T REGISTER

Totally T-Type

Issue 39 May 2010

Peter Kerr's REBEL TC at work

www.tregister.org

A MESSAGE FROM THE SECRETARY

Your Register Needs You!!

The 'T' Register looks to the Committee to drive it forward, and to provide the support to T-Type owners worldwide. The AGM in March this year heralded a period of major upheaval in the composition of the Committee – and we need you to volunteer.

Every year the 'T' Register holds its AGM after Rebuild in March. This year there were significant changes to the Committee with John James, Chris Tinker and Brian Rainbow all standing down as members. Although Jonathan Harmer has agreed to take on the task of Competition Secretary, we still need more people to volunteer as Committee members. This will become more pressing at the AGM in 2011 when the current Chairman, David Butler will have to step down after 5 years, as required by Club Rules. The Secretary, Chris Sundt, also stated that he does not intend to seek re-election in 2011, having been in the job for 9 years by then.

Now is your chance to make a real contribution to the ongoing success of the 'T' Register. Join the Committee. Experience how it works. Perhaps you can even consider taking over as one of the Officers at the AGM in 2011.

Understandably, a major topic under Any Other Business was the sudden resignation of John James from the MG Car Club shortly before the AGM. While he had told the Chairman at the beginning of the year that he wanted to hand over both his Regalia responsibilities and TTT Editorship during 2010, his sudden and unexpected resignation from the Club forced the Committee to take immediate action to seek volunteers to take over John's tasks.

There was unanimous support for a formal Vote of Thanks to John James for his outstanding contribution to the Register over many years and the Chairman was asked to write to John James to that effect.

The Chairman thanked those who had stepped in at short notice – John Ward as TTT Editor and Roger Wilson and David Darrel handling Regalia.

Please contact David Butler or Chris Sundt, or speak to a committee member at MGLive! Silverstone if you want to know more about what might be involved in joining the Committee.

Chris Sundt

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THE EDITORIAL

Following on from my first TTT in March, it now seems no time at all and I am back at the computer scribing away at the May Edition. There are still a number of articles that JJ sent me and I will endeavour to include more of these in future, in conjunction with the new items that you have kindly continued to send in.

The year is moving on quite quickly now, already we have enjoyed **Stoneleigh** and **Rebuild.** Next on the agenda is **Silverstone *Live*** followed closely by the **'T' Party** then a lull until the **Autumn Tour**. There are plans afoot for a further "hands on" session at the Bicester College at a **Skills Workshop**.

I must admit that I am enjoying this new expanding role into the MG world, it is interesting to pick up the phone and hear from you or receive emails whether you are in the UK, US, Canada or Aus, good to know you are out there and keep in contact. I hope you approved of my first TTT attempt, thank you for the ongoing contributions. I read them all and lodge them in the pending pile for future issues. Sorry if all of them do not get an immediate response, my email traffic has never been so active.

On more pressing matters you will see above, the Secretary's message and a plea for more of you to join up and become a member of the 'T' Register committee. Think about it, it is important for us to maintain our status within the MGCC.

In March we featured an article by Roy Miller on UMG registration plates and referred to John Bloomfield's TC. I have now received an update from John. Apparently there is a bit of a history to this number plate MG 6938. John bought the car in 1988 from a well known MG trader but who decided to keep the number for another car. John acquired AHJ 962A from the DVLA for the TC, however he did not feel

that this was a fitting number for the car and obtained an Irish plate LIG 197. He then took advantage of the DVLA scheme to supply 'age related numbers' and so he acquired LSK 733 which this time was Scottish but not particularly age related, merely old! He then espied in March 2000 that MG 1800 was for sale and yet another change was made. However in June 2001 John was put into a real dilemma, the MG trader who kept the original plate had decided to sell it after all. After some mental debate John went ahead and struck the deal, car and original plate were finally reunited. The car is 64 years old and has had 4 registered owners and 6 registered numbers, beginning and ending with MG 6938.

At the April meeting of the 'T' Register the committee discussed ways in which we could provide added value in return for your membership subscription to the MG Car Club. One suggestion discussed was that we could set up a 'T' Register lending library from which members could borrow any of the books that we decide to stock free of charge, except for the cost of postage from and back to the Register Librarian.

This cost would of course vary depending on the size of the book borrowed. Smaller books may cost as little as £1 to receive and return but larger books such as Mike Sherrel's "TCs Forever" which weighs nearly 1.5Kgrms may cost up to £10 for the round trip. If there was a waiting list this cost could be reduced because we would ask you to post the book on to the next lender, rather than back to the Librarian.

The period of loan would be at least two weeks, but it could be longer if there wasn't a waiting list. If any particular book proved to be in popular demand we would consider holding more than one copy to reduce the time you might have to wait to borrow same. Apart from having the opportunity to read books that you may not be able to justify buying, it will also provide the opportunity to 'try before you buy'. If there is sufficient interest we may well be able to offer some of

the titles in the library for sale. We discussed that if you were to buy a book from the Register as a result of lending from the library we could deduct the cost of that borrowing.

To enable us to go ahead we need your expressions of interest and of course suggestions as to the books that you would like to see held in the library. It also occurred to us that you or others may have a collection of books to which you no longer regularly refer or that are no longer required. These may well be of interest and to the benefit of other members and which you may wish to donate to the library to be loaned out under the above scheme.

I'm pleased to say that the conclusion of the meeting was in favour of going ahead. Peter Cole elected to take on the role of inaugurating this possible service to you as members and to sound out your views. All we need now is your feedback. Please email him at tregisterlibrarian@googlemail.co or write to Peter Cole, 8 Aldbourne Drive, Bognor Regis, West Sussex, PO21 4NE, with any suggestions you may have and of course a list of any books you may be able to donate.

