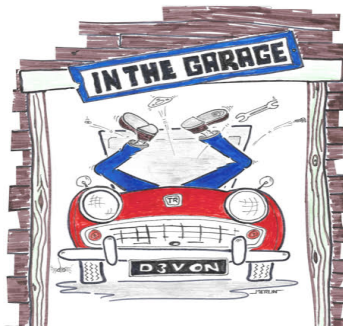


In The Garage



Feb 2024

Issue 19

Welcome to Issue 19 of In The Garage. We are always looking for content so please let us know what is going on in your garage especially if you are a new contributor.

Andrew Willmott – TR3 and TR4

Door Bars

Late TR6s are blessed with quite sturdy lock mechanisms and doors with an internal strengthening bar to protect against side impacts; by comparison the side screen cars offer very little side impact protection. A roll over bar (especially when fitted with an integrated harness bar) greatly improves things by supporting the area around the B post.

Following on from fitting a sturdy scuttle brace (detailed in issue 18) the next stage was to manufacture a pair of door bars running from the scuttle brace to the base of the roll bar. It was decided to make the bars a bolt on fit so that they can be easily removed should access become difficult as the years catch up. To that end weld on forks were made to fit to the roll bar and scuttle brace. Matching FIA approved lugs were sourced from OMP: making them really wasn't worth the effort.



A forged OMP lug with the home fabricated fork.



Fork welded to the scuttle brace.

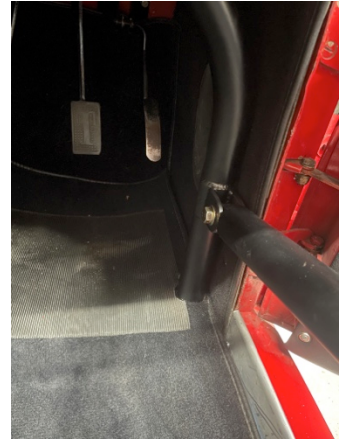
As before with the scuttle brace, the bars were mocked up with plastic waste pipe before being bent up in 38 x 3 cold drawn seamless (CDS) tube. The forks were then temporarily screwed in position and once the whole assembly was jiggled up in place the lugs were welded into the ends of the bars. Space between the door and seat is very limited and this dictated the lie of the bars. With the whole assembly in place I took the car on a few journeys to ensure that access and egress were not unduly impeded and that the bars didn't get in the way whilst driving. Once all was tested and approved by "The Boss" the whole lot was removed for final welding.



The drivers-side door bar mocked-up in place.



Routing past the seat, avoiding the door and side-screen mounts is tight.



A quick coat of black paint was applied before re-assembly.

On the road the car is now noticeably stiffer with fewer rattles and although not up to modern standards we have now greatly improved the side impact protection. Although much of the door aperture is now covered by the door bars access is not unduly compromised and anyone who wants to try out the cockpit is welcome to try it for size whenever the car is seen out and about.

Thanks to:

North Devon Metalcraft who bent the tube and TIG welded the lugs into the bars.

Mikey Dove at Bob Dove Racing for TIG welding the fork sub-assemblies and welding the forks in place.

TR3 Firewall

Fitting a firewall/fuel barrier between the cockpit and the fuel tank has been on the "to do list" for longer than I can remember. A firewall is a requirement for racing and a significant safety feature for any road car.

After stripping out the roll bar. Rear cockpit trim and carpets it took a week of thinking time before I came up with a plan which I was happy with and started work. The problem area is sealing to the tonneau deck, which is made particularly awkward due to the rear trim panel slipping into clips under the deck. After exploring all the possibilities I decided to bite the bullet and remove the clips leaving a flat face to seal against and modify the trim to suit the new configuration.

The clips are each secured with two spot welds and all came off cleanly using a small chisel before cleaning up with a Dremel and coating with Bonda-Primer to keep corrosion at bay. A frame was made with sections of 1" aluminium angle and riveted into place with a bed of intumescent sealer between the angle sections and the body.

Strips of self-adhesive Dynaliner were stuck to the fuel tank and the mounting straps to negate any rattles.

