Totally T-Type 2

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TD17904 gets a new lease of life in South Africa

THE EDITOR John James

Easter was late this year; in fact it was getting on for the end of April. With all the doom and gloom which currently pervades our daily lives I thought I'd share this E-card with you, which certainly brightened up my Easter!

There seems to be no abatement to the never ending round of motor fuel price increases. A couple of days ago (I'm typing this on 1st May) the price of Brent crude had reached $120 a barrel; at this level we are not too far off the record of $147 a barrel of a few years back. As these 'spot' prices filter through to the petrol pumps it is bound to impact on vintage and classic car motoring with the result that owners will be looking at events nearer to home.

Various reasons are advanced for the upward hike in prices; the activities of speculators are cited by some, but it is difficult to escape the conclusion that it is mainly down to the laws of supply and demand. World oil demand grew by 2.8m barrels per day in 2010 (3.3% over 2009) and demand (led by China) has continued to grow in 2011. On the other side of the equation, supply is barely keeping up with demand, especially with the removal of 1.7m barrels per day due to the Libyan crisis. There are, of course, producers who could boost production, but is it in their interests bearing in mind that oil is a finite resource?

"The bitterness of poor quality lasts longer than the sweetness of low price". This maxim was related to me recently by a garage owner when I was accompanying a friend in his MG L2 for its first MoT test, following a five year rebuild (the car having previously been in the USA). Apparently, it was on a sign in an ale-house, which also prepared meals for its patrons.

At the time I was complaining about the quality of some of the after market spares which are sold nowadays – not always at a low price!

When I started including recommended suppliers on the website http://ttypes.org/ I had the issue of quality very much in mind. I do not charge for advertising, either on the website, or in TTT 2; suppliers are there, either because they have been recommended or because I have personal experience of their quality and service. They do not, or never will, be included because of the size of their wallets!

Some readers will know that I sell, on a non-profit making basis, a limited range of spares. Invariably this is because I need a part for my own rebuild and rather than get just one made, I arrange for a small batch. A good example of this can be found on page 22. The supplier I use for spares such as king pins and shackle pins is Steve Brook of Crick, Northamptonshire. Steve, a precision engineer has been making parts for vintage and classic cars since 1982.

Any parts that I sell quote the material specification and come with either a NDT certificate or a materials certificate. I can't do more than that!

One bonus of putting together this magazine and keeping the website up to date is the contact with T-Type owners all around the globe. I get a particular 'buzz' when I am able to help somebody. One recent example concerned the owner of TB0607 (pictured below) in Sweden. Prior to its recent rebuild the car had languished in a barn in Sweden for thirty years. It had no papers when it came out from England, which didn't seem to matter much all those years ago, but it certainly did when the time came to register the car with the Swedish Transport Authorities! Through the good offices of my friend Gabriel Öhman and his excellent "Swinglish" we were able to convince the Authorities that the car is a genuine Abingdon product, which left the Factory on 17th October, 1939.

Just enough room left to let TA/TB owners know that there is a pre-war 'Garden Party and Hill Climb' meeting at Prescott on 16th July hosted by the Vintage Minor Register. Go to http://www.prewarprescott.com for more details.

FRONT COVER - TD17904 from Zimbabwe gets a new lease of life in South Africa

TD17904 as found in Zimbabwe

A TD Rebuild was not even on the radar!

I was due to retire at the end of 2008 and was looking for a project to ease myself into retirement. I had been an MG fan for many years, which probably started when I left school and my dad bought me a 1949 MG TC wreck which had to have extensive repairs. From there I graduated to a 1959 Austin Healey Sprite, then marriage, mortgage and kids, which meant I had other more pressing commitments that required my attention and contents of my wallet. By 1995 these commitments were past and I could return to things MG so I purchased a 1965 MGB roadster basket case. Since then I have rebuilt six MGB roadsters so my upcoming project was probably going to be another B roadster, or so I thought.

….until a friend returned from a visit to Zimbabwe with some photos of a TD

A friend had two Frogeye Sprites ex-Zimbabwe that he started rebuilding but had lost interest in; we were in negotiations when another friend returned from a visit to Zimbabwe with pictures of a MG TD that had been standing since 1975. The dilemma was now Frogeyes or TD; with these two on offer my thoughts of another B roadster faded into the distance. Prior to retiring I was responsible for our subsidiary business in Zimbabwe so on my next business trip I went to see the TD. It was parked under a lean to structure where it was left in early 1975 due to an apparent engine seizure, but it was complete and apart from rust was not damaged. The 'as found' picture however belies what lay underneath. The TD won the race and I made an offer to purchase it there and then.

Getting the car out of Zimbabwe was the next challenge as it carried a now expired South African licence, but was never registered in Zimbabwe. Speaking to local Customs officials I soon learnt that the Zimbabwe authorities were aware of the value of vintage and classic cars that were being taken out of the country and were consequently confiscating them at the border for the slightest reason, to be sold on auction. The solution was to entrust the removal to the local Zimbabwean who had brought the two Sprites out; money upfront and take my chances was the only business model that could work and it did, the TD was delivered in January 2009.

Assessing the work – taking on a challenge!

With time on my hands I could now do a realistic assessment of my purchase; it was much worse than I anticipated and my first thought was to strip and sell the parts as spares to recover my costs. Fortunately, that thought only lasted a week as my appetite for a challenge took over.

I learnt from the owner that he bought the TD in 1964 in Salisbury and that he had it rebuilt in 1974. He proudly told me that they used Rhodesian Teak (also known as rail sleeper wood) for the tub timbers and that the engine had been overhauled at the same time. He drove the TD for his daily commuting and as a land surveyor he used the car to travel to outlying regions where there were only tracks.

I registered the car with the T Register and found that it left Abingdon on 18 July 1952 and both engine number and chassis numbers were matched and original. The original colour was Ivory with green trim.

The objective was to restore it to its original colour and as close to original as my budget would allow, without taking out a mortgage on the house and this meant doing as much of the work as I could myself.

Any newcomer to a T-Type rebuild is advised to spend time doing internet research on the rebuilding of one of these cars, preferably before buying, as there are many guys out there with a lot more experience that they are willing to share; once committed, find someone who is doing a similar rebuild as original parts are often missing and parts and ideas can be exchanged or borrowed to use as patterns.

Sound advice from Horst Schach

Stripping the car was relatively easy but as each panel was removed more horrors were uncovered. The front quarter panels had rusted through where they abut the mudguards, the front splash pan was irreparably rusted and beyond saving, the RHS front mudguard had rusted away where it joins the splash pan. Apart from the splash pan that had to be renewed all the other panels were saved by welding in new hand shaped sheet metal sections. Horst Schach in his TD restoration book gives good advice when he says not to throw anything away until the job is completed.

The chassis was stripped, sandblasted and primed prior to painting; suspension and steering was overhauled and new tie rod ends fitted. The drive shaft universal joints were renewed and the shaft balanced, the differential was inspected and the pinion bearing and oil seal were renewed. The oval hole wheel rims suffered severe rust damage due to standing in water after the tyres deflated and only two were salvaged. My centre wheel hubs were cut out of the damaged rims and fitted into donor 15 inch rims with new rivets and a generous bead of welding for good measure.

Having stood for 36 years I assumed that all the springs would have lost some of their resistance due to being in compression for so long; this was certainly true of the front suspension, so they were re-tempered and set to their original length, other springs were replaced as assembly proceeded.

Probable explanation for the ‘engine seizure’

The engine was tackled next. The car had apparently been driven and parked but the next day the engine would not turn over and even after trying with a second battery the owner assumed that the engine had seized. I found this rather odd as seizures normally occur whilst driving. Whilst stripping I found that the starter motor bolts were loose and must have been so for some time as it had come out of the bell housing spigot; the starter pinion was out of mesh with the ring gear and the starter motor shaft was bent. This must have jammed up the works and could have been the “engine seizure” that caused the car to be left for 36 years. My elation was short lived however as the pistons were rusted solid in the cylinders. Someone had removed the sparkplugs at some stage and with the cylinders open to the atmosphere rust took over. The engine block was previously bored to +.060” and surprisingly the pistons hardly showed any signs of wear - we did however have to machine the old piston rings out of the grooves. After careful examination and measurement we decided that the pistons were still in good order for further use. The block was re-sleeved back to +.060” and the original pistons with new rings installed. The cylinder head was pressure tested for cracks but found to be OK; the valve seats were refaced but I decided to fit new valves. The crankshaft was crack tested and once again journals were found to be within specification and only new bearings were required. I can only assume that the car had not done many miles between the previous rebuild and the apparent seizure.

End float in the oil pump was excessive so gear ends, body and cover were machined to restore the clearance to specification, a new idler shaft and relief valve springs were fitted.

It pays to examine the big end bolts to see if they have been stretched, I found several that were, so I renewed the entire set. The need for applying special grease or thick oil on the camshaft lobes is well known and essential to prevent wear in the initial start up before the oil pump gets the oil circulating. Lastly, have lots of patience when fitting the rear crankshaft oil sealing cork; I had to do this job twice.

The gearbox looked OK except for the selector forks that were badly worn; these were built up and machined to the correct thickness to fit the grooves in the gears. Selector indent balls and springs were also replaced as were the front and rear oil seals.

The clutch and pressure plate looked in good condition so they were refitted only to be pulled out once the car was road tested due to severe clutch shudder. I had overlooked the damper spring plates between the clutch linings; they too had flattened due to standing. A new clutch plate together with resurfaced and reset pressure plate was fitted and the shudder was cured.

The radiator was never drained during the 36 years and the core had corroded away along with the lower water pipe and part of the thermostat housing, these were all renewed.

Exhilaration and a sense of achievement as the engine roars back to life after 36 years

A highlight at this stage was to refit the engine and gearbox into the chassis and the exhilaration of hearing the engine roar back to life after 36 years. This feeling of achievement gave me new motivation for the remaining challenges.

When doing the body work, the doors must be done first as they are used to ensure the correct positions of the two door posts.

When the previous owner did the rebuild he did not refit the original door locks and striker plates but used residential Yale front door latches, so the front latch pillars were never recessed for the striker plates. If anyone has worked with Rhodesian Teak they will know it is hard, very dense and difficult to cut and not friendly to any type of cutting tool.

