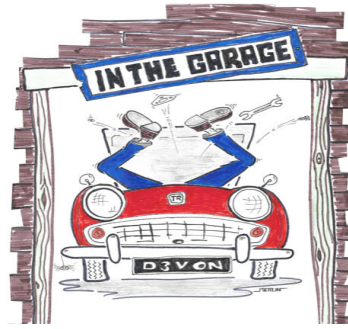


# In The Garage



**December 2022**

Issue 16

Welcome to Issue 16 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 & TR4**

### **TR4 Brake Refresh**

Returning from a day trip I noticed that the drivers foot well mat had become a little slippery. A quick finger test revealed that the mat was smeared with silicone brake fluid. Further investigation revealed a slight drop in the brake master cylinder reservoir level and some evidence of leakage from the dust seal. The fluid had dripped down through the pedal slots and onto the mat. Since owning the TR4 I've not rebuilt the braking system, work being limited to fluid changes and replacement of pads and shoes. A rebuild was obviously required before the car was used again.

Fifteen minutes in the garage saw the master cylinder removed and stripped down on the bench. The problem was immediately evident; the internal seals broke up as they were removed!



The metal internals were showing some signs of corrosion too so all of the components were cleaned and blown through with an airline for inspection. Everything apart from the seals was re-usable so it was a simple job to rebuild the cylinder with a new TRW seal kit from my spares stock. The seals were lubricated with new brake fluid to aid assembly.

Considering the condition of the master cylinder seals there was no choice but to continue the strip down and examine the callipers and slave cylinders. As usual this job was "growing legs".

An hour and the obligatory cup of tea later both callipers and slave cylinders had been removed from the car and were out on the bench ready to be stripped down. The calliper pistons were quickly removed by connecting a bicycle pump to the bleed nipple and with the inlet port blanked off, a couple of pumps and a bit of jiggling popped them out.



The pistons and seals were in good condition with only slight corrosion evident on the outer edges of the pistons. The corrosion was quickly polished off with some steel wool leaving the pistons ready for re-assembly. The calliper bores were cleaned and the surfaces polished to remove some minor corrosion before being fitted with some new old stock Girling seals. The pistons were re-fitted with plenty of silicone fluid for lubrication. With new Girling dust seals in place the callipers were ready for re-fitting.

The slave cylinders were easily dismantled, cleaned and re-assembled using new seal kits and were quickly like new and ready for re-fitting.



Water in the fluid was evident from the spillage on the bench, the discoloured water showing up distinctly against the clean purple tinted silicone fluid.

A disadvantage of using silicone fluid is that any water finding its way into the system through the reservoir breather will remain separate from the oil, promote corrosion and in the worst case can boil causing brake failure. Standard brake fluid will absorb the water, which will then be removed with a routine fluid change.

I've used silicone fluid for at least 40 years and never had a problem with it so I'll continue to use it but will strip out the callipers and clean them when I change the fluid. Standard brake fluid seems to strip paint better than the paint strippers available today and that's reason enough for me not to use it.

While the dynamic components were on the bench the brake lines on the car were blown through with an airline to remove any contaminated fluid prior to re-assembly.

When the slave cylinders had been removed they revealed grooves worn in the back plates by the handbrake pivots. This is a common problem on all models of TR and the tried and tested solution is to weld up the grooves and flush them back with an angle grinder. It can be done on the car but it's a lot easier on the bench so the half shafts and hubs were removed as an assembly to release the back plates. John Blake did a great job of welding and flushing them back for me and they were given a light coat of paint before building everything back up and checking the half shaft end float. As I had been careful to make sure that the shims had gone back in their previous positions, and that the back plates were left with not much more than overspray on the mating surfaces, I found that the half shaft end float remained within tolerance.



With all the component parts now refurbished everything was fitted back to the car. The only thing which some may find problematic is the re fitting of the clips and gaiters around the slave cylinders. There is an excellent guide to this process on the TR Forum that will save me a lot of typing. It can be found here:

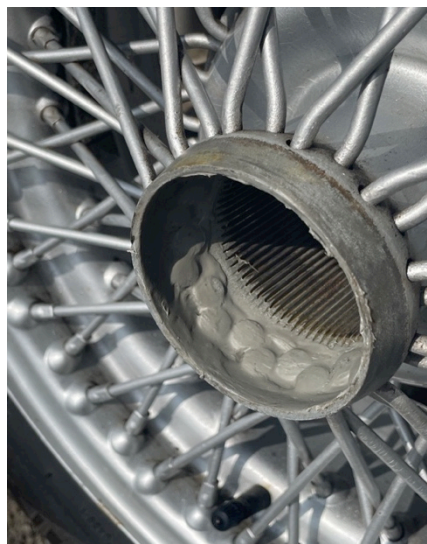
<https://www.tr-register.co.uk/forums/index.php?/topic/71842-girling-rear-wheel-cylinder-dust-cover-fitting/>

The master cylinder was filled with new Automec Silicone brake fluid and the system bled. A road test revealed a nice solid feel to the brake pedal and no leaks to be found.

