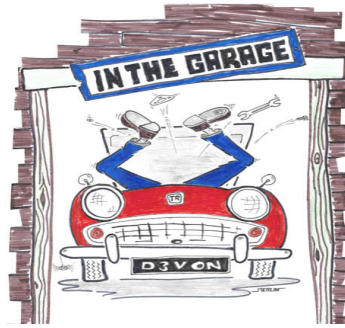


# In The Garage



**Sept 2025**

Issue 22

Welcome to Issue 22 of In The Garage. We are always looking for content so please let us know what's happening in your garage, especially if you are a new contributor.

## **Andrew Willmott – TR3**

### **Period Look Oil Catch Tank**

Despite all my efforts over the years, and like the majority of TRs, my TR3 tends to mark its territory when parked by dripping oil from various sources. I've never addressed the drips from the crankcase or rocker cover breather before and when seeking a catch tank all the commercial options seemed that they would look out of place. I resolved to make my own "period style" tank.

The common BL brass expansion tanks looked like a good start and I was lucky to find one with a slightly deeper profile at an auto jumble. The brass construction allowed me to turn brass hose connections on the trusty Myford lathe and then easily solder them into place, after pre soldering downpipes into them.



*Downpipe made using copper plumbing fittings soldered to a turned brass nipple*



*all soldered and leak tested*

The commercially available filters didn't fit the aesthetic so a spare rocker cover breather was pressed into service. Although the outlets around the underside of the mesh filter were adequate, the inlets were rather less suitable comprising just four 3/16" diameter holes. I opened these up to 5/16" diameter and made a further port through the centre with a 5/8" dia hole saw. Hopefully the five holes will be adequate to cope with the airflow.



*Standard breather*



*Modified Breather*

I would need a bracket to attach the tank to the inner wing so at this at this stage I started to research the source of the original tank to see if a bracket was available.

It transpired that the tank would have been originally fitted to an E Type Jaguar and that matching brackets attracted E Type prices.

I found a sheet of 1/8" brass plate in my stock and an hour of sawing, drilling and filing produced a bracket ready to be profiled to match the tank and be soldered into place.



*Additional holes allowed solder to be fed in behind the bracket*

Three black plastic spacers were turned on the lathe to stand the bracket off the inner wing and with a coat of black gloss the tank was ready to fit.

I didn't want to cut up my original crankcase breather snorkel, in case it needed to be refitted, so a new breather tube was fabricated from a few bits of stainless tube and welded together courtesy of Mickey Dove from Bob Dove Motorsports. Accessible mounting points are scarce around the rear of the crankcase, so a long stay was welded onto the tube to reach forward onto the vacant coil mount part way along the block.



*Breather tube mocked up on a spare block*

The tank was mounted on the inner wing using plastic spacers to span the loom that passes under it, and the breather tube was fitted to the block. The tank was connected using 1" bore and 1/2" bore silicone hoses. The larger hose has a pre formed 90-degree bend as straight hose of that size kinks when bent into position. A spare radiator drain tap was fitted to a port at the base of the tank to drain off any condensate.



To help condense any oil vapour a Range Rover flame trap was fitted in the rocker cover hose and the tank was stuffed with stainless steel pan scourers. Although they are the same product, rather unsurprisingly, they proved to be much cheaper than catch tank wadding.

### **TR3 Rebuild Details**

Just a few little mods carried out during my recently completed rebuild:

#### **Bonnet Lift Bush**



The bonnet lift pin has always scraped and squeaked in the guide. The hole in the guide was opened up and a top hat bush turned from black nylon. It is securely sandwiched between the guide and spring plate.

### **Badge Mounting**



TR3 badges are usually attached using spring clips that rust. They are difficult to remove on the odd occasion that you may want to clean around them or attend to a stone chip. The brass pins are easily threaded to take a 10-32 UNF nyloc nut. (M5 will do in the absence of a UNF die)

### **Loom Clips**

The standard T shaped steel loom tabs don't do a very good job and break off very easily. They also create a rust trap, as they were always spot welded in place prior to any paint being applied. During the rebuild I ground off all the tabs and drilled a small hole to attach plastic loom plinths to which the loom can be securely tie-wrapped. The new custom built loom was wrapped in a split braided plastic cover so that any replacements or additions can be easily tucked in.