Missing tub members were painstakingly fashioned by hand from oak using new sections borrowed from a friend and used as patterns. Assembly of the tub timber is best done once the angle iron frame has been set up and fixed to a pair of trestles as this allows work to be carried out at a comfortable height. All timbers were sealed with a polyurethane preservative.

Using grit blasting to remove old paint and rust is OK on the chassis and other heavy sections but be extremely cautious on thin body sections as the metal will tend to warp due to peening and/or heat build up. I used a number of different paint strippers together with a rotary brush on stubborn paint. Where light rust was encountered, phosphoric acid and a wire brush did the job. To do larger curved areas I covered the area with an old towel then saturated it with the phosphoric acid and finally covered that with plastic sheeting to prevent it from drying out.

Please wear proper personal protection when using these methods and chemicals.

Having stood for so long it was not surprising to find that the bottom of the fuel tank had rusted through and I could not see an easy way to repairing it. I was fortunate enough to find a used replacement with a sound bottom, however the filler neck had been removed so I had to cut out the filler neck from my tank and weld that into this tank.

Once the tub had been skinned it was ready to start the finishing process and at this stage a decision must be taken to either proceed on your own or give it to a specialist. I chose the former and started the process of achieving a smooth flat surface by filling minor dents and undulations. This process took several weeks, miles of abrasive paper, tons of dust and many coats of primer filler. The wife's vacuum cleaner came in very handy at this stage.

The car had been re-sprayed silver in its previous rebuild but I found that the underside of the toolbox lid was still the original ivory colour and after cleaning and polishing it was used to match the new paint mix.

Mudguards, bonnet and other loose panels were all prepared before any thought was given to applying the top coat. Unlike many European countries there are no laws here preventing the 'Do-it-yourself(er)' from spray painting at home; the other advantage was the weather, as most days were windless and above 25˚C. There were also days of 35˚C but I found this to be too hot as the paint dried too fast. I chose not to use a base coat clear coat system as I did not have the benefit of a spray booth so I used a two pack polyurethane paint in ivory for the top coat and applied several coats. I did not attempt any buffing at this time and left that until the car was fully assembled; this gave plenty of time for the paint to cure.

All 55 items of brightwork had to be re-chromed and it is advisable to do a background search on the company you choose, I chose a company close to where I live who had done good work for other classic car restorers but unbeknown to me they were going through a period of staff problems. Everything had to be done twice and they nearly ruined the radiator surround so do your homework on who you choose.

The front bumper and over riders were rusted beyond repair; both bumpers and the over riders were renewed. The rear luggage rack was also badly rusted but I made a new one and whilst I was at it I also made a badge bar for the front.

The original generator had burnt out but came with the car, unfortunately without the tacho drive gear; this together with the starter had to be rewound, the starter armature shaft was also straightened. A new cotton braided wiring loom was purchased as it does add a bit of originality to the job. Other electrical items that went missing on the way from Zimbabwe were the SU fuel pump, the coil and the Lucas voltage regulator - fortunately used units were readily available from local club members. I decided to convert the front side and tail lights to double up as turn signals. I have yet to find out if they will pass the roadworthiness test as they are not the amber colour.

The ignition/light switch had no key and the Bakelite housing was severely burnt at the headlight terminal but I was fortunate in that a friend had a new switch that did not work, yes a new reject which he gave me. On opening it I found that the blob of solder connecting the incoming power to the rest of the switch terminals had been omitted during manufacture. A blob of solder was all that was needed.

Having stood for such a long time I took all the instruments to a specialist for checking and lubricating. However, during the first 100 yards on the road test both tacho and speedo instrument let out an inhumane screech as they were about to seize. I stopped and disconnected both. The instrument guy got a piece of my mind when I took them back; he agreed to repair them at his cost but told me to check the inner cable length when I refit them. The original steel wound outer and inner cables were in the car when I got it so why would they now be different? I checked the inner cable protrusion at the dashboard end and found that they were indeed too long and when tightening the knurled nut it was putting an axial force on the instrument drive. This was odd but maybe I used a slightly different/shorter route to the dashboard -

who knows, but I took his advice and I cut both shorter and had no further trouble.

An unexpected delivery facility

Where it came to the interior this car's original dashboard had been discarded in favour of a once varnished plywood dash with a centrally mounted radio; the instruments were clustered together in front of the driver. As I wanted to get back to the original I had to find a dash centre panel, not easy to find here where I am. Fortunately there was a guy in Holland who advertised one on eBay UK, we did a deal and he asked if I knew his friend here in South Africa as he was a member of the club. I made contact and to my surprise he was about to leave for Europe and was going to see his friend in Holland, problem solved.

Talking of eBay I was also fortunate enough to get a set of new chromed fuel tank side panels, yes new and still in their wrapping; they were advertised by Moss Europe as shop soiled. I have yet to find the damage that they said it had.

I looked at local upholstery materials as a possible solution for the trim but decided against it as colour and patterns were nowhere near the original plus the hidem trim was just not available. I purchased a full trim kit from Moss. Doing a T-Type for the first time means there are lots of lessons to be learnt; for instance, knowing that the side trim panels go past the floor boards and that the width of the floorboards must therefore be narrower than the actual floor width to allow the panels to pass.

When I purchased the TD the steering wheel consisted of the three spokes, the centre hub and a bare metal outer ring. The outer wheel plastic had long since disintegrated. I decided that a woodrim would be a most appropriate replacement, albeit not original. Once again the internet has several sites giving details of how this is done, so armed with my router and a sheet of 10mm MDF I proceeded to make a wood or is it now an MDF rim for my steering wheel? The final product came out great and coated with a clear urethane sealer - looks like the real thing.

The hood frame that came with the car was cut in half for some reason and the bows were badly rusted. As I had an old hood frame from an unknown car, I was able to use these bows on the TD bits to make up a complete frame. The sidescreen frames were intact but without the chrome trim strips. Having rebuilt six MGBs I had an accumulation of damaged B side moulding strips in stainless steel. The B strips are too wide and of a flatter section but by squeezing them in a vice I was able to create the correct width and half round profile. A small dolly, hammer and bit of heat from a propane torch was all that was needed to create the spoon ends. Being stainless steel they were buffed to look like chrome.

I ordered a new hood and sidscreen covers from a local agent but on arrival I had two vastly different shades of tan which I rejected, this is the problem when importing parts, so I am waiting for a set that match.

The final hurdle here in South Africa is getting the car re-registered as it no longer appears on the department's computer. There is a system for these situations along with reams of papers, receipts of parts purchased and affidavits to prove it was legally purchased which were submitted in December but to date it is still not approved - yet another lesson in patience. So for now, TD17904 is in the garage waiting for its new licence - that is apart from the regular jaunt it does around the block on a Sunday afternoon.

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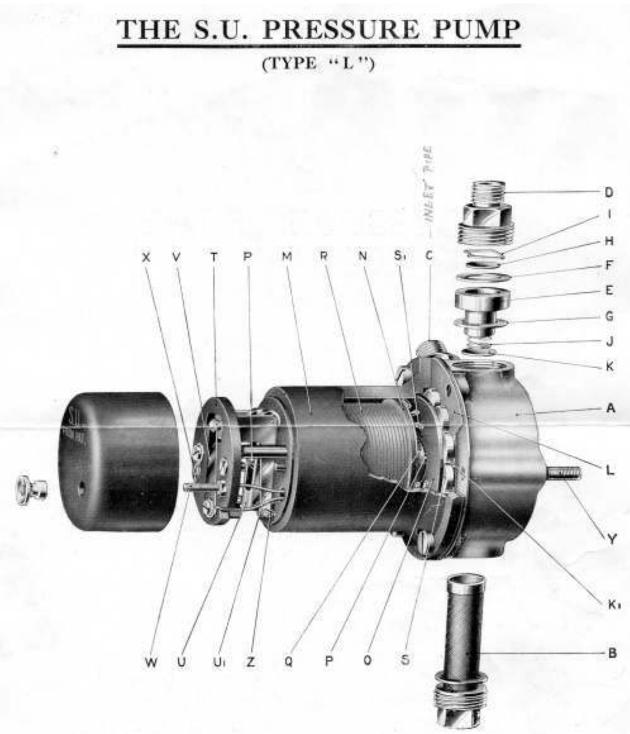
The SU Pressure Pump Type "L" Part 1

Introduction

The Type L pump was introduced by SU in the early nineteen-thirties, probably in 1932 or 33 and together with the instruments is one of the few electrical components of our cars not made by Lucas. Prior to that, SU offered the 'Petrolift', which dates from the late 1920s and was SU's first electrically powered fuel pump. The Petrolift was not universally acclaimed, proving to be less than reliable in use.

From its introduction, the Type L pump quickly became popular with British car manufacturers and was made in both 6 volt and 12 volt versions to suit the vehicles of the day. Its use continued right through production of the T series and beyond, changing from a low pressure AUA25 mounted high in the engine bay to a high pressure AUA54 mounted low down near the petrol tank part way through production of the TF.



The Type L Pump from a very early datasheet

Fig 1 shows the original and now much sought after single-piece brass base. This was replaced in 1948, no doubt to reduce cost, by a two-part alloy base. Note the knurled metal terminal nut in the above illustration rather than the later and more familiar black plastic terminal nut and the spring 'J' which was not fitted on later pumps. It is my assertion that all brass-based pumps were low pressure types. Many will argue with this, but I believe the high pressure pump did not see the light of day until after the change to the two-part alloy base. I'd be interested to hear any irrefutable evidence to challenge this assertion. Certainly there are some high pressure pumps with brass bases around today but I would suggest these may have been assembled from a collection of bits and pieces.

Fig 1 – Photo of a very early brass based pump with its seal and label intact. The label reads

"IMPORTANT DO NOT BREAK THIS SEAL BEFORE READING THE INSTRUCTIONS."

So how do all these versions of the pump differ, and how can you tell them apart?

