Ignition Woes – an endemic modern problem?

by David Bolton

The last two years with our 1972 MGB roadster have been rather fraught with ignition problems, first one new component failing and then another within the distributor. The car was totally refurbished in 2005/6 in an attempt to build in reliability. The original 25D4 distributor was retained but with new leads, cap, rotor, points and condenser. During 2006 the ignition worked perfectly and our trip to Northern Spain & Portugal in 2007 was problem free.

One day in 2008, seven hundred miles after a routine service, while motoring happily along in the sunshine (hood down of course) admiring the beautiful scenery around Blanchland the car started to occasionally hesitate and then a definite misfire was added. This grew worse so we decided to head for home but the misfiring and backfiring became gradually worse. Resetting the points a number of times helped - for a bit. Eventually it seemed we were down to 2 cylinders and no power and forward motion was a series of bunny-hops when all 4 cylinders worked in unison only then to revert to 2, or so it seemed, coupled with loud retorts from the exhaust pipe. Australian petrol delivered by kangaroos?? When it seemed that the car would go no further we called for professional assistance. The rescue mechanic had worked on MGBs in the past & confidently stated that it must be the points gap – which he reset. This fix lasted about 3 miles from Stocksfield to Wylam; after that we were trailered back to Newcastle. The points were severely pitted and new points, condenser and a new earth wire fixed the problem – but only for a while.

Three months and 900 miles later a similar series of misfirings and backfirings accompanied us back along Hadrian's Wall from Gilsland. This time we nearly made it home while praying to all the motoring gods not to have a complete breakdown. They were obviously ageing and were slightly deaf; they did not hear us. Almost within sight of home the engine suddenly died. Checking within the distributor, the 35 year old pigtail low tension lead was badly frayed with possibly one strand remaining – hah, the cause. Luckily it was possible to refashion a connection at the roadside and the car worked well enough to get us home.

A new low tension lead was installed replacing the temporary roadside repair. However the misfiring returned almost immediately. Again, checking all electrical systems with a multimeter & a timing light with dwell facility failed to reveal the cause. The misfiring continued and worsened until eventually the engine would occasionally only give a desultory cough but would not run. Having the plugs and points gap set at 25 and 15 thou', respectively, as set by a METRIC feeler gauge did not help – Doh! That was however, not the cause. A systematic item replacement was started and it was only when the condenser was replaced was the problem solved. The condenser that had failed was only about 3 months and 900 miles old, out of a green Lucas box and labelled “Made Under Licence By Lucas”.

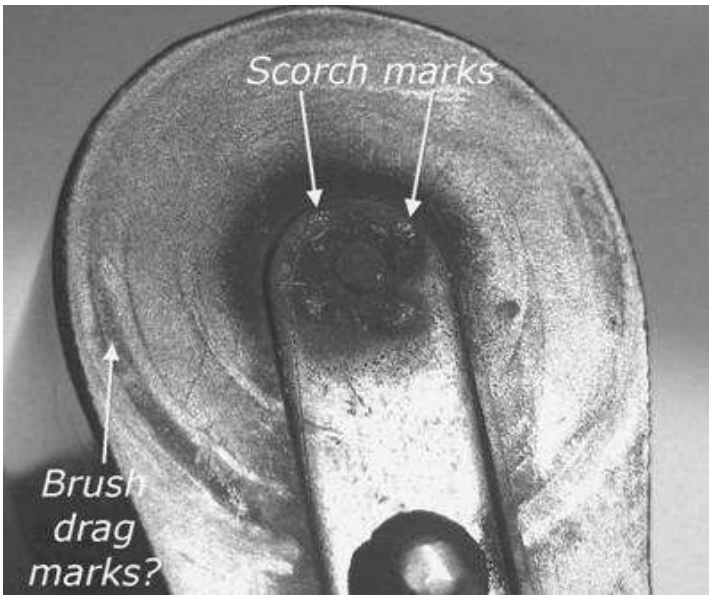
An electronic ignition system appeared attractive BUT, apparently, if/when they fail there is a complete failure and it is then necessary to re-install the old points and condenser to get you home. However I had heard that some electronic systems require a base plate alteration that makes a points re-instalment impossible. The electronic systems do away with the points and condenser but the rotor is still necessary. So, what to do?

Sticking with the old system of cheap and easily replaceable points etc., a new 45D4 distributor was bought and installed with the original 25D4 (now with relatively new tried & tested innards, cap and leads) kept in the boot as a spare. The spare was all marked and set up to be an easy replacement at the roadside – well, easier than replacing points and condenser. All augured well for the future as we were now covered for any ignition related eventuality, also having a spare coil in the boot. Ha!

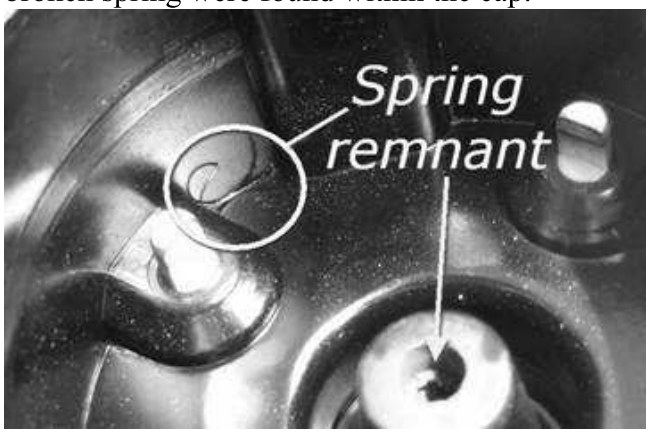
Ten months and 4000 miles later, at MOT & service time, a rather peculiar problem was discovered. When the distributor cap was removed, the carbon brush within the 10 month old 45D4 distributor cap was missing! The car had been running perfectly. It was the broken retained brush spring that had been conducting the high tension voltage to the rotor arm top which was badly scorched – see picture.

Rotor top showing scorch & drag marks

The interior of the distributor did not show any signs of pulverised carbon so where was the brush – on the



floor or still within the body? The remnants of a broken spring were found within the cap.

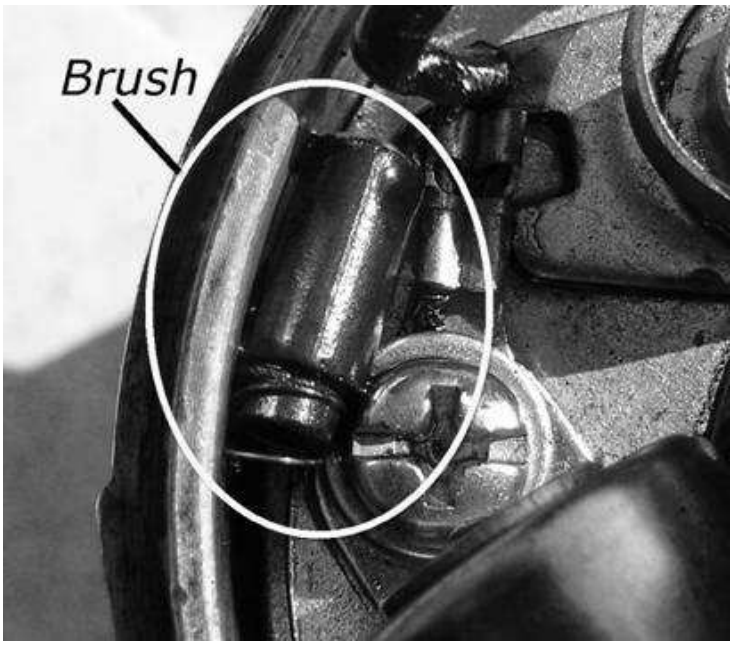


Interestingly the newer caps appear to have a considerably larger channel for the carbon brush & spring – the original pattern ones were a snugger fit – indicating a possible mechanism for the brush to have escaped. A new distributor cap, with spring & brush and a new standard rotor were fitted. All seemed well.

Returning home, after passing the MOT test, the engine started to falter within 3 miles. Nothing too much, just the occasional missed beat. This continued while out testing on-the-road. Testing the high and low tension wiring indicated no fault but there were no running problems at the testing time on the drive, only on the move. Later, while demonstrating the on-going intermittent and occasional “fluffing” to the garage mechanic, the engine beat became seriously worse as we were heading back to the garage. Great - evidence of an intermittent problem demonstrated. Then the engine cut out and died completely on the Central Motorway in Newcastle - scary with no hard shoulder and at the end of a slipway. The engine was dead and would not fire with good cranking speed. We demonstrated that there was petrol being delivered to the float chambers. The distributor cap was removed; all looked fine but a replacement rotor was empirically substituted with instant firing and no more “fluffing”. The rotor that was causing the problem was less than 20 miles old and of the “good” pattern with the rivet outside the base circle and it showed no sign of any cracks, scorching or any reason for the failure.

Two new “uprated” red rotors were then obtained – one for the active 45D4 and one for the reserve 25D4 as well as “uprated” condensers for both (unfortunately the two are not compatible so spares for each have to be carried).

While checking the points gap with the distributor out, the missing carbon brush was found intact and lying loose on the 45D4 base plate – was this the cause of some of the problems?



Was it now time to go electronic? It seemed madness to consider it after getting improved rotors and condensers but what cost being stranded? However having an electronic system one is still subject to the weaknesses of the brush & rotor manufacture plus larger cap brush channel with loose fit.

A planned trip to the Dordogne area of France in June 2010 plus the past experiences prompted a change from the old allegiance to the original distributor technology, hastened by probably poor quality components being supplied nowadays. New information about a relatively inexpensive (but could it also be reliable?) electronic system spurred a foray into the electronic market. Additionally an old pattern distributor cap with the narrower brush channel has been sourced & installed. So far, some weeks and about 2200 miles later, after the Dordogne trip, all seems to be well; no ignition issues. We still have the spare complete 25D4+cap+leads in the boot along with a 45D4 spare base plate with correctly set points just as insurance. Can one ever be too insured? An old hand wisely stated “the spare that you need is the one you are not carrying”! Help. The boot is not very big.

Have we just been very unlucky or is this the pattern of unreliability to be expected? This calls into question the wisdom of “routinely” replacing things like points and condensers at regular “service” intervals. It is possible that an old working item will be substituted by a defective, or soon to be defective, replacement. Maybe it would be better, given the present reliability issues of the new items to wait until the old working ones give up and then substitute. However, that will invariably be in the dark on a bad stretch of road while it is raining. You pays your money and takes your … but should it be like this?

As a result I have learned a lot about the ignition systems of older cars but am in no way an expert on individual system failures.

Most recently, since all of the above happened, the fuel pump failed to pump leaving the car stranded – many thanks to those who stopped to offer assistance. A sharp knock on the SU pump body (standard procedure) cured the immediate problem but is this a warning sign of more to come? Ho hum.

Pump woes ...

by David Bolton

"… *is this a warning sign of more* problems *to come?*" I asked at the end of the 'tale of ignition woes', alluding to the fuel pump stopping in our 1972 MGB which had been comprehensibly renovated in 2005/6. The short answer is 'Yes'!

In August, on leaving the Hamsterley Hoppings, after a great day out, and before we had cleared the village the engine gave indications of fuel starvation. A convenient stopping place was nearby so we pulled in. Indeed, there was no petrol being delivered to the front float chamber and there was a silent pump. Other MG-ers stopped to offer assistance but we felt we were on top of the problem so they proceeded home; our thanks to them. A sharp tap on the pump and it chattered back into life delivering fuel; the engine immediately fired up again. Great!

This scenario was repeated about 300 yards further on at the village edge, only this time we coasted to a halt, powerless. Fuel starvation again. Oh no, and a long way from home! No pump clicks could be heard, so, straight to the pump this time. Another sharp tap & we were on our way, only now it was intermittent forward progress with the engine firing well and then occasionally 'stumbling'. It did not resemble the ignition problems previously experienced but we soldiered on as best we could but eventually coming to an elective halt in a lay-by thinking that we had got to sort this out. At least it was daylight and not raining – that morning it had "monsooned" so thankful for small mercies. There had been occasional petrol smells and the fuel gauge was much further down than it should have been, thus a leak somewhere giving intermittent fuel starvation seemed likely.

A quick look under the car & bonnet confirmed that there were no fuel pipe delivery leakages and no leaks around the carbs (twin SUs) or float chambers. With the ignition on and a chattering pump, it was quite easy to see that there was excess petrol being discharged onto the road via the overflow pipe(s) from the float chamber(s). It seemed to be only the front float chamber that was disgorging. The fuel pump stopped chattering when the delivery pipe end was occluded - good. There had been no petrol "spurt" when the fuel line was removed from the float chamber inlet indicating no pressure build-up in the delivery line indicating an "open" end of the delivery which is not as it should be. Thus a problem at the needle valve seat? At this point a fellow MG Club member stopped to offer assistance – he, with considerably more experience, confirmed the diagnosis and then actively helped sort out the problem. The float chamber lid was removed; the float itself was fine as was the float chamber bowl which was nice & clean. Mouth to float-chamber-lid-inlet (ugh!) seemed to dislodge something – and that something was presumably preventing the needle valve from seating & regulating the petrol flow into the chamber. Ha! It is always satisfying to find a cause (& fix!).