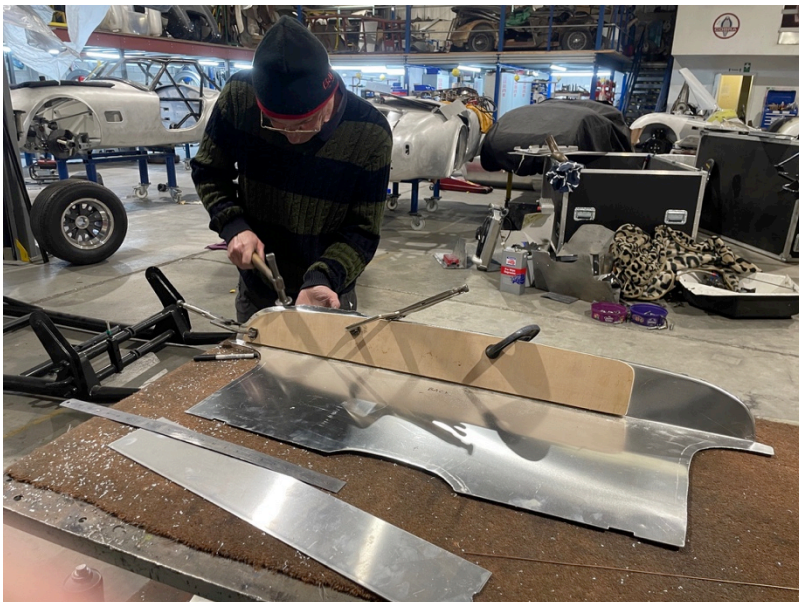


Trim clips removed



Angle frame in place with strips of Dynaliner on tank and straps

With the mountings in place I reverted to CADD (cardboard Aided Design). I spent longer than I care to admit making a first draft template for the firewall from cardboard, and then refining it into a sturdier version made from hardboard ready to transfer to the final 1.2mm aluminium sheet. The firewall would need to have a 30mm flange bent along it's top edge to seal against the tonneau deck so a bending buck was made from 12mm ply to ensure an accurate fit. With the templates complete I dropped in to see our friends at North Devon Metalcraft to source a suitable sheet of aluminium. True to form Paul Evans became enthused with the project and I left their workshop with a fully formed firewall which required only minimal fettling before it was ready to be sealed and riveted into place.



Paul using my bending buck to form the top flange and making it look easy.



A couple of bead rolled flutes stiffened the flat panel.

The fully formed panel was fitted into place and drilled ready for riveting while being temporarily secured with Cleco skin pins. The voids at the tops of the wheel arches were sealed off with intumescent foam and the back of the firewall was treated to a layer of Dynamat to reduce any drumming.



Foam seal over the wheel arch



Firewall with Dynamat ready for fitting



Firewall held in place with Cleco pins while being drilled for final riveting

The firewall was bedded onto a generous layer of intumescent sealant and riveted into place to form a fire and fuel proof barrier protecting the cockpit.

With the wheel arch trim cut back and glued to the firewall, and the back trim panel modified by shortening the top edge where it meets the tonneau deck, there is now no visible evidence of the modification so don't expect to inspect the job when you see the car.

TR4 Seatbelt Guides

In common with many "windy window" TRs my TR4 is fitted with Mazda MX5 seats and on occasion I find it awkward to access the seatbelt tongue when strapping in. I've seen a few seatbelt guides fitted to TRs but they have all been less than ideal. By chance I spotted some moulded ABS guides on a late model Ford Mustang, which looked like they would provide a good solution.

A Google search turned up new replicas on eBay for less than £20 a pair. I ordered a set and they arrived a few days later.

Additional holes were drilled to suit the MX5 headrest and the excess length trimmed off. Some rubber hose was slipped over the headrest prongs to keep the new guides snug down to the seat back.



TR4 Conrod Replacement and Top End Refresh

Regular readers will recall that the TR4 engine was recently rebuilt after the loss of a valve seat insert and although a big improvement on its previous iteration the engine has still suffered from a light rattle on the overrun when revved in neutral. The only moving parts not replaced or refurbished at the time were the small end bushes, as on inspection they seemed to be suitable for further service. Hindsight proved this to be a misjudgement.

I resolved to remove the conrods for close inspection over the winter.

The cylinder head and sump were removed allowing access to the big end caps from under the car and allowing the piston and rod assemblies to be pushed up out of the liners for examination.

With the conrods on the bench all seemed well, the gudgeon pins being a good fit in the seemingly unworn small end bushes. Mystified at this point I cleaned the rods and pins in thinners to remove the oil film and blew them dry with an airline. With the components clean and dry slight play became obvious to the point where holding the pin at each end and jiggling it vertically produced an audible rattle. A quick visit to Bob Dove Racing for Bob's second opinion confirmed that the play was enough to cause the rattle that we could hear with the engine running.

I had a set of MaXpeeding forged conrods in stock that had been earmarked for use in the TR3, so the simple option was to press them into service for the rebuild.



