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Welcome to Issue 51, December 2018!

Have you seen the advertisement *It’s tiny, green, and could be the future of biofuels?* ExxonMobil is researching the potential of algae to produce a lower CO2 emission alternative to existing transport fuels. Since algae can grow in salt water and on land unsuitable for crops, it could, if it can be turned into a biofuel, provide energy without posing a challenge to food and fresh water supplies.

In the previous issue I mentioned the 2018 TTT 2 Tour, but I failed to mention the location! The location is Llandrindod Wells in mid-Wales and the hotel is The Metropole Hotel & Spa.

The dates are 23/24/25 August 2019 with an optional stay on the 26th. 50 rooms have been reserved of which 16 have already been booked. The booking reference is ‘Octagon Car Club’ and a £20 non-refundable deposit per person is payable on booking (Telephone number 01597 823700). The rate for guests staying for 3 nights is £80 per person per night with a 50% reduction for those staying the extra night. There is no single room supplement – up to a minimum of 6 available.

We have booked to attend the Stoneleigh Show on 10th February and we will be in our usual place in Hall 1, along with TA Brian. We will have two of Paul Ireland’s luggage racks for sale; you can read about these later in this issue.

The car gracing the front cover is Jonathan Goddard’s TD. Jonathan has reluctantly decided to part company with the car after just over 26 years of ownership. If you are looking for a really good TD you ought to give this one serious consideration. There is a full-page advertisement later in this issue.

Doug Pelton has recently sent out his latest Newsletter. Regular customers of From the Frame Up will know that he has moved premises, but the phone number and e-mail address remains the same. Orders to order@fromtheframeup.com

Roger Farmer has recently completed a biography of the rally driver Betty Haig. The 250 page book will be launched on 23rd November. He has ordered a limited-edition print run of 350 copies of the book which has an ISBN of 9781789260199. If you google the ISBN you will find it advertised on Amazon, Waterstones, Foyles etc at £45, however Roger would like to offer the book to TTT 2 readers at a price of just £35 including postage to a UK address. Overseas buyers are very welcome but will be subject to further postal charges.

Readers who would like a copy of the book, may contact Roger direct at agricola1(at)btinternet.com Please substitute @ for (at).

Roger has prepared the following brief summary:

*If you own an MG T Series, then the name Betty Haig may be familiar to you as the woman who campaigned her MG TC with great success in the 1949 Alpine Rally and drove her MG TD with real distinction in the 1951 Paris St Raphael Rally. This astonishing limited-edition biography reveals far more about the life of rally driver Betty Haig than she would ever have committed to print. This colourful book is superbly illustrated with over 200 images from her personal collection coupled with entries from her diaries that give a real insight into the world of continental rally driving and hill climbing between 1935 and 1965.*

*Betty Haig is best remembered today as the co-founder of the Historic Sports Car Club, but she did so much more! Her world was populated by a cast of characters that would not seem out of place in a novel. Sometimes the truth is far stranger than fiction. The book includes a comprehensive catalogue of every vehicle ever owned by Betty and every event in which she competed.*
Readers will know from an earlier issue that the TF1500 I bought at the start of the year let me down on the Octagon Car Club’s ‘Founders Weekend’ in May.

I should perhaps have paid more attention to some early warning signs regarding condition and reliability i.e. a bad oil leak from the rear main and the car failing its MOT due to the front off-side brake cylinders having been fitted upside down, which gave me twin trailing shoe (as opposed to twin leading shoe) braking on this side of the car.

It was all too reminiscent of the experience from 20 years ago when having bought my PB and taken it for MOT, it failed on kingpins. It had a previous MOT certificate but how it passed then was a mystery, because the axle eyes were found to be worn and this could not have happened overnight. Similarly, with the TF; if it had been presented at the previous Test Station with the front off-side brake set up as found at my Test Station, it should not have passed the test. Why? because the reading on the brake testing machine indicated a failure as follows:

- Front brake recording little or no effort Offside [3.7.B.5a]
- Brakes imbalanced across an axle Front (O/S BRAKE) [3.7.B.5b]
- Brakes imbalanced across an axle Front (Axle 1) [3.7.B.5b]

The references are from the Tester’s Manual.

They say that “one learns from experience”, but I’m getting a bit too old for that!

Undeterred, I decided to get work done on the car by an outfit I knew I could trust. One of my printed copy subscribers (Chris Postle) told me that he was very pleased with a gearbox rebuild carried out by Classic & Sports Cars Essex to his TF and a recommendation from Chris, who is a real perfectionist (his TF 1250 was featured in Issue 42 – see a thumbnail of one of the pics used back then) was certainly good enough for me.

I had managed to fix the braking problem with the help of my MOT tester, but I needed the oil leak to be fixed, the carbs checked over, a new uprated distributor, a sports coil, and whilst the engine was out it made sense to fit a Sierra Type 9 5-speed gearbox.

Classic & Sports Cars Essex
https://www.classicandsportscarsessex.com have at the time of writing 14 MGs in the workshop – most of them T-Types, but including 2 MGBs and an MGA. Jason Waller, who has kept me regularly updated with the progress of my job, sent me a few pictures of his operation which might be of interest to readers.
To return to my job, it was an engine out operation to fix the rear main leak.

The first picture (below) shows the bottom half of the aluminium fixing casing installed in order to measure and machine the rear main cap and then prepare to machine the back of the flywheel as there isn’t enough clearance once that’s fitted to the block.