6 Volts v 12 Volts

To differentiate between a 6 volt pump and a 12 volt pump should be really easy. All 6 volt pumps originally had a brown plastic cap with '6V' clearly embossed into the moulding, whilst 12 volt pumps originally had a black cap with 12V embossed into it. However the caps are easily damaged (more of this later) and easily swapped, no doubt resulting from the 'mend and make do' mentality that prevailed in the post-war era. As a result, the cap colour can no longer be relied upon to tell you which voltage pump you have, so it may be necessary to be a bit more inventive to tell the two pumps apart. A second clue is the colour of the leads that emerge from the body of the pump under the cap, 6 volt pumps had green leads and 12 volt coils had red leads. Here again it is easy to be fooled because the leads will by now have discoloured and will all have changed to an identical shade of brown (more about this later). A third way to separate the two involves dismantling the pump by unscrewing the six 2BA screws that hold the body to the base. Inside, on the brass disc on which the volute spring bears, you will find a number stamped. PT 1686 tells you it is a 6 volt pump, whilst PT 1687 confirms you have a 12 volt pump. If there is no number at all, or if the disc is aluminium, then again you almost certainly have a 12 volt pump. If all else fails, the only certain way to know which voltage pump you have is to measure the coil resistance. A 12 volt coil measures around 4 Ohms and a 6 volt coil around half that. A 12 volt pump will not 'tick' in a 6 volt car, and whilst a 6 volt pump will tick in a 12 volt car it will soon over heat. Swapping is not to be recommended.

Low Pressure v High Pressure

The low pressure version of the pump is always fitted in the engine bay, at or around carburettor level. It has a powerful electromagnet which when energised via the contacts, pulls on the diaphragm, which in turn draws petrol into the pump body. It can lift petrol from about 40 inches. When the electromagnet releases the diaphragm the charge of petrol is expelled by a fairly weak spring, so the push stoke can only raise the petrol a further few inches above the pump body.

The high pressure pump on the other hand has a more powerful spring to expel the petrol from the body so can lift the petrol to a height of nearly 48 inches above the body. However, the electromagnet of the high pressure pump has to compress this spring as well as lift petrol into the pump body; hence it can only lift petrol from a few inches below, even though it has a more powerful magnet than the low pressure version. For these reasons low pressure and high pressure pumps are not interchangeable.

So again, how do you tell the two versions apart?

Firstly, if you are lucky, you will find a part number tag fixed to the pump body. AUA25 is a low pressure pump, so is the AUA66 which was originally specified for the Morris Minor. It differs from the AUA25 only by the outlet pipe spigot, which can easily be changed to the more familiar T Type right-angled version. If your pump's label says AUA54 then it is a high pressure pump as fitted to later TFs. On most pumps however these original labels no longer survive so we need to look for another clue. On later alloy based pumps there is an earth (or ground) terminal at the side of the body. If this is a 2BA screw, the same size as the six screws that hold the body to the base, it is a low pressure pump. If it is a smaller 4BA screw, the pump is a high pressure type. Simple? Not quite that simple I'm afraid. There is always an exception to every golden rule. The AUA54 pump, fitted to later TFs has a 2BA earth screw but is a high pressure type. It is however easily identified because it has a uniquely longer body, which at 75mm is around 15mm taller than the standard pump body.

Pre 1948 brass based pumps did not have this side earth terminal screw. Instead they had a 2BA earth stud which replaced one of the six screws that hold the body to the base. Again, if my assertion is correct, if it has a brass base it is always going to be a low pressure pump.

If there is still any doubt the definitive test is to dissemble the pump and measure the diameter of the magnet core (labelled Q in the illustration). The low pressure pump has a 15mm core and the more powerful magnet of the high pressure pump has a 18.5mm core.

Why did MG move the pump from the engine bay in mid production of the TF? I believe it was because vaporisation of petrol within the pump was beginning to become a problem. Why else would they have moved the pump to the wet and dirty and generally inhospitable location above the back axle? The additional benefit with the high pressure pump is that the petrol in the fuel line to the front of the car is at above atmospheric pressure, and hence less likely to vaporise than petrol in the fuel line of a low pressure pump system, which is at below atmospheric pressure.

The Contacts

The Achilles heel of the Type L pump has always been the contacts (labelled U and U1 in the illustration) used to energise the electromagnet. These quickly erode as a result of the arc that is produced as they break each time the pump 'ticks'. They also tend to corrode until they no longer make contact if left in a damp garage over winter. SU tried numerous modifications to extend the life of these contacts during the evolution of the pump, including doubling up the contacts on later versions. Unfortunately in terms of longevity twice 'not very long' is still 'not very long'. Owners of course, perfected the art of hitting a dead pump with a soft hammer to breathe life into again, albeit for a short period of time. This probably accounts for the damage caused to the pump cap, and why they may have been swapped.

SU's first attempt at snubbing the arc was to include a burden resistor in parallel with the coil. This took the form of another winding, this time of resistance wire, wound on top of the coil. For reasons best known to SU they threaded the ends of the resistance wire through the green or red sleeving that identified 6 volt pumps from 12 volt pumps and vice versa, which was the cause of the burning that turned both colours to a similar shade of brown. Next they tried a condenser across the points which is intended to serve the same purpose as the condenser in the distributor, i.e. to provide a path for the current to take for long enough for the points to open sufficiently wide so that they can't arc, but condensers of the time were not as reliable as now, and it was not a great success.

Further attempts at extending the point life included the use of a diode to snub the arc, which works well, but makes the pump polarity conscious. Not a good idea if you lend a pump to a friend with a car wired with the opposite battery polarity, only to see all that expensive smoke, lovingly fitted by dear old Joe Lucas, aka "The Prince of Darkness", escaping from the loom. The ideal solution to extend contact life is of course to fit a Transil, but more of this in Part 2.

Eric Lembrick.

The Resurrection of TA0844 (continued)

Towards the end of Bob Butson's article in Issue 5 of TTT 2 he recalled how the differential which came with his TA (but was from a TC) was found to be unusable as the near side differential housing was cracked around the inside edge of the threaded portion, making correct crown wheel to pinion mesh impossible. He continues the story…

I was fortunate to find a TA differential and have rebuilt it using new bearings and the serviceable parts from the new and the old. With new wheel bearings, half-shafts and hubs from Roger Furneaux (roger.46tc(at)virgin.net) the rear axle is now complete.

I was also fortunate in finding someone to straighten the front axle beam. Barry Foster, who is at Butleigh, Somerset (not far from Glastonbury) did the work. Barry is probably better known for his work on Triple-M cars. The front springs could now be fitted.

The firewall and kick plate had non-standard holes and very many dents. Malcolm Green's book*, MG T Series Restoration Guide*, has a drawing of a standard TA scuttle showing all the original holes. The flange which holds the toolbox to the firewall had been spot welded out of line on the offside.

Feb 2004 - some progress in restoring the firewall

Having obtained two new stub axle pins from Bob Grunau (grunau.garage(at)sympatico.ca) I sent them and the steering knuckles to Roger Furneaux for machining and pressing together.

On stripping down the steering gear, I found that the drop arm link end had been swapped with one of the track rod ends. The ball pins, springs, grease nipples, and castle nuts would have to be replaced. The drag link was so bent it could not be recovered. The worm in the BC box was crumbling around its edges. It looked like the case hardening was breaking off. There was also much wear in all the other parts: so much that the box was unusable.

By April, having received the two steering knuckles with new stub axles fitted, I could fit the king pins and hubs**.**

It was now time to think about wheels. Three had badly rusted rims and were scrap. I salvaged two centres, which left two wheels with thick spokes and two with thin spokes. They had good rims but with many missing and broken spokes, so I decided to purchase a new set of unpainted 19 in. side laced wheels from Phil Hallewell. To solve the steering box problem I would be using a VW box conversion. This was ordered from Roger Furneaux with a splined shaft to fit the Brooklands wheel which I bought some twenty years ago.

Ed's Note: ***P. J. Hallewell Engineering (Phil) http://www.pjhallewellengineering.co.uk/ is a recommended supplier on the ttypes.org website. Phil used to manufacture both side laced and centre laced 19 in. wheels – indeed, I purchased two sets of wheels from him some time back – but he no longer supplies them as he cannot source the rims. However, he still rebuilds wheels.***

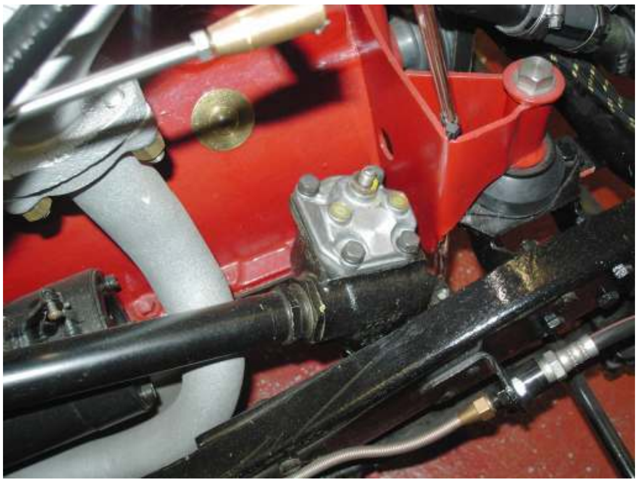
Another recommended supplier on the website for rebuilding wire wheels is James Wheildon, who is located near Salisbury in Wiltshire. James doesn't have a website, but his e-mail address is jameswheildon(at)yahoo.com James put me on to a company called Vintage Rims in New Zealand who supply rims, spokes, wheel centres and splined hubs. Their website is at http://vintagerims.com

Apologies to Bob for interrupting his article!.....

With marriage looming there was much to do with the house and garden and progress with the TA was slow.

It was not until September that I completed the braking system. All the brass unions were useable; the wheel cylinders were re-sleeved by a precision engineer friend. The master cylinder had cracks and was beginning to break up. Bob Grunau supplied the replacement. By now, my VW steering box had arrived.

The handbrake lever was very sloppy on its cross tube. I decided that a new piece of tube was required. The nearest OD available was slightly greater than the original. The lever brass bush was reamed to fit and the increased diameter took up some of the wear in the cross tube end pivots. I could get the lever chromed while the assembly was in pieces after drilling to fit a grease nipple. To start it was necessary to saw through the tube in two places to remove the lugs to which the cable securing pins were attached, and to remove the lever stop from the tube.



The VW steering box now fitted to Bob Butson's TA. Note also the later type TB/TC front engine mounting.

