in this instance "the more the merrier") as a snagged, droopy line, could prove not only dangerous but expensive. Bear in mind that SVA requires 300mm max crs so go for 150mm – 200mm and be safe.
 - a. Brake lines 3/16" copper.
 - b. Carb Fuel line 1/4" copper.
 - c. Injection Fuel feed Line 1/4" copper minimum (5/16" (8mm) better for large engine)

and 1/4" return line to tank.

- d. Wiring loom - remember the connections under the tunnel for the handbrake warning sw and the reverse gate switch. (Also selector interlock if auto-box). Always install under car wiring within conduit or similar for added protection and road dirt intrusion.

3. Fit Rear Suspension and Hub Carriers.

- a. Select two sets of the two-part lower and upper inboard pivot brackets and apply adhesive strip inside channel section (see photo).
- b. Select two sets of Upper and Lower Wishbones and install 2-part poly-bushes and centre sleeve (press in with vice or similar - do not hammer) to each pivot end. (4 to each lower wishbone and 2 to each upper wishbone).
- c. Take a lower wishbone and Insert outer end (narrow side) into the pivot brackets of the hub carrier. Ensure that the wishbone and hub carrier are correctly orientated (see photo). Insert through pivot bushes M12 x 65mm high tensile bolt, fit washer and nyloc nut and tighten (2 places).
- d. Take an upper wishbone and insert the M18 gold colour camber adjuster and screw in the Ball joint (complete with locknut) into the outer end. Ensuring the 2-part poly-bush and centre sleeve are inserted into the pivot points, enter the ball joint taper into the hub carrier taper hole and nip tighten only nyloc at this stage. Ensure that the wishbone and hub carrier are correctly orientated (see photo) to give a leading offset.
- e. Selecting the 2-part upper and lower inboard pivot brackets, pass M12 x 50mm high tensile bolts through the brackets (2 places) with the bolt head fitting into the corner of the inner webs of the bracket, thus acting as lock device. (use tape or nuts as temporary retainers to prevent bolts being lost).
- f. Ensure non-slip self-adhesive foam rubber strip (thin layer) to the mating surfaces of the pivot brackets to provide a metal/metal break (as white strips in photo).
- g. Take these 2-part upper and lower inboard pivot brackets and fit to the upper and lower wishbone pivot points passing M12 x 65mm high tensile bolts, washers and nyloc nuts (4 places) through the pivot bushes. Tighten all bolts.
- h. Repeat steps c. - f. above for the opposite hand suspension.
- i. Remove the temporary retaining tape or nuts from the M12 x 50mm bolts of the 2-part inboard pivot brackets and insert into the slot formed by the twin-tube suspension fixing bars. Note the lower bracket fits from the outside and the upper bracket from the underside. Most importantly ensure 60mm sq x 3mm minimum spreader plate washers as well as std washers are installed under the nyloc nuts. Locate approx centre of adjustable range and temporarily nip tighten only at this stage.

4. Fit Donor Differential & Drive Shafts etc.

- a. Prior to fitting the diff, saw a slot in the upper lug (see photo) to accept the handbrake inner cable, which will be fitted later.