FRONT COVER

YELLOW REBEL

The 1947 MGTC 'Yellow Rebel' began life as a standard import. Roger Waters removed the V8 engine from his MG BGT V8, and installed it in the TC. He proudly announced: 'It fits.' I calmly replied: 'Of course, it's only two 4's.' After trying the handling, I added: 'I will never drive this beast again.' Roger set out to prove me wrong, and devoted his creative spirit to make a racecar out of his TC. At the MG Nationals on the Gold Coast in 2007, the Executors of the Waters estate, noted that I won my Hill climb Class by 5 seconds in my 1934 Magnette. They announced therefore that I was eligible to inherit under the terms of his will.

He was very particular that the 2nd owner would not dent the reputation of the 'Rebel'. Roger was very determined to overcome the early handling problems and devoted his life to developing his 'Porsche beater.'

The most obvious changes can be seen in the shape of the wings and the size of the race tyres. What is not so obvious is that the body is aluminium, and the wooden body is drilled wherever possible to reduce weight. The bonnet top is not hinged, and is removed in one piece to gain access to the engine. The light weight aluminium side panels may be removed to improve ventilation. There is no hood, and a full roll bar takes its place. Everywhere you look, weight saving modifications were employed. The aluminium MG engine lowered the weight on the front wheels, which decreased under steer and increased the performance during braking. Other enhancements include fuel injection, which added 50 bhp over the original GT V8 engine. The engine is stroked to 5 litres and ports are polished, plus other secrets known only to the engine builder. A heavy duty clutch is attached to a lightened flywheel, and is coupled to the 5 speed transmission.

Although it is not an easy transmission for the inexperienced driver to use, it is almost unbreakable in the hands of an expert. The final part of the drive train is the rear axle, with its lightweight limited slip diff in situ. The heat treated keyed axles are able to handle the power transmitted to the rear wheels. The power will spin the wheels in every gear, and power must be fed in steadily. Full throttle at the gate will only cause the MG to execute a 180 degree spin. On the turns, with limited slip differential, both rear wheels are obtaining power and driving the Dunlop racing tyres through and out of the turn. Imagine putting all of the 250 horsepower into one tyre that is 7 or 8 inches wide. The coefficient of adhesion is easily overcome and the wheel will spin, providing smoke and applause from the spectators in the grandstand, but not necessarily producing rapid acceleration. On the other hand, imagine taking that same 250 horsepower and putting it equally onto two 10 inch wide tyres. The coefficient of adhesion is not so easily overcome because there is a much greater surface area being powered. This results in little or no smoke from the tyres, and applause from the grandstand will not be heard, as the driver will be much further down the track.

Peter Gostelow took the last ride with Roger in the 'Rebel' on a public road out at the farm. At 165 mph on the speedo, Pete said: 'enough.' Roger laughed and said: 'Gotcha, I'm gonna die anyway.' Sadly, he passed away two days later. The Executors selected Peter Kerr as the Rebel's 2nd owner. He has seen 200 mph on Conrod coming down off Mt Panorama. The oil flag came out after an engine blowup ahead, and Peter reduced speed to 100 mph when he hit the oil. Mal Brewster, his mentor, checked the videos after the spin and said he did everything right. However, he added: 'when you fall off a horse, you have to get back on.' The TAFE students worked all night on the Rebel and Peter did 2 races next day at Bathurst. The other competitors said the spinning MG indicated the oil location on the track, and thanked him for pointing it out!

The racecar has 4 wheel disc brakes, plus brake bias adjustment. Steering is MG rack and pinion and the 'Rebel' has other modifications necessary for a race car. It carries a full CAMS log book and is also road registered. The down force wing is removed for road use, and the passenger seat and aero screen are removed for racing, to reduce weight.

Peter Kerr 31st January 2010

SPECIFICATIONS

1947 MGTC SPECIAL 'YELLOW REBEL'

WORLDS FASTEST TC TIMED AT 200 mph
down CONROD at Mt. PANORAMA BATHURST AUSTRALIA

ENGINE	All alloy ohv 4977cc MG ROVER V8 with electronic fuel injection.
POWER OUTPUT	246.5 bhp @ 5250 rpm at rear wheels
TRANSMISSION	5 speed MG ROVER R380 gearbox
CHASSIS	TC4888 boxed ladder type steel frame

BODY	MGTC, eliminating the door openings and strengthened accordingly
FRONT SUSPENSION	Semi-elliptical springs mounted to beam axle
REAR SUSPENSION	Semi-elliptical springs
BRAKES	MG 16” diameter power assisted discs
WHEELS AND TYRES	7J x 14” wires and 195/60R 14 86H (F) 7.5J x 15” wires and 205/60R 15 91H (R)
LENGTH	12’6” (3810mm)
WIDTH	4’10” (1473mm)
HEIGHT	4’2” (1270mm) including roll bar
WHEELBASE	7’10” (2388mm)
TRACK	4’6” (1372mm) (F) 4’8” (1423mm) (R)
WEIGHT	2309 lbs (1045 kgs)
MAXIMUM SPEED	161 mph
0-60	4.2 seconds
MPG	16.2

‘T’ REGISTER NEWS AND EVENTS

PAST EVENTS

Already **Stoneleigh** and **Rebuild** are behind us and as you receive this edition all the preparations for Silverstone **MG *Live!* 2010** should be in place.

There was a full report of **Rebuild 2010** in the ‘T’ Register May Newsletter of ”Safety Fast”.