Reassembly proceeded swiftly only for the rear float chamber to indicate that it too was flooding. That received the same treatment, clearing whatever it was that was in the needle valve seat affecting the needle seating correctly. The float and needle valve seemed to be working properly with exhaled air when the lid was held upside down. Reassembly confirmed this. The rest of the trip home was uneventful, and it was a pleasure to have the engine working properly although we were on high alert for any mis-beat!

A new SU pump has since been installed and a filter. The old pump seems to work well on the bench and is within all tolerances, but can it be trusted? A fellow MG owner also had similar flooding problems at about the same time, but his float chamber had sediment in the bottom.

Is there a problem with modern fuel and particles? Fall out from the volcanic ash? The petrol tank and all supply lines were new in 2005/6 so it should be unlikely that the particles came from the 'system'. Surprisingly the original fuel system did not have a filter – the later ones, however, did. Ours now has.

What's next? I hope there will not be a third instalment for you to read about!

Toby's Story

Michael Beswick

It all started in a pub –well it would really!- Back in October 2002.

Every first Sunday of the month, the local pub has a classic car gathering. I had been invited by a mate who had some friends over from France.

At the time I had a 1500 Midget –great fun, but rather busy at 70mph, and it kept getting smaller as I tried to get in it. Over the previous 2 years, I'd rebuilt suspension, steering, some electrics, the interior, and generally tidied the car up. I casually mentioned that I was thinking of putting a stage 2 engine in it.

Waste of time –said the mate –buy a Jaguar instead (he had 3 at the time). Or at least get a B. He reminded me that some months before I had said the quickest way to go faster in a 1500 was to buy an MGB.

We went our separate ways, or so I thought. The phone rang next day. “I've got this mate with a 1969 MGB Roadster for sale –solid-being rebuilt –but cheap as it's an awful yellow colour.

Well, I had to go and just look –you do, don't you….

It was an awful colour -Bronze Yellow, or roadworks yellow as we came to know it. Rebuilt engine, tatty interior, but with a new hood, stainless exhaust and with all the usual welding culprits well fettled.

Hmmmm. I went back a second time, drove it, and had a long time MGB owner look at the sills, door shut lines and other bits. But I already had a Midget… Oh, well, why not.

A week or so later, money changed hands and on a soaking wet day I drove it the 10 miles home.

I drove it daily for the next 6 weeks. The Midget stayed in the dry in the garage, while I drove the B. Still tatty, but nothing major actually fell off. The brakes seemed a bit suspect as the discs were rusty, but it stopped. The radiator leaked so out it came and a new one put in. The overdrive seemed temperamental –slipping in and out- until I discovered that by holding the gear lever back into the gate it worked. Out came the dashboard switch –strip n clean, adding a fuse along the way –still the problem. Same thing applied to the reversing lights.

You could get a finger in the gap round the boot lid, and the seal round the petrol pipe was perished, which explained the water in the boot. The “period” radio didn't work, but there again there was no aerial, which might explain why. There were also a few bits of wire hanging loose or taped up. And the clutch master cylinder seemed to leak down the pedal.

My friendly local garage let me put the car up on a ramp, where I changed all the oils and discovered that the gearbox had a dip stick designed for double jointed midgets with very long fingers.

Come Christmas, the cars swapped over –the Midget parked under the “bath-hat” (breathable cover) on the drive and Toby –as he had come to be called- was tucked away in the garage.

Out came the carpets, interior trim, door trim, seats, console, and anything else that would move, though we left the dashboard till later.

I'd bought every rubber seal for an overdrive unit, but by now was thinking that the gearbox switch might be suspect. Nibblers make a lot of noise in an enclosed garage, and mess –but we did it! Working from above we undid the switch, removed one of the two packing washers, and tested it using a lamp.

A stainless panel was shaped and bolted over the hole, with sealant to keep it weather-tight.

The reversing lights still need the gear stick held against the gate, but I though two large holes in the transmission tunnel not a good idea.

I was concerned that the batteries were exposed, so I bought a pair of battery boxes –seemed a good idea until I realised that they needed lots of holes for the cables to fit. So even more holes in the bottom to let any water out. It does keep the worst out though. The clutch cylinder had seen better days, so was replaced. We even managed the trick of blowing fluid up from the slave cylinder!

Moulded carpet set and panels were collected at a show and were stored in the spare room –guests were not welcome!

The seats had been sent away to be retrimmed –a mix of leather where it mattered and vinyl where it didn't. Collecting the finished pair was fun –trying to fit them and daughter and luggage (she was coming home from school) into the “sensible” car. Later, trying to get the runners and seats refitted was a nightmare.

I had decided that a few items needed to be added –electric fan, proper (noisy) air horns, radio (that worked and played tapes) hazards, rear fog, boot light etc, so cables had to be laid before the trim could go in.

A neighbour's son had upgraded his car sound from merely loud to the sort of level that makes your internal organs vibrate, so I acquired a Radio/tape player. The plan was to fit speakers up near my shoulder in the rear side panels. Out came the nibbler again, but the speakers fitted and cleared the hood mechanism. About this time I realised the radio had 4 outputs so another pair of speakers went in the doors. Means you can irritate the kids with the thudding bass by playing Beethoven or Meatloaf! The radio is quite a weight so a strengthening plate was added behind the face of the console. And then the wiring…..

I had decided to use a “professional” to fit the aerial. Turned out a joke. Once he'd cut the hole, he realised the tube that it retracted into was too long. So naturally he cut the tube off (you would wouldn't you) Now the aerial retracted onto the boot floor with about 3 inches protruding above the car wing…….

The electric fan uses on-board telemetry –look at the temperature gauge, apply finger to switch. The fan came from an autojumble, sounds like a jet but shifts air. It is mounted on a frame in front of the radiator. Various other bits were acquired including a smart Motolita wheel, as I kept banging my knee on the original.

The heater matrix seemed to wobble about in its box, so a new one was ordered. Now you just have to get the old one out……The book showed two pipes –I didn't seem to have these –more like a bit of thick dense foam rubber. I later discovered that it was exactly that, and glued to the bulkhead and the heater box. I used a hack saw blade up the passenger side air outlet to get (wrench) the heater box out. New heater, foam fitting strip and check and clean the fan. Avoided thick foam rubber and reverted to pipes cut from a basin waste pipe…

Spring 2003 and it was looking good –bit of a whine from the back axle, but not too bad if the hood is down….

Off to Le Mans, with same mate who got me into all this (something about the E type's brakes needed doing)…Fine till we got to Guildford when dreadful squealing alerted me a potential problem. No worries as it then stopped; as did the speedometer after a couple of last gasps. Well -who needs one, and anyway French roads have kph not mph. Leaving Le Mans the temperature was about 30 degrees, but Toby did well –only a little warm and the fan only needed sometimes. The run back to Caen was smooth except for a few occasions when tacho, and most other instruments (and probably lights) stopped…..and then came back on!

The summer was wonderful- great weather and enough small tinkering jobs to play at. Only problem was the colour……

Autumn 2003- time for the annual service, need to do the carburettors, but still that colour….What would Toby look like in Midnight Blue?……

Piggy bank raided and it was off with as much trim as possible, before he went off to G& B Autospray (Restoration to the stars). I didn't have space to take the engine out to store it so we agreed that I would finish

the engine bay when I got the car back. They sorted the rear panel and boot lid, and even re-positioned the aerial hole…..Meantime the chrome went off to be redone.

All back in time for Christmas, though I was forbidden to actually work on it on Christmas Day! Now he was a beautiful Delft Blue (actually a Triumph colour, but it's the right period, and looks great. Midnight with black interior looked too dark)

And back in went all the trim, radio, wiring. I think I've been here before…..

The carbs were stripped and a rebuild kit used. Then off to the rolling road to set it up. Not bad –the timing was spot on and the carbs ¼ turn out. However the new radiator had started to leak at the top hose, so off it came to be rebrazed.

A trackday at North Weald in the snow was great fun. The car looked great, and people could not understand how it arrived so clean but we only live 5 miles away!

The whine from the back-axle was definitely getting worse, so a recon axle complete with half shafts was ordered. Out came the old one for exchange and in (with appropriate swearing) went the new, with fancy urethane bushes, and Koni shock absorbers.

Negotiating (badly) a raised kerb, I removed the exhaust system and bent the rear valance. Luckily it was outside a Classic Car garage. Although they were Triumph, they fixed it, with much noise about “superior” cars!

Off to Le Mans classic-well nearly –the radiator started leaking again. So, out it all came and was replaced. I was getting good at this! Great fun at the Classic – I think it is better than the “real” event!

More track days followed, and a 1200 mile trip to Spain in Autumn 2004 with the travel club. This was fun, so more continental travel was booked for the following year.

Then my alleged mate –he who got me into all this-asked if I'd seen an ad for a supercharger…….40% more power without engine work. I dithered –it was a lot of money and my long-suffering wife was beginning to suspect my claim that “it's cheaper than playing golf” might not be entirely true….. However, like all B's, (and probably middle-aged men) Toby's mid range performance was great in the 60's –not so good now. And I could fit it myself –not perhaps in the claimed week-end, but over a few. We debated. I claimed that to go faster meant fettling the brakes….Toby claimed that it didn't go faster, just got to a faster speed quicker…..He won and I continued my mid-life crisis….But on condition that brakes and handling were looked at

I collected the kit - huge box, in November ready for fitting over the Christmas “break”. It was an excellent kit-complete right down to shims to match up different manifold thicknesses. All I added was a new distributor, as I was not sure of the “provenance” of the original, and Green Stuff brake pads.

Wow!- even on a gentle run to a rolling road it felt good!

Properly set up, we went to a track day at Brands. “What are you running that on?” was a common comment. Toby looks standard –no big bore exhaust or anything to suggest a bit of extra oomph. Better still were the looks of the faces of thrusting BMW drivers who allowed you into (their) overtaking lane on the M25. No more flicking out of overdrive or into 3rd. Just mirror signal and go! Up to !! mph to pass the truck and back to cruising …….Puzzled BMW driver passes wondering why he thought he needed to slow down as much!

Then I was contacted by a company who wanted to produce a DVD of MGBs. Fame at last –Toby became as insufferable as the driver.

Of to the sprint circuit at Curborough, where a professional driver would compare the various cars on the track. Here, the need for improvements for the brakes became apparent, as did the “compliant” (a.k.a. floppy) handling. The brakes were actually smoking –even after a cooling down lap- but they worked! However

seeing and hearing the car (Toby has a great whine from the supercharger and a purposeful exhaust note) was magic. A few words from the owner (everyone's 15 minutes of fame –well 2 actually!) and we went home to await the final production.

Another track day was followed by a trip to Ireland with the travel club. Irish road rollers are special –they leave out a segment so it's like driving across a ploughed field, but with holes…..

Crawling through Dublin gave a hint of things to come –the temperature gauge definitely reading higher, though as the weather was not too hot all seemed well.

And so off to Corsica in June. Reckoned to be 28-30 C at this time of year…Well, the heatwave in the UK was mirrored in France, but hotter. 38 + with 47 being recorded around Lyons (though this was on a thermometer at the mouth of a tunnel). French drivers have an interesting week-end past time. Go out in the car, find another and form a queue! On seeing a British sports car, accelerate and move smartly to the middle of the road! This, in contrast to people at the side of the road who wave enthusiastically! We had met some friends -Ian & Lorna with a V8 and that magnificent burble (the car- not them!) There were one or two pairs of French drivers who were a bit surprised when passed by a thunderous burble of the V8 and demented howl of the supercharger! But we did have to cover 290+ miles each day, and we kept to the speed limits…….

Overheating –yup. The V8 travelled with the heater full on –being a GT it got quite warm inside, we were told….Toby got hot under the collar when stuck in queues as did the driver when we got caught in the traffic jam in Lyons.

Trips around Corsica needed to be very early or late or maybe left in preference to testing the wares of the bar…

Three miles after returning home – the head gasket blew! A prayer of thanks was offered to the God of Motoring, as we had done over 1830 miles in France and Corsica.

So head off, clean up head and block, cut in the valves, and confirm that the engine was in good shape (we could see the honing marks in the cylinders).

Head back on and just waiting to do 500 miles before checking it and the tappets……

Toby is not becoming a track-day car, though he enjoys hurtling around tracks, but is an ideal long distance cruiser. Unfortunately he has become something of a hooligan. Whilst not yet wearing a baseball cap back to front, he tends to respond to youths in Saxos. Whilst (politely) allowing them to go first, he then roars past them with smug grin (always keeping to the limits). He also tries it with Porsches but tends to lose…….

The front suspension is a bit tired –road humps are a night mare, and the handling needs to be sharpened up a bit. This is scheduled for the winter. Then maybe some more trips to Europe……..

To be continued ...

Toby's Story part 2

Michael Beswick

Time to tighten up the suspension, so out came all the floppy rubber bushes and in went smart purple Superflex bushes. Whilst I was at it, it seemed sense to replace the front springs too. A thicker roll bar was also fitted. I also fitted castor wedges that would lighten up the steering. Unfortunately I couldn't really remember how heavy it was before I fitted them, and couldn't tell the difference!

Next was a trip back to Spain and I noticed how much more comfortable Toby was when ballasted with the Navigator and the luggage. Maybe time to investigate the rear springs.

I had followed the perceived advice and had fitted Konis on the rear. Various bulletin boards were perused, some suggesting the original lever arm and multi-leaf spring were the best, others extolling the virtue of tube shocks. There were also many horrific tales of new rear springs requiring people sitting in the boot to get them to fit! Finally, I chose parabolic springs, based more on the fact that the price might mean they are built to spec –not to price. Subsequently, V8 owners seem to have managed to “wind them up”, but not having 250 bhp , I might be OK- we shall see!