- b. From under the chassis, raise the donor differential between the two diff mounting plates and insert a 300mm long M12 bolt / stud through the top mounting hole. Repeat with a second bolt/stud through the lower mounting hole. Note, due to the differing casting nature of individual diff's it may be necessary to file away small areas of web on the upper front and lower nearside of the diff. Do not force the diff in any attempt to align the holes, remove any minor fouling material. If there appears to be a major fouling, check to ensure correct parts and assembly as anything other than minor material removal could seriously weaken the diff casing. Note there is side clearance allowing the diff to move left and right. Loosely fit retaining nuts but do not tighten at this stage.
- c. Insert 4 off M10 x 60mm high tensile bolts through the hub carrier (vertical plate) from the inside to face out. Retain the bolts with 30mm long M10 spacers and nip tighten only.
- d. Purchase and install rear coil over shock absorbers. Insert an M12 x 60mm high tensile bolt, washers and nyloc nut through the upper "U" bracket, pre-attached to the uppermost chassis rail, and bushed "top eye" of the coil-over). Repeat for the bottom "U" bracket, pre-fitted to the uppermost part of the hub carrier and bushed "bottom eye" of the coil-over.
Note there is deliberate side play adjustment in the "U" brackets. Leave this "gap" and nip tighten only at this stage. Front and rear, upper and lower, side play spacers will be fitted and final tightening completed under item 8i. below.
- e. If required a spacer bar can replicate c. above during stages e. to k. below.
- f. Trial fit the offside (longer) drive shaft and hub by passing through the hub carrier and entering the spline shaft into the diff. Align the four M10 bolts into the Bearing housing and push home fully into the diff. Take care to keep the drive shaft joints as straight as possible and under no circumstances allow any strain which could force the joint.
- g. Repeat the trial fit of the nearside (shorter) drive shaft and push fully into the diff.
- h. Centralise the two bearing housings to leave a common, known, gap (nearside and offside) between the hub carrier and bearing housing. Note this may involve left or right movement of the diff. Once centralised mark / measure the location of the diff.
- i. Make up (and keep for later fitment) left and right, upper and lower spacers to suit the diff sideways location. Do not final tighten the diff into place at this stage as it will need removing to fit the propshaft and handbrake linkage. (see sections 14 and 15)
- j. Temporarily remove the drive shafts (one at a time if req'd) and insert the drum brake backplate (or caliper bracket if using rear disks) over the drive shaft. Noting the spacers required from g. above, add full nut, half nut and/or washers as necessary to achieve the noted dimension + 3mm (float).
- k. Refit drive shaft and fully tighten M10 x 60 bolts, spacers and nuts into hub carriers.
- l. Fit washers and Nyloc nuts to retain bearing housings (note use socket through access holes in wheel stud flange).

Note In addition to the suspension adjustments available via the inboard pivot brackets it is possible to affect rear wheel toe-in, toe-out, by adding one upper and lower washer to front or rear bolts behind the backplate. (Or for infinite adjustment install in a locknut arrangement).

Items k & l will need to be repeated whenever the Diff is removed /fitted.

5. Fit Front Suspension and Donor Front Uprights

- a. Select two sets of Upper and Lower Wishbones and install 2-part poly-bushes and centre sleeve (press in with vice or similar - do not hammer) to each pivot end. (2 to lower and 2 to upper).
- b. Take lower wishbone and install an "Astra" ball joint to the outer end (using the three bolts supplied with the joint) with the taper stud facing up (as does the shock absorber "U" bracket). Note some after market ball joints have an excess of material around the waist and web of the end fixing hole. This excess may need to be removed to allow the joint to fit into the wishbone. If excess is to be removed take care to only remove the minimum amount.
- c. Taking an upper wishbone insert a gold colour Camber adjuster and then screw in a Transit M18 ball joint (complete with locknut) to the outer end. Ensure that the wishbones are correctly orientated (see photo) to give trailing offset.
- d. Insert the lower wishbone inner pivot points into the "U" brackets pre-fitted to the lower chassis rail and nose frame. Fix in position with M12 x 65mm high tensile bolts, washers and nyloc nuts (2 places). Note the front bolt must be fitted from the front, the rear bolt from the rear.
- e. Select two sets of the 2-part upper inboard pivot brackets and apply adhesive strip inside channel section (as for rear pivot brackets - see photo).
- f. Pass M12 x 50mm high tensile bolts through the 2-part inboard upper pivot brackets (2 places) with the bolt head fitting into the corner of the inner webs of the bracket, thus acting as lock device. (use tape or nuts as temporary retainers to prevent bolts being lost).
- g. Take the 2-part upper inboard pivot bracket and fit to the upper wishbone inner pivot points using M12 x 65mm high tensile bolts, washers and nyloc nuts (4 places). Tighten all bolts.
- h. Repeat steps c. - g. above for the opposite hand suspension.
- i. Remove the temporary retaining tape or nuts from the M12 x 50mm bolts of the 2-part inboard pivot brackets and insert into the slot formed by the twin-tube suspension fixing bars. Note the upper bracket fits from the outside. Install 60mm sq x 3mm minimum spreader plate washers as well as std washers under the nyloc nuts. Temporary locate approx centre of adjustable range and nip tighten only at this stage.
- j. Purchase and temporary fit front coil-over shock absorbers (exactly as performed in 4c.for rear end).
- k. Fit donor front uprights onto "Astra" ball joint (lower wishbone) and nip tighten only at this stage, the supplied nyloc nut. Take care not to strain balljoint by supporting weight of donor upright.
- l. Purchase top (blue mushroom) adaptor bush to suit "transit" balljoint and donor

upright. Fit to balljoint (and nip tighten only at this stage the supplied nyloc nut).

