

Prepare to Finish or Fun, Adventure & Competition! Pt 4

by Andrew Pearce

Parts 1 to 3 covered the choice of car and featured the most important aim – reliability. This issue we continue looking at the same theme preparing a car (with reference to my 2500TC) for long distance endurance rallies.

Exhausts

Again over engineer, think of the worst, it might happen! I whacked mine in the desert, on?... the exhaust that fell off the MG midget in front of me! Skid it, i.e. a bit like the sump guard, make the forward facing edges of any silencer angled so it will “skid” and ride over the rock (or BL silencer) it’s about to hit. To do this weld a plate on the bottom edge of the silencer box, angled (about 30 degrees) up to, and welded onto, the exhaust pipe. The back box of the sports system fitted to the 2500 is quite exposed, and even though we were on made roads, I still managed to utilise the skid climbing steep hairpins whilst cutting the corner. It gave me peace of mind that it was protected, and the confidence to push on.

If the worst happens and the exhaust gets hit hard enough to separate it at any point you don’t want to be turning round to pick it up! Or worse have it “dig” into the ground and completely wreck it, not if you want to give yourself a chance of having anything worth trying to fix. At strategic points, i.e. joints along the system, I wrapped “earth strap” style cable (un-insulated) around the exhaust and fixed the free ends to the floor of the car, thus if a mount got smashed off, or the system separated, it would be “caught” before all was lost or the locals had a chance to nick it!

NB. Exhaust systems which are slightly loose-fitting are less likely to fracture than those which are welded solid.

Brake Pipes and Fuel Lines

These run underneath your car and need to be protected. One way is to run them inside the car. Check your regs, but if you have the opportunity and budget, do so, especially if you intend to use the car for a lot of serious stuff! I didn’t! But as the pipes were tucked away quite nicely, in the areas where the tank guard and sump guard didn’t offer them any protection, the World Cup car merely had heavy duty mud flap material (see the back pages of the motorsport news for ads) fixed over them; this would prevent small items piercing them, and be better than nothing.

Tip, lie underneath the car for a few minutes studying every exposed nut, bolt, pipe, sump, filter and tank, think of something hitting it and how you would protect it – even if you just lessen the damage, you’re increasing your chances of reaching the finish line!

Engine/Gearbox Mounts

These need to be in good order. In the case of the 2500TC they were replaced with new items.

Safety

The various organisations that run events have minimum requirements that all competitors have to meet. These will be described in your regulations. Some examples from the World Cup regs:

- All cars must be fitted with:
- First aid kit, warning triangle and tow rope.
- A suitable fire extinguisher (at least 1.75 litres AFFF) securely mounted within easy reach of driver and co-driver. If the car is fitted with a plumbed in system an adequate hand-held extinguisher (at least 1.75 litres AFFF) must also be carried so help can be offered to other competitors.
- Multipoint mounting full harness seat belts for all crew members.
- A roll cage is STRONGLY recommended.
- Front windscreens of laminated glass.

- Adequate mud flaps front and rear.
- Any flammable liquid carried inside the passenger compartment must be in secure containers held inside a fire resistant compartment
- All heavy items carried in passenger compartment to be securely fixed in place.

After seeing three cars rolled on the 2001 WCR and four on the 2002 event I wouldn’t think about doing any similar event without a roll cage!

I used four point harnesses and high back bucket seats in both cars (FIA approved); in the case of the world cup car a roll cage was supplied and fitted from safety devices. I got an extra 5% discount for putting more safety devices stickers on the car. Like I said before, shy kids don’t get any sweets!

Fitting the harnesses to the 2500TC was quite a simple procedure:

Harnesses use a “Clip” and “Eyelet” method for anchoring the webbing, the eyelet uses the same thread as the standard seat belt points, thus remove your standard seat belts and screw the eyelet into the hole that is left. In the case of the Triumph the rear seat had to be removed to gain access to the rear seat belt(shoulder strap) mounts, and the shared mount between driver and front passenger seat had to be fitted with a larger eyelet to allow two harness clips to fit through it.