Despite looking the part, as I had had them sand blasted and painted, I was aware that the wire wheels were probably old! Spokes were getting loose (and replaced), but common sense dictated replacement. So, for Christmas, Toby got a set of chrome wires. The slightly wider 175 meant that new tyres were also needed – Yokohama A drive.

I had always felt that a battery cut-out would be useful. Partly as security, partly as a way to isolate the battery when working on the car. I also felt that relays for the headlights would be a useful first step to improved lighting.

By this time I had started working as a part time MOT Tester, so had access to all sorts of useful goodies! Fitting the cut out switch was fairly straightforward, in the –‘ve side. Trouble was, the radio kept losing the pre-set stations! No matter, a lightweight earth with an inline 3 Amp fuse was fitted through the battery lid and hidden under the carpet. This also allows the battery conditioner to be plugged into the cigar lighter socket over the winter, without leaving the cut out switch in place.

I had noticed that BMWs had a +'ve tag under the bonnet. This seemed a good idea for an MG, as opposed to trying to jump start from behind the seats. It would also provide a source of power for the headlamp relays. Careful hacking of a redundant lead allowed a connection to the +'ve feed on the starter motor up to a “connection box” mounted on the inner wing. One connector nut was replaced by a tapped brass tube to act as a stud, the other would allow +'ve feeds.

About this time the rad started to leak (yet again). Fed up with sub standard parts, I took it to a local radiator re-builder. Whilst rebuilding, he also fitted a drain plug (to avoid having to wrench the bottom hose off- there's not much room with the extra supercharger pulleys) and tapped in a connection to fit the fan sensor.

I'd read about a guy who had designed an electronic switch for the overdrive. With the standard manual switch, if you changed down the box to second, say for a roundabout, and then up, the gap between second and overdrive third was too long. Of course I should drop it out of overdrive whilst changing down, but being mounted on the dash, one runs out of hands. This electronic box automatically dropped it out of overdrive when changing down to second. So changing up lost the “gap” and a simple push button re-engaged the overdrive. (it also has a button to disengage o/d) Connection was simple –just across the terminals of the existing switch which remains in place. He also produced a neat buzzer , fitted across the flasher unit to remind me to cancel the indicator. Great when the hood is down –noisy when its up!

Navigator developed sciatica, so no trips for a year, whilst she endured everything from acupuncture to Pilates....Meanwhile our MG friends enjoyed a sunny summer trip to the Italian lakes....Snow in Switzerland

and rain in Italy.....

Then some idiot suggested a trip for the MG friends...So off to Britanny. We had felt that sometimes the distances travelled on a near daily basis meant that some trips became a bit of a route march, with the driver missing out of the scenery. In addition, different hotels each night meant you were always packing and unpacking. So 3-4 nights in nice Chateau & Relais hotels and a gentle circuit that took us just into the Loire region. Just before we went, I noticed one of the support bolts for the supercharger bracket was missing. Panic –these are non standard parts from the USA, as they have countersunk heads and an Allen key drive.... I managed to source correct length standard hex headed bolts, and a mate who makes clocks turned countersunk washers.

Brilliant weather. Toby met a new friend- TUJ. A fire-breathing V8 monster (or was that the driver?) that made the most wonderful noise, despite having to be “run-in”. Brand new interior, with really comfy seats. I drove it, but being tall, everybody laughed at me, as I stuck out of the top...

Unfortunately for TUJ, an elderly French lady driver got far too close and personal –entente was far from cordiale-Toby offered to hold his coat.....

The other V8 developed an intermittent misfire and then an intermittent non-start. This proved a touch tricky, as the driver is banned by his mechanic from “fiddling”....despite carrying the most comprehensive tool kit known to man. A cunning plan was devised-if he didn't fiddle -we could! He could then say he had been overwhelmed by MG drivers desperate to fettle!

Toby, meantime had developed a “tinkle” type noise on take-off, and the new spring bushes were squeaking a bit. WD40 fixed the squeak but the tinkle persisted, later to develop into a vibration at 60 mph.

Stopping for petrol on the run back to Caen to catch the evening ferry, the fourth car refused to re-start. We checked the spark, we checked the plugs, we checked the fuel.....Hang on –no ignition light....At that point the driver casually mentioned that his garage had fitted a new multiplug at the steering column.... Push, click ...and off we went...

Driving home up the M3 showed the vibration to be worse, so next day I took Toby to have his wheels balanced. They were fine but just to check we put him up on a ramp. Twiddled the prop shaft, and yup –more play than a.....Luckily they had a prop and could fit it there and then.

So, the moral is, if you have a tinkle.....

A few weeks later saw us on a “boys' weekend” to Le Mans 24Hours Classic . First time for TUJ and his driver, so while us old timers went home on Saturday night, they stayed throughout the night and managed to blag their way on to the pit wall to watch Classic MGs with Barry Sideways Smith. Apparently TUJ was built at the place owned by the driver /mechanic for BSS. Ecstatic driver with floppy grin for rest of the week-end! The other V8 ran well, but, you've guessed it, a problem with starting! Trying to start after dinner on Saturday night required the assistance of lots of willing French people !

The rest of summer this year has been pretty much a wash-out. But I decided I should fit the new heater valve I had bought last year. I specifically chose the “original” type, at slightly higher cost. You've guessed it –it leaks! I tried to nip up the lugs around the edge, but no better. I put epoxy metal round the joint –it still leaked! So a small polythene bag round the whole fitting held on with an elastic band to prevent it dripping on the distributor.....and I bought another valve.....(thank god for the drain plug in the rad...) I wouldn't mind, but the only reason for changing the old one, was that it would not turn fully off- a plastic label was lodged in the diaphragm)

Last year we finally built the garage - which means there is no excuse for not finishing the jobs that are currently on the list. Trouble is the list keeps growing.....The joy of owning an MG.....

Michael Beswick

The Amazing Rebuild

Published as 'All by Touch' in MGOC 'Enjoying MGOC' November and December 2011.

This is the story of a rebuild of an MGB. "What's so amazing about that?" you may ask and it's true lots of people do one, but this one is pretty special.

The car was bought as an abandoned restoration in the form of a stripped, rolling, painted shell, with the engine and everything else in a pile of boxes. So the first thing is you don't know whether everything is there. Secondly the purchaser had never done one before, so he didn't even know what was **supposed** to be there, or where most of it went! But the most amazing part of this story is ... Terry is almost completely blind. Only finally losing his sight as an adult, he can now just about distinguish light from dark in one eye and that is all. Before that he was employed as an engineering machinist so has a good grasp of engineering principles, and has superb spatial awareness and imagination given a half-decent description of something. He has a full-time managerial job with Social Services, does DIY at home (things like installing a shower and laying laminate flooring in a conservatory), cooks for his partner, and takes a full part in looking after his two young children (although he says feeding yoghurt to his 2-year-old daughter gets a bit messy!). So Terry is certainly one to take on a challenge - and what a challenge. He was going to have to do everything by touch and imagination from others descriptions, going through all the parts, working out what they were and where they went, and especially locating all the fasteners - nuts, bolts and washers etc.

I first came across Terry on an MGB email forum late in 2008 where he introduced himself saying what he was hoping to do and would probably need quite a bit of help. I was one of a number of people who replied saying we were more than willing to help where we could, and it was heartening that only one person made any reference at all to his sight problems, unfortunately and insensitively of the "Does he take sugar?" variety by asking if we had all missed the fact he was blind - to which no one responded. I was then honoured to be approached directly by Terry, who had already come across my web site, asking if I minded him contacting me directly from time, and of course I said I was more than happy. However Terry is in Essex and I'm about 150 miles away in the West Midlands so any contacts are going to be by phone or computer.

November 2008: Terry fitted the tailgate (minus glass), rear lights, carpets and drivers seat. Then fitted the front and rear screens, without the filler strip or bright trim at the moment.

December 2008: The gearbox and rest of the transmission system was in place and the first thing Terry needed my help with was getting the engine back in, which entailed finding and identifying the engine mount parts, which I described as best I could. Terry is very experienced in the use of computers, special products for the visually impaired like those that translate text to voice being particularly useful, which is how Terry was able to access my web site and the email group. Perhaps surprisingly he also uses video, and over the months emailed me quite a few showing parts or situations he was enquiring about, and I either emailed my replies or we would 'chat' on Messenger. Sometimes we would use 'live' video over Messenger - him showing me something and me responding, and interestingly he prefers me to type my responses rather than speak them as that way he can 'play them back' several times until he has fully grasped it or has a further question, rather than keep asking me. The first video Terry sent me was of what he thought were the engine mounts,

but which actually turned out to be the door latch striker plates, and that set the tone for many amusing moments over the coming months. He hired an engine hoist and whilst he had the chap that brought it round help him erect it he then sent him away as he wanted to do this rebuild himself, and in the past he has found that sighted people tend to 'take over' which puts visually impaired people in the awkward position of either offending their helper or keeping quiet but frustrated. And this is where the first headache arose. Despite the gearbox being jacked up to the top of the tunnel, and with the gearbox shaft in the hole in the clutch cover plate, Terry just couldn't get the front of the engine down low enough to get the two aligned and the friction plate splines to slide onto the shaft. After a day of struggling, and getting the rental bloke to have a go as well before he took the hoist back, he gave up briefly while we took stock. I'd recently changed the clutch on a pal's rubber bumper and had no problems whatever in getting the engine off or back on the gearbox shaft, but that may be because the rack is in a slightly different position on those cars to the chrome bumper Terry has. There then ensued quite a bit of discussion back and fore as to what might be wrong and how to resolve it. The gearbox crossmember is mounted to the chassis rails with two bolts each side, so I suggested bolting the front hole in the crossmember to the rear hole in the chassis rail to move the gearbox a couple of inches further back. Next time he borrowed the hoist it still wouldn't go in. In desperation I suggested slackening the cross-member bolts as much as he could without them actually falling out, to lower the back of the gearbox an inch or so and give a bit more angle on the gearbox shaft, and finally the two went together, but not without a hard shove born of desperation on Terry's part! First major hurdle cleared but it took until the beginning of January, and fervent hopes the rest of the rebuild wasn't going to be as difficult.

The next job was getting the exhaust attached to the head, complicated by the fact that it is the after-market three-branch manifold and extractor down-pipe system which I wasn't expecting. But another video soon revealed that, and not too bad a job. Also inlet manifold. The starter motor was fun, being so heavy that it is not easy lying on your back, trying to hold it up with one hand while inserting a bolt with another. Eventually installed by tying a rope to it, looping that over something on top of the engine, then pulling on the rope from below to get the starter to the right height and tying it off, while the bolts were inserted.

In January Terry tackled the clutch hydraulics but the first attempt at bleeding had fluid running everywhere. After a lot of fiddling about it was discovered that the piston was missing from the slave cylinder on the gearbox, presumably someone had been pumping the pedal after the engine was removed, which has pushed it out and it got lost. Didn't stop the perpetrator pushing the seal back into the cylinder and fitting the outer cover to hide what had happened! New slave ordered and fitted. This is a **very** shortened version of what actually took place over a period of five months! And even then when he got the engine running he had the inevitable problem of the clutch friction plate being stuck to the flywheel, freed by briefly turning the ignition key to 'start' while in 4th gear with the clutch pedal fully down and the brakes on - but that didn't happen until September! At one time we suspected a problem with the master seals, and so the pedal box had to be removed, of course some of the screws were seized and had to be drilled out. Bad enough but of course Terry can't see them, so has to feel for them, place the drill bit on them while his finger is there, then it is highly recommended to remove finger before starting drill. But of course every now and again things don't go quite according to plan, and Terry rips a chunk out of his finger - the sort of hazard he faces on a daily basis along with walking into things and barking his shins, misplacing tools and parts, and banging his head on open bonnets and hatches and so on.

And this is where we should all bow down to Terry and raise a statue to him, for refitting the heater was next! Anyone who has had any contact with MGB fora will know what a pig this is, getting the air direction control cable inserted with that pesky rubber block, but Terry did it. Not without some fun along the way though - the air flap in the heater unit was a bit stiff so Terry thought he would ease it with some WD40. The only problem was - he picked up a can of spray adhesive instead! Like I said at the beginning, we had some laughs along the way. He managed to clean that off with white spirit, get some WD40 on it, and as I say get the heater installed, together with the connections to water valve and bottom hose.

February: The rear side windows and all the trim around them and along the gutters went in relatively easily, as did the carbs (which caused a bit of head-scratching as they are the later HIFs) and cables, alternator, cooling fan and belt. The coil needed another video as it is a non-standard unit with more spades than normal. Terry can't see the + and - markings of course but it doesn't matter that much if the low-tension side is connected the wrong way round. Fitted the rear bumper, number plate lights, bolted down the oil cooler and

radiator (they were removed as one with the engine complete with the radiator mounting panel). One side of the radiator seems to have parted company with its mounting bracket at the bottom, not ideal, but can be fitted for the time being. Attached carb hoses. One of the many pipes, wires and cables turns out to be for the washer, which is of the bag type, but doesn't have the proper mounting bracket so one has to be made.