The handbrake cable attachments and the lever stop were welded and pinned on opposite sides. The welds were turned off on a lathe; I hammered out the pins and the attachments came off the tube pieces with a little persuasion, I then assembled and re-welded all the components on the new tube. This was set aside until after the engine and gearbox had been fitted.

The front engine mounting arrangement on the chassis was by a selection of bent and rusting washers. This arrangement was converted to the later TB/TC type *(as in above picture)*. To do this meant drilling the engine mounting brackets to receive the larger rubber and steel sleeves. I had to make new retaining bolts.

It was not until August 2005 that I could start on the engine. What a mess! There were odd bolts with odd threads everywhere, most of the timing cover bolt holes stripped, the timing chain with a rusty section, mains and big end bearing surfaces scored, three big ends under size by 70 thou and one at 90 thou. (somewhat thin!) The main bearings were sixty thou undersize and the bores were plus sixty thou. The camshaft was in good condition but its bearings were worn. The tappets were pitted and grooved. Six of the threaded holes for the sump bolts in the lower edge of the block had been drilled 8 mm using UNF nuts and bolts. The holes were anything but vertical, the threads must have been stripped at some time in its history. I milled the six to take a top hat style threaded insert, pressed in from the top of the block flange.

The timing gears were good but the timing cover was missing part of the camshaft pressure spring. The flywheel housing between bell housing and block had cracks around the hole for the starter motor; some extended to the bolt holes. Luckily I had a spare, purchased last year at Beaulieu Autojumble in perfect condition.

Two out of the three springs on the clutch plate retainer were broken and the thrust bearing retaining nut was mangled. The twelve clutch springs were intact. Four of the threaded holes in the front mounting plate were stripped. These would be drilled to receive top hat inserts pressed in from the engine side…………….*to be continued.*

Bob Butson

Ed's further note: Mention was made of stub axle pins obtained from Bob Grunau. Bob also supplies these to me for owners on this side of the 'pond' and I currently have a few pairs in stock (also one pair of Triple-M pins). For splined hubs and half shafts (and wheel spinners) you can always go straight to the manufacturer (which is where most of the suppliers source their stock). The manufacturer is Orson Equipment in Dudley, West Midlands http://www.orsonequipment.co.uk

Looking at the photo on the previous page of Bob's restoration of his firewall reminds me to mention that two suppliers of bodies have recently been added to the ttypes.org website.

Steve Gilbert supplies panelled bodies and all metalwork, including petrol tanks. Steve is a real craftsmen; he supplied me with a panelled body, wings, bonnet and front apron for my J2. Steve's e-mail is sjgilbert(at)hotmail.co.uk

Rique Llinares has been described by one of the subscribers to TTT 2 as "the best body builder in England". The Ash Frames he makes as standard are: J2, P-Type, TA (early and late), TB, TC, TD; anything else to order He also makes Burr & Straight grained Walnut Dashboards for PA, PB, TA/B, TC, TD; any other dash and trim to order riquellinares(at)hotmail.com A TA body under construction by Rique and a completed J2 body is shown below.

The Coil Ignition Distributor, Performance and Mechanism

As the reader will know, the distributor on a four-stroke engine has essentially two functions:

(see Fig. 1 for a diagrammatic general arrangement of an ignition circuit for a four cylinder engine).

(a) To distribute the high tension (HT, high voltage) electric charge, delivered by the ignition coil, between the sparking plugs in each cylinder in sequence.

(b) An equally important function is that of the contact breaker to switch the electric power supply to the distributor on and off to generate low voltage (typically 12 volt) pulses. These are transformed in the coil to HT pulses (around 17,000 volt) which are then distributed to each plug as above.

The first function is mechanically simple and is achieved by a rotor and a HT terminal located in the distributor cap for each plug. The second function is more complicated and the following actions must be accomplished during its operation:

1) The 12 volt low voltage on/off switching is traditionally achieved by hard faced contacts which "break" (pull apart) when the distributor timing requires to produce a spark at the plug. In modern engines the switching is done electronically but the principle is similar. When the motor is running this break is normally at a point which is several degrees before top dead centre (TDC), on the compression stroke, typically over a range of 5 to 35 crankshaft degrees (ignoring vacuum advance, see below).

On a typical four cylinder motor the firing sequence is usually, by cylinder number, 1-3-4-2. The slightly odd firing order is for reasons of optimum mechanical engine balance, to minimise vibration effects which become important at medium and high engine speeds.

2) The chemistry and physics of combustion of the fuel/air mixture after ignition in the cylinder dictate that the duration in degrees of crank rotation of the burning process varies with engine speed, revolutions per minute (RPM). Typically, as an average, 90% of a complete burn of the fuel / air mixture at 1500 RPM will take 45 degrees of crank rotation, and at 4000 RPM, 60 degrees. Note that the advance degrees do not increase proportionately as much as the RPM. This is because the time duration of combustion from ignition to peak cylinder pressure changes less than the interval between low and high RPM.

An accurate 100% burn duration is difficult to define exactly, as the burning rate tails off rapidly above 90%. The total burn is accomplished at about 40 degrees after TDC and is around 95 to 97%, the balance being incompletely burned hydrocarbons and carbon monoxide which exit the cylinder with the exhaust gases and a small amount (1 - 2%) which leaks past the piston rings and into the engine crankcase space (called blow by).

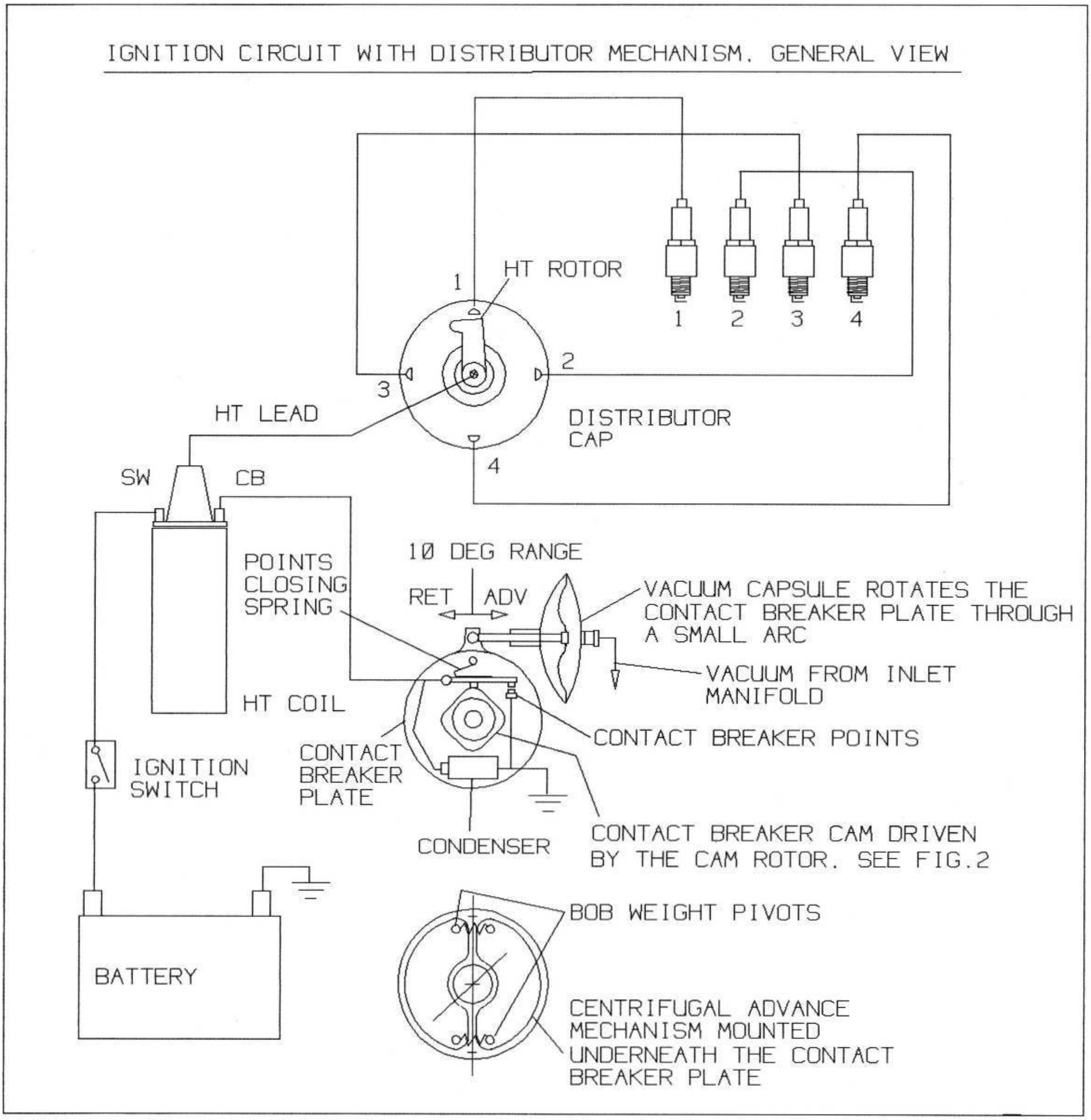
As a result of this variation of burning duration with RPM it is necessary to initiate combustion (the contact break or ignition point) earlier at high engine speed than at low. This of course is the reason for ignition advance on the distributor.

3) As the fuel/air mixture starts to burn, typically slightly before TDC, the pressure and temperature in the cylinder start to rise very quickly. At about 7 degrees before TDC the developing combustion is about 5% complete, the pressure typically 200 lb/sq.in. (psi) from compression of the inlet mixture by the rising piston and the temperature several hundred degrees Centigrade (about 350°C). For the best engine efficiency and power the optimum ignition timing at all engine speeds is to ensure that the peak cylinder pressure and temperature is close to 16 degrees (crankshaft) after TDC. As this exact point cannot be easily determined directly on a running engine, a range of 15 to 20 degrees after TDC is used as a practical design target. The primary aim is to avoid an excessive burn in the period before TDC, so the higher figure is the more usual setting. A too-early combustion pressure development will push harder against the still-rising piston and can generate severely excessive cylinder pressures and temperatures and lead to loss of power, high exhaust valve, cylinder head, and piston temperatures, and a consequent lower reliability.