FORTHCOMING EVENTS

SILVERSTONE MG *Live!* 2010

As usual the full ‘T’ Register programme of events will take place at this year’s **60th Anniversary of the International MG Meeting at Silverstone.** The Committee will still like to hear from you if you are available to assist in any capacity to make this a memorable event. The Register Stand will be manned for all 3 days and there will be a wealth of Regalia items on display for sale, some at bargain giveaway prices!

One additional item this year is an Auto Jumble where you can go as an individual (not a trader) set up and display your spares for sale in a simple format i.e. from the boot or trestle table alongside the cars. The cost will be £10 for one or two days, maybe also a chance to pick up those rare genuine ‘T’ spares

‘T’ PARTY 2010

The date for the ‘T’ Party is **Saturday 17th July 2010** and once more we have managed to secure a dedicated viewing area at the Shelsley Walsh Hill Climb event, the meeting is a round of the ‘Luffield Cars MG Car Club Speed Championship’.

Waiting for the "OFF" at last year's Shelsley Walsh Meeting.

If the above whets your appetite and you wish to have a go (see February 2010 Safety Fast 'T' Register notes) then put this meeting high on your agenda. If not, but you wish to attend and witness this spectacular event with other T-Types, the cost will be £13 per person, £2 less than the normal entry fee. The venue is near Great Witley in Worcestershire and the arrangements will be as last year, meet up at The Hundred House Hotel before travelling on to Shelsley Walsh some 4 miles away.

You must book in advance, all applications to Brian Rainbow by e-mail to brian@brianjrainbow.free-online.co.uk

AUTUMN TOUR TO LLANDRINDOD WELLS

As widely publicised, the Autumn Tour this year is to Mid Wales based in LLandrindod Wells on Friday 10th September to Monday 13th. Most of our allocation of 65 rooms at the Hotel Metropole have now been snapped up for this ever popular event.

SKILLS WORKSHOP 2010

Discussions have been held and plans are being made for another **Skills Workshop** to be held in October at Bicester College. More information and details later.

AUTUMN TOUR 2011

Next year's Autumn Tour will be based at the Coniston Hotel, Skipton, North Yorkshire over the weekend 9th to 11th of September 2011. Grant and Barbara Humphreys are organizing this event for us, based in a family owned and run hotel, set in a private estate in the heart of the Yorkshire Dales. The deposit has already been paid and bookings can now be taken. You can enquire about the hotel on www.theconistonhotel.com or to book contact Grant and Barbara on grant.chumphreys@btinternet.com

EDITORS RAMBLINGS

A few of us locally got together and took part in 'National Drive it Day' on Sunday 25th April 2010. One of the topics raised was the question of "agreed valuation" on our classic insurance policies. It was interesting to hear of the many different approaches on this that were being taken by the ever increasing number of companies now active in this field.

We are all aware there has been a significant increase in the value of our classic cars (something to do with Banks and their interest rates for savers?) You only have to look in magazines and the Internet to see current trends. Many of us should now reconsider the value of our prized possessions when it comes to replacement in the event of a catastrophe and to check the terms and conditions of our policies.

It would be interesting to hear of your experiences and views in this connection, looking at my policy I have just noted my insurance is due shortly.

FOLLOWING ON FROM THE ARTICLE IN MARCH TTT ON THE REFURBISHING OF WIPER MOTORS, ARTICLES ON TF WIPERS AND INDICATORS

Some innovations by Brian Osborn on his TF

WIPERS on an MG TF

Those owners of 1950's MG TFs that use their cars in all weathers will know what a hassle it can be to switch the windscreen wipers on and off, especially if one needs intermittent wiping in drizzle or light rain.

For those that are not familiar with the model, the wipers are mounted on the scuttle like modern cars, in contrast to the earlier T types which have wipers and motor mounted on the top of the windscreen frame.

However unlike modern cars, the windscreen folds forward so provision is made to disengage the wiper arm and blade from the driving rack by pushing a knob on the spindle and turning it out of the way. The wipers can be engaged or disengaged separately, so the driver's one can be operated on its own because this incorporates the switch that powers the motor when in the engaged position. Quite a good design for its time.

However to get to the knob entails reaching through the spokes of the steering wheel into the depths of the glove box and then pushing and turning the knob. In modern traffic this can be a problem and certainly very inconvenient when cornering.

What to do? Well I have added a toggle switch in a more accessible position (see photo). The existing built-in switch is pretty inaccessible and works by earthing the motor. However, the wiring between the motor and switch can be got at from under the dash and one can break into it and add the new switch in series.

The driver's wiper is then left semi-permanently engaged, but parked at one of its extreme positions out of the line of vision.

Then one can wipe with a quick flip of the new switch, much easier and safer.

TF Wiper switch

TF (MGB) indicators

TF DIRECTION INDICATORS Pt 2

In the January 2005 TTT the installation of supplementary Direction Indicators to my TF was outlined. To briefly summarize, I explained how I had copied the MGB circuit and utilised an old MGB stalk which mounted on to the steering column.

Since then I have made a striker plate that acts as a self cancelling device, see photo. It all works very well I am pleased to say.

I have also repaired the Indicator stalk as it was an old one from my MGB with a broken contact and have now not only have the indicators wired into it but also the headlamp dip switch as I was finding it difficult to get my foot around the clutch pedal to find the original foot dip switch. At the same time the main beam flash was also connected, which has been very useful as I do quite a bit of night driving when on the Lands End Trial, and also the horn which will now hoot from either the stalk or original button.