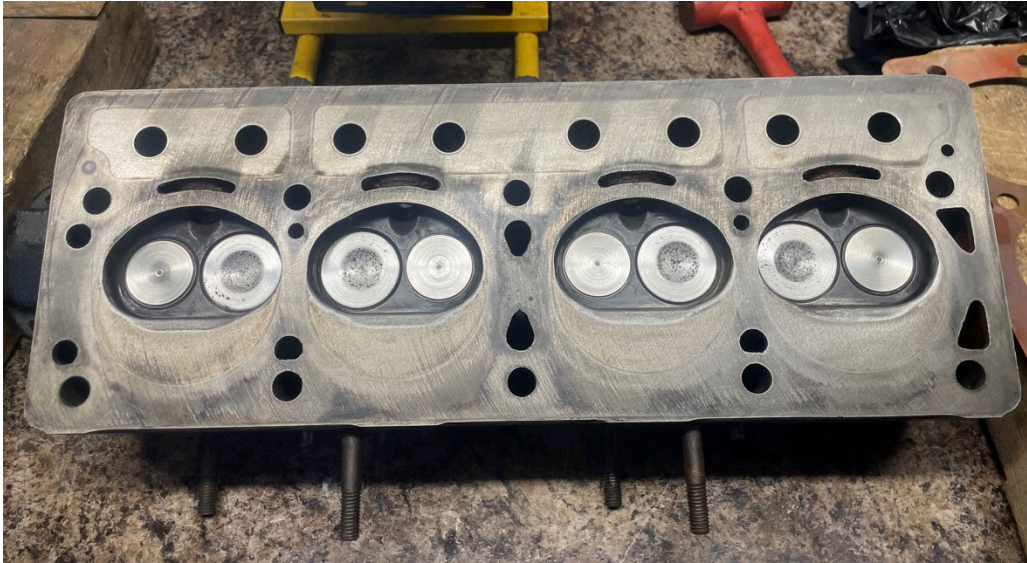
The new forged conrods are balanced to within 1g, weigh around 2/3 the weight of the standard item and are much stronger.

All the big end shells looked good and so were re used in the new rods having been marked on dis-assembly so that they could be replaced in the same positions and orientation. The bearings were all assembled with a coating of Penrite Assembly Lube to protect the surfaces on initial cranking and start-up.

It is notable that in this case the MaXpeeding conrods were a direct replacement for the standard parts and remained well clear of the bottom of the cylinder liners throughout the rotation of the crank. Some installers have found that the rods hit the liners so I suspect that some replacement liners may be longer than others.

During the previous rebuild I had been conservative in my choice of head gasket and had elected to use a 1.5mm thick copper gasket to give compression ratio of just under 9.5:1. Given the lack of any pinking, running on or other problems I decided to fit a 0.9mm to give a calculated increase to 10:1 which should better suit the fast road cam fitted.

I also took the opportunity to fettle the head a bit more. The valves were cleaned and the profiles modified to remove the distinct steps of the standard items and round the edges to improve the gas flow. The edges of the chambers were rounded off and smoothed adjacent to the valves and the valves given a light hand grind to improve the seats.



Cylinder head after "fettling"

The edges of the cylinder liners were locally chamfered adjacent to the inlet valves to a point above the extent of travel of the top ring to improve the inlet gas flow, which is otherwise presented with a sharp step when the inlet valve shrouding is ground back.



The small but useful chamfer on the edge of the liner

The new solid copper head gasket was annealed using a camping gas stove augmented by a propane torch. The copper needs to be brought to a red heat and then left to cool to achieve this vital step. The treatment leaves the copper soft enough to conform to the profile of the liners which need to be a couple of thou' proud of the block to achieve an effective seal. The gasket was painted with a light coat of Welseal on each side before being fitted between the clean, dry surfaces on the block before the head was torqued down in four stages to 105 ib/ft.

The head nuts will be re-torqued in a few hundred miles time.

The ignition coil was disconnected and the engine turned over with the starter until oil pressure was evident on the gauge. The coil was then re connected and the engine started. It was immediately evident that the rattle had been eradicated.

Road testing revealed that the engine was smoother and livelier than it had been prior to the remedial work.

Paul Evans – TR2

In the corner of North Devon Metalcraft's workshop Paul's long term TR2 rebuild is progressing slowly but surely. The aluminium body is now complete and ready for its coat of old English white paint. The hardtop is complete having already been painted and trimmed.



The running gear was completed a few years ago but having driven a couple of cars fitted with rack and pinion steering Paul decided to modify the car by fitting a bolt on rack and pinion kit from Moss.