### **Wire Wheels – Greasy Spokes**

Cleaning wire wheels is not the easiest task at the best of times but it can often be made more onerous by grease migrating up the spokes towards the rim from inside the hub.

Having spent some time cleaning the wheels on the TR3 I went the extra mile and degreased the inside of the hubs prior to treating the heads of the outer spokes to a smear of body sealer. This simple measure has cured the problem.



### **TR3 Manifold Clamp Modification**

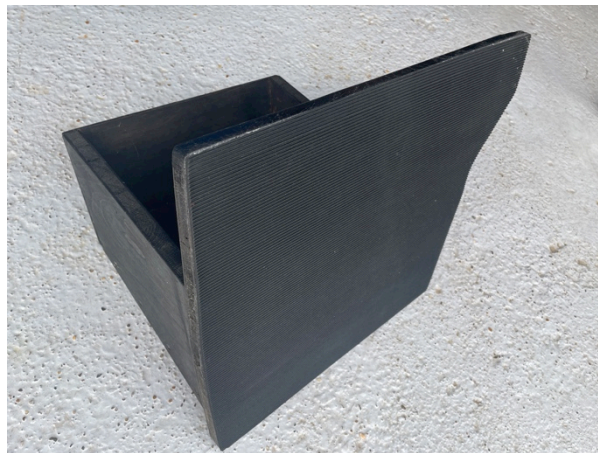
Many of you will have fitted aftermarket exhaust manifolds and most will have found that the replacement manifold has a thinner flange than the standard cast manifold making the fitting of the clamps problematic. Some leave the clamps wonky, which can bend or sometimes break a stud off in the head; others weld extra material onto the clamp or the manifold flange to make up the deficiency. I had a box of drive pins in the garage so it was a simple job to drill the clamps and press in a pin to one side of each clamp.



### **Mk 3 Footrest**

Anyone who has ever been anywhere in a TR for more than a few days will know that space is at a premium. It is always difficult to store tools where they are easily accessed without unpacking everything so with that in mind, and following on from the Mk2 footrest, described in Issue 14, the Mk3 was born.

This third iteration was made from 18mm blockboard and features a tool storage bin and higher footplate that conceals anything stored behind it from all but avid speleologists. For our trip to Classic Le Mans the bin housed the tool roll and an emergency starter pack with a box of wine and a box of cider on top ☺.



If anyone wishes to replicate the footrest, which definitely fits a TR3/4 and probably fits the other models, let me know. I can easily make a cardboard template to work from.

## Mark Radford – TR6

Last year, on his way to a Devon Group picnic meeting, through no fault of his own, Mark had what equestrians might term an “unscheduled dismount” which resulted in a ride home in a recovery truck and subsequently buying his well regarded black TR6 back from the insurance company. A course of action regarded as a bold move by some.



Mark started his new project on the same day that he recovered the car back to his workshop, stripping parts off and assessing the damage while formulating a repair strategy as he went. He found that the first part of his plan was a lot easier than he had imagined as was able to find a replacement car within the Devon borders to use during the restoration and buy him some time. The car was finished in white, a considered choice.

With a little help from other group members the car was soon reduced to a bare chassis and the real damage was revealed. The chassis ahead of the crucifix section was badly twisted, crushed, wrinkled split and lots of other words which would discourage most people, but not Mark.



There was little chance of straightening the damaged sections so the disc cutter was pressed into action and the offending parts were cut away leaving the surprisingly straight and rust free rear end ready to accept new repair sections. The undamaged suspension turrets and various other minor brackets were all cut away from the damaged sections and fettled ready for re assembly. A local fabrication company were pressed into service folding new sections for the replacement chassis legs and internal strengthening webs.

*Some of the new and reclaimed parts prepared for reassembly*



An assembly and alignment jig was made from made from some sheets of OSB mounted on a wooden frame and with reference to the dimensioned chassis drawing in the workshop manual and the aid of a laser level and tape measure the rear section of the chassis was bolted down and blocks fitted to correctly align the new front sections. It sounds like it may be Heath Robinson, however the results are anything but. When ready for welding the new sections were all well within half the original factory tolerance of + or -2mm at the cost of some weeks of hard graft.

With the jig mounted on Mark's trailer the chassis was moved to Bob Dove Racing's workshop in the north of the county where it was treated to two days of skilled welding by Mikey Dove before its trip back south.