One of the main advantages I find is that as I regularly use both my TF and MGBs, I can jump into either and they are the same - requiring no extra effort to recall where all the controls are!

Brian Osborn June 2009

YOU CAN FIX A TC BRAKING!

I have owned my TC for over forty years and have always found braking and stopping to be very slow and sometimes frightening.

With modern day driving conditions and modern day drivers, and with car acceleration and stopping being vastly improved, I have found it more and more difficult if not impossible to keep a safe braking distance between me and the car in front, particularly on motorways. If I do manage to achieve this, it is only to have a following vehicle fill the space in no time.

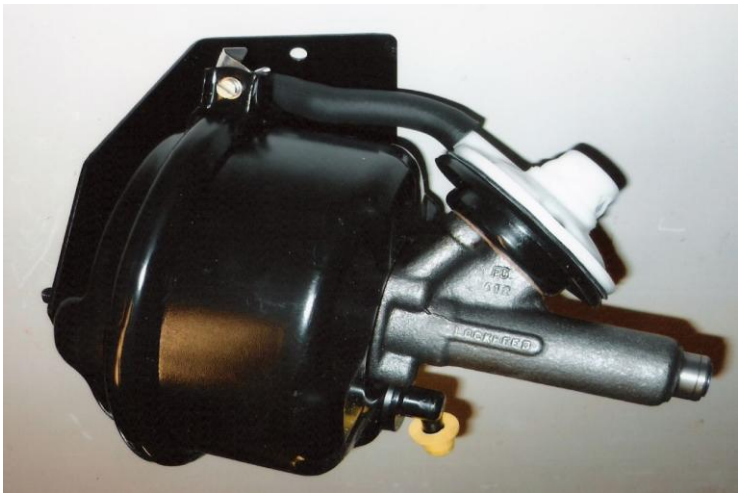
So I started to look for a way to improve the safety of the TC and to continue to enjoy classic car driving. Normally braking on a TC is a case of starting to brake and holding on tight as you get closer and closer to the car in front, finally coming to a stop with hardly any feeling of any real braking power.

Over the years I have carried out a complete rebuild of the braking system with new wheel cylinders, new bronze master cylinder, fitting a two slave cylinder conversation similar to the TD. But the problem still persisted with the pedal going hard and the car slowly and eventually coming to a stop.

I considered all the alternatives to overcome this and finally came to the conclusion that it should be possible to fit a brake servo

modification which may perhaps make the TC safer and more enjoyable to drive.

I looked at lots of options and decided that a brake servo kit that is often fitted to the Morris 1000 would be the answer. The kit was purchased from Bull Motif Spares, phone number 01386 831755. It was manufactured by Caparo AP Braking Ltd in Leamington Spa being a Type 6 Remote Servo Assembly HRK115.



The kit was supplied with a full instruction guide on how to install it and I have found that the following method works well in the TC and there is no visual effect other than a small rubber feed pipe which is fitted to the carburetter inlet manifold. The servo can easily be fitted under the dash onto the bulkhead inside the car.

Installation Procedure

Offer the servo mounting bracket to a position under the dash onto the bulkhead just on the bottom of the tool box and drill three holes and fit the bracket. Fit the servo to the mounting brackets and once fitted, mount the extra support arm and drill two holes and fit.

Remove the seats and the floor boards from the car. Remove the original brake pipe that runs across the chassis from the brake master cylinder to the 3-way union and reuse the ends on the new brake pipes supplied in the servo kit. You will need to reuse the two original connectors which are larger than the ones supplied.

Cut about 20 inch of the length of the brake pipes that are supplied. You will require the use of a brake flaring tool which I borrowed from my local garage to refit your original ends to the brake pipes and at the same time I would advise that some armoured cable be fitted around the brake pipes for added protection.

Cut of a small corner from the inside off the floor boards to allow the new brake pipes access to the servo which is now fitted under the dash onto the bulkhead. Fit the new brake pipes to the master cylinder and the 3-way union in accordance with the instructions supplied.

Run the brake pipes inside the car down by the foot well up to the servo. Refit carpets and floor boards and make sure that all the new brake pipes are not catching on any part of the car and if required fit support brackets.

Drill and tap into the carburetter inlet manifold and fit the rubber pipe which will need to be run down into the centre part of the foot well into the car and up to the servo unit. I had previously fitted a heater so there was no need for me to drill any extra holes but you may need to drill a hole for the rubber feed to the servo unit. Bleed the brake system and check all new piping is secure with no leaks visible.

You will be surprised at the improvement to the braking The car now does stop when required and has more control and is more enjoyable to drive and feels much safer.

Carlo Romero January 2010

Editors Note

Perhaps the reason Carlo needed to consider the braking capability of his TC was due to another bit of kit he had installed!

MORE ON FUEL RELATED PROBLEMS IN CLASSIC CARS

Bryan Mellen passes on his own solution

I have been tinkering with old engines for 60 years and I have to admit in complete ignorance, my knowledge of thermodynamics I learnt from ' Flanders and Swan' [that's entropy]. I can however boast in that time I have been rescued less than the fingers on one hand not because I haven't broken down but because I couldn't afford the AA or RAC fee. I once stripped my Scott motorcycle engine at the side of the road when the crank shaft broke and ran it home on a single cylinder, but that is how it was in those days and most people then could undertake quite major repairs for themselves.

On the subject of sudden loss of power and fade out on our antique cars I think I can shed some light. I concluded some time ago that there was something strange about modern fuel in my ' Kent ' powered 105e Anglia since it started fading out at the most embarrassing times. I checked all the usual things to no avail. However I heard that the new fuel burnt much hotter, it was then that the penny dropped. Clearly I reasoned, it was that the valves were not closing, so I reset all the tappets an extra 2 thou and would you believe it, no more blocking the fuel station forecourt.