The second picture shows the crankshaft all re-installed with the new modern lip seal in place and tightly fitted around the end of the crank and the top half of the aluminium casing holding it securely.

One of the most important aspects of the fitting the rear main seal is making sure you install the speedy sleeve to ensure that the seal runs on a highly polished and smooth surface.

While the engine was out, the opportunity was taken to fit new shells and bearings, to remove a damaged starter ring gear and fit new and to fit a spin on oil conversion - supplied by the Octagon Car Club http://www.mgoctagoncarclub.com/Parts/parts.html

When the car went in for repair some of the core plugs were leaking, there was a leak from the cover plate at the rear of the head and the water pump was leaking. All the core plugs were replaced, the rear cover plate gasket was renewed and a replacement water pump (sourced by me from Racemettle http://www.racemettleltd.co.uk) was fitted. All the hoses were renewed with silicone hoses (sourced by me from Classic Silicone Hoses http://www.classicsiliconehoses.com)

I was not happy with the state of the carburettors and asked for them to be looked at. On examination it was found that they had been re-bushed before with non-standard size bushes and were described as “a bit of a mess”, so they were completely rebuilt and a new choke cable (from Octagon Car Club) fitted.

I was particularly keen to have an uprated distributor, so a Lucas 45D was fitted and the coil was changed to a DLB 105 sports coil. New silicone leads were also fitted.

When the work was finished, the car had an initial road test around the perimeter of the premises. Following this, I received a phone call from Jason with the message “did you know your rear axle is alive?”. At first, I didn’t know what he meant, but he went on to explain that the axle had not been correctly located on the rear springs and was not rigid. He subsequently sent me a video, which was quite unnerving! It did however explain the mystery knock which was heard on our journey to Bakewell to join the Octagon Car Club ‘Founders Weekend’.

At the time of writing, I have not received the car back, but I expect to have it delivered on a trailer in about a weeks’ time and I will certainly have it by the time this magazine is published.

The car was taken for a 15 mile road test today, following which I received another phone call to say that it is running perfectly, but that the nearside front shock absorber needs to be replaced. Ah well!

JOHN JAMES
Manchester XPAG Tests

Fitting a vacuum advance to an XPAG

Introduction

After the spark plug fires, a fireball of burning mixture about the size of a pin head is created. At first this fireball grows slowly, increasing in speed until the whole of the air/fuel mixture is burned. Because this process takes a relatively long time, it is necessary to fire the spark plug in advance of the piston reaching Top Dead Centre (TDC) to give time for the mixture to burn in time for the start of the power stroke. This is called ignition advance.

There are many factors that affect the speed at which the flame front grows, one significant factor is the cylinder pressure at the end of the compression stroke. The lower the pressure of the mixture, the longer it takes for the flame front to grow.

This cylinder pressure is related to throttle setting and to a lesser extent compression ratio. With a partially opened throttle, less mixture enters the cylinder, so the lower the cylinder pressure when the piston reaches TDC. As a result, more ignition advance is needed at low throttle settings than for full throttle at the same engine revs. This is where a vacuum advance plays its part.

The centrifugal advance is separate from the vacuum advance. It controls how far in advance of TDC the spark plug fires, increasing as engine revs increase. To avoid the engine being too advanced and pinking, the centrifugal advance should be set at full throttle when the mixture burns the fastest. The vacuum advance is “added onto” the centrifugal advance to further advance the ignition timing at low throttle settings.

The tests at Manchester showed that advancing ignition timing significantly reduces exhaust temperature. As normal road driving mostly uses a partially open throttle, a vacuum advance is especially important for road driving to help keep the exhaust and engine cooler.

Vacuum Advance

To provide an additional advance at low throttle settings, the Z Magnette, MGA and the majority of later MGs were fitted with a vacuum advance as standard. This consists of a vacuum pod on the distributor connected by a fine tube to the inlet manifold or carburettor(s). At low throttle settings, the pressure in the inlet manifold is below atmospheric, causing the vacuum pod to advance the timing by rotating the plate on which the points are mounted.

Usually, the vacuum advance pods are marked with three digits, e.g. 5-13-10. This indicates that vacuum advance starts at 5 inches of mercury (inHg), ends at 13 inHg, and produces 10° of distributor advance. The distributor rotates at half the speed of the engine, so this corresponds to a maximum of 20° engine advance at 0.43 Bar. The different degrees of advance for given pressures is called the Vacuum Advance Curve. This is typically a straight line going from 0° at atmospheric (full throttle) to the maximum around 15 inHg (closed throttle).

The cylinder pressure when the plug fires, depends to a degree on compression ratio as well as throttle setting. For this reason, engines with different compression ratios are fitted with different advance pods. The optimum maximum vacuum advance for the XPAG with a 7.25:1 compression ratio, as measured at Manchester, was found to be 15° (crank) at 15 inHg.

With a mechanical distributor it is possible to vary the vacuum advance by changing the pod. On programmable electronic distributors this is a lot easier and is done on a computer.

If your car is fitted with a vacuum advance, it is important to check that it is working properly. To ensure it actually works, remove the distributor cap and pipe connected to the inlet manifold and suck on the pipe, ideally using a vacuum pump. You should see the plate with the points rotate. A more effective check is to re-measure the advance curve, as described in previous articles, this time with the vacuum advance connected. You should get a curve that runs 5° – 15° in advance of the centrifugal one.

Superchargers

A warning for those cars fitted with superchargers. Superchargers INCREASE the pressure of the gases in the inlet manifold above atmospheric. This causes the flame front to grow more quickly requiring LESS advance. Setting the vacuum advance on these engines is more difficult as the pod on a mechanical distributor may not cope with positive manifold pressures.