At the peak cylinder pressure point the combustion is about 75% complete, the pressure in the cylinder is around 600 psi and the temperature 2500°C. At 1500 RPM the corresponding combustion duration, from the ignition point to the 75% point and peak pressure, is about 30 degrees of crank rotation, and at 4000 RPM, 50 degrees. Thus, subtracting 20 degrees after TDC as the optimum peak pressure, the required ignition advance for the two engine speeds are, at 1500 RPM, (30 — 20) = 10 degrees before TDC, and at 4000 RPM, (50 — 20) = 30 degrees before TDC. Note that these advance figures are typical only, but are a reasonable starting point if an engine tuning exercise is contemplated. For a specific engine the optimum advance will be influenced by the engine design and operating conditions (e.g. compression ratio, cylinder bore and stroke, cylinder head design, camshaft timing and lift, mixture richness or leanness, tick-over speed requirements, etc).

4) The accuracy required to set an appropriate degree of ignition advance on a motor is not that great. A plot of engine torque, which is directly related to the combustion pressure developed in the cylinder, versus ignition advance will show a

FIGURE 1



slight "hump", or maximum, at the "best torque" (i.e. maximum cylinder pressure) advance figure. A variation of +/ - 4 crank degrees each side of the "best torque" advance position will reduce the torque by only 1 to 2 % from the maximum. Recall that ”torque" is the turning effect of the engine, normally measured in lb.ft. or lb.ins., which when multiplied by RPM gives the engine power. Thus the "best torque" at a particular RPM is also the ”best power" at that speed.

If an engine is to be examined on a dynamometer, it is preferable to determine the "best torque" ignition advance at each RPM tested. It is important under these conditions to run the engine for several minutes at each speed to allow it to stabilise and for the "best torque advance" recorded by the dynamometer to be electronically stored for each RPM. High RPM advance values can be determined by careful extrapolation of the numbers obtained at low and intermediate engine test speeds, say 1500, 2000, 2500, 3000, 3500 RPM. The advance amounts should be recorded electronically to an accuracy of +/ - 2 degrees or better. At each speed the ignition is advanced slowly from a slightly retarded value and the rise and subsequent fall of the indicated torque versus advance and RPM values carefully recorded to determine the peak torque position. Recall that a dynamometer measures torque directly. Power is calculated by multiplication of torque by the appropriate RPM.

Modern rolling road testing, I understand, is often performed by a simple RPM scan from the lowest to the highest engine speeds to be tested. This method is cheaper as of course the computer can pick off the intermediate values very easily. It is less accurate than the step-wise system as the temperature and other mechanical conditions of the motor cannot stabilise and the results are "blurred" over the test speed range and the exact "best torque" versus RPM curve is difficult to define.

5) Because of the small variation of power and torque with ignition advance around the "best torque" value, when tuning a distributor by feel or driving response on the road, there is a natural tendency to over-advance the ignition setting to obtain a "lively" throttle response. This generally leads to a small loss of power (normally not detectable) but can also disproportionately increase the combustion pressure and, more importantly, combustion temperature. The resultant signs of excessive temperature on the sparking plugs, and a concomitant tendency toward harsh running, is then often mistaken for the symptoms of a weak mixture or other carburation or fuel problems. If the remedy for the perceived problem is to richen the carburettor setting then the power is reduced still further and the fuel consumption rises. The extra fuel serves to lower the temperature by its cooling effect which thus appears to "solve" the problem, but at a decreased overall fuel efficiency. It is an old but valid axiom, "Ensure the ignition is set correctly before tuning carburettors".

Overall it is better to under-estimate the advance required rather than over-estimate it. On a rolling road, adopt the principle, ”minimum advance for best torque"; a more flexible and sweeter running engine will result, with no loss of power and a lower fuel consumption. The risk of an ignition "over advance" at high engine speeds, when temperature and pressure conditions are anyway severe, is also reduced.

6) In this account so far, no explanation has been attempted of the means by which the required ignition advance is accomplished. As the reader will be aware this is done traditionally by a system of rotating and pivoting bob weights and springs mounted on the distributor shaft which also drives the four-sided (for a four cylinder motor) contact breaker cam and the distributor HT rotor. This mechanism will be described in more detail later. On a modern distributor, of course, the advance curve is managed electronically.

7) On an older system with a mechanically controlled (centrifugal) mechanism the ignition advance is set automatically relative to the engine speed alone. By design, the advance at each RPM is such that a high torque and power output is achieved with a wide open throttle (WOT). No arrangement is made for part throttle running, which a road car experiences for most of its operating life, where the combustion rate is significantly slower than that at full throttle. In effect, the advance value at each RPM, based on a WOT setting, is conservative (low) when applied at part throttle and the torque and power are less than could be accomplished by the use of more advance. Thus the ignition advance is less than the "best torque" value and a higher figure would give more power. The reason for this is that at part throttle the fresh fuel/air charge entering the cylinder on the induction stroke contains a higher proportion of residual burned exhaust gas, which enters the cylinder during the valve overlap phase near TDC when both inlet and exhaust valves are open, and the combustion temperature is lower than at WOT (lower developed power). At full throttle this contamination is around 5% of the cylinder charge; at part throttle it can be up to 15 to 25%. The residual exhaust gas proportion slows down the combustion speed and limits the power developed at the selected RPM. The mechanical advance distributor senses only the RPM so the advance is too late to achieve a "best torque" under part throttle conditions. The outcome is a lower thermal efficiency and increased fuel consumption.

8) This problem is solved by the use of a **vacuum capsule device on the distributor** to advance the ignition at part throttle operation. This capsule senses the inlet manifold vacuum which is controlled by the throttle position at a given RPM and advances the ignition closer to the "best torque" value. At WOT the manifold vacuum collapses and the vacuum capsule controlled advance becomes zero. The nett advance is then limited to the sum of the static and centrifugal values only. Recall that static advance is a fixed small amount of advance (typically 5 to 10 crankshaft degrees) to give a smooth tick over and easy starting

A vacuum capsule normally carries its operating range stamped into the body in three figures, e.g. "5 - 13 - 10". This information is interpreted as follows :

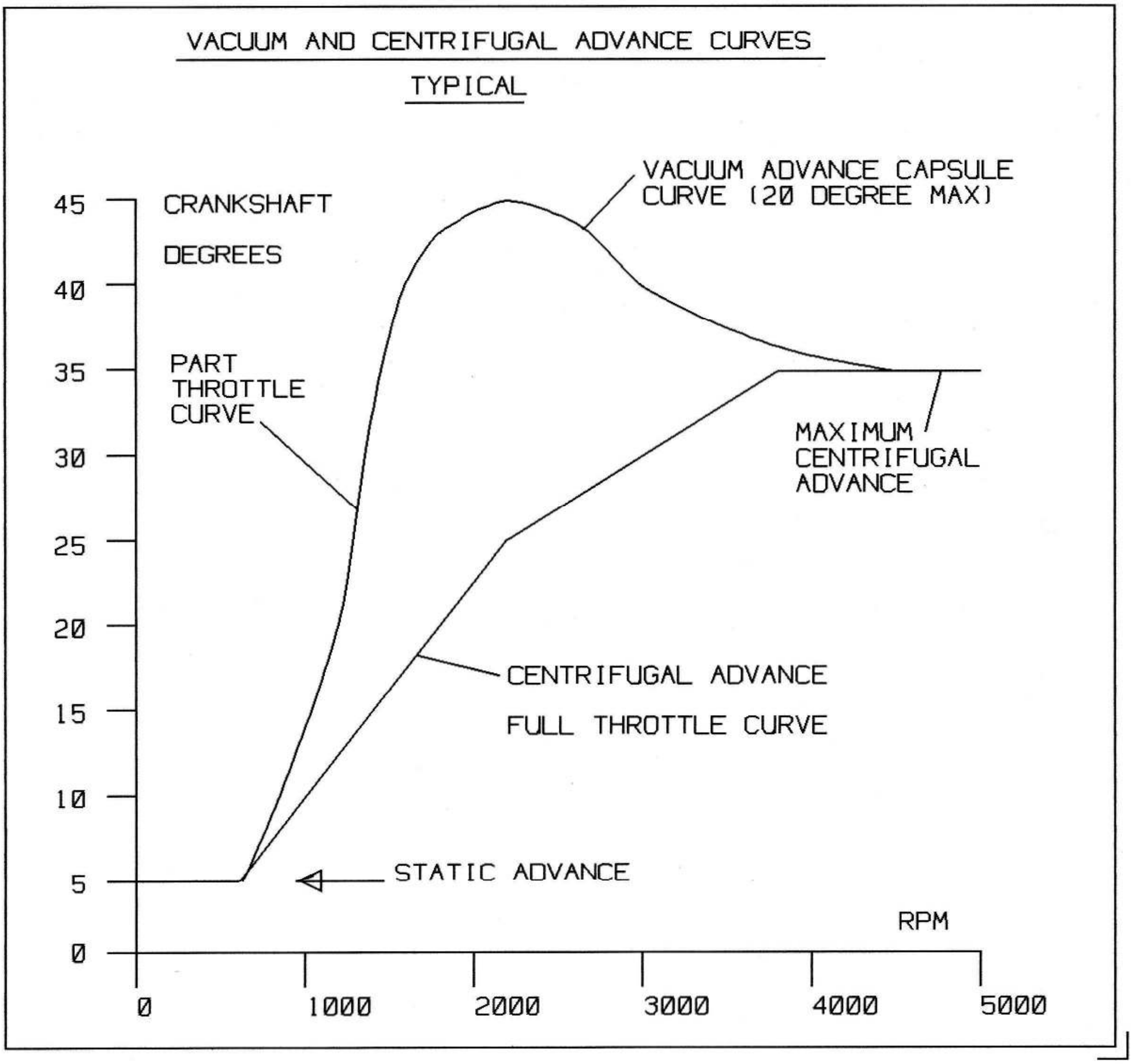
5 ins. mercury vacuum, ignition advance starts, (i.e. large throttle opening).

13 ins mercury vacuum, ignition advance finishes, (i.e. small throttle opening).

10 deg. camshaft (20 deg. crank), maximum advance.

Note that a 20 deg. crank vacuum advance is normally about the most that is used, particularly with a manifold sensing point, as opposed to the position on a carburettor (see below). A more

FIGURE 2



modest experimental starting point could be 10 to 15 degrees, using a lower maximum advance capsule.