### **Speedometer Cable Routing**

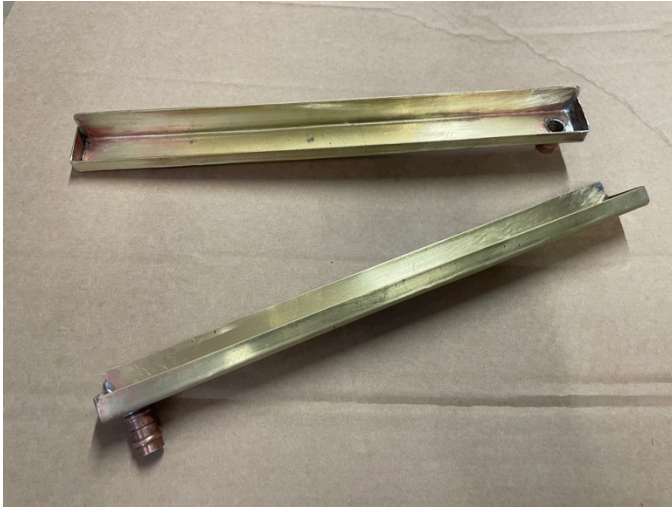
I can't claim that this is unique, as I've seen it on a couple of Neil Revington's rally cars. In an effort to keep the speedometer cable clear of the hot exhaust and tidy up the engine bay I decided to route the cable inside the cockpit. Where it usually exits the gearbox and routes under the floor I lifted it above the floor where it loops smoothly under the carpet, up behind the foot well trim, along the bulkhead under the foot pedals. It then curves neatly up alongside the steering column to connect with the speedometer. The standard length cable is used and only a slight modification to the gaiter retaining plate is required.



### Under Wing Drainage Channels

It's common on early TRs to fit drainage gutters on the inner wings and pipe them into the wheel arch. This avoids the rainwater from the bonnet gaps running down the inner panel and feeding the rust trap where the bottom of the front wing attaches. I hadn't got around to this before and consequently had a few front wing repairs to attend to during the rebuild.

I used brass sheet to make up a pair of gutters. Brass may seem a bit extravagant but it doesn't rust and is easy to solder together. The gutters were bonded to the inner panel using Tigerseal with pop rivets holding them in position. The whole area was given a few coats of cavity wax and a convoluted plastic pipe fitted to direct runoff out through the wing's closing panel.



### Door Handle Spindle Bushes

The door handle spindles on TR3s are not well supported on their inner ends and over the years this had caused the door skins to distort. It's not helped by new passengers attempting to lift the handle to open the door! A nylon bush was made to support the spindle in the inner doorframe and the end of the spindle was drilled and tapped to allow a screw to firmly attach the operating lever to the spindle. While I was working on the door I fitted an adjustable stop screw for the operating lever. This allows adjustment of the angle of the exterior door handle when it's at rest. The lever usually stops against the pressed steel inner frame and consequently door handles are often seen at all sorts of jaunty angles. The stop screw is seen in the second picture just above the access hole to the left of the spindle.



## Speedometer Calibration

The speedometer was calibrated many years ago to match the 5-start speedo drive saloon type annulus, which was fitted to the overdrive. A recent transmission swap for a unit with the correct 6-start drive left the speedometer wildly inaccurate so re-calibration was required. This can be achieved easily in a home workshop with a bit of care and patience and without any special equipment.

The speedometer mechanism is simple. It comprises a needle attached to a shallow lipped steel disc, which is free to rotate other than being restrained against the needle stop by a very light spring. A magnet sits in close proximity to the disc. The magnet is rotated by the speedo drive and the magnetic field moves the disc until the force is balanced by the spring and the needle settles to indicate the current speed.

Four factors affect the indicated speed:

1. The speed of rotation of the magnet.
2. The strength of the magnet.
3. The position of the needle on the spindle.
4. The strength of the return spring.

Given that the return spring rate is fixed and the rotation speed is set by the mechanicals in the transmission, we can only easily adjust the needle position and the strength of the magnet.

If the speedometer error is a constant value throughout its range the needle position will require repositioning whereas if the error is a constant percentage (the error increases at higher speeds) then the strength of the magnet will need to be adjusted. This can be determined by comparison with GPS speed readout from a Satnav or a "Speedo" app, which can be downloaded free of charge to a smartphone.