Fitting a vacuum advance to an XPAG

The distributor on the XPAG was not fitted with a vacuum advance. Tests using a 123TUNE distributor in my TC and feedback from others who have fitted a vacuum advance to their T-Types is very promising. The engine temperatures are noticeably lower in slow moving and stop-start traffic, where the Weak Running problem is at its worst; in addition, the engine runs cooler when cruising on the flat up to around 35-40 mph.

Overall response is better.

If your car is not fitted with a vacuum advance, fitting one is something worth considering.
Options

There are three suggested ways to fit a vacuum advance; either a mechanical distributor with a vacuum advance pod, an electronic distributor with a vacuum sensor, or an external electronic box that has a vacuum advance facility.

Mechanical options are to use an MGB 25D4 or 45D4 distributor or a Metro 59D4 distributor, all of which are relatively easy to source. For XPAG engines, it is necessary to replace the drive dog with a gear (available from NTG) [link].

These will fit directly into later TDs and TFs (i.e. those fitted with the D2A4 distributor). However, they will require additional machining modifications in order to fit the earlier XPAG engines using a DKY4A unit. With this distributor, distance between the base of the distributor and the drive gear must be increased by approximately 5mm to accommodate the thickness of the Vernier, and a groove must be machined into the shaft to take the locating bolt.

The advantage of a mechanical distributor is that it is simple, efficient and relatively easy to fix should it go wrong. Unfortunately, on the XPAG, there is very little space to accommodate the vacuum advance pod (see pic) because of the dynamo and tachometer gearbox, making a mechanical replacement distributor less than the ideal choice.

Barrie Jones has fitted a 45D4 distributor (see pic) to his 1500TF. This has a relatively small vacuum pod which means it fits reasonably well in the confined space. He has used the holes in the carburettor, described below, for the vacuum take off.

On its own, it is probably not worth fitting an electronic distributor in the XPAG. Many classic MGs cover only a few thousand miles every year. At this rate of usage, a rebuilt mechanical distributor fitted with a good quality condenser will run for a number of years without the need for maintenance. The tests at Manchester showed that, over a very large range, spark energy had no effect on power output or the efficiency of the engine. Cyclic Variability appears to add around 5° to 10° error to the timing, greater than the 1° – 2° timing error of a mechanical distributor.

As a result, the benefits claimed for electronic distributors; lower maintenance, stronger spark and more accurate timing, give little practical improvements compared to the potential problems of a more complex system that cannot be easily fixed at the side of the road should it fail.

However, some electronic ignition systems offer two real advantages, a vacuum advance and the ability to program the centrifugal and vacuum advance curves.

One possible solution is the 123TUNE which can be supplied as a replacement for the MGB distributor. For earlier XPAG engines, it will need to be modified as described above (conversions are available from [link]).

This distributor is slightly smaller in size than the original and with no vacuum pod, just a small brass vacuum tube (seen on the left-hand side of the picture), it fits very well in the confined space. This distributor allowed me to reprogram the standard centrifugal advance curve to exactly match that measured at Manchester.

CSI also produce an electronic distributor for the XPAG, however, the version with the vacuum advance has a pod similar to a mechanical distributor, making fitting difficult.

An alternative is to use an external box that connects to the existing distributor, such as the Aldon “Amethyst” Mappable Ignition System, Interceptor™ Ignition or CB Performance Black...
Box Programmable Timing Control Module. These use the original points with the centrifugal advance locked. The benefits are that they are easy to fit and should they fail, relatively easy to revert to using the mechanical distributor. However, currently they are only supplied to fit negative earth cars. While it is possible to make an inverter for the points to allow it to run on a positive earth car, no tests have been done with this unit with or without an inverter fitted.

**Vacuum Take off**

The vacuum advance on a distributor or external box needs to be connected to some point on the engine side of the carburettor butterfly to give a measure of the pressure of the gases entering the cylinder. There are three possible options; use a take-off on the carburettor, adapter plates fitted between the inlet manifold and carburettor or from the inlet manifold itself.

Each of these take-off points have different characteristics that need to be considered, namely; speed of response and pickup from tick over. For cars with twin carburettors, it is better, though not necessary, to T together connections to both of the carburettors as this will give a balanced measurement and be less prone to being affected by pressure pulses.

The articles on the Manchester tests have already discussed how *Slow Combustion* can result in pressure pulses in the inlet manifold. A vacuum take-off point which gives a good response to the changes in pressure, will potentially also pick up these pressure pulses and produce the wrong vacuum advance.

A suggestion is to buy cheap vacuum gauge (e.g. [https://www.ebay.co.uk/b/Car-Vacuum-Gauges/33680/bn_876975](https://www.ebay.co.uk/b/Car-Vacuum-Gauges/33680/bn_876975)) and fit it to the distributor end of the vacuum tube. If the needle vibrates when the engine is running, it is advisable to fit a damper between the take-off point and distributor.

I have made a damper from a piece of 15mm copper pipe with two connectors on one end to take the two feeds from the carburettors. The other end has a single connector to the distributor with a very fine 1mm dia. hole.

The second potential issue is engine pickup from tick over. When ticking over, there will be a high vacuum in the inlet manifold, potentially resulting in a large advance. As the throttle is pressed, more air fuel mixture will enter the cylinder and this will require less advanced ignition. Unless the distributor can respond sufficiently quickly, or there is a mechanism to prevent advancing the engine at low revs, the engine may initially run too advanced, running unevenly or possibly even stalling. In practice, this may not cause a problem but it is something to be aware of.