- m. Insert mushroom Adaptor Bush (top wisbone) into donor front upright and measure wheel camber. Adjust accordingly by winding in/out the "transit" balljoint and securing the locknut. On completion tighten the donor front upright clamp bolt and ball joint nylock.
- n. Adjust the upper inboard pivot bracket to achieve the required castor angle and final tighten the M12 x 50mm securing bolts / nyloc nuts.
- o. Measure, make and fit front shock absorber side play spacers and tighten bolts/nuts.
- p. Once set up and lowered to ground (see stage 28 below) with all running weights and ride height fixed etc all the bolts must be tightened.

Note. It is a good idea to keep a record of all bolts, nuts or joints still to be tightened / checked.

6. Fit Donor Steering Assembly

- a. Drill steering support bracket at suitable height and install donor steering column, using M12 x 40mm high tensile bolts, washers, nyloc nuts and donor bush at the bulkhead.
- b. Fit donor steering rack to rack carrier in the front of the chassis using M12 x 65mm high tensile bolts, washers and nyloc nuts. Or if specifically ordered, fit our special quick rack to the alternative style rack mount plate.
- c. Make or Purchase extended (400mm) steering column U/J link shaft. Note this donor link arm must be taken from a non assisted steering type donor car.
- d. Centralise and retain in position, both the steering rack travel and the steering wheel before fitting the extended link shaft. Ensure the 1 out of 3 top alignment (peg into hole) before entering bottom spline joint onto rack drive pinion. Insert and tighten bottom pinch bolt. Insert triangular top joint (peg into hole) and tighten clamp bar.
- e. Purchase and install new donor track rod ends onto steering rack. Insert track rod end balljoints to donor front uprights (and nip tighten only at this stage). Adjust tracking (utilise equal turns each side) as best possible, keeping rack travel central. Tighten ball joints and locknuts.

Note, to achieve an approx bench tracking set-up, attach or suspend a straight edge along each side of the chassis (taught string line will do) at wheel centre height and space to the same width at front and rear of car. Then simply measure and adjust any difference between front and rear edge of each front disk, hub, wheel or tyre as appropriate. Make sure that wheels are set as near straight as possible with a leaning towards toe-in (i.e. front edges narrower than rear edges). On no account leave with toe-out. A professional set-up will be required later but this will suffice for now. Whilst doing this exercise it may be prudent to also note the rear wheel tracking which again should toe-in slightly. Whilst any major discrepancy is best attended to immediately, slight adjustments are best made under stage **9** below (using the above procedure).

7. Make or Purchase Pedal Assembly, and complete the Brake fitting

Note. The pedal assembly you choose will no doubt be dependent upon your intended use for the vehicle and / or your preferred style of driving, Basically the options being floor mount or pendulum action, cable or hydraulic clutch (probably dictated by donor engine/gearbox), standard or adjustable bias brake pedal. These decisions will dictate the style of master cylinders to be accommodated in the engine bay. Servo assisted brakes are not essential (nor desirable) on such a light car, the feel of the brakes being an important factor in being able to drive the car spiritedly. For the purposes of this manual we shall assume the basic, with you the builder simply repeating the appropriate procedures as required to suit your particular arrangement.