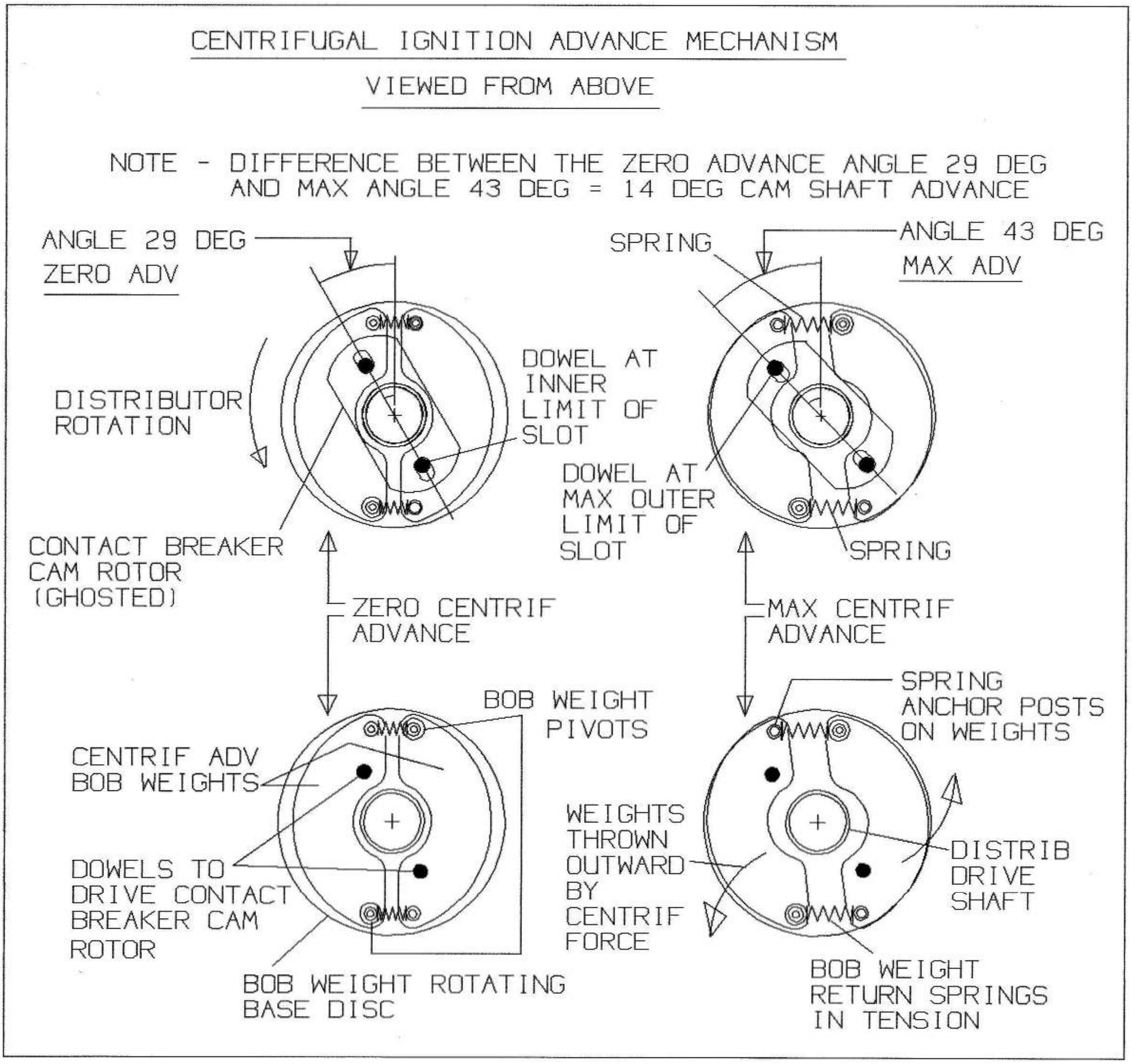
9) The capsule action is:

-- At tick over the manifold depression is above 13 ins. mercury (typically depending on the engine, 15 to 22 ins, with the lower number on a more "sporting" engine set up). The vacuum ignition advance is at the maximum 20 degrees and is additive to the (low) centrifugal advance. On some cars the vacuum sensing port is on a carburettor and is masked by a closed or nearly closed throttle plate so the full vacuum is not applied to the capsule until the throttle is about 5 to 7% open. In this way the initial vacuum is restricted during starting and at tick over to avoid the possibility of a back-fire.

-- Once the car is under way, varying with the throttle opening and engine speed, the vacuum advance will automatically be regulated to a value between 0 and the maximum 20 degrees, which is normally achieved at some point between 1500 to 3000 RPM at part throttle. The high advance level at low RPM is designed to improve low speed acceleration and overall fuel consumption. The vacuum and centrifugal effects are additive (see Fig.2, above).

The maximum total advance occurs then typically around 2200 RPM and is composed of 20 degrees vacuum, plus about 20 degrees centrifugal, plus (typically) 5 to 10 degrees of static advance (i.e. at zero RPM, used to improve starting and tick over). Thus the total advance at 2200 RPM and part throttle is (20 + 20 + (say) 5) = 45 degrees, significantly above the 25 degrees static and centrifugal advance together. This increase shows up as more part-throttle power and liveliness, and a lower fuel consumption (often 10 to 15mpg better on a one

FIGURE 3



litre engine). As the throttle opening is increased further the manifold vacuum drops and the degree of vacuum advance diminishes until just before WOT it becomes zero and the total advance becomes the sum of centrifugal and static values only, as noted above.

Typically this point is around 3500 to 4500 RPM and the resultant advance is then 35 degrees crank (centrifugal advance only).

10) For most older engines, eg. The MG XPAG, even with compression values above standard, say 9 to 1, the WOT advance will give very little performance gain above about 35 degrees crank. This applies even with present day non leaded fuel of octane rating 94 RON (Research Octane Number) or above, as power is developed from the heating effect (calorific value) of the fuel, not its octane rating.

On a high performance motor with a hemispherical OHV cylinder head and a high compression ratio (e.g. XK series Jaguar) a maximum WOT advance of 40 to 42 degrees is required at high RPM as this type of head has a slower combustion than the more usual "bath tub" or "wedge" pattern. Otherwise the lower figure (around 35 degrees) is specified to give better flexibility and smoother running. The guiding design principle in all cases is to achieve a maximum cylinder pressure at 20 degrees after TDC, as noted above.

11) To revert to the mechanical details of the centrifugal advance mechanism……

The above sketch (Fig.3) illustrates a typical design. Several methods are used by manufacturers to achieve the task of varying the ignition advance over a range of typically 500 to 4000 RPM and above, tick over to full throttle.

The basic principle, common to all, is to use a rotating bob weight, pivoted at one end and allowed to move over a small arc under the control of a light spring. The arcuate movement of the weight is linked to a rotor carrying the contact breaker cam so that as the weight pivots under the influence of centrifugal force generated by the distributor rotation, driven by the camshaft, the angular displacement acts to advance the ignition point by making the contact points open early. Typically two weights are used, each with its own spring to control the amount of cam displacement and thus advance. The two springs are normally of slightly different strengths and lengths to give an approximation of the upward convex curve of advance versus RPM which is theoretically required (see Fig.2).

On some cars (e. g. some versions of the MGB) one spring is very weak compared with the other so the single stronger spring alone dictates the shape of the advance versus RPM curve. This is a design option which effectively turns the upward convex curve into a straight line from tick over to maximum advance, in the MGB case at about 3,500 RPM.

The distributor on the standard MG TC for comparison has a slower advance versus RPM curve. Maximum advance is 30 to 32 degrees (centrifugal only with no static) which is not reached until 4,400 RPM, with an intermediate 16 degrees advance at 2,200 RPM.

12) As discussed above the action of the vacuum advance capsule is designed to be additive to the centrifugal system. In contrast with the centrifugal advance mechanism, which acts to advance and retard the contact breaker cam, the vacuum capsule rotates the entire contact breaker plate on which the points are mounted. This displacement in total, in our example, is 10 degrees which equates to 20 degrees of crankshaft rotation, (see Fig.1). In the absence of a vacuum from the engine the system reverts to a fully retarded condition (i.e. zero vacuum advance) under the influence of a spring effect built into the capsule.

13) The active range of advance of both the centrifugal and vacuum capsule systems is, within limits, adjustable. For instance, a faster centrifugal advance can be arranged by using weaker springs, but careful experimentation is necessary to determine by how much. Trial and error methods are very complicated and could lead to a temporary over-advanced condition which could at least degrade the engine reliability or driveability. A properly conducted trial on a rolling road could be a solution but is expensive, and not always conclusive.

Adjustment of a vacuum capsule is even more limited. The active range can be reduced but not increased, except by replacement of the entire unit.

In the case of the XPAG engine, if a vacuum advance ability is required, the entire distributor can be replaced with an MGB unit, but the installation is not simple and modifications are necessary to the standard distributor.

14) In this study I have attempted to address as simply as possible the main elements of the functions of a typical ignition distributor. I have drawn upon my own experience and reading when I have quoted figures but these are indeed mostly just typical and are not necessarily of direct application to a particular engine. Where I have quoted MG TC or XPAG data I believe these to be accurate.

To quote directly from my own experience, I have modified my MG TC to accept a distributor from a MGB with a 5-13-10 vacuum capsule as in Paragraph 8 above. The resultant advance curves are very similar to those of Fig.2, with an almost straight line from the static advance at 5 degrees and a maximum centrifugal advance of 28 degrees (total 33 degrees) at 3,400 RPM. The vacuum pick up point is on the manifold so the full vacuum advance (20 degrees) is similar to that of Fig.2.

The car starts easily with a smooth tick over and it will pull strongly from 1,500 RPM. The performance is lively and I have seen speeds in excess of 70 mph, with good acceleration in the mid range (3,000 to 4,000 RPM). I cannot make it pink on a compression ratio of 8.8 to 1. As a result of these and other changes I get 45 to 50 mpg on a long run.

Finally, I would like to express my thanks to David Heath for his many suggestions and corrections during his review of this study.