On some electronic programmable units it is possible to set an rpm below which there will be no vacuum advance, avoiding this problem completely. Unfortunately, there is nothing that can be done with a mechanical distributor.

**Carburettor body take off**

Some carburettor bodies already have a hole drilled into them at the bottom, particularly the ones fitted to later vehicles. These are normally blanked off but Burlen Fuel Systems sell an adapter that will screw into this hole. The advantage of using this is that it provides a rapid response to changes in inlet manifold pressure, hence it is advisable to consider a damper. At tick over, the hole is blocked by the butterfly which helps prevent over advancing the engine on initial pickup. If it is available, this is probably the best take off point to use with a mechanical distributor.

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**Adapter Plates take off**

Specially made adapter plates were used at Manchester to measure the inlet manifold pressure during the tests. These were fitted between the carburettors and inlet manifold and I now use...
them on my TC. The advantage is they provide a rapid response to changes in pressure and require no permanent alterations to the car. The picture shows a plate fitted with a vacuum take-off. Spacers are also available for most carburettors and by drilling a fine hole and fitting a pipe they could be used in the same way.

Using a damper should be considered and, unlike the carburettor take-off, there is no mechanism to prevent over advancing the engine from tick over. This is probably the easiest solution to use with an electronic distributor or external electronic box.

**Inlet Manifold take off**

Rather than drill and tap the inlet manifold itself, it is possible to fit the vacuum take off using a modified core plug that fits into the end of the balance tube (core plugs are available from NTG Motor Services Ltd). This will provide a slower response, removing the need for the damper, but consideration will need to be given to prevent over advancing the engine from tick over if this shows itself to be a problem.

**Conclusion**

A vacuum advance reduces exhaust and under bonnet temperatures, especially when driving at slow speeds or in stop start traffic. Where cars are fitted with a vacuum advance, it is important to ensure this works properly. Unfortunately, the XPAG/XPEG and other early cars are not fitted with one.

Early indications from people who have fitted a vacuum advance to their XPAG and MPJG engines are that it is one of the most practical solutions helping to mitigate the problems of modern fuel; specifically, the high under bonnet temperatures that make the volatility problems of modern petrol worse. At low throttle setting, advancing the ignition timing reduces exhaust temperatures without the risk of pinking.

It is also important to ensure that the correct centrifugal advance curve is used. The Manchester data showed the standard XPAG centrifugal advance curve for a rebuilt distributor were around 5° too retarded below 3,000 rpm due to the Slow Combustion problem. It is suggested that owners of other models arrange for a typical car to be taken to a rolling road to measure the ideal centrifugal and, if possible, vacuum advance curves. These would provide a good baseline for other owners.

Paul Ireland

**Ed’s note:** David Heath described in Issue 34 how he fitted a Metro Lucas 59 D4 distributor, which has a vacuum advance facility, to his TA (pic below).

In the next article, John Saunders describes how he fitted a Lucas 25D4 distributor with vacuum advance to his TC, but first a bit of nostalgia from 1978……
XPAG engine, use of a Lucas 25D4 distributor with vacuum advance

**Introduction**

The Lucas 25D4 distributor is freely available and economical, both new and used and is easily repairable with a good spares supply.

The centrifugal advance/retard characteristic is adjustable with the necessary bob weight control springs, which are available with a wide variety of spring strengths (Hooke’s Law constants, i.e. extension per unit load in lb/inch, gm/mm, or N/mm.)

A range of vacuum capsules is available to provide more economical part-throttle running (higher miles per gallon).

The resultant increased ignition advance at mid-throttle power settings (1500 to 3500 rpm) also gives improved motor flexibility and higher torque.

The octane demand of the modified engine is at least no worse than a standard XPAG motor and no additional stress loads are imposed (see Fig.1 for a general arrangement of the 25D4 distributor).

**Difficulties**

Small modifications must be made to the 25D4 distributor to make it fit the XPAG motor dimensions and configuration. These include:

* penetration of the body into the crankcase
* conflict with the vacuum capsule position and the dynamo rear face and a tappet chest cover bolt
* conflict between the distributor low tension terminal and the engine breather pipe on the tappet chest cover
* modifications required to the advance/retard adjustment screw on the capsule
* provision of a sensing point on the engine inlet manifold ........ and
* a small modification to the distributor drive shaft pinion fixing method.

Care is needed to determine and select the appropriate centrifugal advance control springs and the operating ranges of the centrifugal advance control springs and the operating ranges of the centrifugal advance mechanism and the vacuum capsule.

**Details**

In order to make the distributor fit, the following modifications are necessary. Note that there may be small dimensional differences between my TC and TD and TF variants, but the installation is, I think, practicable for all types.

1. The penetration length of the 25D4 distributor into the XPAG block is too short. About 3/16 inch must be cut from the base of the distributor body flange, (see Fig. 2). Ideally, this should be done in a lathe, but I achieved an acceptable result with a fine hack-saw and careful use of files. I have used a standard TC pattern clamp to fix the distributor body into the block. The TD and TF may dictate a different arrangement.

2. The vacuum capsule positioning on the distributor allows very little margin in its circumferential orientation to fit between the tappet chest cover centre bolt on one side and the dynamo rear face on the other. The arrangement shown in Fig.3 should work, but the clearances are very tight. I do not have a tachometer drive gearbox on my TC, but it should be possible to arrange clearance (just) between it and the vacuum capsule.

