Totally T-Type 2

ISSUE 23 - APRIL 2014

Piers Flashman's TF is for sale – a shining example!

THE EDITOR John James

Welcome to Issue 23, April 2014.

It has finally stopped raining in my part of the world (South West England) and hopefully we can now look forward to a dry summer (says he, tongue in cheek!) as there surely can't be much rain left up there!

First a cautionary tale; I started up my PB a month or so back and was dismayed to see a jet of petrol spray upwards from the pump to carb fuel pipe. This is the second time this has happened and the leak was in exactly the same place - i.e. the top of the bend in the flexible pipe. Fortunately I had the bonnet open at the time so it was noticed straight away. I always carry a spare one of these, and also a spare carb to carb hose, so I temporarily fitted my spare and ordered a new replacement. When the new one arrived I fitted it and returned the spare to its box.

It was good to meet so many T-Typers at the Stoneleigh Spares Show. I'm not sure about the logistics of combining the MG Show with the Triumph Show, but we hope to be back next year with 'TA Brian' (Brian Rainbow) and we have already reserved our stand.

As I was typing this editorial an e-mail came in from Derek Bradshaw. It read as follows:

Just found your site and joined immediately.

Having spent the last 30 years restoring my TA and getting nearly to the finish line, my health thwarted me leaving me terminally ill.

My wife and daughter worried that I would not complete the task before departing this life and without my knowledge, contacted the television programme CAR SOS and they took on the task completing the car and getting it back on the road.

All this without my knowledge; I was taken to the Cheshire Steam Fair where I was surprised by the presenters and my car was presented back to me. WHAT A SURPRISE THAT WAS!

The programme is the first of the new series of CAR SOS and will be aired on Monday 24th March 2014 @ 9.00 pm on National Geographic channel No 526 on SKY digital.

Hoping some of you manage to see the programme.

Derek's TA is TA2259.

Arrangements for the Totally T-Type 'Tour of Isle of Wight' 29th August to 1st September 2014 are progressing and by the time participants read this all of them should have received an e-mail from me giving confirmation of hotel and ferry bookings. The rally plate has been produced and the next job is to start on the routes.

An unexpected vacancy has just arisen for a double room at the Tour hotel (The Shanklin Hotel). If you are interested in coming along please phone me on 0117 986 4224 or get in touch via the website contact form.

The 2015 TTT 2 Tour will be **'The Lancashire Lanes and Yorkshire Dales'** Grant Humphreys has kindly offered to organise it. Details to follow.

News of two European events as follows:

On the occasion of the 100th anniversary of the start of World War I, the MG Car Club Belgium is organising an International Commemoration Weekend. The dates are 3, 4 & 5 May - details are at http://www.mgcarclub.be/event2014/en/home

Dr. Christian Bianco is running his second MG meeting in the Dolomites from 26th to 29th June. The deadline for applications is 2nd April. Details are at http://mg-dolomites.jimdo.com

Finally, a little light relief, courtesy of Harry (*TC's Drive Them 'til the Roads Wear Out)* Pyle.

TD Under Dash Panel

Jonathan Goddard

The MG Car Company had introduced a “scuttle masking” or “wiring cover board” on the TC although I expect many owners, including me with my 1948 TC (TC6477), which I owned in the late 60s, had no such luxury. This item of equipment had long been discarded by a previous owner.

Fortunately, Doug Pelton of ***From The Frame Up*** **(FTFU)** has had the ‘Masking Board’ (MB) remanufactured from the specs of an original; this link will take you to one of Doug’s Tech Tips where he covers the installation of the MB.

http://fromtheframeup.com/uploads/TT_DA262_TC_Masking_Board_Installation.pdf

A later slightly larger simpler design followed on the tradition with the TD and the TF, and all were covered with rexine (PVC) leather cloth.

The 1950 TD fibreboard panel, was designed to hide the view of cables and wires that were all too easily visible, and to help make the “modern MG” more acceptable to discerning post war buyers. Further benefits could include reduced engine noise and possibly heat in the cockpit, although this might be seen as a retrograde step not least because the vehicle lacked a heater!

The TC and TD under dash panels are not interchangeable due to the size differences between the two models.

It is worth noting that there are some disadvantages in neatly enclosing the under dash mass of cables and wires, not least when access to replace an instrument bulb, or to add an after market accessories that requires power, or even adjusting the steering wheel rake angle.

Nevertheless, the under dash panel was standard on the new TD in 1950, but not surprisingly, many cars have lost this item over the years. Even the part number for the mystical under dash panel is hard to find, and this item does not appear to be “listed” by any of the regular T-Type UK suppliers. (Moss may be able to acquire the kit but I believe it is back ordered on the US.)

However all is not lost for the concours enthusiast who wishes to present his or her TD as it appeared on the day it was driven away from the Abingdon factory! Kits are available that provide pattern drawings of the fibreboard panel along with the nuts, bolts, brackets, screws and PVC cloth to complete the task. The fibreboard and wooden strengthening battens are not normally supplied with the kit but instructions provide the necessary measurements.

Moss Motors US have kindly approved my referencing their Under Dash panel kit details for this article.

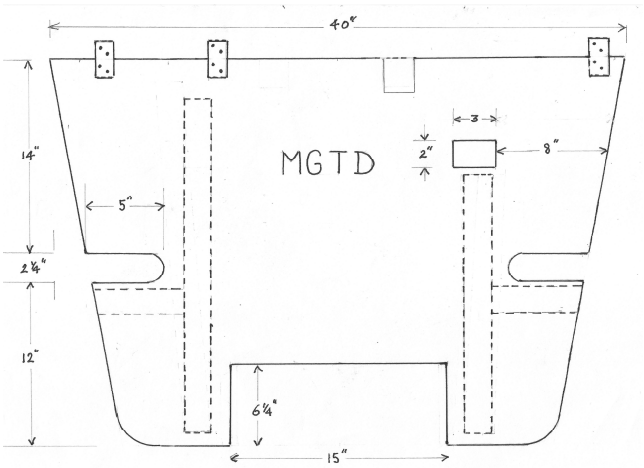
The following drawing, for the TD under dash panel, provides the guide measurements in inches.

Note: Final fitting may dictate adjustment to these measurements, such as the size and position of the steering wheel shaft cut-out (shown as the 3”x 2” box, or sometimes shown as a cutout circle), in the upper right quadrant of the drawing.

Three “metal brackets” on the upper (dashboard) edge of the following drawing, attach to the underside of the dashboard.

The forward (footwell) edge of the panel has a “battery box” cut out and the leading edge of this cut out is designed to rest on the lip protruding into the footwell from the battery box.

The two slotted cut outs (one each side of the board) are to provide clearance for the bulkhead “roll bar” (fitted from TD 0351).



Wooden strengthening battens are screwed to the upper side of the panel using ½” wood screws through the face of the board.