March: Terry is now at the point where he can connect the batteries and try and crank the engine. The batteries need charging, and Terry has a charger, which gives rise to the question of which wire and croc-clip is which when you can't see them. Thinking ahead when he first bought the charger he checked with his partner and tied a loop in one of the wires - very clever. However by the time he came to use it he had forgotten which colour wire had the loop! Also there are a couple of switches on the charger which have to be in the right position of course. I was looking at a web picture of the charger and describing which ones had to be pushed in what direction, but this didn't seem to be making sense with what Terry had, so yet another video. We then realised that I was looking at a picture of the charger 'right way up' for the writing under the switches, whereas it is all the same to Terry and he had it lying on its back on the ground and the other way round! More chuckles, and Terry sends me a very amusing description circulating in the sight-impaired community of some of the difficulties that sighted people have in communicating with the non-sighted. Of course you have to put the right charger cables (and cables in the car) on the right battery posts, some batteries have + and - raised symbols which Terry would be able to 'read' with his finger tips, or coloured rings on the posts, but Sod's Law dictates that his batteries have neither. However the posts are also different sizes and Terry's sense of touch is such that he can easily tell which is which. With the batteries charged and back in the car a deep breath as the key is turned ... and nothing, no clicking coming from the starter relay or solenoid. I suggest using one of the horns (which does work) as a crude voltage detector, which works up to a point to show there is voltage at the fusebox and coil. However Terry complains about the noise until I suggest a rag stuffed into the trumpet - more chuckles (subsequently he gets a talking multi-meter via a pal in Canada). Eventually I realise that the problem is probably that the earth wire for the starter relay hasn't been bolted to the body yet, Terry fits that and bingo - it turns over!

However no noises from the fuel pump, and this was the start of a long series of problems which took until the end of May to resolve. Of course the points were oxidised, I talked Terry though removing the end-cap and cleaning them and that was a success in as much as at least it now clicked. Then he had got the pump inlet and outlet connected the wrong way round so the pump was pressurising the tank, but it sounded the same as if there were a vacuum so we thought there was a problem with the pickup in the tank. Then he found the pipe from the tank to the pump was leaking - corrosion having perforated it, then having replaced that the pump stopped again. At that point I suggested Terry post the pump up to me, where I found that having removed the end-cap the pivot pin for the points had slid partially out and they had come apart but Terry had been unable to see that before he refitted the end-cap, which was an easy fix, tested and posted back again. During this from time to time Terry was getting occasional popping noises from the back of the car, neither of us knew the cause, but with the possibility of it being electrical arcing at the same time as fuel leaks was cause for considerable concern, and lead to at least one rapid exit from the garage, and an anxious wait to see if it burst into flames! Other traumas were caused by cranking and getting loud reports from the back of the car, which turned out to be nothing more than incorrect plug lead order. Finally, in July after some eight months of very intermittent work given all his other commitments, the engine starts and runs!! The heater also works although one of the hoses came off spraying coolant everywhere as it was too short. Also the drivers door is attached complete with lock mechanisms, latch and striker plate, quarter-light and drop glass. All these were done without any reference to anyone else, and when I expressed my admiration I was told that they are all quite self-explanatory!

In April we have a few days at our Son's place in Cambridgeshire so as that's more than half-way to Essex it's a good opportunity to meet Terry face to face for the first time and see how he is getting on. Terry has some 'colour coded' jobs lined up for me like connecting the harness to the rear lights and repairing the heater and headlight wires which the dismantler had just chopped through instead of parting the bullet connectors. Looking around I see the insulation on the wires to the coil is cracked where they exit the harness so peel that back a bit and strengthen with heat-shrink tubing. I also happen to spot that Terry has connected the fuel supply hose to the servo port on the inlet manifold ... I gently point out that the MGB doesn't have fuel injection, and we have yet another chuckle about that. I also spot a new relay lying in a corner, bought in case it was the starter relay that was faulty, and Terry says "Oh, I was wondering where that went". One of the

quarter-light studs had snapped off, presumably on removal by the PO, which meant it was loose in the door when Terry refitted it. These studs are permanently attached to the frame, but I have taken my welder down with some spare bolts and am able to weld one of those to the stub, which proves good enough to firmly mount it in due course. Terry also has a new tunnel carpet which needs the hole cutting for the gear lever, so I cut and fit that. I happened to spot the short additional tailgate seal in a box which Terry hadn't found, so I showed him where and how it fitted and he subsequently removes the tailgate unbolting it while it is resting on his back, manoeuvres it out through the garage side door, lays it on the grass to fit the seal, then reverses the process and refits the tailgate! No mean feat as it is now quite a bit heavier with the glass installed than it was when he first fitted it. As well as the chopped headlight wires the inner chrome ring that clamps round the glass-fronted reflector and positions it in the bowl had corroded through in places. It's an aftermarket Wipac unit, so rather than buy a complete headlight unit I locate a repair kit at a local Mini specialist and post that down together with the repaired pump. For some reason the servo has been dismantled (probably the dismantler didn't realise that you have to remove the servo by undoing the bolts that go through the bracket and the shelf it is mounted on and remove them as a unit, and not remove the servo from the bracket and then the bracket from the shelf), but Terry was able to reassemble and fit it.

May sees the first attempts at bleeding the brake system, but like many other things it's not straightforward and takes several goes. The passenger door is a problem as not all the hinge screws will go into the door plates. First thought was that they had been sheared off or just the heads drilled off on removal, but a small screwdriver passed right through so it wasn't that. In the end a tap had to be purchased and when run through the holes the screws went in, but by then it was September.

June sees Terry studying for a promotion (which he obtains) so not much work done on the car. However the filler strips in the front and rear screen rubbers were fitted - very painful on the thumbs as the special tool was not available - but the bright trim strips are a 'bridge too far' and will have to be fitted by a professional. In July the air filters and carb vent pipes were fitted, also the headlights but not the outer trim rings until after the MOT as they would certainly need adjustment. The bonnet (which all this time has been propped up in the bedroom!) has the soundproofing glued on while it could be laid upside down on the grass, then fitted. In August the front bumper and grille were fitted, and it's beginning to look like a proper car!

September: Terry hadn't been happy with the adjustment of the quarter-lights as they seemed to be bending back as the door was finally closed, which risks 'the crack of doom' which is when the door skin splits, but when I explained about the slotted mounting point at the bottom front corner of the door he got this right. Then another chuckle as none of the ignition electrics seemed to be working, until I explained the switch needed to be turned **two** positions for ignition as the first was just for the accessories! Testing the electrics the indicators weren't working, which turned out to be the wire broken off the moving part, which Terry was able to resolder. One side flashes but not the other with just the ignition on, but both sides flash at an acceptable rate with the engine running, so should be OK. As I mentioned above Terry has some light perception in one eye so in the dark garage he is able to see if lights are on or not. One reversing light isn't but twiddling the bulb in its holder fixes that. One side light isn't working which needs a new bulb. Yet another chuckle was the middle exhaust mount apparently missing, so Terry purchases a new one, then when he gets underneath to fit it he immediately finds the one that is already there! The seat belts are a real oddity as they have the slotted end plate that normally attaches to the quick-release fastener on the tonneau panel of **roadsters**. On Terry's car this is just hooked over a bolt on top of the rear arch, so could come off and is unlikely to be acceptable on the MOT, so a new pair of inertia belts are purchased and fitted.

October, and Terry discovers oil dripping from the dash after the engine has been running, which turns out to be from where the pipe attaches to the oil gauge. While tightening that the bezel and glass comes off, so at least Terry is able to feel where the needle is pointing with the engine running and declare the pressure satisfactory! The manual washer pump doesn't seem to be doing very much, but an MOT is booked. However the engine (car driven by a friend!) is cutting-out badly, dies altogether after just a few yards and has the ignominy of having to be pushed back home. It could be the condenser so Terry changes that, but it's still cutting-out. And here we really stretch technology as Terry uses his wireless connection to point his laptop camera at the tach while revving the engine, and over a video link via Messenger I can hear the misfiring while I watch the tach! The tach is steady so it isn't an LT problem other than possibly the condenser (which has already been changed but we know how new ones can be!) so is probably HT or fuel. We discuss whether

it is feasible to connect a timing light and point **that** at the camera where I can watch it, but I doubt the technology is up to capturing all the flashes, and missing flashes (due to the link and not the engine) will lead me to think it is an HT problem, so we don't go down that route. However the fuel pump has been regularly clicking, more than one would expect, so Terry yet again goes over the pipes and hoses by the pump and finds one of the hoses kinked! Straightens that, pump clicks and stops as it should, and the cutting-out has gone! So another MOT (and driver) is booked, this time the car runs faultlessly, and passes with just an adjustment of a rear brake and a replacement washer pump - flippin' marvellous! Terry's driver said the look on the MOT chap's face when he was told the car had been rebuilt by a blind person was priceless!

In November at last Terry can go for a ride in his car, but the gears are intermittently baulking and grinding when selecting reverse, so it sounds like clutch problems. Getting the engine out again is the last thing that Terry wants to contemplate, and quite by chance there is a very timely note in Enjoying MG that with new clutch hydraulics or when they have been dry for a time they may need to be pumped repeatedly for as long as you can manage before the pressure seal ... well, seals. Terry has two legs and uses them both to exhaustion, and after that selecting gears is fine - phew! There is no headlining with the car, and this was another major headache. The Parts Catalogue quotes part numbers for the main board in the roof, plus the deep rear section that carries the luggage area light, plus strips for the side and front rails. Having a look at mine these side and front rails are a puzzle as it seems to be just 'sticky-backed plastic' stuck onto the metal 'rails' that are part of the roof and what the main board is supported by. Googling the part numbers just shows a recovering kit which is only foam backing and covering. However one source has a second-hand the rear section, and another not only removes the main board from one of his cars, but also the side and front sections which are indeed little more than sticky vinyl. Terry installs the main and rear sections, planning to fit the front and sides later, although really these should have been fitted before any of the glass as the edges go under the rubbers. When I see the car again later on I realise these were never removed, but by this time Terry has attempted to stick the second-hand ones on top, which isn't very successful. Speaking of Enjoying MG Terry joined the MGOC a while back when he started buying parts, and although he receives the magazine each month of course it is inaccessible to him. A lot of the content is online, but presented in Flash format which Terry's computer 'screen reader' can't cope with. I contact Richard Monk at the MGOC who very kindly agrees to send Terry the PDF file that is used to create the Flash site, which Terry can 'read' using his standard software.

By now (March 2010 or so) the car is basically 'finished' so when he can get a driver they take it out, but occasions and distances are unfortunately few, although his drivers - all new to MGBs - all seem to love the experience. By June it has only covered about 30 miles on local roads, but Terry is keen to bring it up to show me so we fix a date. As the date gets closer nerves set in, and Terry can't decide which is worse - admitting he chickened out and cancelling the trip or admit it had broken down and had to be towed home. So he bites the bullet and makes the trip, and travels up to see me and another pal in the area, about 340 miles here and back with no problems!

Terry started this project with the intention of selling the car when finished, and still plans to, but in the meantime he was so impressed with the sound of my V8 when I visited him he has bought one himself, this time a rubber bumper like mine and in the same colour and only a couple of hundred cars distant, but at least this is a runner in all respects and a 'keeper'. Not only that he has bought himself another abandoned restoration, an early roadster that has had nearly all the welding done but is going to need a lot of work. It could be said that you don't have to be mad to want a 30 or 40 year old classic but it helps, and I think Terry has demonstrated that he is madder than most!

Terry's 67 Roadster

These are just a few of the 199 pictures the body man took during his work on the car.

As received it didn't look too bad, the external panels seemed sound and had been primed, although a long time previously as rust spots were coming through.

But underneath it was a horror story, with bodges and serious rot in a lot of places, and significant surface rusting. It looked like it had been abandoned outside for very many years.

So began a long job of reconstruction.

After that the major job of derusting, rubbing down and flatting ...

... before finally paint could be applied and at last the job was moving forwards. Interior spaces first, engine bay got two different primers ...

... then the external body ...