The spring behind the vacuum capsule head is designed to place the contact breaker moving plate in such a position that the points can be made to open at or just before top dead centre. Without this spring, the distributor cannot be turned enough clockwise to achieve this condition, owing to interference between the capsule rim and the tappet chest cover centre bolt.

With the capsule arranged thus, the existing advance/retard adjustment screw is unable to engage with the threaded rod on the capsule body. A screwed sleeve is therefore required with a longer threaded portion to fit the rod, (see Fig. 5).

3. With the orientation dictated by the vacuum capsule, the distributor low tension terminal is very close to the tappet chest cover vent pipe, so there is a risk of an electrical short circuit. I have modified the terminal nylon carrier by removing the terminal completely and drilling the carrier to accept a longer cable between the 12 volt supply point and the contact breaker, (see Fig. 4 inset to Fig 3).

4. Following experiments on the road, I have arranged the distributor mechanical advance to be a maximum of 28 crankshaft degrees. With a static advance of 4 degrees, this gives a total of 32 degrees, which is the standard TC maximum setting. This has been achieved by placing a brass sleeve (6.2mm outside diameter) over the advance stop pin and using a 16 cam degrees advance cam rotor from an MGB 40897 distributor, (see Fig. 6).

(Figs.1 - 8 follow with text in between).
(5) The centrifugal advance curve I have aimed for is shown in Fig. 7. This characteristic required two springs of tension 617g/mm (34.5 lb/inch) taken from a MGB distributor number 41491, used on engine nos. 18V672Z and 673Z (1972 -1974 EEC specs). Note that the standard maximum centrifugal advance on the 41491 distributor is 19 degrees camshaft. Cam rotors with a maximum of 14 degrees or below are also available.

The spring dimensions follow:
The spring dimensions are:

- Wire diameter: 30 thou inch
- No load length (inside coil ends): 18mm
- Coil OD: 5mm
- Number of coils: 6

Both coils ends are circular loops, not oval
(6) The engine intake vacuum is transmitted to the vacuum capsule by a copper capillary running from a fitting on the centre of the intake manifold. Conventionally, on most vehicles with vacuum advance, the pick-up point is on a carburettor body and is masked by the throttle plate when closed. This is designed to avoid the full engine vacuum being applied on starting to give full vacuum advance. The motoring technical press asserts that this is done to avoid engine back-fires on start-up, but in practice I have found no difficulty with starting. By contrast, the engine always seems eager to go when I pull the starter and will settle down to a smooth tick-over when warm of about 900 rpm.

The vacuum capsule I use is that for the standard chrome bumper MGB (distributor 40897) stamped “5-13-10” which translates as……
5-13-10 translates as:
5 ins mercury vacuum, ignition advance is at a minimum (zero), i.e. large throttle opening.
13 ins mercury vacuum, ignition advance is at a maximum, i.e. small throttle opening.
10 degrees camshaft (20 degrees crankshaft), maximum advance.
With these values the car is flexible and economical, particularly at mid-range throttle settings 1500 to 3500 rpm, but will still rev well when above these figures.
(7) A distributor helical gear was purchased to replace the standard drive dog of the 25D4 distributor. The drive shaft is the same diameter as the XPAG standard device. The fixing pin holes are smaller (1/8 in) than the pin port in the distributor shaft (3/16 in). It would be best to drill out the gear holes to match, but I used a roll pin and a sleeve to take up the clearance (see the inset in Fig 2.) Note that the standard 25D4 drive dog pin is parallel sided, not tapered.

(8) follows........
(8) With the 5-13-10 capsule used there is substantial ignition total advance at low and mid-range engine speeds, 1200 to 2500 rpm, of 45 to 50 degrees crankshaft with a 20 degree maximum vacuum advance, (see Fig.7). In spite of this, with a compression ratio of 8.8 to 1, the engine cannot be made to pink on 94 octane petrol. In a car with a lower ratio a higher static advance than the 4 degrees I use could be applied with confidence if desired.

(9) follows.........
(9) Fig.8 illustrates a comparison of my advance characteristic with that for an MGB (high compression 8.8 to 1, engine type 18G or 18GA, distributor 40897) and a Triumph Spitfire 1500 of 1979.

My car runs very well with a static of 6 degrees crank advance up to about 4000 rpm but then becomes harsher running above that. I suspect I could be better off with a couple of degrees less on the centrifugal advance, say 26 degrees, but with a static of 6 degrees to retain the standard TC maximum of 32 degrees total. I have yet to try this. On a car with a lower compression ratio the harshness would probably not occur, even with a 6 degree static and 28 degree maximum centrifugal advance.

Discussion

The figures given above are based on my experience over the past few years. The Lucas distributor is not a precision instrument, so a different operator's findings could differ. In particular, the advance curve shown in Fig.7 is from calculations of the mechanical dynamics of the distributor springs, bob weight masses and moments of inertia, and rotation centres, not from a commercial tester device for example.

To establish the success or otherwise of changes, I use the usual subjective impression, backed up by observation of the tachometer (electronic in my case) and the speedometer (ditto) and confirmed by a careful check of the fuel consumption over runs in excess of 70 miles. I have a tank calibrated in litres and I buy fuel in multiples of 5 or 10 litres so I can derive a reliable mpg figure after each run over my standard test course.

In addition to the distributor modifications, I have made alterations to the carburettors; weighted pistons of 175g (6.2oz) total, no piston springs or dampers, and FU needles. Together with these settings I have a high ratio axle (18.3 mph/1000 rpm) and can obtain 45 to 50 mpg over a run, using cruising speeds of 45 to 55 mph and bursts up to 60+ mph.