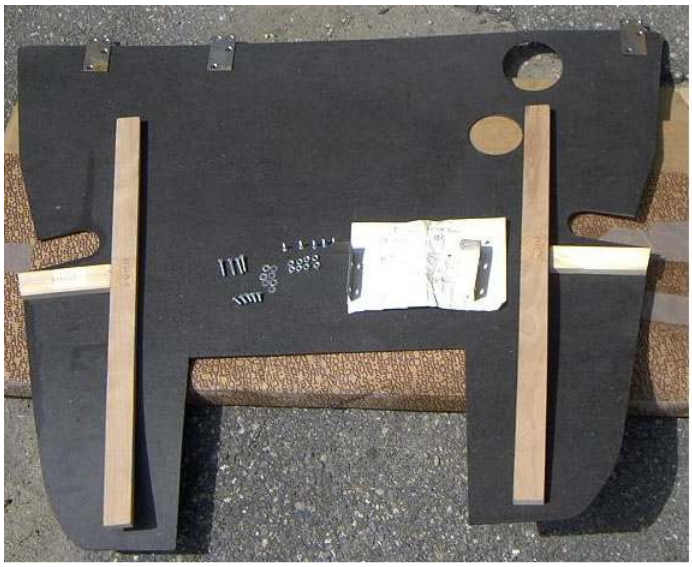
The battens (shown in dotted lines) are 1½”x ½” timber cut to the appropriate lengths. The positioning of the battens should be adjusted before final fixing after checking that they do not interfere with any under dash controls or cables.

Note. The drawing can serve as a template for both LH and RD vehicles but the battens are always fitted on the “hidden” upper side and the steering wheel column bracket fits through the 3” by 2” hole in the panel top edge.

Fitting the TD Under Dash Panel.

1. Remove your steering wheel by undoing the chrome clamp below the chrome spring cover and cap, then withdraw the wheel and the splined shaft far enough to enable you to pry out the oval woodruff key that locates the shaft in the inner column. Pull the shaft completely out of the inner column. If your car is one of the rare TDs with a non-adjustable column, remove the screw holding the centrepiece in the wheel, lift out the

centrepiece, and undo the securing nut, then pull the wheel off the tapered end of the shaft.



A typical masking board kit. Photo by Bud Krueger

2. Undo and remove the bolt that secures the outer column clamp to the Y-shaped bracket beneath the inner bodywork. Push down on the column so the clamp comes free from the bracket.

3. Late TDs, fitted with turn signals at the factory, originally had the switch mounted on a bracket behind the lower edge of the dashboard. The switch sat vertically on the bracket with the handle facing forwards. If your car has such a switch, remove the handle and unscrew the nut holding the switch to the bracket. Record the position of the hole in the bracket relative to the edge of the dashboard, and then unscrew the bracket from the back of the dashboard. Carefully rest the switch and its wires on the wiring at the back of the dashboard so that it is up out of the way. It is not necessary to re-use the bracket as the switch will mount through the new panel. Any other switches, gauges, etc., that may be mounted below the edge of your dashboard should also be removed at this time.

The foot well should now be clear as long as the "collection" of wires and cables is carefully pushed up sufficient to enable the panel to fit without interference.

4. The panel may now be lifted into position, above the steering column, and pushed down and forward into the footwell. It is probably best to achieve this by pushing the driver's side down first and then straightening it when the bulkhead roll bar is reached. Now work the other side of the panel down until the passenger side cut out fits into the respective roll bar cut out.

It is important at this stage to check that the fit between the edge of the wood and the foot well side panels is good. If this fit is too tight or if it is rubbing it is best to mark up where the panel is making contact, remove the assembly and cut or shave back excessive points of contact.

On final assembly (7) the panel should fit snugly with the forward edge resting on the battery box protruding lip and with the roll bar fitting snugly into the two cut outs, one on each side.

5. With the panel correctly aligned in the footwell, and up against the dashboard, it is necessary to mark out the correct position for the turn signal switch. Using a fret saw or similar, cut out the correct size hole for the switch to pass through the new panel without interference.

The panel should be a good fit up against the inner side of the dash panel, further trimming of the panel might be necessary at this stage to achieve this important alignment. Now is also the time to ensure that the steering column clamp bracket fits through its designated hole and that it can be correctly secured.

6. When a satisfactory fit has been achieved the panel should be removed and covered with leather cloth or vinyl that is glued to the plywood with contact adhesive. Lay the wooden panel onto the vinyl and cut around leaving sufficient wrap-around on the edges to provide a firm fixing. When the fit of the panel, up against the back of the dashboard is satisfactory install the turn signal through the board with the signal lever should be protruding below the dashboard edge.

7. Now attach the three metal plates on the underside edge of the dashboard and carefully bend them up such that they lay flat against the under dash panel. The downward facing holes in the brackets should be countersunk before securing with countersunk wood screws that hold it firmly in place.

DISCLAIMER BY THE EDITOR

'Totally T-Type 2' is produced *totally* on a voluntary basis and is available on the website www.ttypes.org on a *totally* FREE basis. Its primary purpose is to help T-Type owners through articles of a technical nature and point them in the direction of recommended service and spares suppliers.

Articles are published in good faith but neither I nor the authors can accept responsibility or legal liability and in respect of contents, liability is expressly disclaimed.

Before doing anything that could affect the safety of your car seek professional advice.

JOHN JAMES, EDITOR TTT 2

Keeping it on the straight and narrow – Aspects that affect TA/TB/TC steering.

Eric Worpe delivered a superb presentation at the MGCC 'T' Register's 'Rebuild' seminar in March 2013. Eric used flip charts to aid his presentation and I have been working with him to 'flesh out' the flip chart notes to produce a series of articles for inclusion in TTT 2.

Eric divided up his presentation into seven headings which he termed as "Seven Deadly Sins". We have so far covered the first four 'Deadly Sins' i.e.

CHASSIS – is it true? – Issue 19 (August 2013).

FRONT AXLE GEOMETRY – Issue 20 (October 2013)

FRONT SPRINGS – Issue 21 (December 2013)

KING PINS – Issue 22 (February 2914)

In this issue we'll look in depth at the fifth 'Deadly Sin':

TRACK ROD AND DRAG LINK ENDS

over to Eric……..

It's with some trepidation that I'm writing this section, not so much because the subject has already been covered by an excellent article from Doug Pelton - (Totally T-Type 2, issue 5, April 2011) - but by what Jeremy Clarkson of ***Top Gear*** fame has to say, and I quote:

"To me a track rod end is probably the dullest thing in the world, but to MG man it is a steel deity, an almost religious icon, an auto-motive Fabergé egg. MG man can talk about a track rod end for two hours without repetition or hesitation".

I'm not sure whether to carry on now!