- a. Offer the pedal assembly (or separate items) into the footwell without any linkages etc to establish the most comfortable location to suit your driving position. Note the available space and thus choice is limited. Also there are legal requirements concerning minimum pedal spacing to be followed. The pedal assembly you purchase may not include the throttle, and therefore make due allowance for this in the spacing
- b. Mark and drill the pedal fixing holes and cable / pushrod linkage holes to suit, ensuring that the master cylinders and fluid reservoirs can be accommodated in the engine bay. Note, in extreme cases, remote fluid reservoirs may overcome such a problem. Note a quick trial fitment of the engine at this stage, to ascertain free space, tight spots and definite no go areas could prove invaluable.
- c. In the event that a separate throttle pedal is required, you can either adapt the Sierra donor item or simply copy the idea using a bent rod, plate and spring. Plastic coated "P" clips (2 or 3) of the appropriate size can make an acceptable pivot for the cross bar, behind the other pedals.
- d. Align and Install the master cylinders onto the footwell bulkhead to ensure that the pushrod links from the pedals remain straight and offer a smooth travel.
- e. Similarly install the clutch and throttle cables assemblies ensuring that the location of the bulkhead fixing glands put no sideways strain on the inner cable. An out of line cable will feel notchy, possibly snag, and fail prematurely.
- f. With all the major items fixed (or at least locations determined) the rear brake line should now be routed to the master cylinder. It is best to loosely trial fit this to establish and mark the required pipe length.
- g. Using an appropriate pipe cutter (do not saw, the swarf will contaminate the pipe and cause the cylinder rubber seals to become damaged) remove the excess brake line ready to form the swaged end.
- h. Having ensured your swaged pipe fitting is the correct fit for the master cylinder (usually M10 or 3/8"UNF), slide the swage nut onto the pipe end (with thread end facing pipe end) and then form the swaged end using a flaring tool with reverse flare insert. Note these tools are similar but not the same as used by some plumbers, and can be hired or bought from car component factors etc. Or your local garage may do the job for you, at sensible cost, simply unclip your shape formed brake pipe, tape on the appropriate fittings at each end and ask that they flare the pipe ends for you.
- i. Fit and tighten the brake pipe flare fitting into the master cylinder and tighten the flare

nut. Ensure the final 50mm of pipe is straight (not part of a curve or bend) and that the pipe enters in perfect alignment with the fixed thread.

- j. From the pre-fixed brake pipe through the tunnel, work up to the master cylinder, continue the securing of the brake pipe with "P" clips.
- k. Mark, cut and similarly flare the other end of the rear brake pipe and install a securely fixed 3 way "T" piece (one leg for each wheel) to the chassis in the vicinity of the rear diff.
- l. Fabricate and secure a bracket with brake bulkhead connector to the chassis adjacent the rear suspension upper wishbone rear pivot point, each side. Then similarly make and install two, fixed rear brake pipes to connect from the "T" piece to the bulkhead connectors making the necessary double flare swaged ends. Remember to use adequate "P" clips to retain pipes.
- m. Fit professionally made flexible brake hoses (ideally st st over-braided) between the bulkhead connectors and each rear wheel brake cylinder (or caliper). Ensure that the flexible length is neither too long (droops), nor too short (strains) throughout the full up and down travel of the suspension. Also ensure that none of the pipes can be fouled or snagged by suspension, drive shafts, road surface etc etc.
- n. Repeat the above pipe procedure to install the brake pipes to serve the front wheels. Securely fix the 3 way "T" piece (or if using a pressure operated brake light switch a 4 way "T" piece) on the bulkhead, in a safe protected place, and bulkhead connectors adjacent the bottom wishbone rear pivot points. Then similarly make up and install the copper brake pipes complete with the appropriate double flared ends, secure with an over-adequate quantity of plastic coated "P" clips in a neat and tidy fashion following a protected route around / along the chassis. Ensure the pipe route will not be subjected to radiated exhaust pipe heat.
- o. Finally fit the correct length flexible brake pipes (similar design as the rears) between the bulkhead connectors and the front wheel calipers. Similarly check for droop, strain and possible snagging throughout the full travel of the suspension. Due to the double movement of left/right and up/down it will be necessary to incorporate a swan neck effect, retained via cable ties or similar.
- p. Check thoroughly for potential damage and or snag points and correct as necessary. Check all "P" clips, connector fixings and joints. Tighten accordingly.
- q. Recheck all hoses and fittings prior to carefully filling the master cylinders with brake fluid.
- r. In the event that drums, shoes, disks and pads have not been fitted at this stage you must take these following procedures. Secure a suitably sized solid parallel spacer between each of the caliper plungers. and fix a heavy duty clamp across each of the rear wheel cylinders. This will prevent (or at least limit) them from expanding during the bleeding process.
- s. Provisionally bleed the brakes (following standard procedures) and thoroughly check for any signs of brake fluid leaks. Note, if the drums and disks are not fully fitted care should be exercised with the degree of pedal pressure applied. Whilst this procedure may seem premature at this stage of the build it will prove invaluable should a brake fluid leak be found in an area that could become poorly accessible later in the build.