Without these carburettor and gear ratio changes I would expect a T-Type still to benefit from the distributor modifications alone; 35 to 40mpg at least should still be attainable.

References

The following references could be useful for more information:

Marcel Chichak, Tuning the Lucas Distributor. https://www.scribd.com/doc/137215689/Lucas-Tuning


Southern Springs and Pressings Ltd, https://www.southernsprings.co.uk Stern Lane, NEW MILTON, Hants, BH25 5NE (01425 611517).

John Saunders
Car for Sale *(pictured above)*

For Sale, 1950 MG TD chassis number 0589, registration mark OFO 972.

This car was “discovered” in June 1992, in a London garage full of run-down vehicles that had been repatriated back to the UK, after spending their early days in sunny California.

The EXR RHD car was authentically rebuilt, from a rolling chassis, between 1992 and 1995, when it passed its MOT. At local car shows, including Brooklands, Bournemouth, Highclere Castle, Lymington and Highcliffe, it has attracted much admiration, and won many awards.

This vehicle is in first class running order, with custom made hood and side screens, leather seats, historically correct disc wheels and chrome work in excellent condition.

This superb car currently resides in the New Forest.

Sale price £25k.

Contact details:

Email  JonathanSGoddard(at)gmail.com (please substitute @ for (at)}

Phone: 01590 644348. Mobile. 07917322616

**Ed’s comment:** I think you would be hard pushed to find a better TD than this one.

Jonathan is the author of *Practical MG TD, Maintenance, Update & Innovation.*

I’m sure you will find that many of the modifications/improvements described in the book have been incorporated in Jonathan’s TD.

P.S. The book is available from the T-Shop at £6.99 plus postage.
**BITS & PIECES**

**Paul Ireland’s luggage racks** Paul’s luggage racks have been advertised a couple of times previously in TTT 2. For the benefit of new subscribers and those who might have missed the description and price, here is some information on the luggage rack, which has proved to be popular and has been sent worldwide.

The original style luggage rack that sits above the spare wheel/petrol tank has a number of disadvantages. When loaded, it can obscure the view to the rear and can place a heavy load high above the roll centre, making the car less stable; it is virtually impossible to fill the fuel tank when loaded and finally, it is difficult to fit, potentially damaging the tank straps.

The luggage rack designed by Paul consists of two arms fitted to the existing “spare” holes in the rear of the chassis (TA, TB and TC - they will need to be drilled for the earlier MMM cars) supporting a flat rack positioned behind the spare wheel. Not only is this very easy to fit, it folds up when not in use.

The price of the stainless-steel rack is £325 and can be ordered from Paul at octagon ‘at’ ireland-family dot org or phone (+44) 1206 298736.

The editor has a couple of Paul’s racks with him (these were brought to the Cotswolds Tour by Paul and carried to Keynsham – on an original style rack!!). They will be taken to the Stoneleigh Show in February, where they can be picked up and paid for, thus saving the postage cost.

If you want to reserve a rack to be picked up at Stoneleigh please contact the editor via the website or to jj(at)ttypes.org {Please substitute @ for (at)}. A small deposit will be appreciated.

**Dave’s Doughnuts – no you can’t eat ‘em and they haven’t gone stale!**

In Issue 50 we said that we now have a new supply and with the set-up costs having been amortised they can now be sold for £12 inclusive of postage worldwide). Please order from jj(at)ttypes.org (please substitute @ for (at)). The doughnuts are sold on a non-profit making basis and the £12 includes a donation to THE MG ‘T’ SOCIETY LTD.

Since Issue 50, doughnuts have been sent to Gerard Monnin in France and Jens Broe in Denmark. Both have confirmed that they have done the job. Dave Heath (the Dave in Dave’s Doughnuts) has sent me some fitting instructions and these are reproduced below.

**Fitting Instructions**

The rubber doughnut fills the space between the brake drum and the wheel hub. As the spinner is tightened the foam is squashed between, locating on the half nuts * and the spoke nipples, stopping the wheel from turning on the spline. [not totally but 99% of the time].

* foam will cope with full nuts. Mine have been working for years!

The doughnut relies on the friction between the rubber and the wheel hub and drum, surfaces which must be clean of oil/grease etc. They fit the standard TA/C wheel and can cope with standard engine torque.

**Ed’s note:** they have also been fitted successfully to TFs with wire wheels.

With the rear wheel off the car slide the doughnut onto the hub and up to the brake drum. Replace the wheel. Try to keep the doughnut concentric.

The spinner may not pick up without a good push or perhaps trim the rubber a little, chamfer the spoke nipple edge, just 1/4 inch.

Tighten the spinner in the usual way until you feel it is home. It will be tight, so a spot of oil on the spinner cone may help. Recheck after a few miles.

**Hagerty International**

Chris Tinker, who recently called in with his wife, Christine is full of praise for Hagerty’s Breakdown service (run by the RAC).

Over to Chris……….

*I have recently had two trips to France in my TC. The car had been going superbly, but on the*
second trip I had a blown head gasket. I just wanted to report that my Hagerty insurance was exceptional. Instant recovery, delivery to a garage of my choice close to my destination, and then due to the garage being over booked until a few weeks later, repatriation of the car to home, where the offending gasket has been well and truly fixed.

Well done, Hagerty!