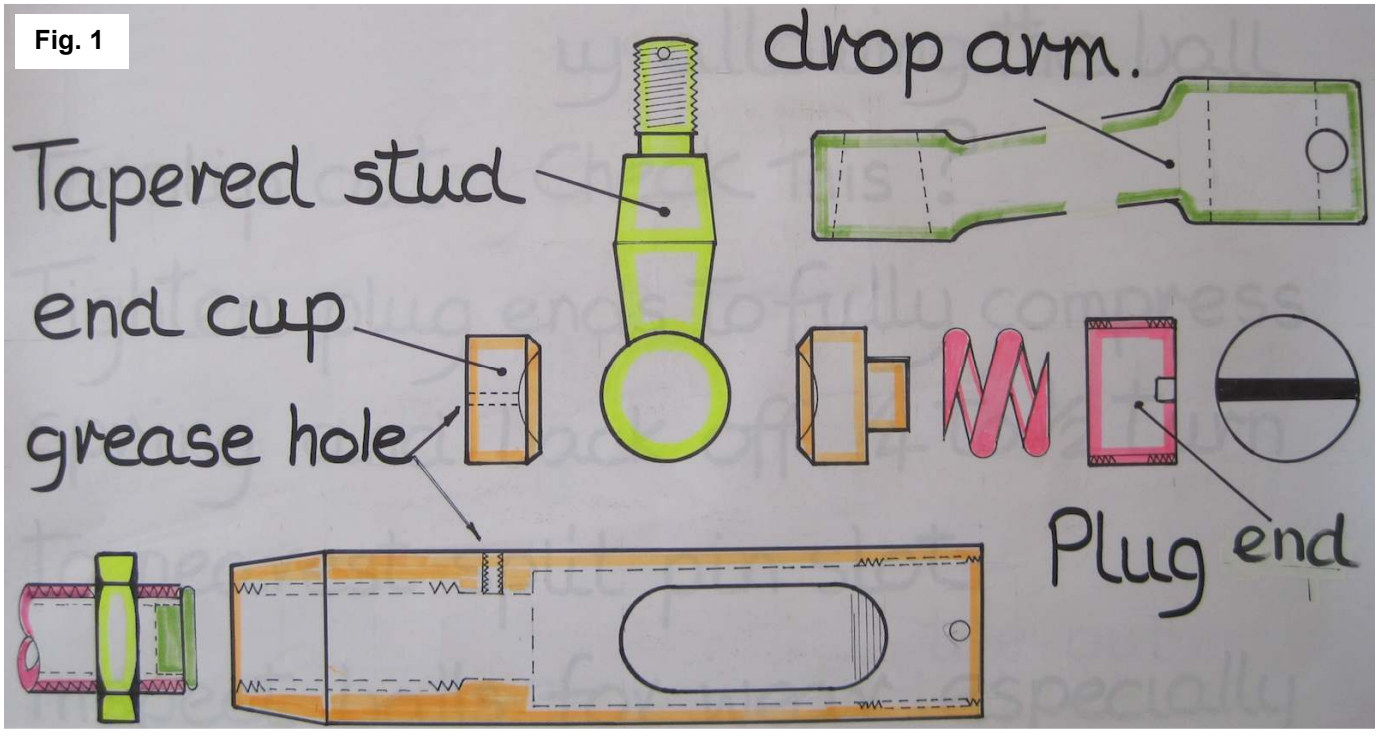
One significant point made in Doug's article was "do not trust the assembly order from the previous owner". This was illustrated by the experience of an acquaintance, who had paid a hefty sum to a well known dealer for his TC. Whilst examining the steering I discovered that the drag link end connected to the drop arm (and hangs upside down) could "pop out" when forced with just one finger.

The previous owner must have been aware of this as a split sleeve made from brass shim covered the aperture in the drag link end to help retain the ball. A good look revealed that the end plug could not be screwed "home" due to dirty threads and most significantly the neck of the aperture in the drag link end was enlarged sufficiently to allow the ball to pass through.

As can be seen from Fig. 1, the slot should be narrower than the diameter of the ball necessitating assembly of the ball and its stud fixture through the open end of the drag link end. However, due to poor adjustment, the neck of the ball's stud had worn away one side of the aperture of the drag link end. The drag link ends need to be positioned relative to each other such that the connecting link is free to rock from side to side as determined by the clearances around the neck of the ball's stud fixture. This also applies to the track rod, so check that both are free to swivel at least 25 degrees.

The Pitman arms or drop arms seem to have a variety of bends altering the vertical position of the

Fig. 1



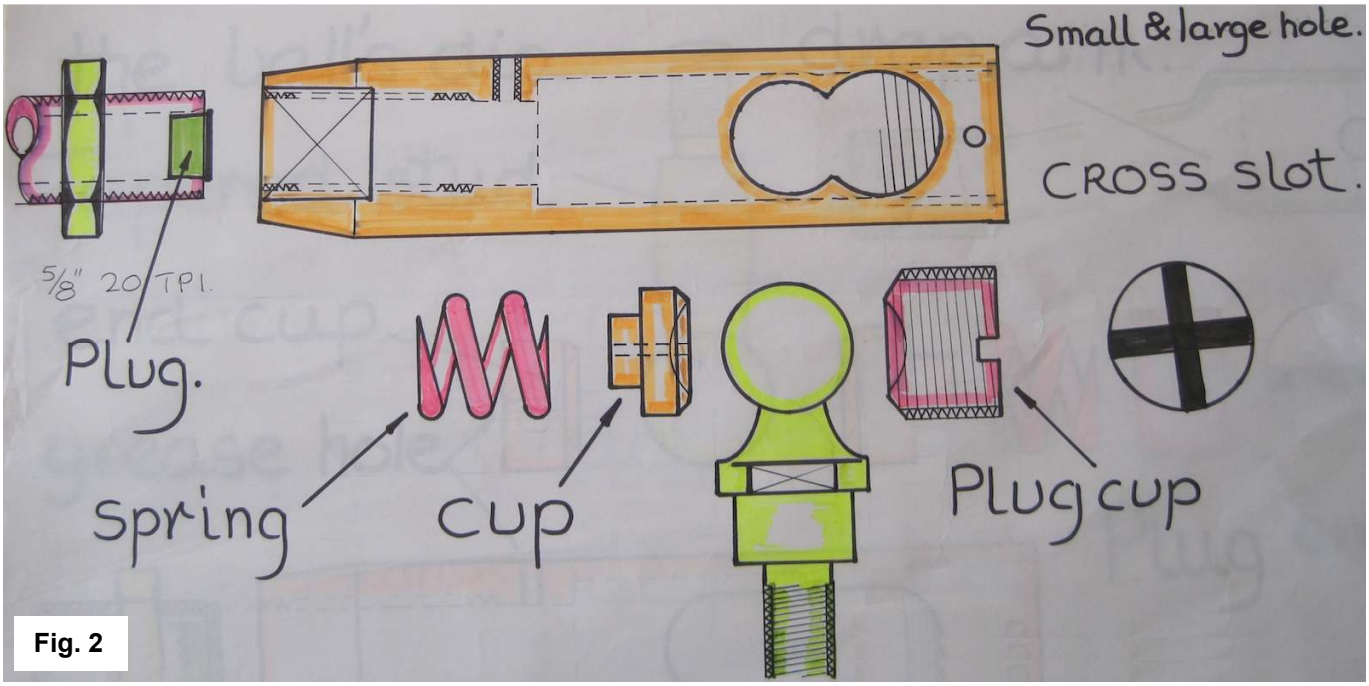


Fig. 2

drag link end attached to the drop arm. As clearance does not seem to be an issue, the possibility arises that the arms were modified to position the drag link to help minimise "bump steering" It's for this reason that the drag link is made as long as possible by attaching it to the near side's stub- axle's steering arm.

The main contribution to "bump steering" comes from the vertical deflection of the near side wheel altering the horizontal angle of the drag link. The geometry of the beam axle and drag link is such that in not sharing the same pivot point, a differential movement is generated between the stub axle and drag link end attached to the steering arm as the wheel moves vertically. Any such differential movement results in the forced deflection of the front wheels. To minimise "bump steering" the drag link should be positioned in the same horizontal plane as the beam axle, hence the need to position the drag link end attached to the drop arm correctly.