If, as was the case with the Daewoo, there isn’t a mount between the seats (the seat belt buckle receptacles were part of the seat assembly) you will have to mount the eyelets yourself. To do this, drill a clearance hole in the tunnel where you want the lap straps to be anchored, big enough to allow the threaded part of the eyelet to pass through, then make up a 2/3mm thick plate (again with a clearance hole through it) big enough in area as to strengthen the whole mounting, pass the eyelet through the hole in the tunnel, through the strengthening plate and screw a large nut or drilled and taped piece of flat bar to the eyelet, sandwiching the plate to the underside of the tunnel. You can now weld the plate to the tunnel and tack the nut or flat bar to the plate. If fitting a roll cage fit a harness bar, this allows the shoulder straps to be installed with minimum hassle.

Seats

These can be bought with universal sub frames that are adapted to fit most cars. These kits are very flimsy looking and I didn’t feel they would stand up well to impact. So I made my own, in the case of the Triumph welding flat bar to the existing Triumph runners to effectively narrow their track to suit the fixing points, on the underside of the seat, or the side of the seat, depending on make and model. In the case of the Daewoo, I used 50mm aluminium box section to build up a sub frame to give the desired height, then used some universal runners to allow adjustment of the seat. In hindsight, I would permanently fix these runners using bolts (once you are happy with the position), as during the head on accident we had in Montenegro, my seat shifted forward an inch or so which wouldn’t have helped my knees hitting the dash!

Make sure there is nothing to bash yourself on during an accident or off route excursion, i.e. tie everything down, bungees are very useful so are elasticised cargo nets. You don’t want a jack whacking you in the back whilst having to stop quickly! If fitting a roll cage use padding on it in the areas your head may hit, and if using a cage always use a full harness and remember to keep the straps tight at all times.

Navigator’s Essentials

A mad desire to be driven flat out with your head in a road book/speed table working out algorithms, whilst operating the horn/

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windscreen wipers, looking out for goats, monkeys, small children and obscure left hand turns, all this whilst holding the car in dodgy third and trying to take in the beautiful scenery! Oh and being prepared to take the blame when the driver gets it wrong!

To help the navigator to do all the above I proposed to her on the way back from Morocco! But this is quite an extreme method, what may help is the following!

Tripmeter

This is basically an auxiliary odometer that is mounted within easy reach of the navigator. It normally has two readings, total and intermediate, the total being total distance travelled, the intermediate being distance between points i.e. at landmarks on the map or road book the navigator resets the intermediate display, thus you know exactly where you are in the road book, or map. Sounds simple doesn't it? Its not! Practice... lots!

Check your regulations to see which instrument the event allows, some modern multi-display tripmeters with average speed functions, etc carry penalties. We use a Brantz international 2 which doesn't carry any penalties, and is cheap and interchangeable between cars. Being an electronic item it can be easily calibrated for miles or kilometres. You need the supplied universal "pick up", fitting of which involves destroying a Speedo cable outer sheath, but you must have some of those lying about? Normally it's the inner that snaps! Full fitting instructions are supplied with the tripmeter so I won't go into a lot of detail, just give a few tips!

The pick up is a sensitive electrical item, so mount it in the car somewhere and waterproof it! (Water in a Triumph, never!) In the case of the 2500TC I installed it with the driver's front parcel shelf

removed, which allowed easy access to wire the pick up. If you can't find a space for it in the car, try to keep it away from heat sources and splash areas, you can also buy gearbox and wheel pick ups if that helps. The traditionalists use Halda tripmeters which are directly driven via a cable requiring various cog sets to calibrate them. They can cost up to £300 for secondhand units, and as they are no longer in production spares can be a problem. Brantz do a modern "retro trip" which looks similar having an analogue display, which is electrically driven. I would go for modern trip for the sake of reliability, it also eliminates tirades of unlady-like language when the displays jam/fail to reset.

Pens, highlighters, pencils, rubbers (erasers), maps and toll money all have to be within easy reach whilst you are strapped in! They also need to be securely fixed down so you don't lose them when landing at 45 degrees; this is where Velcro and extra pockets come in! Lines of pens "Velcro'd" to the dash or door are essential, along with cigarettes and lighter, I used half an "in tray" reversed and fixed to the Daewoo dash to provide storage for maps. The Triumph has a good shelf, and we added pockets to the doors. These add-on pockets can be bought from various suppliers detailed later.

Tip: whilst driving in remote Africa the children will beg for pens, so take lots to hand out, but expect to be mobbed! Remove them from display whilst you're not in the car. Another tip would be to use cheap plastic propelling pencils, as this removes the need for a sharpener, whilst also providing the navigator with something to dismantle into several small parts and lose during long, flat "boring", road sections across desert plains!