When I purchased my TF, lo and behold the same thing happened, so slackening the valve clearances gave an instant cure. In the recent article by Barrie Jones he confirms that the exhaust valves are getting much hotter which backs up my theory that the stems are expanding more. So there we have it ……. there is nothing better than a bit of slop in the mill for easy running.

By the way can someone please explain how hot is hot when adjusting the tappets since by the time the plugs are removed and the rocker cover and in some cases the air filter and one has progressed to number 4 cylinder the engine has considerably cooled down.

Bryan Mellem January 2010

On the same theme….

On reading TTT January 2010 and the articles by Barrie Jones “Fuel Related Problems”, Paul Ireland’s “Suck, Squeeze, Bang, Blow” also John Saunders’ piece on “Fuel Consumption”, Alan Wakefield was prompted to add to the debate;-

Since the Skills Workshop at Bicester last October, I have been carrying out a detailed re-examination of my camshaft, valve rocker gear, and especially the distributor and timing. All this in the interests of eliminating my previous (but now non-recurring) "stalling" and vaporisation problems, but latterly to get the best possible performance and smooth running from my TD2 XPAG with different fuel mixtures and additives etc.

My valve timing tests (measured in situ, but with pretty accurate crankshaft degree plate and dial gauges etc.) has led me to conclude that that the camshaft fitted in my engine is either the MG supplied AEG 122 (half race) version, or a near equivalent; with the standard valve lift of +/- 8mm (0.315"). The John Saunders article refers to the Iskederian (Isky) camshaft in his TC; this is stated as a 15:54/53:16 timing, but with high lift (0.355" = 9 mm); that calculates as a 249/249 cam with quite a wide overlap =31 deg. Also, I note that the valve clearance (hot) for John's camshaft is 0.015" - which is the stated clearance on the valve setting plate on my engine, which is curious!

Finally after a year or two messing about with a variety of proprietary "additives" to the regular forecourt unleaded, I have recently been using various "premium" unleaded forecourt fuels, such as BP Ultimate or Shell V-Power. It may be "psychological", but I do seem to be getting better running, and the same if not better mpg. I was partly convinced by the BP Australia website information, which seemed to be about the best comment on the characteristics of various "modern"fuels. (OK, so they were selling the case for Ultimate!)

XPAG CRANKSHAFT REAR OIL SEAL LEAKS

Roger Wilson gave a comprehensive talk at Rebuild 2010 on the much debated and lamented oil leak from the rear of the crankshaft of the XPAG and XPEG.

Here is his text in full for those that missed Rebuild.

I hope the following article explains how the oil leak at the rear of all XPAG, XPEG and similar engines results from a manufacturing error that was never identified, and certainly never corrected by Morris Engines Division, even assuming that they thought a few drops of oil represented a problem!

Some years ago the slight oil leak at the rear of my XPAG engine was resolved by South Cerney Engineering. They told me that they had to reposition the die-cast plate that bolts to the block to ensure its centreline was co-axial with the centreline where the crank fits. In the parts list this plate is called an oil seal cover, part X22517, although some T and Y type parts suppliers use different descriptions and numbers. Apparently South Cerney had to slot the bolt holes, and fit oversize pins to encompass the pin holes in the block and the plate as they were no longer in line. I have to say that the procedure seems to have worked, as I subsequently got virtually no leaks. Then I read Roy Miller's article in issue 21 of TTT, in which he describes how he overcame his XPEG leak problem at the same position, and recognised that he had undertaken very similar work, although he calls the plate a slinger cap, or oil seal cover as in the workshop manual. He details the setting gauge that he had made, and explains how he found the gauge to slinger cap clearance was all on one side. Roy resolved this by slotting all the holes, and sliding the plate (slinger cap) sideways to obtain uniform clearance all round.

Thus I decided to investigate further, and had a setting gauge turned up similar to Roy's, but with the smaller diameter such that it could be held in the rear main bearing housing without the bearing shells. The gauge has two recesses to clear the pins that stop the bearing shells from rotating. I fitted the gauge into my spare XPAG engine, and I hope photo 1 shows the results – all the clearance at the die cast plate is to one side, exactly as Roy found. Photo 2 shows the scratch marks where the crankshaft oil scroll has been rubbing against the opposite side of the housing in the plate.

Thus there is a problem related to these plates, and it must be one of the following;

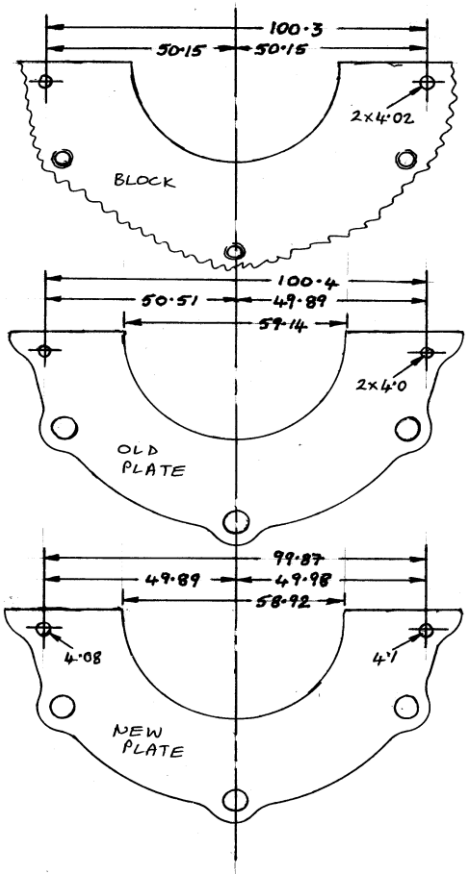
Either 1, The plates are not to the drawing,

or 2, The drawing of the plate is wrong,

or 3, The bolt and pin holes in the blocks are slightly in the wrong positions.