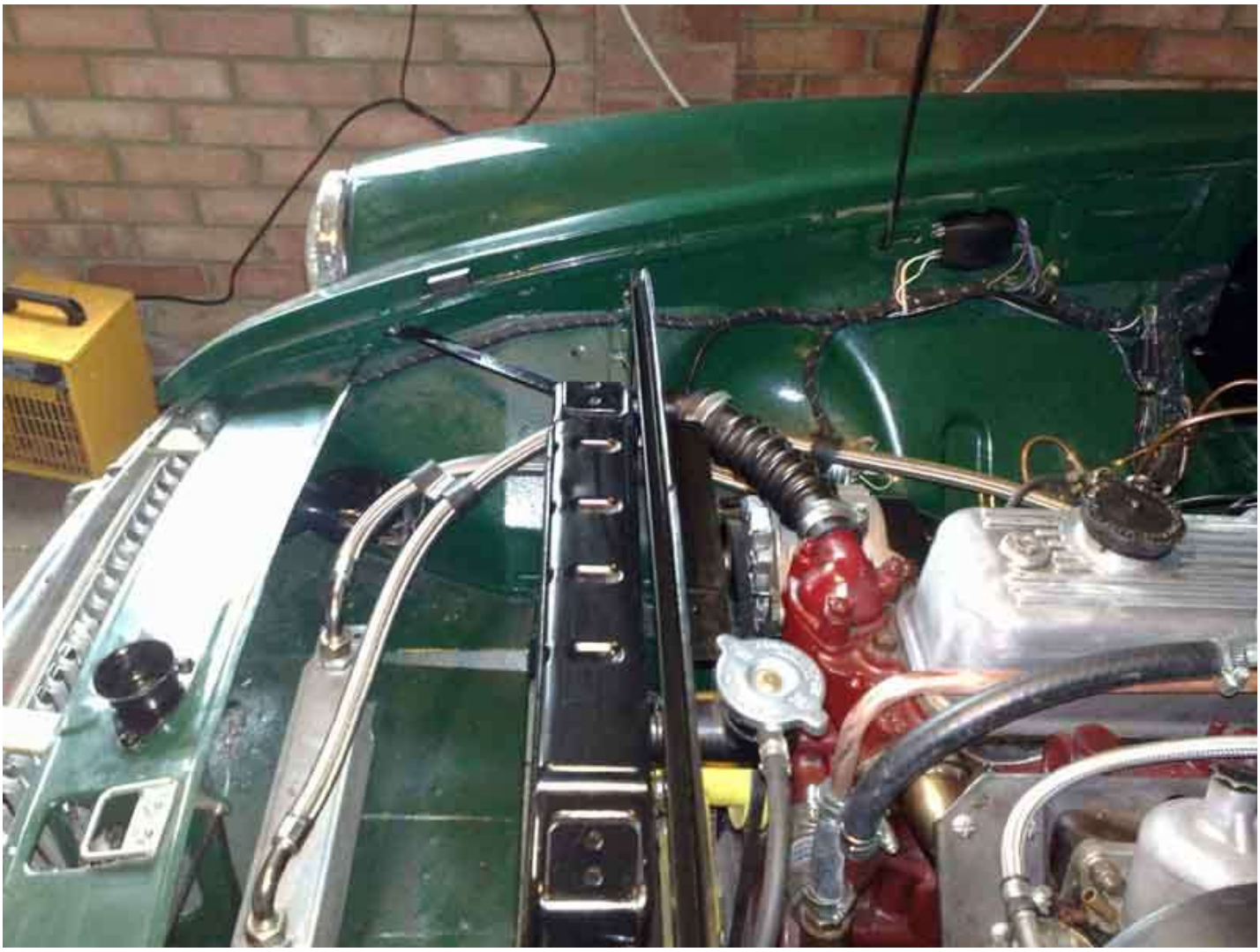
... then top-coat to internal spaces ...

... and finally the external body.

Looking resplendent in the sunshine ...

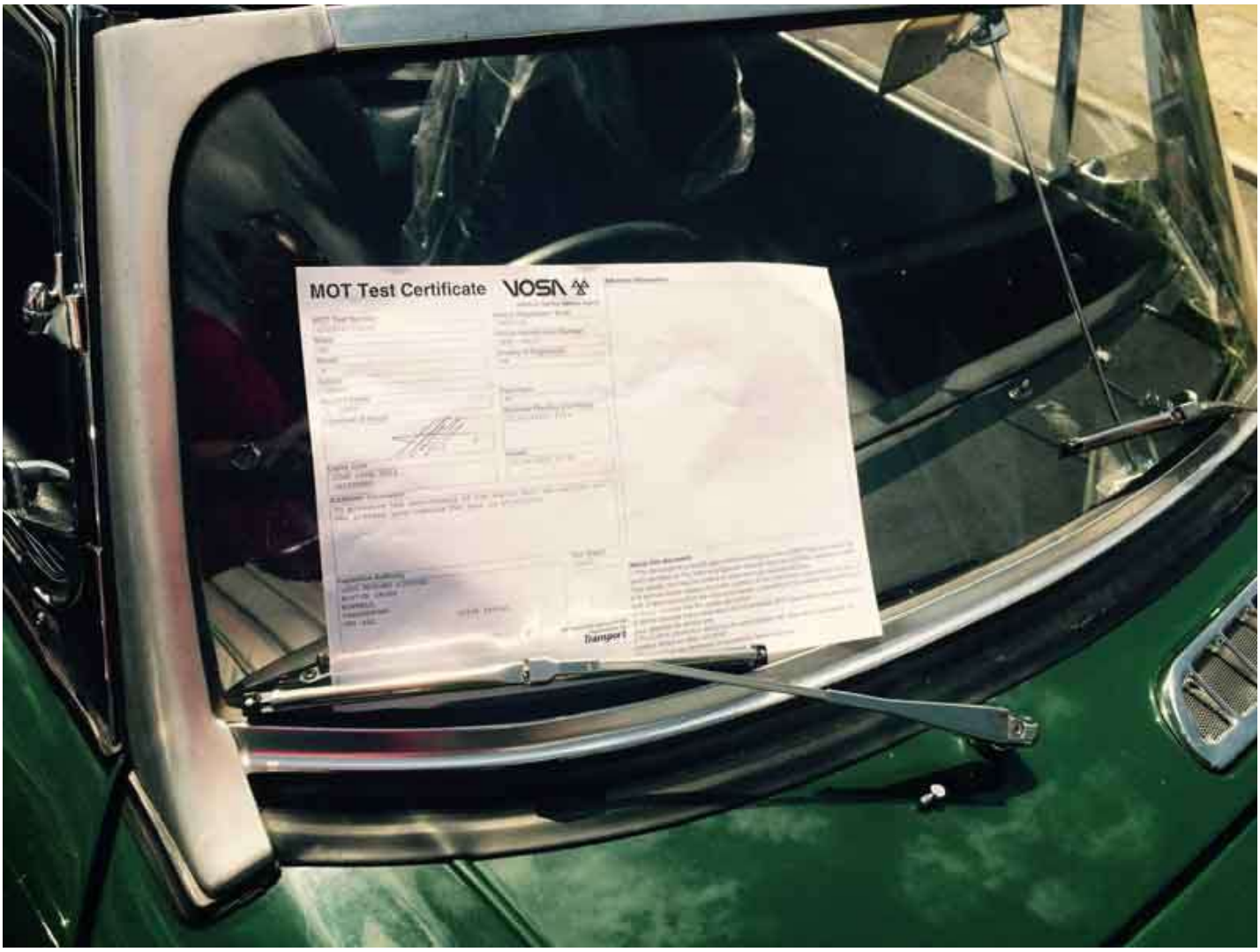
... and shipped home to Terry ready for him to start work.

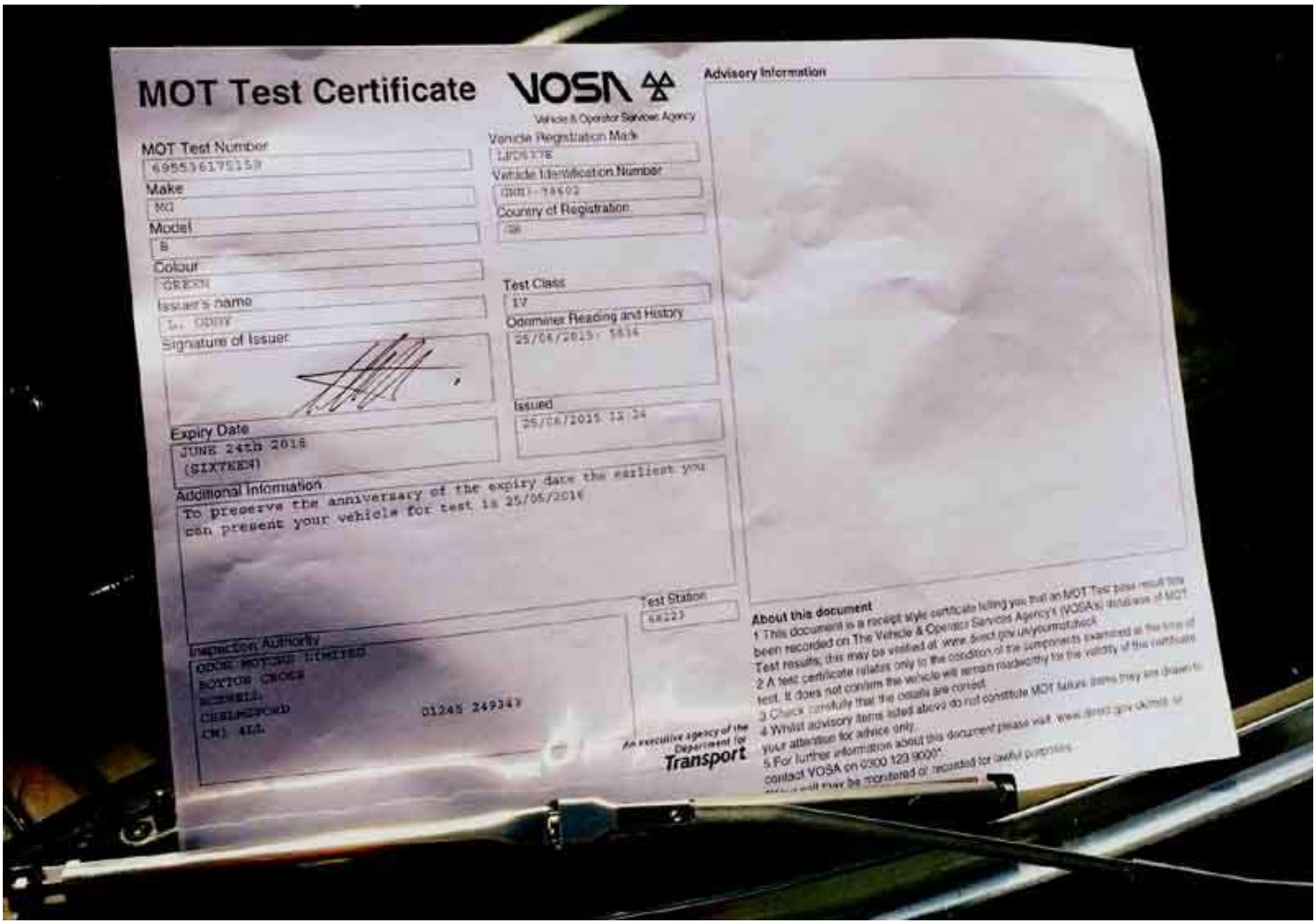
Terry then took probably more than 100 photos and videos, some to show his progress, but most to show me something he was asking a question about.




FRAGILE

All worth it in the end.


MOT Test Certificate
VOSA
Transport



MOT Test Certificate

VOSA
Vehicle & Operator Services Agency

MOT Test Number
695536175159

Vehicle Registration Mark
LRD6378

Vehicle Identification Number
GHD1-98602

Country of Registration
GB

Make
MG

Model
B

Colour
GREEN

Test Class
IV

Issuer's name
Mr. ODDY

Odometer Reading and History
25/06/2015 5614

Signature of Issuer

Issued
25/06/2015 12:24

Expiry Date
JUNE 24th 2016
(SIXTEEN)

Additional Information
To preserve the anniversary of the expiry date the earliest you can present your vehicle for test is 25/06/2016

Test Station
68223

Inspection Authority
ODDS MOTORS LIMITED
MOTOR CROSS
SCHWELL
CHELMSFORD
CM1 4LL
01245 249343

An executive agency of the Department for Transport

Advisory Information

About this document
1 This document is a receipt style certificate telling you that an MOT Test base result has been recorded on The Vehicle & Operator Services Agency's (VOSA's) database of MOT Test results; this may be verified at www.direct.gov.uk/yourmotcheck
2 A test certificate relates only to the condition of the components examined at the time of test. It does not confirm the vehicle will remain roadworthy for the validity of the certificate
3 Check carefully that the details are correct.
4 Whilst advisory items listed above do not constitute MOT failure items they are drawn to your attention for advice only.
5 For further information about this document please visit www.direct.gov.uk/mot or contact VOSA on 0300 123 9000*.
*Calls will may be monitored or recorded for lawful purposes.

Vee's Repaint and Engine Rebuild

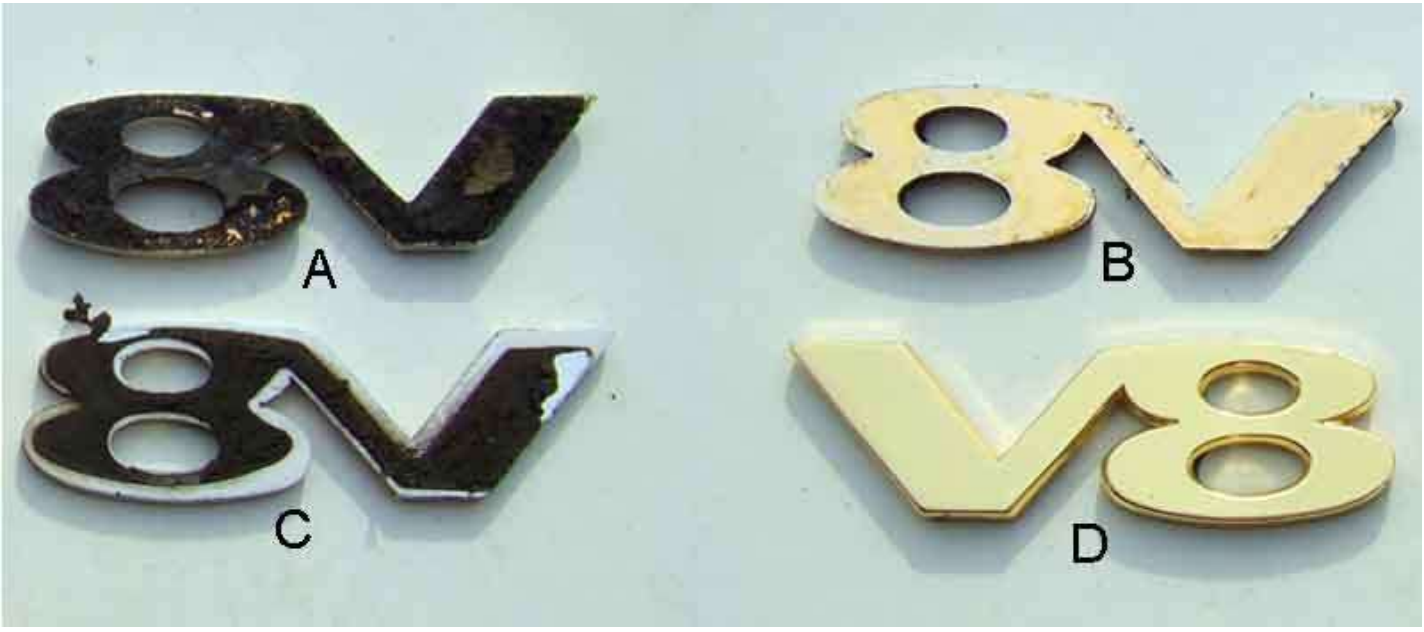
September 2016 - November 2017

October November December January 2017 February March April May June July August September November

23rd September 2016: Before delivery I decided to remove most of the external trim, taking careful measurements and pictures of the V8 and BL badging which are stuck on, the 'MG BGT' badge being on pegs. A 'garotte' of thin wire made short work of getting the stuck badges off, without any damage to badge or panel - ironic given that the badges are to be replaced and the panel painted.