John Saunders 17th February, 2011

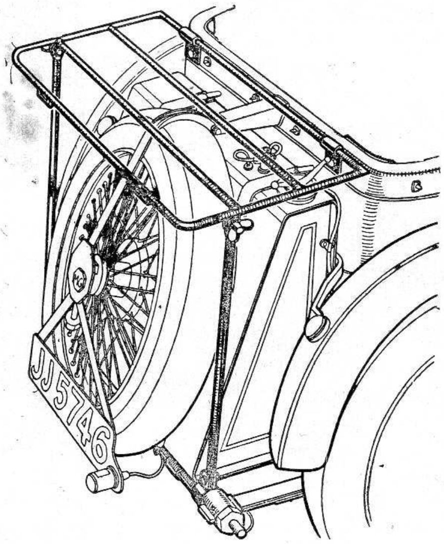
<u>DISCLAIMER BY THE EDITOR</u>

NOV., 1954

V.W. DERRINGTON LTD KINGSTON 5621/2

ACCESSORIES & SPARES

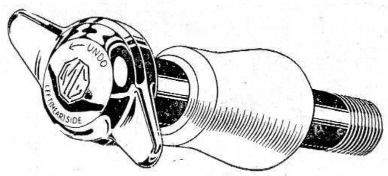
for the MG **Sports**



REAR SLAB PETROL TANKS
(as featured in the illustration)

Made of heavily tinned steel sheet for long life and prevention of internal rusting. Cut out for battery and baffled to prevent surging. Fitted with chromium plated Bonora quick acting filler cap, large drain plug, petrol pipe connections for main and reserve supply and coiled copper air vent.

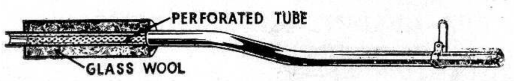
For J.2., P, and N types	£12 10s. 0d.
T types	£11 0s. 0d.
Crate (returnable) ...	£1 10s. 0d.



TWIN SPARE WHEEL CARRIERS for all M.G. models with knock off hubs and rear mounted spare wheels. To screw in place of the single nut, with a distance piece between both wheels, preventing tyres chafing. Heavily chromium plated nut, and distance piece in light alloy £3 15s. 0d.

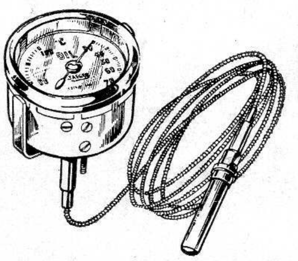
Single wheel nuts	£2 10s. 0d.
Postage	2s. 6d.

DEEP NOTE EXHAUST SYSTEM.



Gives a perfectly free flow to the exhaust gases enabling full power to be developed, yet adequately silences by sound wave absorbtion. Imparts a very pleasing mellow tone to the exhaust note, most attractive to a sports car. The silencer is made a sliding fit on to the standard front pipe to allow for heat expansion and the tail pipe is fitted with correct type of clips for fitting.

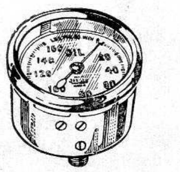
For M.G.: models, M & D—£3 10s. 0d., J2 and P—£3 15s. 0d., N, L, K, TA and TF—£4 0s. 0d., VA 1½ Litre—£5 5s. 0d., and SA 2 Litre—£6 0s. 0d.
All types and makes to order. Packing and carriage 5s. 0d. to 10s. 0d. extra.



THERMOMETERS

Oil and water with 6 or 7 ft. capillary tubing, bulb and adaptor. Black figures on white face or vice-versa. Smiths' or Jaegar £2 17s. 6d.
Eureka £2 15s. 0d.

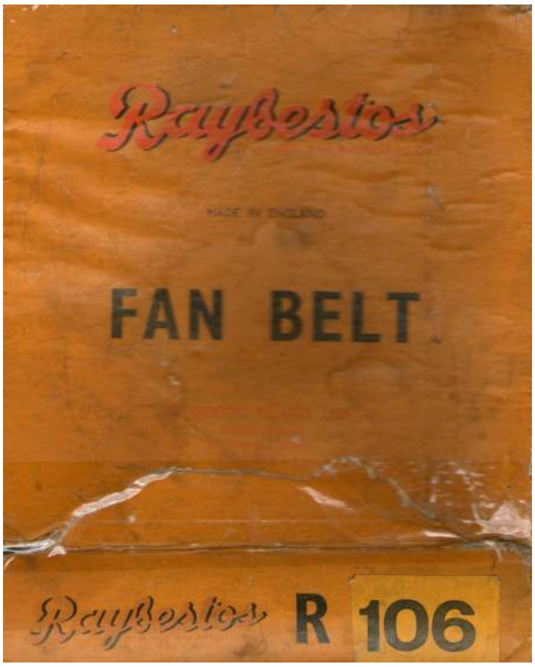
OIL PRESSURE GAUGES. Standard dia. 2″ stocked in 3 ranges 0-50 p.s.i., 0-100 p.s.i. and 0-150 p.s.i. Black or White dials.
Smiths' ... £2 8s. 6d.
Eureka ... £1 12s. 6d.



Ed's Note: Well, it would have been nice to have purchased a petrol tank in 1954 to store away for a rainy day. However I was only eight years old at the time and was very proud of my father's Morris 8 (EMU 419).

BITS AND PIECES!

We start with a spare part found in 'The Vicar's car' (TC0750).



Priced at 9/9 (nine shillings and nine pence) – about 50p (or half a GB Pound if you prefer) the RI06 was suitable for a range of cars, including the MG TC and Morris Ten Four - Series M, Opel Kapitan and Rekord, Renault 1000k, Singer SM & Ten, and Wolseley 8, 10 and 4/50.

Interchangeable with B.T.R. 233, DUNLOP D270, FERODO V112, GOODYEAR 15, MINTEX PK391, ROMAC C704, C733.

Those were the days…………………!!!

Modern Batteries for Older Cars

Barrie Jones, MGCC 'T' Register Technical Specialist for the TD & TF models, has very kindly sent me the following information. It is in the form of a reply to a TF owner (1350cc engine) who was having problems starting from cold, despite the battery (43AH capacity) being on a conditioner and testing OK with his local garage's tester.

"In the UK most batteries have a type number (such as 063) which only specifies the physical size, the type of poles, and the configuration (positive pole to the left or to the right). Sometimes you will find a label on the battery specifying the capacity in Ampere Hours, and if you are lucky it may also give the cold cranking ability in Amps or the number of plates in each cell.

Batteries vary enormously in capacity; the cheapest are often only 40AH, whilst the premium ones can be 70AH or more. They also vary in cold cranking ability. Some only have 7 plates, whilst others have 9. A 9-plate battery will usually give a much better cold cranking figure. Recently, batteries have started to use the more modern ETN numbering system (e.g. 580-063-039).

To read this, ignore the leading 5. Digits 2 and 3 specify the storage capacity, the next three are the physical size and configuration, and finally the last three give the cold cranking ability (in tens of Amps).

So, in this example the battery specs are: 80AH - type063 - 390A cold cranking ability.

Armed with this information, you should be able to find exactly what you need. By the way, Halfords recently came out as the best buy, second only to Exide and much cheaper".

Also, courtesy of Barrie, is the following table:

RPM at 70 MPH for different axle ratios and tyre sizes

Tyre size		5.50 x 15	155 x 15	165 x 15
Axle ratio	5.125	4,810	5,001	4,875
	4.875	4,575	4,757	4,637
	4.55	4,275	4,445	4,333
	4.3	4,036	4,196	4,090
	4.1	3,848	4,001	3,900
	3.9	3,660	3,806	3,709

Some explanation will be helpful to a study of the above table.

Both the TD and the TF left the Factory shod with 5.50 x 15 cross-ply tyres (tires for the benefit of a significant proportion of our readership!). This size is no longer available, the nearest being 5.60 x 15. However, the 'Blower' Manual (on page 447 under the heading **"SPECIAL MATERIAL AVAILABLE FOR SERIES TD MIDGET CAR"** refers to the availability of a 15 in. x 4.50 wheel, suitable for a 6.00 x 15 tyre size (the standard rim was 4 in.).

Most owners will by now have fitted radial tyres (155 x 15 or 165 x 15), which greatly improves the handling, but some owners may not realise that this also affects the gearing. The reason for this is that radial tyres have a different cross-section to the cross-ply variety. A cross-ply tyre has a profile of 100%, whereas a standard radial has a profile of 82%. This affects the overall diameter of the tyre and consequently affects the gearing. For a useful explanation (well, certainly to a simple mind like mine!) go to http://www.seoc.co.uk/rolling.html and read the paragraphs on *rolling radius*.

Just two further points: Firstly the values in the table above have been calculated using a figure of 15.3 mph per 1,000 rpm for the standard TF ratio (4.875). 'Blower' quotes 15.195, but the difference is negligible. Secondly, Barrie points out that if you fit a 4.55 ratio and use 165 x 15 tyres the RPM at 70 mph are virtually the same as the original standard TF 4.875 ratio/550 x 15 tyre combination.

The Duke of Edinburgh's TC

Many of you will have seen the Duke on television at the recent wedding of William and Kate (Duke and Duchess of Cambridge). The Duke, who reaches 90 years of age on 10th June, is Britain's longest-serving consort and the oldest serving spouse of a reigning British monarch.

Brian Stutchbury in Kenya recalls the Duke's younger days in a letter to me, which is reproduced below:

I saw an article in The Weekly Telegraph the other day, regarding Prince Phillip, and how, at 90, 'things were dropping off'!

It reminded me of my early TC days when I lived, with my mother, just off the Hog's Back near Guildford (before it became a dormitory).

At that time Prince Phillip must have been courting Princess Elizabeth. He had a black TC, same as mine, and used to rush up the A3 from Portsmouth, obviously at every opportunity. I saw him occasionally 'en route'.

That must have been late '40s or early '50s.

Am I right? He must be our most exalted M.G. owner.

I replied to Brian with the following information:

Prince Philip, Duke of Edinburgh owned a TC for two years from 1946 to 1948.