Dennis Hobbs – TR5

Winter Maintenance

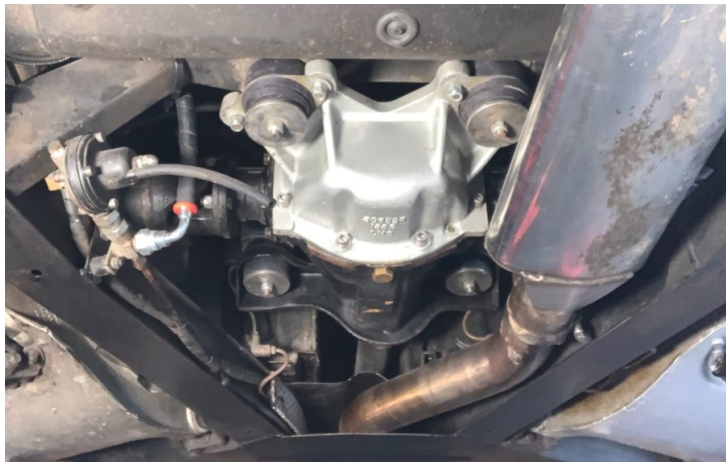
Dennis hasn't been wasting his time while the weather has been sub-optimal for TR jaunts and has been catching up on a bit of winter maintenance In the Garage.

Dennis writes:

My first job this winter was to upgrade the fuel pipe from the Bosh pump to the PRV. This was to prove more difficult than I thought. I contacted numerous TR suppliers only to discover that none of them had stock or could source one. One supplier offered me a second hand one but not the R9 specification or above required for modern fuels containing ethanol.

I contacted Chris Wittor who specialises in parts for the 2.5 Triumph saloons. He had an R9 one at a very good price. It was long enough but had right angle bends both ends so would not fit the TR5. I also tried but failed to have one specially made.

I then remembered SC parts, a supplier I had used in the past for a new door window glass. They listed the hose on their website and after contacting them to establish that the hose was at least R9, I ordered one. It was a bit pricy at £96.52 including post & packing and took seven days to arrive. To my surprise it was marked Made in the USA and I think it may have come direct from the manufacturer but it had the R9 rating marked on it so I was confident that it would be suitable for use with fuels that contain ethanol.



The new R9 hose with its elbow fitting connected to the pressure relief valve.

The next job was to remove the drive shafts to enable me to check and re-grease the outer universal joints. I use modified Datsun 180 drive shafts, which feature a CV joint and larger U/Js than the Triumph shafts. The outer grease nipple falls inside the swinging arm casting making it necessary to remove the shaft for routine re-greasing. With the half shaft removed I took the opportunity to clean the cast alloy swinging arms and check for any cracks or damage. All was well so I went on to clean the brakes with a spray cleaner from Parts Services and re-paint the brake drums.



On to the next winter job, which is routinely repeated every three years or so. With TRs corrosion protection is key, so I treat the inner chassis with Dintrol cavity wax using a Texwax Injection Kit. A radial spray pipe passed up through the chassis rails from front to back including the inner chassis and cross members. I then change the spray nozzle to spray up into the bottom of the doors ensuring that the windows are raised to avoid waxing the glass. The upper seat belt mountings are then removed to spraying down inside the B post.

The carpeted kick panels are then removed from the foot well sides to gain access to the inside of the A post. The final job is to spray the plenum chamber through the air vent flap on the scuttle that supplies air to the heater. Not too much here as it can get into the heater blower.



With all the jobs completed I'm pleased that my body has survived all the crawling about under the car unscathed.
Dennis Hobbs

Workshop Round Up

There are plenty of people are beavering away In the Garage ready for the coming season:

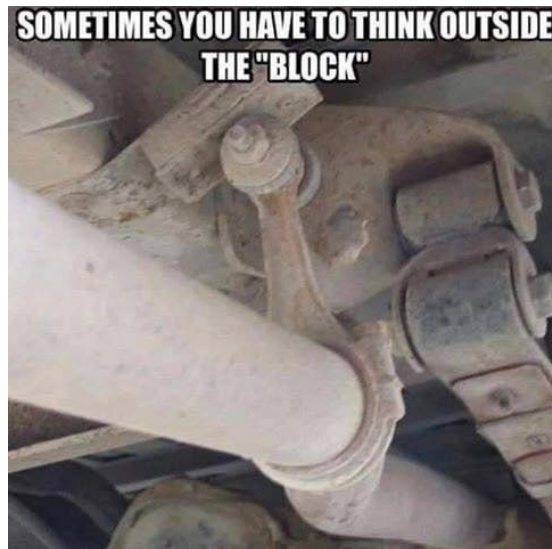


Martin Lovell's TR6 is being treated to some minor rust repairs and paintwork improvements.



After his 'off' last year John Blake has been working hard to rebuild his TR4 body ready for the 2024 Hillclimb Series.

This issue's parting shot:



You – Your Car

Thanks to all our contributors to this issue.
Contributions and feedback (positive or negative) are always welcome.

What's happening in your garage?
Please make a few notes about *your* garage exploits and email them to me for the next issue.
Contributions are best managed by sending in plain text with attached photos or in Word format.

Mail your notes and pictures to: andrewawillmott@gmail.com

Andrew W