Forgot the mud flaps, ran out of time for wipers and washers and heater intake.

All Vee's badges were 'silver' when she came to me, although with a September 1975 build date she is eligible for the 50th Anniversary 'gold' badging. However the passenger wing and tailgate 'V8' badges are gold on the back, which is strange. She also had V8 and BL badging on the drivers wing, which isn't original, and that V8 was silver on the back. I wondered if that was because it was a replacement wing with holes for pegged badges, but they were stuck on. It's a slightly different shape to the other two, indicating it was a subsequent addition, so a bit strange. 'A' is an 'original' badge with the adhesive still on. 'B' is the other original with the adhesive cleaned off - quite clearly gold on the back. 'C' is the extra and non-standard badge from the drivers wing - quite clearly 'silver' on the back. 'D' is one of two new gold badges I have ready for fitting, obtained from different sources at different times, and with different 'shades' of gold. It has been said that with one on the back and the other on the wing no one will ever notice ... As I need to get front bumper 'MG' and tailgate 'MG BGT' badges in gold, I may get another V8 and hope it matches with one of the others.



The tailgate 'V8' badges were originally curved in two planes, whereas the wing badges are flat. Tailgate at the top, wing at the bottom. Only the flat badges are available now, but being alloy are relatively easy to curve along their length, at least.

Another oddity is the 'Spocks ears' at the top of the C-panels. According to Clausager these were only fitted from March 76 when the body plant decided to stop lead-loading the seams. Vee has them, although she was built in May 75. I'd taken the 'ears' off many years ago to repaint them, and I would have sworn on a stack of bibles that there was a visible seam underneath. Imagine my surprise when on removing them this time there was no visible seam! Who would go to the bother of retro-fitting them? However there does appear to be a join in the paint at the upper edge of one of them at least, so maybe it was done as a partial repaint. Or maybe being close to the changeover point C-posts arrived with peg holes, and no-one told the body man not to lead load them. That's if they are lead-loaded, and not fillered. If the roof only was repainted at some point, it needs stripping to bare metal again as there are a number of small rust spots. As an aside there is a visible line around the windscreen rubber showing the scuttle was repainted with the screen in.

C-panel to roof seams are lead-loading and not fillered ...

... but the rear panel seams are visible, and in the positions they were while lead-loading was being carried out. It's not a replacement panel as the body-man says it is all original. I've decided to do-away with the 'Spocks ears' as they were never made in gold and they won't match the rest of the badging ... or will I?

A similar situation applies to a small chromed trim piece at the top of GT A-pillars covering the join to the roof - AHH7828 and AHH7829. Clausager says they finished (ho ho) at Feb 68 chassis 141237, "as the join here is now solder finished". More likely lead-loaded? Until March 76? Vee doesn't have those but seemingly (ho ... perhaps not) should, but that's far more likely to have been removed for painting and not bothered refitting if not lost.

No going back, how will it all turn out, I wonder ...

Week 1:

Engine out ...

... with gearbox ...

... after removing all this ...

... to leave an empty engine bay. Pondering how much to remove from here to tidy-up the bay.

Clutch nearly down to the rivets on the flywheel side after over 100k ...

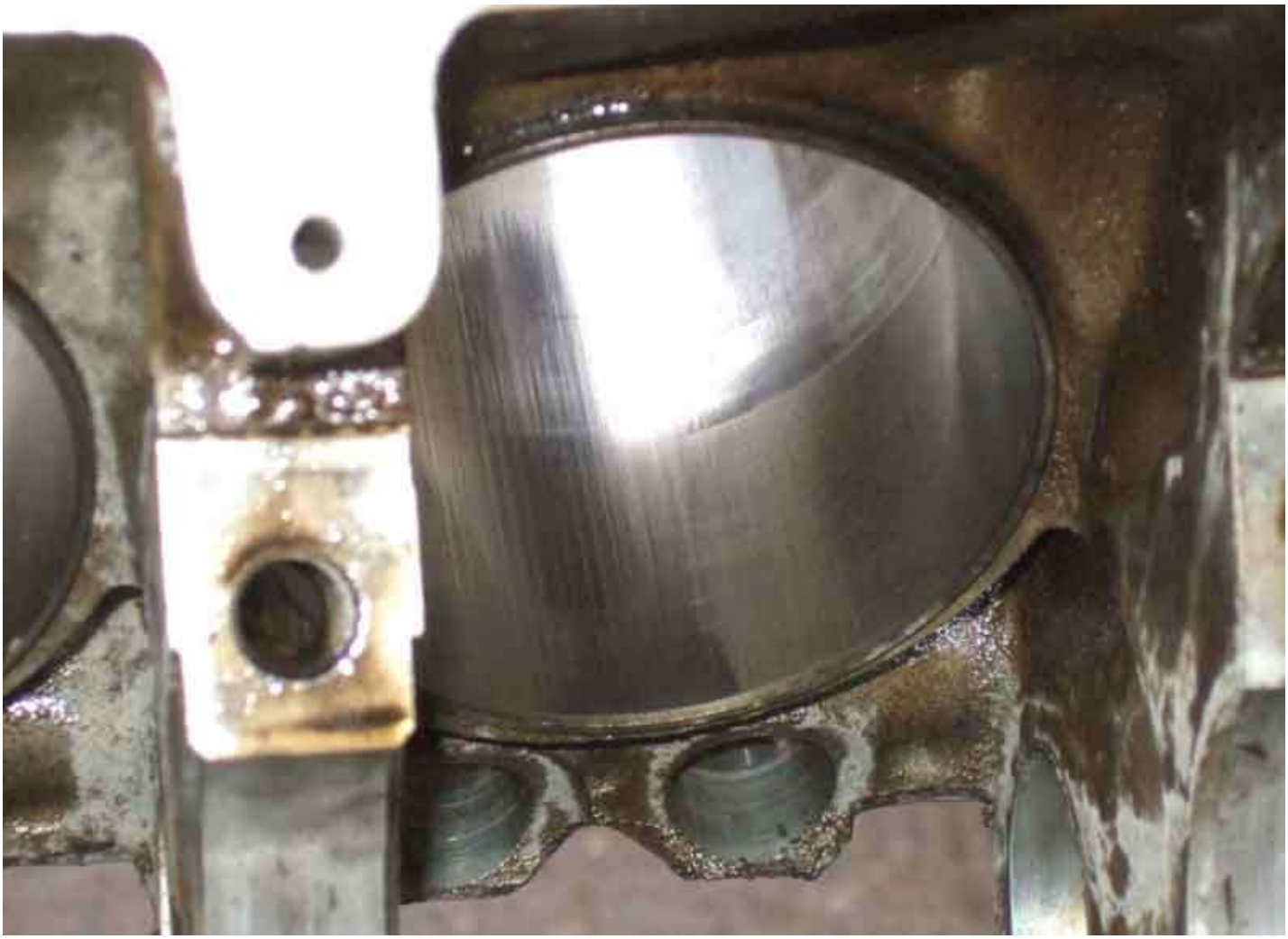
... a bit more meat on the pressure-plate side, but an odd mark in the middle of the friction material. Oil? There had been no sign of oil anywhere else on the clutch or bellhousing. Whatever it is, I wonder if it has been causing the clutch-drag after not being used for a bit.

However the flywheel will still need a skim.

The source of the bubbling over the OS rear arch is two sections having been let-in in the past but rotted through again, probably inadequate rust-proofing after fitting. The rest of the wing is good enough to cut out those patches and replace them.

Very clean internals, a tribute to 3k oil and filter changes.

But after that it is all bad news with bad scuffing from piston-slap, worse on the left-hand side which ISN'T the side that had the con-rods round the wrong way for 100k. Pistons were plus 20s so a past rebore, although the crank wasn't reground. Also the pistons were biased with a thrust-face and stamped 'FRONT' on top at the edge, something I'd not noticed in the past as I'd left a ring of carbon. Nothing in the WSM about biased pistons, and another set of standards I have are not. Could it be the biasing that has caused the piston-slap?



Even worse was this lump of gravel found in the crankshaft oil gallery! Fortunately too large to pass through the oil hole in the shell to the journal, and seemingly irregular enough to allow enough oil flow to occur and not damage anything.

You need all this plus the block and ancillaries just to suck, squeeze, bang and blow.

This is the block I'll be using, as mine is already at plus 20. You can get plus 40 pistons, but it leaves the liners pretty thin, and I'm wondering if it is a rogue block anyway having needed +20 in its first 100k, without a crank regrind (which will be done this time).

Front stripped ...

NS wing removed that I crumpled ...

... A little bit of rot in the top of the (previously replaced) trumpet section, duly cut out and replaced.

I stripped the doors and removed the side windows and trim.

Sunroof removed - a joint effort as we pondered how it had been installed ...

... showing the headlining is little more than compressed orange fluff with a sheet of card and vinyl underneath.

Front ...

... and rear screens, and much of the internal trim removed, not much more stripping to go.

I'd caught the Special Tuning valance twice in the past putting two bad cracks in it ...

... and have selected the red one to replace it. Talking to others it's apparent that these (STR 0189 air dam) make a huge difference to cooling, as well as reducing drag and lift.

Week 2 - October:

Replacement wing fitted

No rot in the lower corners of the front screen aperture, just light rust, which gets a scrape and treatment.

After pondering I decided to completely strip the front and sides of the engine bay as trying to clean/paint round this lot would be a pain. Incidentally the shiny plate below the fusebox is stainless steel fitted after patching up the inner wing which had rotted through due to a combination of impact from the tubular manifolds and heat, using a convenient pair of already tapped holes, for who knows what. The other side suffered nowhere near as much, although I may stick heat insulation both sides after painting - if I can find any!

So out came the oil filter, hoses and cooler, the horns and the harness, bonnet latch and safety catch, and the commission and chassis number tags.

Then everything off the sides back to the pedal-box ...

... as well as the coil and expansion tank on the other side. All the fasteners came undone with the exception of the O/S horn bracket screws which had to be drilled out. You have to be careful with the studs on the expansion strap as they are welded to the strap and it is easy to buckle that, but they were no problem. The rear of the bay will have to stay as it is, apart from the washer bottle and pump it's a lot of work to remove servo, pedal box and heater, and really that area is only mucky so cleanable with a little brush, no rust from leaking hydraulic fluid.

Next day the panels were cleaned, de-rusted, primed, and the chassis rails painted. The panels just above the engine mounts were also dressed back a bit to give more clearance for the tubular manifolds, which had been hitting them despite a 5mm spacer albeit only on the drivers side. I made a second spacer for the passenger side to increase clearance even more.

Heads stripped, cleaned and rebuilt. These heads are from Perry Stephenson, having stripped two plug threads on the originals. I'll probably get those rethreaded with Wurth Time-Sert inserts.

The iceberg principle lives. When they started cutting back the outer wing was worse that it looked from the outside, so needs most of a half-panel. Fortunately the front third is sound which saves much fettling of a replacement panel to the door opening and sill as well as the rear light plinth. Obviously not treated following previous replacement, it'll get done this time, as well as the other side.

At home I derusted and treated the front grille, radiator struts, bonnet latch cup and harness clips. I'd left the bonnet safety catch bar at the workshop, so that and the screws and bolts will done another time.

Primed, then finished in satin black ...

... and body colour.

Given the mess on the outer panel I'm surprised this is all there is on the arch, but is shows how the very narrow gap between the two panels build up crud and rot both panels, the same as the sill cover panels.

The repair panel even has the crease :o)

Week 3:

Rear wing repair fully fitted. Subsequently the body man was very uncomplimentary about it and had to do a lot of reworking to get good panel alignment.

What started off as a pinhole by the OS headlight ended up as a patch a couple of inches square

Invisible mending.

A couple more at the lower corner ...