*The chassis being fitted and aligned in the jig.*



*Welding and finishing the chassis legs, showing the Internal strengthening webs*



The photos below show one of the two critical joints where the old joins the new. The holes were all plug welded through to an internal sleeve and the seams fully welded prior to flattening back for a very strong and invisible join.



The old turrets ready to be welded to the new legs and cross member and the completed chassis fully welded and back home ready to act as the jig to rebuild the body shell.



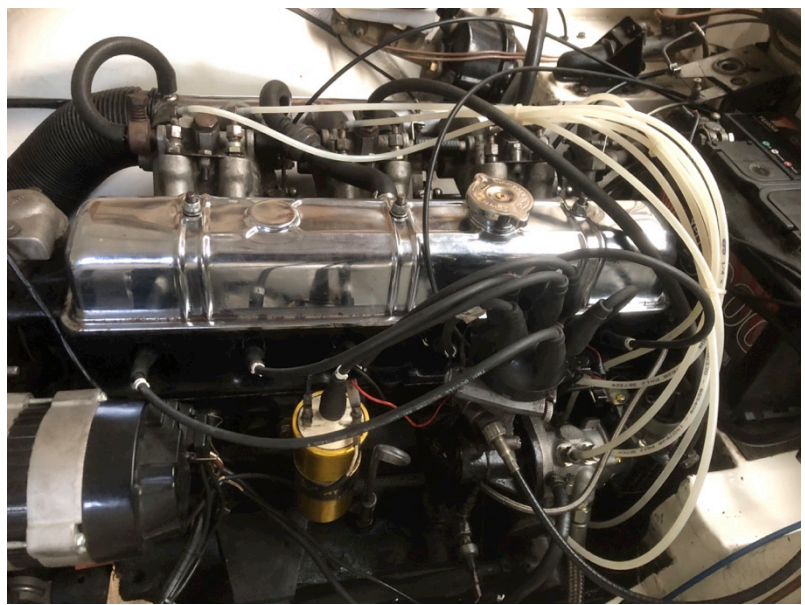
The next "In the Garage" will hopefully report on bodywork progress.

## **Steve Williams – TR5**

As usual Steve has been racking up the miles in his TR5 this year, attending lots of shows and keeping the TR profile high. He had noticed a marked increase in fuel consumption and resolved to investigate and find the cause. After a fruitless search for leaks, checking the timing and valve clearances Steve focused his attention on the metering unit, which had provided good service for at least 15 years without attention. A few minutes work exposed the rubber diaphragm and close inspection revealed a split.

A new diaphragm was ordered and fitted together with a set of translucent nylon injector pipes, which allow quick diagnosis of air in the system when the six cylinder engines drop onto five cylinders and one needs a quick roadside bleed.

Note also the new oil filler cap to replace the original which went astray when a local garage changed the oil; it's always worth a quick check under the bonnet after a service and before driving off!



Steve was confident that he had remedied the poor fuel consumption but monitoring the consumption revealed little change.

The next port of call was to rebuild the metering unit. Steve had the foresight (and good fortune) to obtain a spare metering unit some years ago, so he was able to send the spare off to Neil Ferguson for a full rebuild while keeping the car on the road.

The rebuilt unit was returned in good time so with the engine set with No1 cylinder at top dead centre on the firing stroke, the old unit was removed and the rebuilt replacement fitted in its place ensuring that the fuel timing was correct. The engine fired up easily and ran well so hopefully the fuel consumption will improve from the woeful 20mpg previously recorded. Steve will report back once the car has a few more miles under its belt.

## **John Blake – TR4**

John has had an overdrive switch on his gear knob for many years that had suited him well for road use, but with his new Hillclimbing career in full flow he had suffered a few unscheduled overdrive selections during frenzied gear changes.

He felt that having a push button on the steering wheel to signal his overdrive logic unit would suit him better and avoid unwanted selections.

Having sourced a suitable button which fitted snugly into one of the spoke holes on the Moto Lita wheel he wired it up with a coiled cable like an old style telephone handset and found that it worked and suited him well.

The problem came when he also fitted a quick release steering wheel boss which when removed remained tethered to the car. An online search found a wireless button and receiver, which was ordered and quickly delivered. The receiver unit was mounted under the dashboard and connected to the logic unit and the button clipped to the steering wheel. Trials bore good results but the button was overly large as it contained the battery and electronics for the sender. A bit of ingenuity allowed the wireless button to be mounted behind the wheel with a short cable connected from the internal electronics to the button previously mounted to the hole in the spokes. John now not only operates the overdrive from the steering wheel button without the coiled cable but is also pleased to demonstrate that it still works when he is outside the car with the wheel in his hand ☺





## **You – Your Car**

Thanks to all our contributors to this issue... just me this time ☺  
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](mailto:andrewawillmott@gmail.com)

Andrew W