8. Main Body Tub Trial Fit (to mark alignment points)

Note the following procedures require two people to minimise damage to the finished product. When lifting, do not lift at one point on each side only. Ensure an adequate spread of at least two lifting points, one being the top/rear area of the rear arch.

- a. Using one person to lift either side of the main body, raise the body over the chassis and lower the rear end first, to fit over the rear-most cross member.
- b. Gradually lower the front end, onto and then over the chassis. It will be necessary to ease out the body side panel in order that the under-body flange passes over the chassis. Note it will be easiest to ease the body over the chassis in stages, working left and right in sequence.
- c. Once the body is almost fully down over the chassis, and before pushing fully home check the forward / rearward location. The correct fore/aft location is dictated by the roll hoop holes in the top cross member. These holes must align centrally with the top bodywork (85-90mm area) between the boot opening and the cockpit. Failure to get this alignment now will result in the roll-hoops looking out of place and any escutcheon plates not fitting correctly.
- d. With the fore/aft location determined the body can be pushed fully down over the cockpit side bars. Note a degree of easing of the inner flange to the rear of the cockpit may be required.
- e. Finally the under-body flange can be clipped under the chassis bottom rail. This exercise may need to be worked from one end and can be assisted by using one or more 100mm wide strip(s) of metal in shoe-horn fashion. Note, As this is only a trial fit to assess the fit & mark alignments etc, should the underclipping appear overly difficult then it is best left at this stage.
- f. Recheck the fore/aft alignment and then with the body in position, use a marker pen or tape to mark the chassis and body with simple clear alignment marks for next time and also as reference points for any transfer measuring without having to constantly refit the body to check clearances etc.
- g. Prior to removing the body try the boot lid for fit and alignment. It will be noted that by slight lowering or raising of the rear valance, left and right, the boot fit can altered. Using packers under the rear valance, achieve the best alignment and measure the gap and any ht offset between the rear valance and the rear chassis member. Armed with these dimensions fabricate an aluminium (or thin steel) closure angle to fit between the rear valance and the chassis member when the body is refitted at a later date.
- h. If TT style twin hoops are to be fitted now is the time to transfer align the 50mm dia holes from the chassis to the body top rail. As previously stated, these should fall centrally within the 85-90mm wide body cross member. Whilst we can supply escutcheons to cover these holes in the body we suggest that you still take great care to cut them as tightly and accurately to the hoop tubes as possible.
- i. With the body still in position on the chassis, adjust the rear suspension inboard pivot brackets to put the rear wheel in the centre of each arch.
- j. Measure, make and fit rear shock absorber side play spacers and tighten bolts/nuts.
- k. Trial fit seats & mark upper seat belt strap slot positions in bodywork.
- l. Trial fit bonnet and note any areas requiring addressing later.

9. Remove Main Body (to minimise damage)

- a. The main tub is best removed again to allow completion of the mechanical assembly

to the chassis and running gear.

- b. To remove the body, using two people ease the front end up over the chassis, working left then right in stages in a reverse procedure to the fitting. Once the front scuttle area is clear, lift the body up and clear towards the rear.
- c. Whilst the body is removed and prior to storing safely, now is a good time to cut the upper seat belt slots in the rear cockpit flange, ready for later body and seat belt fitting.

10. Fit Donor Engine and Gearbox.

This will depend upon your particular engine set-up. However it is essential that you use a suitable engine hoist. Ideally the engine and gearbox should be installed as one assembly. Note, the centre tunnel is designed to accept the ford T9 style gearbox. When locating the engine always aim to set the assembly as far into the tunnel as practical. This will ensure a more even front to rear weight ratio and thus increase road handling.