The MG 'T' Society works in partnership with Hagerty Insurance for the mutual benefit of the Society and our UK members, why not call Hagerty on 0333 323 1383 quoting promotional code: CCTTT. We think that you will be pleasantly surprised at the level of service and the competitive quote.

Returning to Chris and his TC, which he has owned since 1972, he must have set something of a record for the most miles covered in a day in a TC when he drove from Tobermory on the Isle of Mull to Ipswich last year in a single day, about 500 miles. He meant to take two days for the journey, but just enjoyed the drive so much that he kept going!

**A most satisfactory repair (TD choke and starter cables overhaul)**

The following has been received from Ian Ailes:

*When I refitted the choke cable to my TD, I found that it would not lock. The return springs on the refurbished carbs were just too strong for it. I bought a new one which works on friction but was not convinced it would be up to the job. The knob was also black rather than dark brown as the original. I decided to see if I could repair it and took it apart as much as one can. All you can do is carefully open up the black spring clip with a sharp bladed screwdriver and slide it back to reveal a slot into which fits a small woodruff key which acts as a lock on the pull handle slots. When the handle is twisted, the key is pushed up but retained by the spring clip allowing the shaft to slide back in.*

When it came to fitting a new starter cable, I was able to unsolder the old handle from its cable and solder it to the new cable so that both knobs matched. A plumber’s gas torch did it easily. I had to lightly drill out the socket in the engine bay bracket to take the new, thicker, metric outer sleeve of the new cable; I think it was 4.5mm.

**NEED TO KNOW - petrol tank threads**

I found that I could not easily screw in the brass fittings to the petrol tank so searched for a suitable tap to clean the threads. I found Malcolm Beasley at Beaulieu Autojumble and he identified it as 3/8” BSP. He is great for supplying old taps and dies. The tap cost £2. When I got home, not only did it fit the two tank threads, it also cleaned up the thread for the sender unit on the radiator. My temperature gauge had been restored and returned with a larger bulb than the original. I had to buy a new adaptor - Moss part 361-050 - to finish the job.

**Treating Incontinence**

Prevention is of course, better than cure, but if your XPAG or XPEG leaks from the rear main crankshaft seal and you don’t want to spoil your (or someone else’s drive) then help is at hand.
I am asked from time to time where these drip trays/catch tanks can be obtained and I refer the enquirer to Bryan Purves in East Sussex.
http://www.bryanpurves.co.uk

Bryan took over the manufacture and distribution of these trays/tanks from the late David Pelham, who developed them from scratch (David used to call them “nappy buckets”).

I spoke to Bryan fairly recently and he told me that he had just arranged for a large batch to be made, so he should have plenty. When I asked the price, he said £56, but I’m not sure if this is inclusive of postage – probably not. He will send them worldwide.

**Supplier contacts from Ian Ailes**

The bifurcated rivets mentioned on Page 22 of Issue 50 were obtained from:

**Business name:** your_shop2015
**First name:** your_  
**Last name:** shop2015
**Address:** West End Avenue  
Leyton  
London  
E10 6DZ
**Phone:** 07440561131
**Email:** upthemarket@yahoo.co.uk

Ian bought his TD in September 1998 and is hoping to start it up before Christmas.

He has also found a company in Alton who sell sticky back black baize and white felt ideal for the sidescreen box and toolbox. Easy to fit compared to most jobs. Very quick delivery too.

https://www.vinylwarehouse.co.uk/sticky-baize--felt-fablon-65-c.asp

The SVW Register has just commissioned a reproduction print run of the Salesman’s Manual from March 1939. This booklet was issued for the benefit of dealers and salesmen and is very informative about the cars then on sale. Obviously, the booklet is primarily of interest to SVW owners but the TA is also featured.

We have purchased a small supply from the SVW Register and offer the booklet at £20 per copy (the same price as the SVW Register is charging), plus postage (which is minimal). It measures 4 3/16” x 6 1/16” x 3/16” (106.4mm x 154 mm x 4.8mm) approx. It is a high-quality reproduction and is marked as such.

To order, please contact jj(at)ttypes.org {please substitute @ for (at)}. Payment will be accepted by PayPal, Bank transfer, or cheque.

**Barrie’s Notes**, a 76-page soft-back book covering almost every aspect of TF maintenance has sold well over 500 copies worldwide. We have been fortunate in acquiring another twenty copies, which are on sale in the T-Shop for £6 plus postage. When they are gone, they are gone!
**Fuel volatility - summary thoughts from Tim Jackson**

Tim says that his car (TC0999,) performs well, until the volatility issue arises.

Here’s what he’s tried so far to tackle the problem:

<table>
<thead>
<tr>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>fitted a heat shield with spacers</td>
<td>no significant improvement</td>
</tr>
<tr>
<td>tried brand name premium petrol (Shell, BP, etc)</td>
<td>some improvement, but variation between brands, location and seasons create uncertainty</td>
</tr>
</tbody>
</table>

From the XPAG tests and other sources, the following might be worth trying:

<table>
<thead>
<tr>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>add 5-10 percent kerosene</td>
<td>need to apply for a licence; reduces octane rating</td>
</tr>
<tr>
<td>use a wetting agent in the coolant***</td>
<td>lower engine temperature</td>
</tr>
<tr>
<td>fit pancake air filters</td>
<td>draws air from cooler part of the engine bay</td>
</tr>
<tr>
<td>fit MGB plastic 7 blade fan</td>
<td>improve air flow through radiator; TC fan is very inefficient</td>
</tr>
<tr>
<td>remove bonnet side panel(s)</td>
<td>ambient temperature will reduce engine bay temperature</td>
</tr>
<tr>
<td>fit bilge blower and ducting <a href="https://mgaguru.com/mgtech/carbs/cb208.htm">https://mgaguru.com/mgtech/carbs/cb208.htm</a></td>
<td>MGA owner claimed this solved his volatility problem; however, intake and ducting probably not feasible for T type</td>
</tr>
<tr>
<td>use waterless coolant <a href="http://www.evanscoolants.co.uk/Coolants/Automotive/classic_cool_180">http://www.evanscoolants.co.uk/Coolants/Automotive/classic_cool_180</a></td>
<td>TA owner claimed this solved his volatility problem (expensive); no claim to lower engine temperature</td>
</tr>
<tr>
<td>fit electric fan</td>
<td>may not work (Paul Ireland)</td>
</tr>
</tbody>
</table>

*** [https://www.amazon.co.uk/dp/B000CPi5ZK/?coliid=i37LAQS0YCUR1W&colid=1NL0Y52D67S8Y&psc=1&ref =lv_ov_liq_dp_it](https://www.amazon.co.uk/dp/B000CPi5ZK/?coliid=i37LAQS0YCUR1W&colid=1NL0Y52D67S8Y&psc=1&ref =lv_ov_liq_dp_it)

Tim says that his previous TC (TC1202) which he owned for a decade (sold in 2012), had pancake air filters and never suffered from volatility issues (but Ethanol content may have been lower or absent then?). He adds that he routinely uses Millers VSPr Power Plus Multishot primarily, for its claimed ethanol protection benefits, especially corrosion prevention. His engine is modified to use unleaded fuel (stellite valves and valve seat inserts).

**Ed’s note:** TC0999 carries the age-related registration mark RSU 772. However, we know that the car was originally registered as GUR 220 with Hertfordshire police on 11th July 1946, being one of two TCs delivered to The Chief Constable Hatfield (the other was GUR 219). In the absence of a log book for TC0999, or some other document to link the registration mark with the chassis number, it is not possible to reclaim the original registration mark. Over the years, Tim has tried in vain to find such a link. We know from Andrea Green’s book *MGS On Patrol* that Richard Uzzell from Aylesbury wrote of a car he owned in the late 1950s with the registration number GUR 219 and chassis number TC0998. This car had the bonnet bulge (as has TC0999) to house the larger dynamo used in police vehicles. Unfortunately, it has not been possible to trace Mr Uzzell and, who knows, with the passage of time he may no longer be around. It’s all rather galling, especially as 0999 is very appropriate for a police vehicle!
LOST AND FOUND - EXTRA

TA3019 (HGN 72)

Dave Furze has been in touch to ask if his old TA Tickford is still around. Dave owned it from 1965 when he was just 16 and spent a year renovating the car, keeping it until 1968.

The photo above also shows the Tickford with a 1934 Morris 8 open 2-seater owned by his brother, and Dave’s BSA Shooting Star motorcycle.

Dave said that the previous owner (in the London area) had overhauled the engine with new white metal bearings and fitted a replacement hood. Dave stripped the bodywork back to bare metal, replaced some of the ash framework, rust treated and painted the chassis, re-french polished the walnut dashboard, treated the bodywork with "Jenolite" phosphoric acid anti-rust solution, then re-sprayed with 12 coats of primer/primer-filler/undercoat and topcoat in "chariot red". He remembers stripping one of the rear axle crown wheel teeth on a fast pull out and being unable to find the correct gearwheel, he fitted a new crown wheel for a TC, he thinks.

The car was sold to a fellow student at Southampton University.

I was able to tell Dave that his old Tickford is now in the USA, but at present we are having difficulty in contacting the owner. I’m sure we will get there in the end.

If the owner in the US reads this, please would you get in touch with Dave at davefurze(at)outlook.com (please substitute @ for (at)).

MG 7383 (TC????)

I've received an e-mail from a lady who is trying to trace a TC for an elderly friend of hers, who used to own it. The chassis number is not known, but the registration number was MG 7383, described as "British Racing Green" in colour and probably registered late 1947/early 1948.

Her friend left the car with his mother for safe keeping when he went out to Singapore as a young RAF engineer. Unfortunately, his mother found the car too expensive to run and sold it! It was sold in September 1959 in Portsmouth. The car does not come up on the DVLA enquiry service, but may have gone abroad. The editor will pass on any information received.

TC Registration Number DG-99-FN

John Cockrem in Australia recently discovered that he has a nephew and a great niece in Holland. Through the family connection he came across this photo of a TC, which was taken some 35 years ago. In an e-mail to the editor, John was curious to know if the TC is still around and through the good offices of Frans Sitton, who was contacted by the editor, confirmation was received that the car has been in Holland since 1979. Frans kindly looked up the RDW (Dutch equivalent of the UK DVLA) to find that the latest change of owner was on 25th April 2018 and that the TC is a 1948 model.

If the new owner sees this, John’s e-mail address is jfcockrem(at)gmail.com (substitute @ for (at)).

TC3010 (CVL 70)

Mike Storey is seeking help in compiling the history of his TC. It was bought new in Lincoln and spent much of its life from early 50s to 60s in Lincolnshire, then went to South Yorkshire. Purchased in 1985 from the gateman to the Earl of Wharncliffe’s estate, the car has been completely restored. First owner may well have been an RAF serviceman as there were many bases in the county in those days. Any help gratefully received by Mike, who is at michael.storey4(at)ntlworld.com (please substitute @ for (at)).
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