I cannot check items 1 and 2, but I have measured the position of the pin holes with respect to the centre line of the housing in the plate from my spare engine. For item 3 I have measured the same dimensions on the block. All the dimensions are shown on the sketches. The

centre to centre distance of the pins is not quite the same, but I did not have a 3 axis coordinate measuring machine available. The block has the pin holes drilled equally about the crank centre line, which is what would be expected. However, the plate has its pin holes drilled to the left with respect to its housing centre line, and this will have the effect, when bolted to the block, of moving the housing to the right. This will result in an unequal clearance around the crank scroll.



We know that the crank oil scroll diameter is 2.313/2.315" = 2.314" nominal = 58.78mm. Thus for my plate the nominal clearance all round is (59.14 - 58.78)/2 = 0.18mm, = 0.007". This is a rather large clearance.

However, when my plate is bolted to my block, the clearance on the left hand side is altered to;

0.18 - (50.51 - 50.15) = -0.18mm = -0.007"

This is an interference fit, and the oil scroll will rub, as in photo 2.

The clearance on the right hand side is altered to;

0.18 - (49.89 - 50.15) = 0.44mm = 0.017"

This is excessive, as in photo 1.

I could not check the interference on the left hand side, but on the right hand side I measured an actual clearance of 0.016". My block did not in fact have any pins fitted, so possibly the engine builders at Morris Engines Division were aware of the problem, omitted the pins, and pushed the plates as far to the left as possible. Clearance around the bolt holes would allow them to do this for a small amount, but the improvement seems to have been minimal. Anyway, it is clear that the block was drilled equally about the crank centre line, with the bolt holes being correct to both pin holes and centre line. The plate, however, was drilled way off-centre, and its housing diameter at 59.14mm is too large; a diameter of 58.93mm would be better. The bolt holes in the plate are off-centre by the same amount, as they are correct to the pin holes rather than the housing centre line. I then checked a new plate, with the dimensions given on the sketch. As the diameter is 58.92mm, almost exactly what I think it ought to be, the nominal clearance all round should be a satisfactory (58.92 - 58.78)/2 = 0.07mm, = 0.003".

I then did similar corrective calculations as before, and ended up with some rather large clearances; these were unlikely, and caused by the undersize distance between the plate pin holes (99.87mm). However, they did predict that the larger clearance would move to the left hand side. After fitting the plate onto the pins in the block, I did in fact measure a 0.005" clearance on the left hand side, and close to zero clearance on the right. The plate fitted easily onto the pins, despite the undersize distance between the pin holes, possibly because the block and new plate pin holes are oversize. Thus, although the new plate gave better clearances, the solution does seem to be to ovalise the holes and slide any plate sideways to obtain a uniform, and hopefully 0.003" maximum, clearance all round, using a gauge to check the setting. The oil scroll housing on the rear main bearing cap will have a uniform clearance all round as it was bored in line with all the main bearing housings. However, the diameter of the housing on my rear main bearing cap is 59mm, giving a clearance all round of (59 - 58.78)/2 = 0.11mm, or 0.004", which is oversize, but expensive to adjust.

Some Locktite to hold the pins in the block would not go amiss, and with slotted holes the pins will no longer be quite so effective in holding the die cast plate in position, so I think it would be useful to put a semi-hardening sealant on either side of the gasket. It would also be useful to put some sealant where the plate butts against the half housing on the rear main bearing cap.

As Roy cautions in his article, it is important when fitting the main bearings to ensure that they do not stand proud, and prevent the main bearing caps from actually butting against the block. Attention with a file may be necessary, ensuring that any filings are removed.

As another thought, I have removed the drain tube from the rear main bearing cap, clearing the resulting hole with a 12.5mm drill bit, to aid draining the oil back to the sump. I realise this is contentious, and the

suggestion could be that crankcase pressure will stop the oil from draining. I think the oil will still drain down the sides of the hole, and the crankcase pressure should be, as was in my engine, negligible. This could be because my piston compression rings are three bladed, and were arranged so that there was no through slot. It may also be useful to note that some later T, Y and XPAW engines had shorter tubes that did not reach the sump oil.

Regarding the other gasket positions around the sump, if the gaskets or seals are fitted correctly, they should not leak. The cork strip on the rear main bearing cap must be fitted the correct way round, and trap the sump gaskets on either side. This means that the sump gaskets are fitted to the block first, possibly with a semi-hardening sealant either side. At the front, the longer rope seal goes into the groove in the timing chain cover, and the shorter rope seal goes into the groove in the sump. I think it is then better to bolt the sump and cover plate, with gasket, onto the block with the crank (and front oil slinger) in place, but without the fan belt pulley. The ends of the sump gaskets must be clamped between the rope seals, such that the ends can touch the boss on the back of the belt pulley when it is in position. Obviously, the fact that the bolt holes in the sump gaskets have to be positioned to allow bolts to pass through them aids correct location. The belt pulley is then tapped into place, and a smear of grease on the outside and inside of the pulley boss may ease fitting. My engine has rope seals at the front, and didn't seem to leak.