To what extent "bump steering" is an issue is hard to say given the limited deflection of the front suspension's springs. However, the stiff suspension transfers significant deflection to the chassis, which in turn contributes to the "bump steering" effect anyway.

Both track rod ends are spring loaded, such that the front wheels can splay outwards slightly by compressing their internal springs by an amount equal to how far the end plugs have been "backed off" during adjustment. Most advice suggests that after the plugs have been screwed fully home, they should be unscrewed by ¼ to ½ turn to the nearest split pin slot.

The pitch of the thread form is 20 TPI, so both springs can be compressed up to 25 thou. each, which is amplified up to about 100 thou. total movement of the wheel rims, resulting in a tracking offset of 200 thou. (front of rims compared with rear of rims). This would seem to make up the bulk of the toe-in compensation needed due to the splaying out forces on the front wheels as mentioned in the section on front axle geometry.

Both drag link ends are also spring loaded, but in such a way that small deviations of the wheels in either direction are absorbed by the springs, thus reducing wear in the Bishops cam box but also contributing to some vagueness in the steering.

Both track rod ends together with the drag link end attached to the nearside wheel's steering arm are of the type shown in Fig. 2 and sit on top of the ball, making it more secure. These have an alternative design consisting of a flange on the ball's stud fixture and a ½" dia. parallel shank to fit into the steering arms. The ends have a figure 8 aperture composed of a small and larger diameter hole. The ball end should not be able to pass through the smaller diameter hole, which is where the neck of the ball's stud resides if correctly assembled.

The open nature of the ends allows abrasives and water to contaminate the grease, so frequent greasing is needed to purge any old grease. An occasional dismantling, inspection and clean up should be considered with a look out for wear on the ball ends and cups.

Serious wear on the balls can sometimes be revealed by a stiffening of the steering towards either lock, when both wheels are jacked up and free to swivel. Such an assessment is only meaningful if the ends have been adjusted correctly. Alternatively, the balls can be measured with a micrometer to check for ovality.

Fortunately, the balls are obtainable individually, unlike the cups and springs which seem to be only available as part of a complete replacement end.

Whilst dismantled, check that the hollow track rod and drag link have end plugs fitted, otherwise most of the grease pumped in will simply fill up the hollow tubes.

Combine all the influences from road undulations on steering due to free movement in the track rod and drag link ends, bump steering, unequal camber and wheel offset forces, play in the steering box and less than rigid shackles or worn trunnions, and one is left wondering how well over 50% of the TA/B/Cs have survived.

You might like to consider fitting butyl rubber sleeves made from a bicycle inner tube (type meant for 1.5 to 2.1 inch tyres) over the track rod or drag link ends. A 2 inch length with a ½ inch dia. hole punched in it for the neck of the ball might help keep the grease free from beastliness.

Ed's note: I've published the following before (in TTT 2, Issue 14) but make no apology for publishing it again:

Nothing could have illustrated better the value of a proper steering check than the experience of one of our readers, who might well have been left with no steering due to the wear in the casing of the drag link end. To quote from his experience:

Whilst turning the steering wheel backwards and forwards the MoT Examiner noticed that the drag link end was moving vertically up and down before moving the road wheels. A 'fail' certificate was issued and the owner drove the car home slowly.

Upon disassembly it was found that the inner shoulder in the "tube" that supported the cup had worn away allowing the cup to tilt, which in turn moved the tapered peg over at an angle. This caused the slot in the casing to wear away, allowing the ball to protrude through the slot which would have eventually popped out.

A proper steering check is available when the car is presented for a MoT test where the operation of the steering is thoroughly examined from below, or via a safety check by a competent motor engineer.

FRONT COVER

MG TF-1250cc.1954. Reg. No. SB 9891 Chassis No. TF4932.

The sale of this TF-1250 will end nearly 60-years continuous ownership of T-types (each model!) by the current owner, which started with a TA in 1954... a true enthusiast!

This car has been maintained in immaculate condition throughout its 26-year current ownership, during which time it has covered a total of less than 15,000 miles, and under 500 miles in the last 12-months.

It comes with a full documented history; all invoices, photos and records and has been meticulously maintained with cost no object. It is to original specification throughout, other than a lead-free cylinder head. Speedo reads 80570 miles.

Included in the sale is a quantity of spares. The records show the Reg. No. is as originally issued, and that the car had three previous owners.

SB 9891 was finished in red in 1979, with light fawn, leather upholstery, and comes complete with a bespoke hood and sidescreens in double-duck fabric, as original. Also included are both half and full (zip) tonneau covers, . **£27,500.**

Tel: 01628 523 284 E-mail. Flash.p@virgin.net

Ed's note: Car number HDC16/4932 was built on 20th April 1952 and fitted with XPAG/TF/34683.

The number indicates that this was a Home market car, red in colour with cellulose finish on the body and synthetic finish on the wings.

This is, in my view, a very nice car, well worth the money and I've already told Piers that I would buy it but I couldn't afford to fund the car and the divorce if I bought it! Hope it goes to a good home.

Better TC Anchors
Charlie Mac Quarrie TC 7930(M)
Vancouver, Canada

In the 50s English motorcycle world, most makes now have available a Twin Leading Shoe front backing plate upgrade to help keep the riders alive in current traffic.

A while back I was converting my BSA to TLS and I thought "this would be a really good upgrade for my improved TC, I wonder what would be involved?" I know little about any MGs other than TCs. Later I stumbled on the fact that TDs had TLS front brakes and when I looked into it and saw that the brake shoes were the same width and the same diameter drum as the TC, I knew I could do something with them.

I borrowed a TD backing plate, it was obvious it couldn't be made to fit, but I made a dimensioned drawing from it of the cylinder positions to modify the TC backing plates.

The TD had the cylinders mounted at 3 and 9 o'clock on a flat surface backing plate. I mounted them at 12 and 6 so the TC brake line could be used and the upper brake spring had clearance with the plate offset.

The conversion is pretty straight forward using all TD parts except the adaptors which I made new. (The TD brake line thread is 3/8, the TC 7/16).

This project is all about minimizing the amount the plate warps when you weld in the replacement piece after cutting out the raised portion at 6 o'clock and figuring out the best way to straighten the plate in a hydraulic press after welding. Going at this completely cold, I fumbled my way through the first plate, a lot easier for the second and the next time around should be a piece of cake as I feel I now have the job pretty well figured out. (those famous last words!)

The rule of thumb when going from a SLS to a TLS brake is a 25% improvement in efficiency. This isn't earth shattering. In routine use, I can't really notice an improvement without using my imagination.

However, in a hard or puckering stop, then I can really notice the improvement which is when it counts.

I'm glad I did this job. This was a good improvement for my car and an interesting project.

Charlie

Ed's note: Andy King offers a kit for TA/B/Cs using your existing backplates and modified to take twin leading shoes as fitted to the TD/TF. The kit contains all new wheel cylinders, shoes, return springs and will bolt directly onto your existing drums. PRICE IN THE REGION OF £750.00

http://www.mgsparesandrestorations.com/home.cfm

The TC backplate after 'surgery'

The modified TC backplate

Ed's further note: For those who are interested, there is an article by Jeff Redman on converting to a twin leading shoe arrangement at the following link:

http://www.mg-tabc.org/library/new_brakes.htm

However, one downside is that it does not use the existing TC backplates and donor backplates need to be sourced (probably as rare as hens' teeth).