11. Propshaft & Handbrake Cable

- a. Due to the tight nature of the tunnel (maximising seat space) the propshaft end flange will not fit between the runners from underneath. The prop must be fitted, or at least temporary located via the rear diff area. Therefore it is imperative to locate the propshaft prior to final fitting of the diff and drive shafts, to minimise duplication of works.
- b. Once the engine / gearbox assembly is positioned and with the rear diff in place, measure the gap between the diff flange and the end face of the gearbox output shaft. (expect a dimension in the region of 700mm).
- c. A purpose made propshaft to suit your dimensions can then be supplied either by Cradley Motor Works , or any local drive-shaft specialist.
- d. Whilst awaiting delivery of the prop, now is a good time to install the handbrake lever to the tunnel top and trial fit the gear lever etc.
- e. Across the rear of the tunnel are two steel angles onto which the handbrake lever is bolted. The lever can be installed facing either straight ahead(neatest) or slightly angled way from the driver (easier to operate).
- f. With the lever in place fit the handbrake cable assembly to the bottom of the lever. Ensure the cable adjuster is on the nearside. Note The cable is fitted over the diff, but under the top cross bolt. Ensure the positioning before final tightening of the diff.
- g. With the diff removed (or dropped down) install the propshaft into the tunnel from the rear of the car. Enter the splined shaft onto the gearbox output shaft and temporary support the rear of the propshaft, (cable tie or string).
- h. Refit the diff (as previously) and bolt the propshaft flange to the diff flange. Use new bolts and shakeproof washers.
- i. Pass the handbrake cable inner through the slot in both the fixed bracket on the chassis and the diff upper lug. Adjust as necessary and retain the cable in position

prior to fitting either end to the wheel hubs.

12. Cooling Pipes, Radiator & Oil Cooler

The standard radiator available to fit the Snake may appear small, but proves very efficient and thus will be sufficient but for all but the most serious of high output engines. Higher output engines will benefit from the inclusion of an oil cooler.

- a. Using thin metal straps or M5 studding, fabricated to suit, mount the radiator at the same angle and virtually touching the chassis front bezel plate.
- b. Install the radiator with the filler cap set to the top nearside and the inclined connection arranged so that the hose nestles into the nosecone flared nostril area.
- c. A slim-line elect fan should be used. Either attach a blow thro style to the radiator using specialist plastic core clips or mount a suck thro inside the chassis front bezel.
- d. A Fan Temp sw (or ecu control) and relay must be used to power the fan.
- e. Connection between the engine and radiator is best completed using std radiator reinforced rubber, or silicone hose lengths with 90 / 45 degree bends / joiners as appropriate. Clamp the hoses in a manner that will allow engine movement but minimise any undue vibration or swaying of the pipework, which could lead to premature failure. Keep hoses away from the exhaust.
- f. If fitting an oil cooler this is best mounted just above and behind the steering rack. It is possible to mount accross the top chassis rails as an alternative but care must be excercised to ensure no air traps in the hoses and that the oil cannot drain back. This could result in loss of crucial oil pressure at start up.
- g. Use only specialist fabricated braided oil hoses. A hose failure to the oil cooler could devastate the engine in seconds, and certainly before the problem was otherwise noted.

13. Refit Main Body

Trial fit bonnet and boot prior to final fixing to get best fit.

If it was noted during the trial body fit that the upper seat belt bolt fixing may be particularly awkward you may consider fitting the upper seatbelt points during the sequence of lowering the body onto the chassis.

- a. Refit the main body as detailed for the trial fit within section 8.
- b. Note, it may be necessary to relieve a small section of bodywork at the front edge to clear the diagonal brace chassis tubes.
- c. With the body aligned using your marks from the trial fit, secure the body to the chassis.
- d. Using large head rivets drill and rivet the body/chassis as follows. Ensuring the body is tight to and following the chassis alignment insert three fixings along each side of the bonnet opening area. Next insert six fixings along the bottom return edge each side (3 along the cockpit area and 3 following the chassis rail to the front).
- e. Support and replicate the position for the rear scuttle area of the body as determined during the trial fit.

- f. Now fit the rear scuttle closure angle that you have made to suit.
- g. If all is aligned, the boot and bonnet fit correctly and you are confident that the body will not have to be removed once more, measure and cut alum angle / strip to act as closures to seal the gaps around the upper rear wheel arches. Wedge in place and seal with silicone mastic.

14. Engine Ancillaries

- a. Locate and fix all ancillary engine components as appropriate to suit your particular engine etc.
- b. If not previously completed, install the radiator hoses and header / expansion tank. Whilst an aluminium sports style header tank may look good, a plastic type from you're your donor vehicle or breakers yard will suffice.
- c. Complete the fuel (and if fuel injected, the return) lines. Note, due to the higher pressures involved with fuel injection and thus the potential for leaks consider using threaded or propriety snap fixing fuel connections rather than jubilee clips.
- d. The exhaust system will require making to suit you particular installation. As it will, in the main, be on show down one side or other of the car will ideally be fabricated from st st tubing.
- e. If the engine is post 94 it will require a catalytic converter to be incorporated and will require a boss for the lambda sensor.
- f. Install all other engine sensors as necessary taking particular care that you have at least oil pressure, water temp, air temp sensors. After that injectors, spark plug leads, coil packs and throttle body sensors etc will all be dictated by the engine management system you decide upon.
- g. The battery location can be either on the scuttle via suitable bracket or within a battery box set over the clutch bell-housing at the start of the centre tunnel.