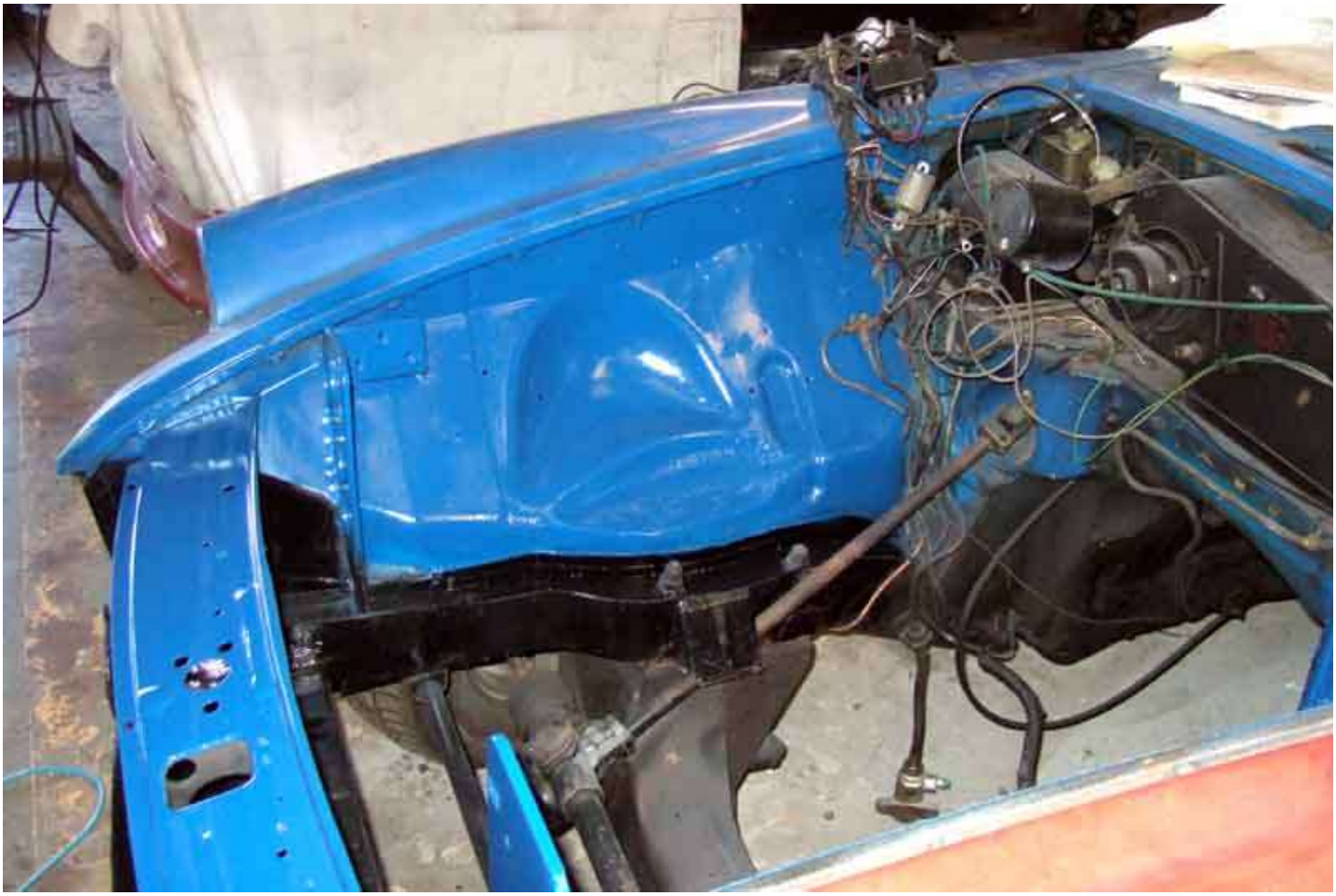
... but a smaller patch required.

Chassis rails and apron were black when I got it, so they can stay the same. Slam-panel and radiator mounting panels to be derusted and feathered-in, then the engine compartment can be painted.

On this visit I brought the bumpers back home, to get them out of their way as much as anything but also for cleaning and polishing, to join the seats I had previously brought back together with other miscellaneous parts for painting. The seats are to be recovered, but I shan't do that until I have Vee back home again, when I will also refit the bulk of the trim. I'm not planning to replace anything other than the seat covers initially, all the other stuff is in reasonable nick, and I prefer it to be 'showing its age' rather than pristine as it is for driving, not showing. The boxes do contain some new bits, but mainly fasteners, plus new oil hoses and an engine steady bar. Both inner wings were showing dents from the tubular exhaust manifolds, and although I've had them dressed back a bit I decided to fit a bar as well.

Week 4:

Slam-panel and engine bay painted.



Rear half of the roof stripped back to metal. The paint was cracking and beginning to form scabs where cracks joined when I had the car 22 years ago. I'd treated the scabs which stayed sound, but others had been forming very slowly. When I had the roadster painted he advised me to go back to bare metal, because with multiple repaints the underlying layers can crack as each layer above it progressively shrinks. Certainly paint does shrink over time, on the scabs I'd painted I left them level but after a while they were visibly recessed, and it looked like that is what had happened here.

Radiator, expansion tank, bonnet prop and number-plate assembly brought back for cleaning and painting, the engine has gone to the machine shop. That's it for visits now I think, until the engine comes back, then while it is being rebuilt I shall replace everything in the engine bay. I've also decided to keep Spock's ears. In theory it shouldn't have them, but it seems completely mad for someone to go to the trouble of retro-fitting them, and even though the C-post seams have been lead-loaded the rear panel seams haven't, so it may well have come out of the factory with them.

Stripping the rear number-plate (needs a new backing plate like the front) I was annoyed to break a stud on one of the light units, which are otherwise in as-new condition. Still, a bit of thought and 'engineering' and I was able to replace it.

A bit of cleaning and painting makes a world of difference:

Hammerite Special Metals primer, I think the strap is anodised, so although it looked really rusty it cleaned up very easily.

Satin black over the primer, needed several coats to cover the red primer. Grey is recommended but probably wouldn't stick to the brass as well as the Special Metals does. There is a rubber strip under the strap, and two more glued to the back.

Other tasks have been the bonnet stay, similarly anodised and looking like the expansion tank strap, but cleaned up well. Settled for clear-coat on these, rather than silver.

Also the radiator, which only needed a bit of rubbing down, then Special Metals primer (brass tanks) and satin black

Turtle Black Chrome brought the bumpers up fairly well. But where the sun had been beating down it had left a roughened texture that remained, compared to a smoother surface with more of a shine on the lower parts you can't normally see. So tried black shoe polish on the flat parts under the rear light units, which made a difference, so applied that to the whole bumper.

November, December and January nothing doing at all.

February: Since October no progress at all apart from regular promises of 'next week' for the engine from one of the two people involved - the office man. I had no contact details for the other person - the spanner man, and speaking to the people in the next-door unit there had been virtually no activity during December and January, by all accounts due to major domestic issues for the office man and illness of the spanner man. In February I sent the office man an ultimatum saying unless the engine was back that week ready for my inspection and reassembly I'd have to make other arrangements. Quite by chance next day I rang the unit next door to be told that the bailiffs were in changing the locks! Dashed round, to find two other owners there trying to find out what was happening ... and no car! The bailiff allowed me a quick look round and as far as I could tell everything else was still there. Some different cars in there from my last visit, so something has been happening in the meantime. Again by chance one of the other owners had contact details for the spanner man. There was a flurry of texts back and fore, apparently the car was at the paint shop. I went round there, and now they are doing a more comprehensive job to my instructions, they had only picked up the car two days earlier. Next day the spanner man said he is sorting the money problems out, is being allowed to finish all his in-progress work, and the office man is no longer involved, all confirmed by the bailiff. Still need the engine parts back though ...

Vee at the paint shop

Doors and tailgate to be removed, to paint the backs and the openings

I'm now pondering stripping the rest of the stuff out of the engine bay!

Bonnet and air dam in the back, it's amazing what you can get in these cars.

Rear valance to be replaced - at least that was the plan following a visual inspection, but on attacking it with a needle gun de-scaler only two small sections near the bumper mounting holes need to be patched.

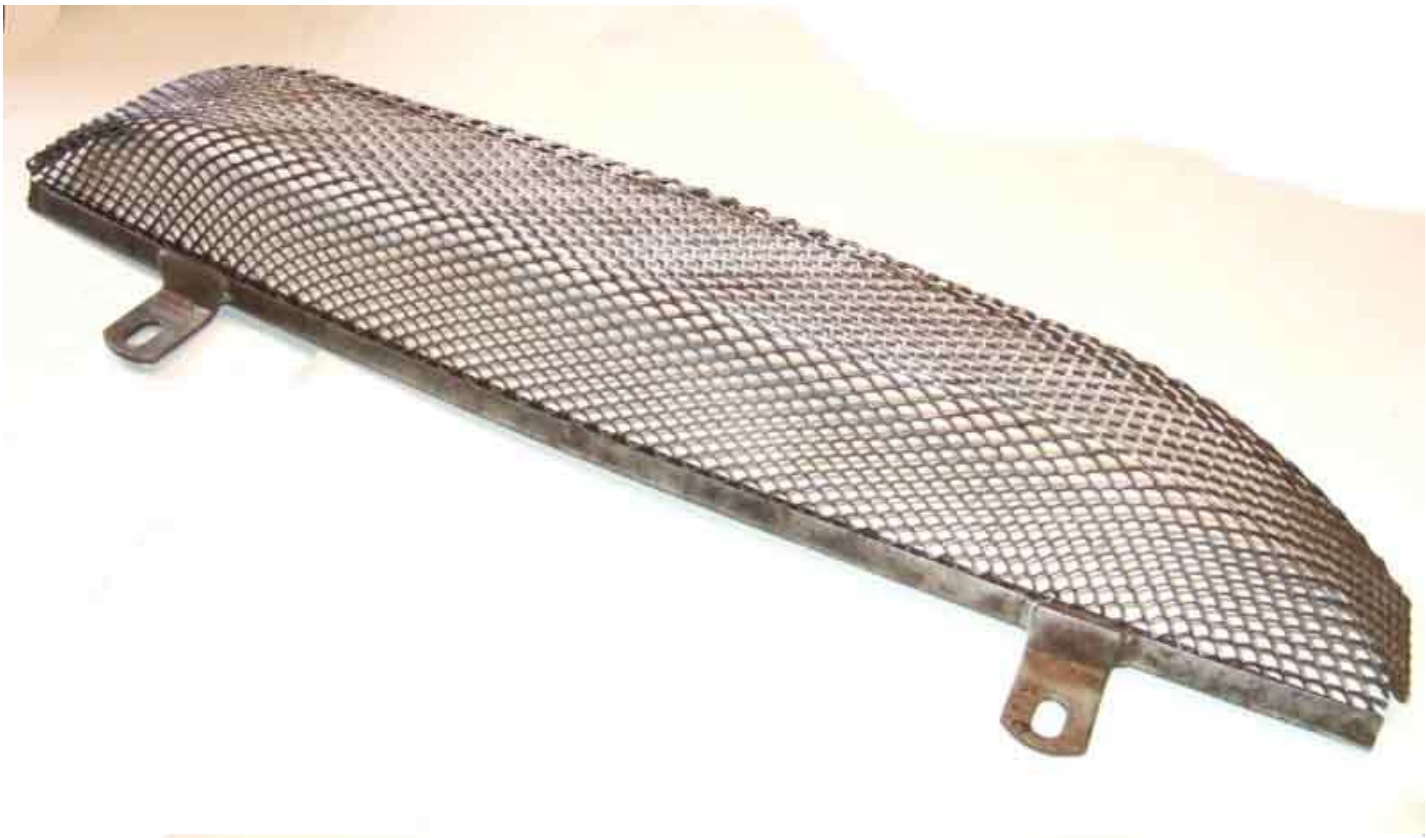
A gap has opened up between the 'new' wing and the panel at the base of the screen, so that will have to be removed and refitted.

Wing removed again for refitting - correctly this time.

Comprehensively Waxoyled at some time in the past, painter said "That's why the body is so good". It was Waxoyled before my time, but even after 22 years, if summer sun is shining direct on the tailgate for any length of time, Waxoyl drips out of the latch aperture.