For the uninitiated, the 'text book' explanation of the advantage of the twin leading shoe arrangement is as follows:

The twin leading shoe drum brake is a specific design type of drum brake that is typically found on the front of automobiles. Its advantage is that it provides maximum possible retardation in its intended direction of travel, i.e. frontwards. Everything else being equal, it is more powerful than a single leading shoe drum design.

The term "twin leading" is used because both shoes are "leading", moving with the direction of rotation of the drum and thus exhibiting a self-applying, or self-servo effect i.e. being dragged into the friction surface of the brake drum and thus achieving greater braking force.

THE LYONS-LEWIS TC

In 1965, the year after I finished High School in Cape Town, a pal of mine bought a left-hand drive MG TD. The car was partially stripped and we set about a rebuild, guided by his father, who was a very good woodworker.

Many body timbers were fabricated and the car was put back on the road – and he still owns it to this day.

The TD was okay but I really fancied a TC, which I could not afford. In 1973, my company sent me off to work for B.O.C, our parent company, in Liverpool as part of my career development, returning in 1975. I was transferred to Johannesburg and very soon after that my brother dragged me off to see a TC that was for sale. I paid R1500.00 – all I had to my name, and drove it home. The price at the time equated to about GBP750.

It was not in very good condition, had all the wrong instruments and steered like a super tanker in high seas!!

The long-term plan was for a full rebuild one day but, in the meantime, to use it if possible. After a bit of a fiddle, I transferred it into my name without a roadworthy certificate (it would have failed) and proceeded to run it on various events in Johannesburg. One such event was to parade the drivers for the F1 Grand Prix at Kyalami in 1979 and I got Niki Lauda and Miss South Africa as my passengers!

Photo 1 – a starring role for TC4521 at the F1 Grand Prix at Kyalami in 1979.

Later my dear wife Lorna joined my life and, as happens, children and a career followed, with all the commensurate demands on time and attention! The TC continued to run in its shabby state for many years.

Finally, it broke a half-shaft and, upon inspection, diff oil was found to be leaking into the back drums; steering was now half a turn free play and the brakes worked sometimes! The car was put on blocks and its licence kept valid.

Photo 2 - Tony kept the car on the road until one day a halfshaft broke and it was laid up.

Every time I went overseas on business, much needed parts for the eventual rebuild were obtained. I bought an original rev. counter and speedometer, all the curved English Ash wood sections, a brake master cylinder and a host of other bits and pieces. A voltage regulator, tail lights and parking lights were purchased at a club swop meet in Johannesburg and steadily the MG shelf started to look like there was enough for a rebuild. Fat chance!!!

Early retirement and the time arrived for a rebuild to start. On 14 February, 2008, the stripping of the car began.

Photo 3 – the start of strip-down. The car looks cosmetically OK - "beauty is but skin deep!"

The chassis had been badly abused and critical parts were missing. Various club members as well as Mike Allison in UK provided important detail and parts and the whole assembly was finally sand blasted and I spray-painted it in the driveway!

Photo 4 – the restored chassis.

The engine, gearbox and differential were all fully overhauled and painted, ready for final assembly into the car. Steady progress was made over the next three-and-a-half years! The body went back onto the chassis and then all the brake pipes were remade and installed.

Photo 5 – the body now back on the chassis.

The next major task was to install the overhauled engine and gearbox.

Photo 6 – the engine/ gearbox ready to go in

Wiring went in and about a thousand other activities took place, not the least of which was the upholstery and hood. Here my wife played an invaluable role in cutting, stitching, glueing and generally managing the whole project!

Photo 7 – the upholsterer (Tony's wife) at work

On the 17th July 2011 the engine was started for the first time in many years and ran smoothly – but there was a whole load of work still to be done before the car would be on the road.

I owe a huge amount of gratitude to many people who offered help and information. John James in the UK was particularly supportive in taking bits off his TC to give me accurate dimensions and details about fittings. Mike Allison was in South Africa for our National Gathering in Port Elizabeth and came down to Knysna for a few days, staying with us. He gave invaluable advice with my efforts at fitting the ash frame and aligning front and back halves of the body.

Ron Gammons was in South Africa on a Tiger Moth flying holiday, visited us and also gave lots of very useful advice on the rebuild.

Without such support from individuals, rebuilding would have been far more difficult.

My wife, Lorna spent an awful lot of time on the Internet, researching advice and information where I did not know how something needed to fit or what it looked like as mine was missing.

Of course, Mike Sherrell's book was an essential part of the restoration project – it is an absolute "must" for anyone attempting a TC rebuild!

Finally the car took to the road on 9 October 2011, some 44 months after the strip started.

Photo 8 – from strip down to completion in 44 months – I'd say that's pretty good going!

There are 7 MG Centres in South Africa and every second year, one of the 4 in the Cape organise a weekend get together. Shortly after finishing the rebuild, we set off to the Cape Centres Gathering in Graaff-Reinet, a distance of some 400 kilometres. It ran there and back without any difficulty!

As would be expected, there are still a number of things needing attention and I don't for a moment expect the job to ever be totally complete – every time an old vehicle is used, some adjustments and attention thereafter are called for!!

Photo 9 – Tony and Lorna on their way to the Cape Centres Gathering in Graaff-Reinet.

Photo 10 – The caption from Tony reads 'The End'

Tony Lyons-Lewis Knysna, South Africa.

Ed's note: One of the pleasures of editing TTT 2 and running the ttypes.org website is in being able to help people. I am certainly no expert in matters T-Type – in fact I know a lot more about Triple-M cars, particularly J-Types and P-Types – but I if I can't help with a query I generally know a 'man who can', or I can draw on the reservoir of technical articles in TTT 2, or in TTT which I edited in a previous incarnation. Additionally, Mike Sherrell's *TCs Forever!* is, as Tony says, "a must" and Doug Pelton's Technical Tips are excellent.

I wish that my J2 rebuild would have taken 44 months from strip down to completion – it's more like 44 years, plus a few! However, with a bit of luck and a fair wind it shouldn't take 50 years!

I recently sent a woodruff key for the steering column to a friend (who is restoring his J2) for him to copy. I was updating him with progress on my rebuild and asked him when he thought he would finish his – "hopefully before I die!" was the riposte. One has to see the funny side of life!

Anyhow, well done Tony Lyons-Lewis and we even managed to get a part out to South Africa for him via his daughter who was flying out to see him from the UK.

The TC Rear Axle

A rear axle rebuild has been one of many tasks undertaken by myself during the ongoing ground up restoration of TC0894. The following article forms a record for myself and in doing so I hope it may prove useful to other restorers.

The first task was a total strip down to a bare axle casing. This revealed that the bearing journals were badly worn as the wheel bearing carriers could be removed by hand without any need for a hub puller or slide hammer. Aside from this, other faults included a stripped thread in the casing for one of the differential housing mounting bolts, various graunch marks on the differential housing indicating something had been flying around inside the casing at some point and many casing rivets weeping oil.

The purchase of TC0894 also included a spare chassis from TC4429 and this had both front and rear axles attached. An inspection of the spare rear axle casing and differential revealed that it was in better condition than TC0894's although the bearing journals were just as worn so I decided to use this one for the restoration.