15. Fuel Tank

- a. The std., shaped, alum fuel tank is designed to sit on the chassis rails behind the diff.
- b. Prior to finally securing the Fuel tank it will be necessary to prepare the hole(s) in the body to suit the central Peugeot fog lamp.
- c. The std. tank is designed to use an in-line fuel filter and pump. These are best located close to the tank and in a position the pump remains flooded to minimise starvation and cavitation.
- d. Manufacture, or purchase, bracketry to secure the pump and fuel filter in a safe place away from possible damage and snagging. Install a protection skid plate under them if in any doubt.
- e. Complete the fuel line(s) to the tank ensuring the pump and filter are connected to the bottom connection and any return line is connected to the upper connection.
- f. In the event that you filler will not incorporate a breather tube (most will not) you will need to include a breather connection into the tank. This can take the form of either a swan neck length of open ended fuel hose tee'd into the return line at the tank, or by using a special breather valve similarly tee'd in.
- g. If using the swan neck hose configuration, the hose must be securely affixed around the top of the boot opening crossing over and then returning once to terminate at high level. Do not run back down to low level as any fuel trapped in the line could create a syphon effect.
- h. The std tank can be either left with a screw cap filler within the boot area or extended to a flush fitting aero style filler cap set onto the rear wing. A 2" flexible filler hose (approx 330mm) and clamps will be required.
- i. The tank accepts the ETB vertical style gauge sender unit.

16. Boot Area

The boot area, over the tank and diff provides a good size secure storage area. At the present time we do not offer a panelling set for this although we may offer a fibreglass insert in the future. We suggest that the boot area can be panelled out using a series of thin gauge alum panels, cut and secured as appropriate.

17. Dash Blank, Instrumentation

- a. An alum dash blank is available with, or without, speedo, tacho etc gauge openings.
- b. The dash blank has an extended lower edge allowing the blank to be rolled around a steel, alum or plastic tube or similar that will provide the min radius necessary under SVA regs.
- c. By having a removable tube set within the rolled up lower edge the dash the tube can pass under the steering column, thus giving added rigidity to the dash.
- d. We suggest that the dash blank be secured to the body using M5 Nutserts and button head screws, thus allowing easy removal and/or temporary location during the wiring process.
- e. Behind the dash will be found a good size area suitable for fuses, ecu, relays, battery isolator and anti-theft devices etc. These will vary according to your engine installation, but will invariably be based on a sierra donor column switch set-up.
- f. If using traditional gauges, rather than a digi-dash set-up we suggest the Bright 6 style of warning lamp module be used. If opting for individual lamps great care should be taken to align the additional openings and to create a uniform appearance.
- g.

18. Purchase and Fit Front and Rear Lights, indicators and side repeaters.

19. Complete wiring, (including handbrake switch, reverse light switch, fluid level switches)

Fit lights etc

20. Purchase and Fit nearside and offside mirrors.

21. Trial fit seats and runner(s). Drill fixings ready for later.

22. Fit Roll Hoop(s) and seat belt fixing if not already completed.

23. Fit bonnet and boot lid complete with rubber seal, hinges, locks etc as required.

24. Carpet and internal trim cockpit to personal requirements. Refit seats and seat belts.

25. Lower from Trestles, adjust dampers to suit ride height.

Fit wheels. Note the preferred wheel offset is 25mm (Peugeot) whilst the std Ford fitment is 40mm. Spacers up to 15mm thick may be required to clear the rear dampers.

Adjust, Camber, Castor, Tracking, and tighten all bolts etc.

Make or Purchase and fit cycle wing brackets.

26. Test and tighten all fixings, fluid lines, etc. leak test, fill and bleed all resevoirs (water, oil, fuel)

27. Fit Battery, Start Engine, check for leaks, allow to warm, recheck for leaks, LARGE GRIN and give it a go.