My gauge is available for borrowing by anyone who wants to check their block and plate, provided it is returned in a reasonable time.

Roger Wilson 22-3-2010

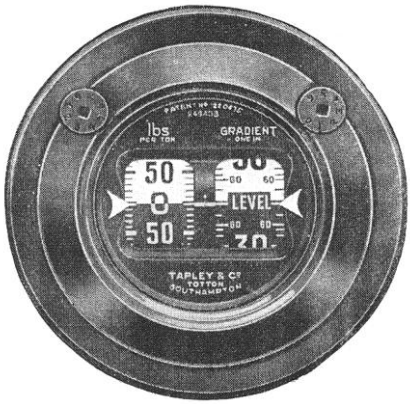
TTTT (TOTALLY TECHNICAL T-TYPE)

Now here is something for the really serious minded T-typer

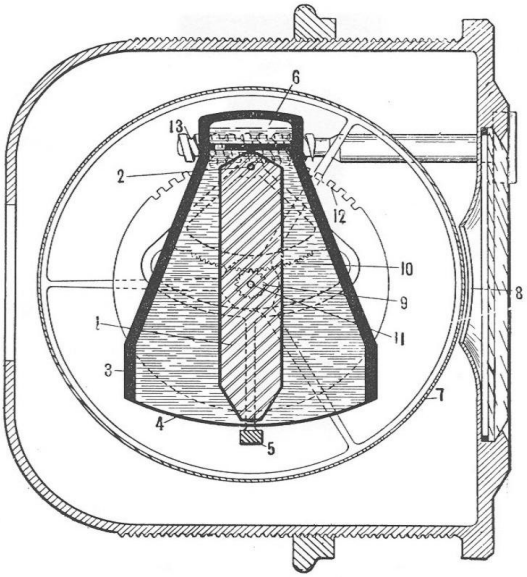
Power Tuning with Acceleration

As every TC/TD/TF owner knows, some extra power can be squeezed out by proper tuning of carburettors, contact points, spark advance and the like. However, that power is neither easy to measure nor to confirm, but this can be done by using an *accelerometer* – an idea that was supplied to me by *Carl Cederstrand* of Orange, California.

Instruments to measure acceleration exist, and the most famous ones were manufactured by *Tapley Meters Ltd.*, Totton, Southampton, quite a few decades ago. I believe they were also used by MOT examiners to determine the efficiency of brakes. *John Marks* of Vintage Restoration has been kind enough to send me a lot of ancient documentation on that instrument, and to locate one for me in excellent condition.



The figure above comes from the literature published by Tapley and shows what appears on the dashboard, or at the face of one of the several brackets that were available at the time to make the instrument portable – facia, steering column, and floor. The scale at the left indicates the acceleration of the vehicle in lbs/Ton, on a white background for positive (speeding up, climbing up), and on a black one for negative (braking, going downhill). The scale at the right indicated the inclination gradient of where the vehicle is located, even when it is standing still. The screws serve to compensate for installations on non-perfectly vertical dashboards, like mine.



As the figure above shows, the instrument is basically a pendulum, part number 5, damped in oil, with an attached graduated scale, part number 7, and thus according the laws of physics it reacts to a force applied to it, and hence to acceleration. Contrary to a popular belief that lasted almost two millennia from Aristotle to Newton, force is not related to speed, but to acceleration: in fact, if you travel on a straight line at a constant speed, you do not feel any force on your body, but if the vehicle accelerates or takes a turn you feel it everywhere – including in your stomach – and you may have to hold yourself.

The Tapley is built in such a way that it measures only acceleration in the direction of the moving car, which is what interests us for tuning purposes. With an electronic speedometer it would be possible to electronically derive the acceleration from the speed, thus making the Tapley redundant, but since everything is mechanical I can use it to check whether speedometer and tachometer are correct.

Now let us see how the indications of the Tapley can be used. To do so, we shall use the system of physical units MKSA, based on the ***m***eter, the ***k***ilogram, the ***s***econd and the ***a***mpere, from which all other physical units can be derived. The system has the advantage of being *decimal* – unlike, say, those that use *inch* and *foot*, *pint* and *gallon*, *lb* and *cwt*. Hence, *sub-units* can be easily expressed with the prefixes *deci, centi, milli, micro, nano, pico* and *femto*, and *superunits* with the prefixes *deca, hecto, kilo, mega, giga* and *tera*. Besides, transitions from one physical group of units to another – such as *mass*, *size* and *volume* – are made easy by considering that the *kilogram* is the mass of a *cubic decimetre* of water which has exactly the volume of a *litre*.

Notice that even Americans with their Medieval system do use some MKSA units, such as the *ampere* or *A*, the *watt* or *W* – which turns out be one $kg\,\frac{m^2}{s^3}$ – and the *volt* or *V*, which is defined as one $\frac{W}{A}$.

I have already used this method to model *oil pressure*, *flow* and *power* in the XPAG engine, published in the Octagon Car Bulletin of December 2000 and of March 2001, from a verbal description of oil flow constrictions described by *Neil Cairns* in the September 1999 issue of the OCC, and I could compute that the oil pump uses about 1/4th of a horsepower. If anyone is interested, I'll be pleased to e-mail a copy if I receive a request at my *e-mail address* indicated below.

So let us turn back to our Tapley. *Speed* is defined as *space over time*, hence its *dimension*, or unit, in MKSA is $\frac{m}{s}$, while acceleration is the variation of speed over time, thus its dimension is $\frac{m}{s^2}$. To relate this to Tapley, we use Newton's formula ;- *force = mass x acceleration*

which is consistent with Tapley instruments' measuring acceleration in $\frac{lbs}{Ton}$, or force over mass, as per Newton's formula.