A letter dated 6th June, 1996 from Brigadier Miles Hunt Davis, C.B.E. (Private Secretary to the Duke of Edinburgh from 1993 to 2010) to Lieutenant Colonel R.N.C. Mossop (R.N.C. Mossop – Nigel – was for a short period of time, Secretary of the 'T' Register of the MG Car Club) gives the following details:

- ***a) Registration number – HXD 99***
- ***b) Purchased on 25th September 1946 – new***
- ***c) Colour – not sure***
- ***d) Chassis number – TC1362***
  Engine number – XPAG 2024
- ***e) Sent for sale to the Car Mart Limited, Euston Road, LONDON NW1 in November 1948***

Sadly, the car may not have survived as there is now no record of it.

Ed's note: Although the TC's colour could not be confirmed in the Brigadier's letter, Brian remembers that it was black. As the production date of the car was 11th September 1946 this would have been around the time of, or just before, the introduction of red and green exterior colours.

http://en.wikipedia.org/wiki/Miles_Hunt-Davis

http://en.wikipedia.org/wiki/Prince_Philip,_Duke_of_Edinburgh

Bishop Cam Steering Box – Attachment to Chassis on TA/B/C – A Safety Warning

As I was just in the process of finishing this issue of the magazine, I received the following from Paul Ireland. Thank you Paul for bringing this to the attention of TA/B/C owners.

"At a recent event, a fellow TC owner asked me to look at his steering column as it was cracked where it entered the steering box. I opened the offside bonnet and watched the box as I "wiggled" the steering wheel. I would like to share the horror of what I saw. The Bishop Cam steering box is fastened by a single horizontal bolt through a bracket that is bolted onto the chassis. This arrangement allows the steering wheel to be raised and lowered. When steering the car, this joint experiences a vertical rotational force as the drop arm is offset by some distance from the joint. On this car, there was probably wear on the bracket, steering box or locating bolt that was allowing the steering box to twist by around +/- 1/16" where the steering column joined the box and it was this repeated movement had cracked the steering column. Given this is something that is very easy to check, I suggest owners do so as soon as possible. Unfortunately, I cannot offer any advice on how to resolve such a problem."

E10 FUEL

TTT 2 'Hard copy' subscriber, Steve Ashworth has written to The Rt. Honourable Philip Hammond MP, Secretary of State for Transport as per the letter on page 21.

Steve says "the idea is for people to use it as a template, changing words and sentences to suit themselves. I think that it is far better if people personalise it rather than just sending it as a standard letter. Politicians take more notice of lots of different individual letters on a single topic than they do of a vast number of standard letters".

Steve also mentions that it would be a good idea to copy the letter to one's local Member of Parliament and I know that he has already been along to see his MP.

I have an appointment to meet my Member of Parliament, The Honourable Jacob Rees-Mogg on 14th May. When I meet him I shall take along with me a concise brief about the harmful effects of Ethanol and ask him to forward it to Philip Hammond and also to the All Party Parliamentary Historic Vehicles Group. I regard the latter as particularly influential if only, (being a little facetious!), because they will be concerned for the preservation of their own vehicles!

I also think it important to stress that the harmful effects of ethanol will also impact on a large number of cars not regarded as vintage/classic.

"Dear Mr Hammond,

I am writing to express my grave concern regarding the proposed introduction of 10% Ethanol to petrol. As the owner of a vintage/classic car this will do serious damage to the vehicle and is likely to render it unusable without a readily available source of normal petrol.

Whilst modern cars are designed with a degree of protection which may allow them to be run on fuel incorporating 10% Ethanol, older vehicle engines were designed without such protection and significant damage to engines of vintage and classic vehicles will undoubtedly result if they are obliged to run on petrol containing 10% ethanol. Ethanol reacts with brass and copper, materials traditionally used for fuel pipes in many vintage and classic vehicles. It also attacks aluminium, causing major problems for vintage and classic vehicles which are virtually all fitted with aluminium carburettors. Additionally, ethanol attacks cork and natural rubber, causing seals to fail and fuel to leak.

Because ethanol is hygroscopic, i.e. attracting and absorbing water, it will result in corrosion to steel fuel tanks particularly in classic vehicles which are laid up for long periods during the winter.

The advice received from one large petroleum refiner to combat this problem is to install a water separation filter and to replace the fuel tank, fuel lines, gaskets and O-rings with new ethanol-resistant materials. In practice, this is not a viable option as such items are unlikely to be available for vintage and classic vehicles.

Further advice from the company regarding the laying up vehicles during the winter, assuming the addition of 10% ethanol to fuel, is to fill the fuel tank almost to the top to minimise the absorption of moisture. However, the advice goes on to state that it is inadvisable to store fuel in vehicles for long periods of time i.e. over the winter period, as gum, gel or lacquer-like residues can form causing damage to fuel delivery systems such as fuel lines, fuel pumps and carburettors. If such is the case, then owners of classic vehicles may be looking to dispose of large amounts of unusable fuel at the start of the summer season. Quite apart from the costs involved, just how is one to safely dispose of say, 15 gallons of unusable petrol from a domestic setting?

It would appear that there will be over 8 million vehicles put at risk by the introduction of 10% ethanol to petrol, not to mention the number of lawnmowers, hedge-trimmers, chainsaws and outboard engines used by the public. When unleaded petrol was introduced it was possible for engines to be modified to accept the new fuel or for an additive to be used to offset the harmful effects. For very many vehicles there is unfortunately no simple solution to the problems which will be caused by the inclusion of ethanol at 10%. The introduction of unleaded fuel was accompanied by the continued availability of leaded fuel for around twenty years. In France, Germany and Sweden, petrol companies are being required to offer E5 fuel (containing only 5% ethanol) on an indefinite basis in parallel to E10 fuel.

Surely the British government must do the same as part of their duty of care to the public?

I do hope that you will take note of the above issues and ensure that there will continue to be suitable fuels available to allow the use of Britain's historic vehicles, which are a delight to both the owner and the public at large. The alternative is that they all become no more than museum pieces.

Less Frequent MOT Testing

Having trawled through various websites, the main one being that of VOSA, I have been unable to ascertain the latest position on this issue. It seemed likely that there would be a consultation exercise but presumably this needs to take its place in the list of the Agency's priorities.

Removal of Rear Spring Front Mounting Pin

Encouraged by Bob Butson's success with the removal of these spring pins and also by Jeff Townsend's success, I thought I would have a go at removing one on my TC. Well, I finally managed to remove the one on the nearside, but it was a devil of a job to unscrew it. As Jeff noted, the pins were inserted horizontally; however, you should be able to see from the photographs of my severely butchered pin that the pins were not inserted in a straight line horizontal position. What probably made matters worse is that I chose to drill out the taper pin, which turned out not to be a very good idea as lots of swarf got into the threads and made unscrewing very difficult. I shall now have a go at the off-side pin but will not drill it out this time. The photo shows part of the taper pin still located.

I intend to have a small batch of these pins made (and it will be a small batch, bearing in mind NTG's comment that they couldn't remember the last time they sold any). If you are interested please contact me at jj(at)octagon.fsbusiness.co.uk

TA/B/C Front Spring Mounting Pins

As I type this paragraph on 1st May I am expecting delivery of a new batch of front spring mounting pins on Wednesday 3rd May. As predicted in April's TTT 2, I will have received these before the poly bushes which I ordered before Christmas. Clearly, a visit to the supplier in Wells (just 20 miles from me) is going to be necessary. At this rate I'll be lucky to have them by next Christmas!).

Australian Natmeet in Newcastle, NSW

The following was received from Matthew Magilton

"Thought you may like to see these pics from the National Meeting in Newcastle. There were five TFs competing. Jason Edwards lovely LHD car won the TF class for the concours. I enjoyed the hillclimb and the motorkhana. The TFs of Hough, Noble and Bennett were all very well presented and Bob Lyons dropped by too in his recently restored ivory car".

Michael Hough with TF6740.

Cyril Bennett from Queensland.

Jason Edwards' TF – winner of the TF class for the concours.

Bob Lyons' TF9709.

Matthew Magilton's TF9097 at work *(above)* and at rest *(below).*

The 2012 Natmeet will be held in Hobart, Tasmania.

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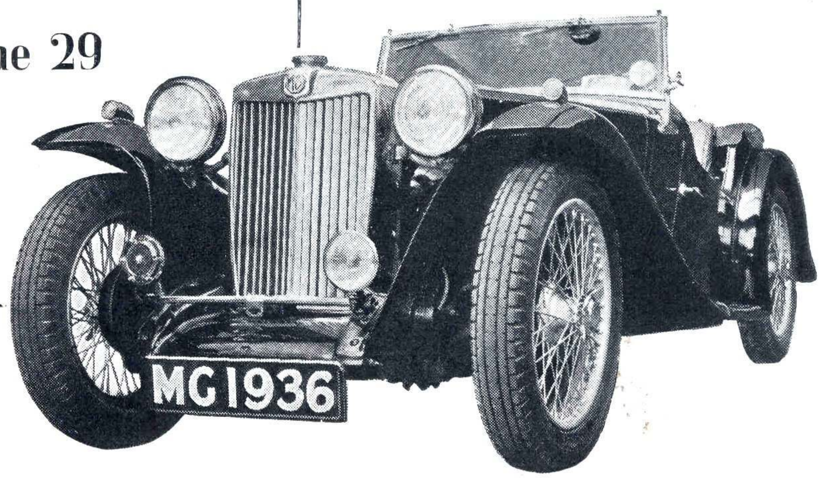

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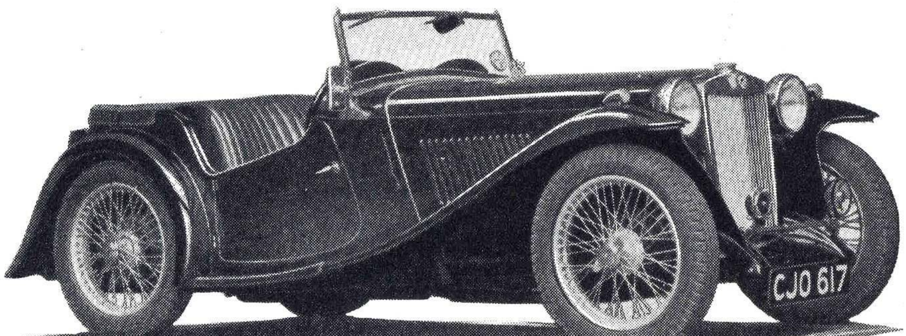

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