The axle casing was treated to a thorough internal/ external clean by soaking in a drum of solvent at a local sandblasters, followed by an external sandblasting to return the casing to bare metal. At this stage a quick coating of etch primer was applied to stop any surface rusting occurring.

The rear axle on a TC is a three quarter floating design and as such the wheel bearings need to be a good fit on the axle journals in order to stop the bearing inner races spinning on the journals. Having inspected the wheel bearings and associated axle journals it is very apparent that this particular feature is a very poor design. The width of the bearing is about 4mm greater than the axle journal width resulting in approximately 22% of the bearing sitting unsupported over the axle threads.

Axle journal wear is a well documented problem and this reduction in contact area between axle journal and bearing bore further highlights the importance of a good fit between bearing and axle journal.

However, the $64,000 question - "what is a good fit?"

The British engineering industry has standardised the tolerances of fit within two British Standards, BS 1916 (Inch) and BS 4500 (ISO Metric). Tolerances have been classified into the three main 'Limits and Fit' groups of clearance, interference and transition.

As a Design Engineer by profession I am involved with 'Limits and Fits' on a daily basis but for those who are not familiar I'll add a brief description.

A **'clearance fit'** describes a tolerance condition where a bore is always larger than the mating shaft.

An **'interference fit'** describes a tolerance condition where a bore is always smaller than the mating shaft.

A **'transition fit'** describes a tolerance condition where the resultant fit on assembly of mating shaft to bore can be either clearance or interference.

The class of tolerances are defined by a letter and number and bores are always given an upper case letter, i.e. H7 and shafts a lower case letter i.e. s6. These alpha numeric notations are listed in the previously mentioned British Standards and the actual tolerances to be applied for a particular class of fit will vary depending on the nominal diameter of a component.

For example, take the H7 tolerance applied to nominal bore diameters of 55mm and 110mm. For the diameter 55mm the H7 tolerance is +0 / +0,030mm = 55 / 55,030mm diameter. For the diameter 110mm the H7 tolerance is +0 / +0,035mm = 110 / 110,035mm diameter.

In the context of the TC rear axle bearings a fit needs to be selected that will result in an interference fit between journal and bearing on assembly. The internet is a great source of information and I studied many bearing companies' technical data sheets to ascertain the particular fit required for this specific application. The nominal diameter of the axle journals is 40mm and I finally chose a shaft tolerance of m5 (+0,009 +0,020mm) = diameter 40,009 / 40,020mm (1.5752 / 1.5756in)

After a lot of searching I found Avanti Engineering, a company not too far from where I live, who could metal spray and finish machine the bearing journals to my requirements.

A couple of rivets on the casing had displayed very slight oil weeping. Some people have suggested putting fuel tank sealer inside the casing or brazing the rivets to cure this common fault but after further internet research it was recommended by the Technical Department at POR15 to apply two coats of their excellent paint over each rivet head and the surrounding base material, in line with their specified application procedure, to act as a seal. This was an easy fix but only time will tell if this actually provides a long term solution? The whole casing was then treated to brush coats of primer and semi-gloss black top coat.

I do not propose to describe the differential rebuild /modification as this is covered in great detail by the renowned expert Roger Furneaux in his excellent publication TA/TB/TC Differential Modification & Setting-up, which is a 'must have' and without which, I would have had little idea of exactly how to tackle this task. In short, my rebuilt differential comprises new bearings, a Roger Furneaux Crown Wheel and Pinion set (4.625:1 ratio) to allow TC0894 to run easily in modern traffic when finished and one of his modified pinion seal housings incorporating a modern oil lip seal.

New bearings were fitted into the bearing carriers by a friend who had access to an oven to warm the carriers to ease assembly and a suitable press. Loctite 243 was also used to aid the interference fit of bearing to carrier.

The use of Loctite in an interference fit assembly is suitably described in the Loctite Design Manual which I have and basically, no metal surface is perfectly smooth when viewed under magnification and the actual metal to metal contact between the interfacing components is only 25 - 30% of the total surface area even with the most extreme of interference fits. Loctite will fill the gaps between two interfacing components, formed by surface imperfections, thereby increasing the effectiveness of the interference fit.

I also purchased a pair of Roger's axle nuts that incorporate modern oil lip seals to prevent the differential oil contaminating brake shoes, which is another common problem. However, a major factor in this well documented problem (i.e. Sherrell) concerns the fit of the axle hub to the bearing carrier. The flange on the rear of the axle hub must make contact with the outer race of the wheel bearing in order to ensure the bearing is 'clamped up' on assembly preventing axial movement in the carrier and in order to be certain of 'clamp up' there must be, on final assembly, a clearance between axle hub flange and bearing carrier flange. (*See the drawing at the end of the article*).

When a component is designed, tolerances are applied to all dimensions shown on the engineering drawing to make production practical and cost effective.

General tolerances on length and width etc will be ±.010in (0,25mm) and if there are important features mating with another component on assembly tighter tolerances will be specified i.e. the rear axle bearing journal diameter. As a consequence of these tolerances every component manufactured in accordance with the same engineering drawing will vary dimensionally to a small degree.

In the case of the rear axle bearing carriers, each one can assemble on either the LH or RH axle journal. The resulting clearance on assembly, if one exists, between axle hub flange and bearing carrier flange can vary depending on the tolerances on bearing width, bearing carrier depth and axle hub rear flange length.

This clearance can be checked after the bearing carriers and half shafts are fitted to the rear axle

but I used the following method prior to final assembly in order to take advantage of 'selective assembly'.

Selective assembly means swopping components around until the optimum assembly combination is achieved, resulting from the dimensional variations of similar components as described above.

Therefore 'on the bench' assemble one bearing carrier (complete with bearing) onto a half shaft omitting the paper sealing gasket that fits between the two flanges and then assemble a brake drum to the axle hub and bolt up to achieve the final assembled condition. However, the important part in this method is to assemble the brake drum 'back to front' with the inner diameter facing away from the half shaft. This would of course be no good for braking or wheel fitment but does importantly allow full access to the joint between axle hub flange and bearing carrier flange.

Once the assembly is bolted up, feeler gauges can be used to see if a clearance exists between axle hub flange and bearing carrier flange. If a clearance exists it may well be less than the thickness of the paper sealing gasket that is supposed to be placed between the two flanges on assembly.

However, if no clearance exists, trial assemble the same half shaft with the other bearing carrier (complete with bearing) and repeat the clearance check.

Hopefully, by selective assembly, you can identify which bearing carrier should be assembled with which half shaft to achieve a clearance.

As has been well documented elsewhere (i.e. Sherrell) the case of zero clearance can be rectified by making up metal shims to fit between flange on the rear of the axle hub and the outer race of the wheel bearing to re-instate bearing 'clamp up'. (*See drawing at the end of the article*).

The trial assemblies I carried out resulted in a similar clearance on each assembly, which is less than the thickness of the paper sealing gaskets I'd purchased. I will therefore use a Loctite sealing compound in lieu of the gaskets to ensure clamp up is maintained on final assembly. In theory, using axle nuts with the integral oil seals negates the need for any seal between the flanges but I feel it is still advisable to include secondary sealing to cover the possibility of nut seal failure.