With the speedometer removed from the vehicle it can be driven using an old speedo cable, or a suitable adaptor connected to an electric drill, drill press lying on its side, lathe or any similar method cobbled together to turn the drive anticlockwise looking at the rear of the instrument. Driving the instrument at around 900 rpm should indicate around mid scale but the speed is not critical as long as it is constant. Make a note of the indicated speed and temporarily fit the unit back into the car. Drive the car at the same indicated speed and make a note of the actual speed from the GPS source.

With the speedometer back on the bench the gaskets will need removing from the case. The chrome bezel and glass is easily removed by easing the bezel tabs back a little with a small screwdriver before twisting the bezel to release it from the case. Be careful not to break the glass or knock the exposed needle. Remove the trip-reset extension by unscrewing the very small screw in the side of the shaft found where the shaft enters the speedo case, and set it aside.



*The bezel tabs shown lifted slightly and ready to twist to align with the case cut out for removal.*



*Rear view of the case, showing the two screws holding the mechanism in place.*

The two screws on the rear of the speedo case can now be removed and the mechanism extracted from its case. The reset shaft may need to be slightly depressed with a small screwdriver to clear the case. The speedometer mechanism is delicate when not encased so during the whole process great care must be taken not to damage it. The speedometer is required to over-read in order to recalibrate it, if it under-reads we need to increase the strength of the magnet. I use a bar magnet made from a stack of small neodymium magnets stuck together for this.

First the polarity of the spinning magnet must be identified. Mark one end of the bar magnet N for North and stroke it along a sewing needle a few times to magnetise the needle. Suspend the needle horizontally from its centre by a thread of cotton and bring the magnet towards it. The south end of the needle will be attracted to the north end of the magnet. Note which are the north and south ends of the needle.

The needle is then hung near the rotating magnet in the speedometer mechanism and the south end of the needle will be attracted to the north end of the rotating magnet and vice versa. The north end of the speedo magnet can now be marked with a felt pen.



*The speedo mechanism showing the rotating magnet marked to indicate the north pole. The needle drive disk with its small lip can be seen behind the magnet.*

The speedo magnet can now be re-magnetized by stroking the north end of the bar magnet from the centre of the speedo magnet to its north end a few times before stroking the south end of the bar magnet from the centre of the speedo magnet to its south end. The speedo magnet should now be over magnetised and the speedo should over read when spun up on the bench.

With the speedo being driven by the fixed speed source it is now required to read the value recorded during the road test. With the speedo being driven by the fixed source and over reading the bar magnet is held close to the spinning magnet while observing the indicated speed. The spinning magnet will de-magnetise as it spins past the bar magnet and the indicated speed will drop. Continue until the indicated speed matches the required speed recorded in the car.

On rare occasions the needle may need to be re-set. The needle stop is a small piece of wire fixed to the rear of the instrument dial and can be withdrawn through the face to free the needle. Without the stop the needle should rest over a small white dot near the 6 o'clock position on the face.



*The needle stop is secured to the rear of the instrument face at one end. The stop end is easily withdrawn to free the needle.*



*With the needle stop withdrawn the zero reference is the small white dot just to the right of the 0 mph mark.*

If the instrument over-reads by a constant value the needle can be carefully levered from the spindle with two screwdrivers (or a needle puller) being careful to protect the back of the needle and the instrument face which are both easily damaged. The needle can then be repositioned to account for the discrepancy and the stop reinstated.

In theory the instrument should now read correctly when road tested in the car, but in practice a few attempts may be required to achieve the required result. Be warned, great care is required at all times when working on instrumentation due to the delicate nature of the components. The mechanisms can be easily damaged and are susceptible to malfunction due to the ingress of dirt, detritus, over oiling or the use of anything other than very thin instrument oil.

## Top Tips



Tie-wraps can be stored neatly by cutting the lock from the end of one and threading them onto the remaining strip.



Remove stubborn split pins by slipping a nail through the eye end and levering with a pair of long nose pliers.

## This Issue's Warning



I don't use RTV Silicone and try and dissuade anyone else from using it too. I've seen it cause problems by blocking small ports and oil ways, wrecking major components and in one case blocking an oil pressure gauge line and causing major consternation and much fettling trying to find the cause of the non-existent intermittent pressure loss.

I recently stripped the gearbox from my TR3 and found this small globule wedged between the lay shaft gears. It must have been introduced by the previous owner, avoiding detection through two gearbox rebuilds and floating around the transmission for over 40 years.

**Parting shot:**

So much negativity on-line, so I figured I'd share a positive post



### **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](mailto:andrewawillmott@gmail.com)

Andrew W