Now, *free fall* of an object is *g* or 9.81 $\frac{m}{s^2}$, 1 ton = 2240 lbs, hence we have that $\frac{2240lbs}{1ton} = 9.81\frac{m}{s^2}$, from which it follows:

$$1\,Tapley = 1\frac{lbs}{Ton} = \frac{9.81}{2240} = 0.004379\ \frac{m}{s^2}$$

and so this is the conversion formula between Tapley and normal acceleration units based on $\frac{m}{s^2}$ – and speeds of km/h.

Examples

1. Close to my house, there is a hill which, when the engine is properly tuned, i.e. all cylinders running with a similar compression, spark advance set properly, correct mixture, I climb at 550 Tapleys in second gear. This corresponds to:

550 x 0.004379 = 2.41 $\frac{m}{s^2}$

which is about 1 / 4th of *g*, the free fall acceleration.

2. Again with a properly tuned car, I travel on a flat road in fourth gear with a display of 250 Tapleys and a speed of a 100 km/h. Now, from Newton's formula, *force* is *mass* time *acceleration*, *power* is defined as the product of *force* by a *displacement* in a *time unit*, hence we have:

880 x 250 x 0.004379 x $\frac{100x10^3}{3{,}600}$ x $\frac{1}{735}$ = 36.41 bhp

bearing in mind that the weight of a TD is 880 kg, an hour has 3,600 seconds, and that 1 bhp = 735 W. This is consistent with the power one would expect to be supplied by the XPAG to the whole car.

Thus, to conclude, obtaining maximum power is the same as obtaining maximum acceleration. I can confirm that, thanks to test stretches I know well in regard to speed and Tapley's reading, I can immediately tell by reading the acceleration if something is not up to specs with my car, and when a new engine tuning is needed.

Denis Baggi

TD chassis number 1034, March 1950

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Editors note - Well there you have it, all basically simple,

'O' Level Physics…….. wish I had taken more interest now!

TA, TB and TC Luggage racks

Paul Ireland

When I bought my TC in 1967, it was fitted with an original style luggage rack situated above the petrol tank and spare wheel. Although it was a "bit agricultural" it served my wife and I well on our tour of Europe in 1978.

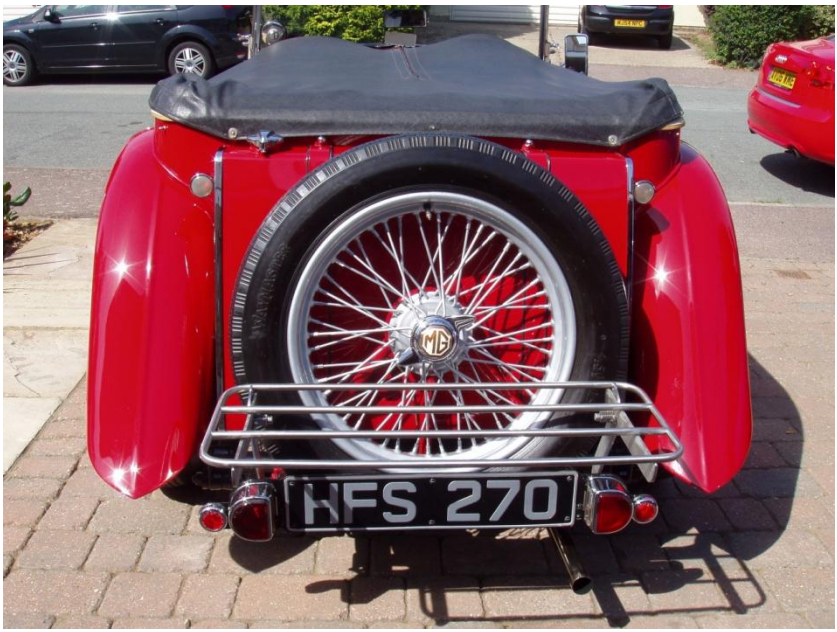
Unfortunately, the original style rack has a number of disadvantages. When loaded, it completely obscures any view to the rear, especially serious when travelling on the continent as it makes it impossible to see overtaking vehicles.

In 1978, this was an inconvenience, unfortunately, with today's traffic density, it is dangerous. Placing a heavy load high above the roll centre makes the car less stable and it is impossible to fill the fuel tank when loaded. Finally, it is difficult to fit and damages the top of the tank straps.

After rebuilding the TC, I wanted to find an alternative solution to carrying luggage that would avoid these problems. I have seen several different solutions and have chosen the one used by Michael Sherrell, you can see photographs of this rack in his book. It consists of two arms fitted to the existing two pairs of "spare" holes in the rear of the chassis supporting a flat rack positioned behind the spare wheel. Not only does it address all the problems of the existing rack, it can be easily fitted with no modifications to the car and folds up when not in use. Michael told me he has used his to carry XPAG engine blocks, something you would not consider with an original style rack!

Unfortunately, Michael's design will not fit my car as the after-market rear light conversion sits too high to allow clearance for the two arms. To address this, I have modified his design to create a rack that is both larger and will clear similar rear light clusters. (See photos). When I was at Silverstone, last year, several people commented on how much better this rack looked than the original and as a result, I am considering having a batch made to offer for sale. It will be made from polished "yacht grade" stainless, that is virtually indestructible and has a finish that is almost indistinguishable from chrome. The price will depend on quantity but should be about £200.

If you are interested, please could you email your details to octagon@ireland-family.org or ring me on (44) 1206 298736.



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