The axle threads and bearing carrier studs were a little damaged but careful work with a thread file prior to final assembly enabled the new replacement axle and hub nuts and to run smoothly. Replacement oil scrolls in each end of the axle casing were fitted.

To accomplish this, I used two lengths of 12mm threaded bar joined together with a threaded connector, some 12mm nuts (all available at most DIY outlets) along with some suitably sized washers to pull out the old scrolls and fit the new ones. I acquired thick stainless steel washers from a fastener dealer at an autojumble. One had to be ground down to match the outer diameter of the oil scrolls and became the extractor/fitting washer. The other was slightly larger than the end diameter of the axle.

To remove an oil scroll, lock the extractor washer centrally on one end of the threaded bar with two nuts locked together on either side of the washer, insert the bar through the axle casing with the extractor washer up against the oil scroll and fit the other washer at the opposite end, up against the axle, and slowly wind a nut down the bar with the aid of a large spanner to pull the oil scroll into the axle casing and onto the threaded bar.

To fit a new oil scroll, place the oil scroll on the threaded bar against the locked washer and insert the bar through the axle casing with the scroll against the axle bore it will assemble into and fit the other washer at the opposite end, up against the axle, and slowly wind a nut down the bar with the aid of a large spanner to pull the new oil scroll into the axle casing until correctly seated. This action will be a little jerky during fitment as the scroll overcomes assembly friction in spurts but providing the process is not rushed a perfectly positioned oil scroll will result with ease. The oil scrolls on both of my axle casings were set in .30in (7,6mm) from the axle ends and I replicated this on fitment of the new scrolls.

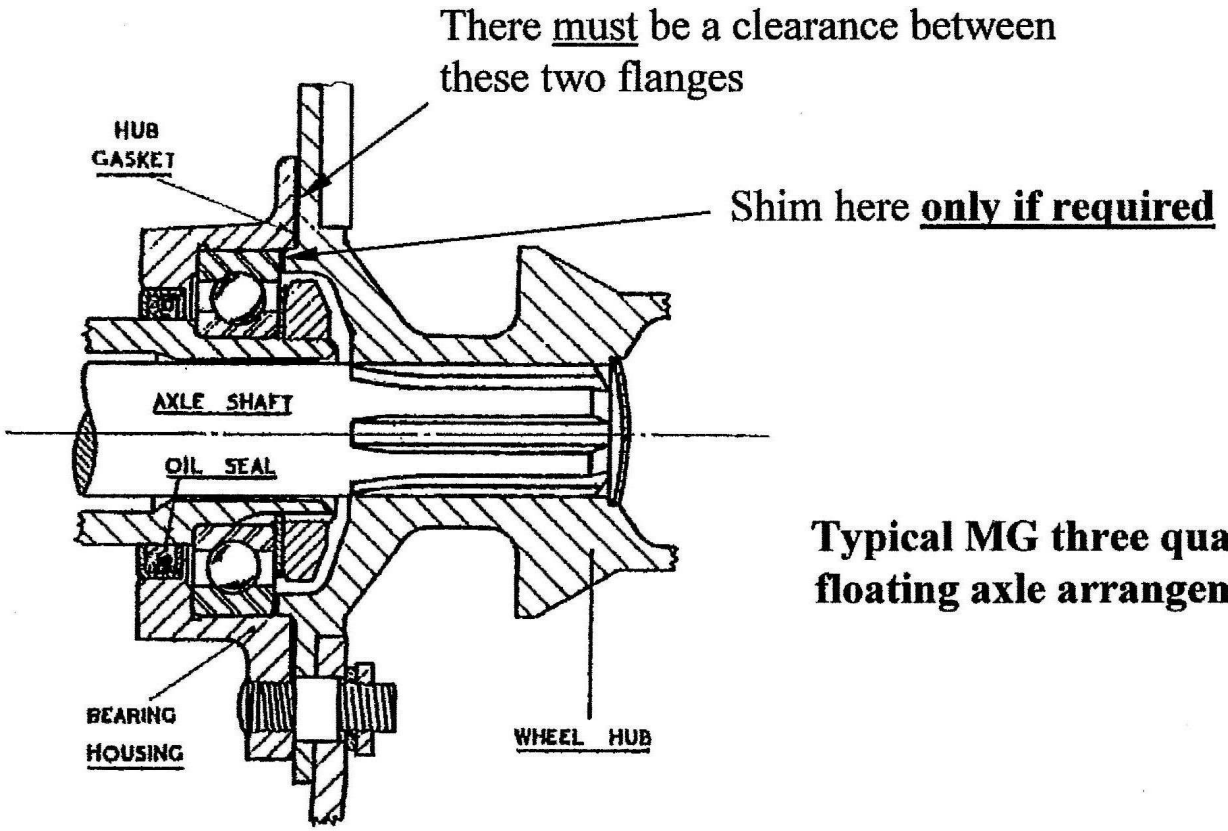
However, as a footnote and result of a recent closely associated internet query on the TABC Yahoo website, it has been suggested that *'the oil scrolls are not necessary, indeed undesirable because the seals within the new hub nuts need to be lubricated to prevent them running hot'.* Therefore, despite having a reputation of being fairly useless at retaining the axle oil, having overlooked this important fact, I plan to remove them, which will be easy, to ensure good seal lubrication.

Final assembly of bearing carriers to axle journals necessitated initial careful use of hammer and drift (large socket) to ensure no contact with the bearing races occurred and when sufficient axle thread was visible the slotted lock washer was fitted along with an axle nut which was tightened to drive the bearing fully home against the step between axle journal and oil seal diameter. The new replacement hexagonal nuts make tightening and final torqueing to 130lbft very easy.

More facets of TC0894's restoration will be penned as and when the spanners have been active again.

Steve Cameron

Contacts:
Metal Spraying ~ Avanti Engineering, Tipton, West Midlands (UK) Tel. 0121 557 1153



The drawing referred to in Steve Cameron's article.

Triplex TD Windshield Logo

By Peter Hehir

On TDs, YTs & T-Types generally, the original Triplex windscreen logo is always on the passenger side and is located in the upper corner. This logo could be applied either on the inside or the outside of the screen and may face either in or out. On TDs original examples exist of all 4 possibilities, perhaps one reason being because the screens, like most TD components, came from a number of different suppliers.

Apart from some North American screens displaying the letters AWS above the logo, at least one LHD TD that I'm aware of, carrying an Australian Standards Institute logo, was exported from Abingdon into North America. If that was not just an isolated occurrence then English glass manufacturers could and would fit the one screen for either country. If so, it would explain why some logos are read from inside and others from the outside. Because the logo is always fitted to the passenger top corner, (which of course changes sides on LHD & RHD vehicles), this would effectively reverse the image.

All more modern M.G.s seem to have theirs on the inside facing out. Examination of two period correct photos of original North American LHD TD windscreens in my possession shows that one of the photographs carries the letters ASI & the other, AWS. It is almost certain that ASI refers to Australian Standards Institute and that AWS may stand for American Windscreen (or Windshield) Standard, however this has not been confirmed.

The Toughened windscreen was predominantly non export, as England was slow to adopt laminated screens for the home market. Regulations in the US changed in 1937 when safety (laminated) glass was mandated for windscreens in all models. The Australian & New Zealand Standard Safety Glass for Land Vehicles AS/NZS 2080:1995/2006 defines laminated safety glass as "a glass consisting of 2 or more sheets of glass held together by one or more layers of plastic material known as interlayers".

The Triplex image was probably originally media blasted but may also have been acid etched. Apart from my research, information provided in an article by Doug Pelton from "From The Frame Up" (with contributions from TC aficionado Bob Watts, an active member of T-ABC), has been used to decode the symbols. Their research documents the Triplex story and is well worth reading.

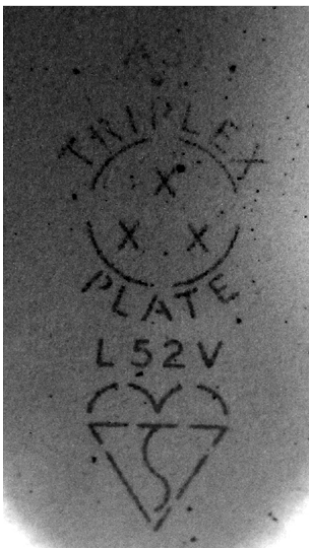
http://www.fromtheframeup.com/uploads/TT_CR302_Triplex_Glass_History_T_Series.pdf

All vehicles exported to Australia, New Zealand and markets further afield, (including some vehicles destined for North America as indicated above), carried the ASI Triplex logo. The word Triplex, the broken circle and the 3 X's are explained in detail in Doug's article. The word plate simply refers to plate glass. The L means laminated and the V stands for vehicle. This was confirmed by a retired Australian Standards Institute (ASI) employee. The heart or kite at the bottom is made up of the letters VSB, which stands for British Vehicular Safety.

On TDs the number from 49 to 53 refers to the year of windscreen manufacture. A more precise date of screen manufacture can easily be determined by the position of the dot above the word TRIPLEX. If placed above the T, it indicates it was made in the first quarter, above the R it means the second, above the letter I in the third & above the P it shows that the screen was made in the last quarter.

In both of the illustrations in my possession, the glass was made in 1952, evidenced by the number 52. In the illustration with the feint ASI at the top the dot is above the P indicating it was made in the fourth quarter of that year. It is not at all unusual to have an original screen manufactured in 1951 fitted to a car that was built in early 1952. The glass obviously precedes the build date of the car and is almost always from the previous quarter.

It is a Roads & Maritime Services requirement in NSW that all windscreens carry the ASI compliant logo. I was unable to source a screen manufacturer here able to supply a replacement screen for my TD with an accurate Triplex logo and as originality is important to me, I have had the range of 16 reversible and reusable TD stencils made locally in stainless steel. They cover the entire period of TD manufacture from the 4th quarter of 1949 to the 3rd quarter of 1953 and can be either acid etched or media blasted. I still have a few of each of the stencils for sale to help recoup the CAD and manufacturing costs.



So if you would like to have that extra touch of originality for your TD or YT when you need a replacement screen, then for less than the cost of a couple of dozen stubbies you can have an original logo! You can contact me on: 0424 067 250 or at pjbm(at)bigpond.com (please substitute @ for {at}).

Bits and Pieces

Speedo correction boxes for MG TD

Declan Burns has had several enquiries (see TTT 2 Issue 22, February 2014). Just a reminder that his e-mail is declan_burns(at)web.de as a couple of readers seemed to have difficulty in contacting him. Don't forget to substitute @ for (at) in the address.

Declan has something else which may be of interest. He has e-mailed me as follows:

"We all know the problem with the TD clocks. I have made a small batch of replacement clocks for the dish faced speedo on the TD. The problem being a constant sourcing of the ladies watches - they are all different diameters and thicknesses. The mounts are made from PVC and the watch is a click fit.

Once installed, you can only see the face of the clock and not the mount. The battery lasts about two years depending how long the watch was lying on the shelf in the novelty shop! I have attached a few photos. The last photo shows the clock being centred on the speedo. It fits using the original self tapping screws and with a short screw driver it only takes a few minutes to install."

TF Seat Adjustment for Taller Drivers

The following useful advice has been received from Barrie Jones:

The TF has two separate seats that are only adjustable fore-and-aft. Unlike the TD, each seat has a fixed backrest. It is possible to accommodate a tall driver by reclining the entire driver's seat as follows:

Before you start you will need to purchase 6 countersunk 2BA steel set screws (at least 25mm in length), plus a quantity of 32 washers to fit these set screws. If you want to modify the passenger's seat as well, then double these quantities.

Remove the driver's seat from the car by tipping the seat up, operating the sliding mechanism lever, and lifting the entire seat off the sliding mechanism.

Underneath the seat you will find two runners, each held to the bottom of the seat by 4 small set screws.

Remove one of the runners and immediately replace it, adding washers as follows:

Front hole: Re-fit the original set screw with one added washer and partially tighten.

2nd hole: Fit a longer set screw plus 3 washers.

3rd hole: Fit a longer set screw plus 5 washers.

4th hole: Fit a longer set screw plus 7 washers.

Now fully tighten the screws and do the same to the second runner.

It would be a good idea to lightly lubricate the runners before replacing the seat in the car. I would recommend candle wax for this purpose. Also, the two hinges should receive a drop or two of clean engine oil.

I think you will find that the driving position is more comfortable and there is more rearward adjustment.

Dashboard Centre Panel

Sergio Pagano in Italy has almost finished the restoration of his TB Tickford (TB0362). One of the jobs of which he is especially proud is the restoration of the centre panel in the dashboard.

Having carefully studied a finished centre panel he planned, copied and calibrated the project with a CAD. Then, with the help of a friend, who deals in publicity materials, he printed it out on a self adhesive foil. The entire sheet is in self adhesive black with the lettering printed in white, so there is no possibility of detachment of the letters. The adhesive is then polished to closely match the original finish of the centre panel.

A fine result!

Photo 1 – the 'bare'panel.

Photo 2 – the black self adhesive foil with the lettering in white.

Photo 3 – the finished centre panel – *magnifco!*

Recommended T-Type garage in Preston

CUERDEN CLASSICS LTD
Stoney Lane House, Stoney Lane, Lostock Hall, Preston, Lancs, PR5 5XQ Tel: 01772 627120
Proprietor – Andy Schultz
Email: andy(at)pr55xq.freeserve.co.uk
Recommended by T-Type owners in the area.

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Photo shows – a cam kit with rocker.

Ed's Note: This is an advert from Len Fanelli – more in next issue.

Above: Keith Beningfield's TC at Shelsley Walsh Hill Climb, being driven by Phil Glenister with Keith in the passenger seat. Shelsley is the oldest motorsport venue in the world which still uses the original course (since 1905). ***Below:*** TC1125 at Bletchley Park in the summer of 2013. Once Britain's best kept secret (home of the WW 2 Code Breakers) it is now a heritage site and visitor attraction. Codebreaking huts 3 and 6 will be restored and opened up to visitors this summer.

Above: TF4629, now in France with owner, Gérard Chevalier at the wheel. Imported from the US (California) around 5 years ago, the car needed a lot of work but is now running well. The TF is thought to have spent some of its life in Hawaii. ***Below:*** TC8221 in Sweden. Formerly UK registration FJB 313, the chassis of this car originally carried a van body (it was one of the 3 TC vans). Re-bodied as a 'standard' TC in 1951, it was a race car in the UK before being restored and exported to Sweden.