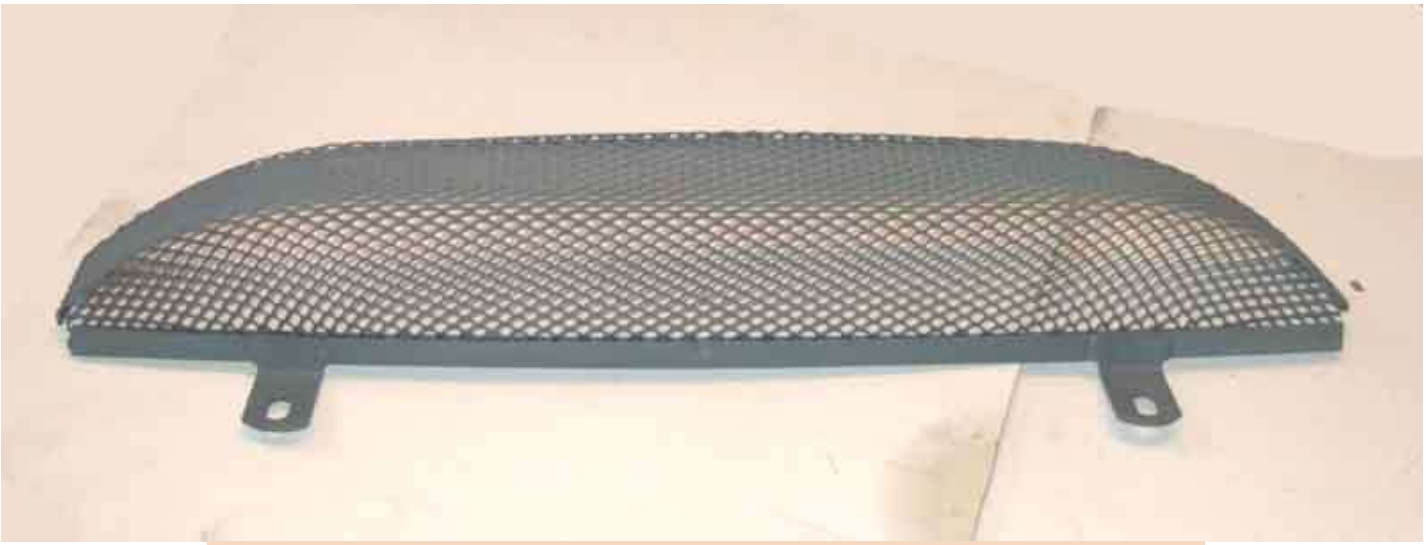
Trim parts back home, plus front and rear screens. The block and crank were back at the workshop - but hadn't been machined because they had never supplied new pistons to the machiner! In four months! You couldn't make it up.

Fan guard stripped back. I thought this was going to be a pain, but with a cup brush running in line with the 'channels' that are formed by the expanding process, it all came off easily.



By contrast the smooth surface of the pedal cover took quite a bit longer to do.

Primed



I have decided to strip the bulkhead and do a proper job on the engine bay. But first I checked I could get at and loosen all the fixings before I started in earnest. Ironically the pedal cover screws, which I had have off before, were the only ones I couldn't immediately shift, plus a harness screw under the heater motor. Fortunately the rear outer pedal cover screw i.e. the one that could only be removed by drilling out using a bit with a hex shank in a couple of 1/4" drive extensions - had not been refitted the previous time, I suspect because I couldn't clear the hole. The rear inboard screw - together with the harness screw - came undone with a battery impact gun but the others just stripped the slots. The front inboard came undone with Mole grips, but I couldn't get a purchase on the front outboard so had to resort to hammer and chisel. That lifted the head a little more, then a combination of pipe and Mole grips got it out.

All the servo and screen-washer bottle holder fasteners (one nut under the bulkhead in the cabin) were fine, which left the heater. All the screws came out OK, but would it move or was it glued in by a decomposing rubber block!? A tentative lever with a large screwdriver under the flange on the servo side and it moved, then levering it a bit more there was a sound of something coming unstuck and then it moved easily!

The three pedal frame screws into the bulkhead shelf were fine, but for some reason the top two go through from the cabin side into welded nuts on the frame - and the heads of those are well concealed by harness, steering column support structure, and sundry other bits and pieces. I could get at the outboard one with a double 3/8" wobble extension, but the only thing that would fit the inboard one was a ratchet ring spanner - but the swing was so restricted it would only move about three clicks at a time! But by removing the voltage stabiliser and two of my relays, plus the indicator flasher and its clip, I got about 15 degrees of swing, but it still required a lot of patience. I can only get finger tips to them, so refitting is likely to be problematic, so I'm pondering putting Riv-nuts in the bulkhead from the engine compartment, and using bolts through the pedal frame. Perhaps the risk of the harness chafing on the ends of the bolts is why they weren't done that way originally, so I will have to bear that in mind.

My next visit was to remove it all, which meant draining the fluids first to stop it going every where with pipes disconnected, then get the water bottle box out of the way. I couldn't initially get the pipe from the brake master to the servo undone, nor the one from the servo to the manifold on the inner wing, but the other two came undone OK (only the rear and the OS front split off here, the NS front comes off a Tee at the servo). The pipe down to the clutch slave hose bracket also came undone easily. I didn't want to undo the banjos on the back of the master at this point, which meant removing the pedal-box, servo, brake and clutch pipework as a unit! I took the pedal pivot hardware off, so the pedals would come out of the hole in the bulkhead ... once I had remembered to remove the pedal return springs! Wrapped tape round all of the pipe ends to stop dirt and paint getting in. Might as well remove the clutch slave and it's hose as well.

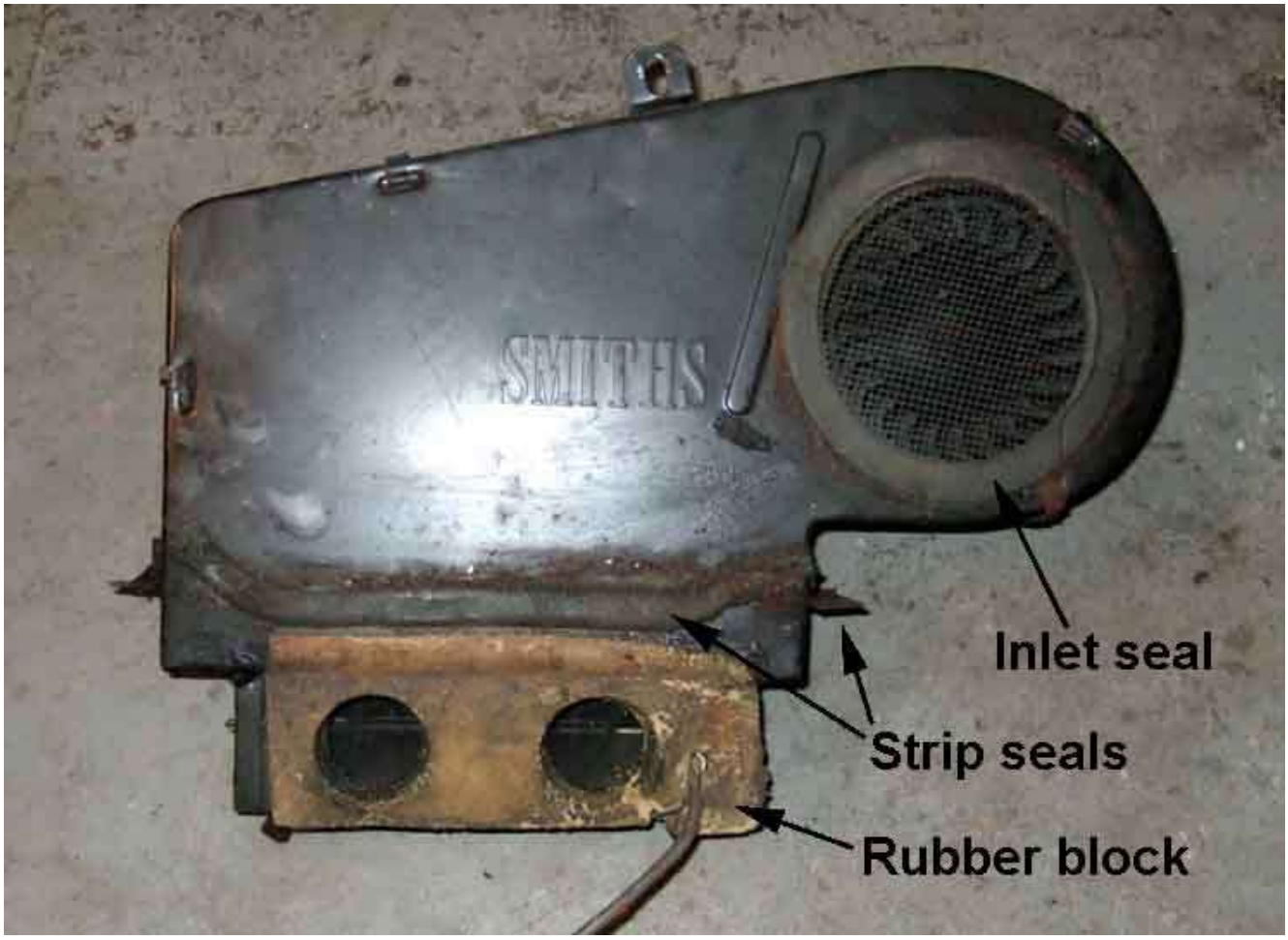
That left the heater, but first I removed the air direction control from the dash and disconnected the cable from it, so I could remove the cable with the heater unit. Then unscrewed the demister support pipe clips from the cabin side of the bulkhead, and pulled them back out of the rubber block. After that, as it seemed loose with all the screws removed, I just went for it and pulling and wiggling and easing the top forwards to clear the panel at the base of the screen, it lifted out very easily. Being able to stand in the engine compartment was a great help.

Next was to disconnect the battery cable from the toe-board stud, so I could remove the brown wires, and pull that tail of the main harness up out of the way. The V8 has this extra connection point, the cables don't go direct to the solenoid as on the 4-cylinder. A bit of the fiddle as the rubber boot over the battery cable lug and fixing nut had gone rock-hard and had to be cut off. Then pull the rear harness (already disconnected from the main harness) down and out of the way. Remove the fuel filter and its mounting clip. Finally pull back the choke cable, temp gauge capillary, heat control cable and screen washer pipe back into the cabin, pull out the large master-cylinder access bungs, and tuck the bonnet release cable into the cavity in the NS inner wing. And the bulkhead is clear! The painter can work round the main harness and the steering rack.

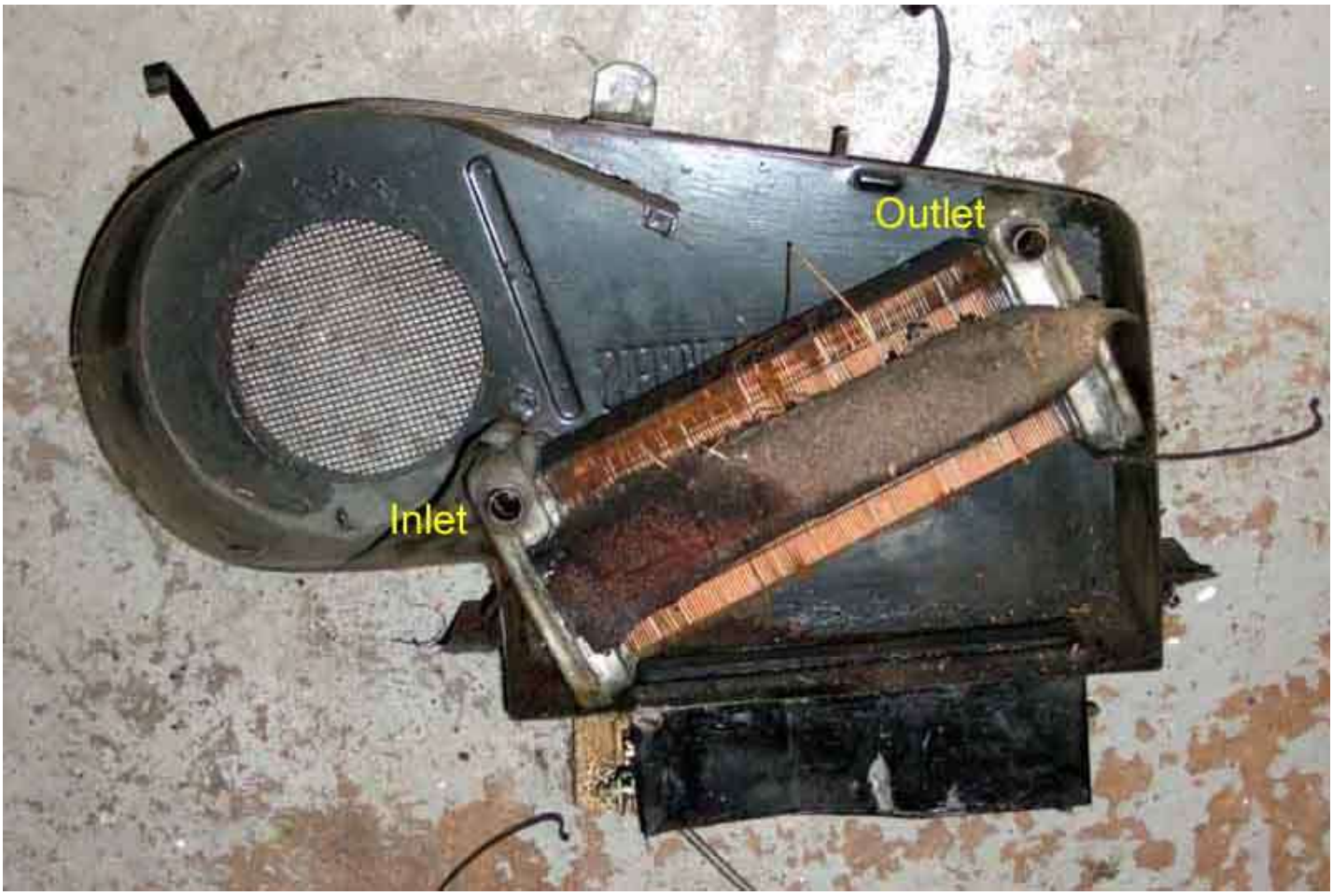
The heater aperture, showing the slot to the left which makes removing and fitting the heater with the air-direction cable already attached much easier, and the ends of the demister corrugated tubes. These just push into the rubber block, no plastic tubes connecting direct to the heater ports as originally.

All the bulkhead hardware back home ready for cleaning, painting etc.

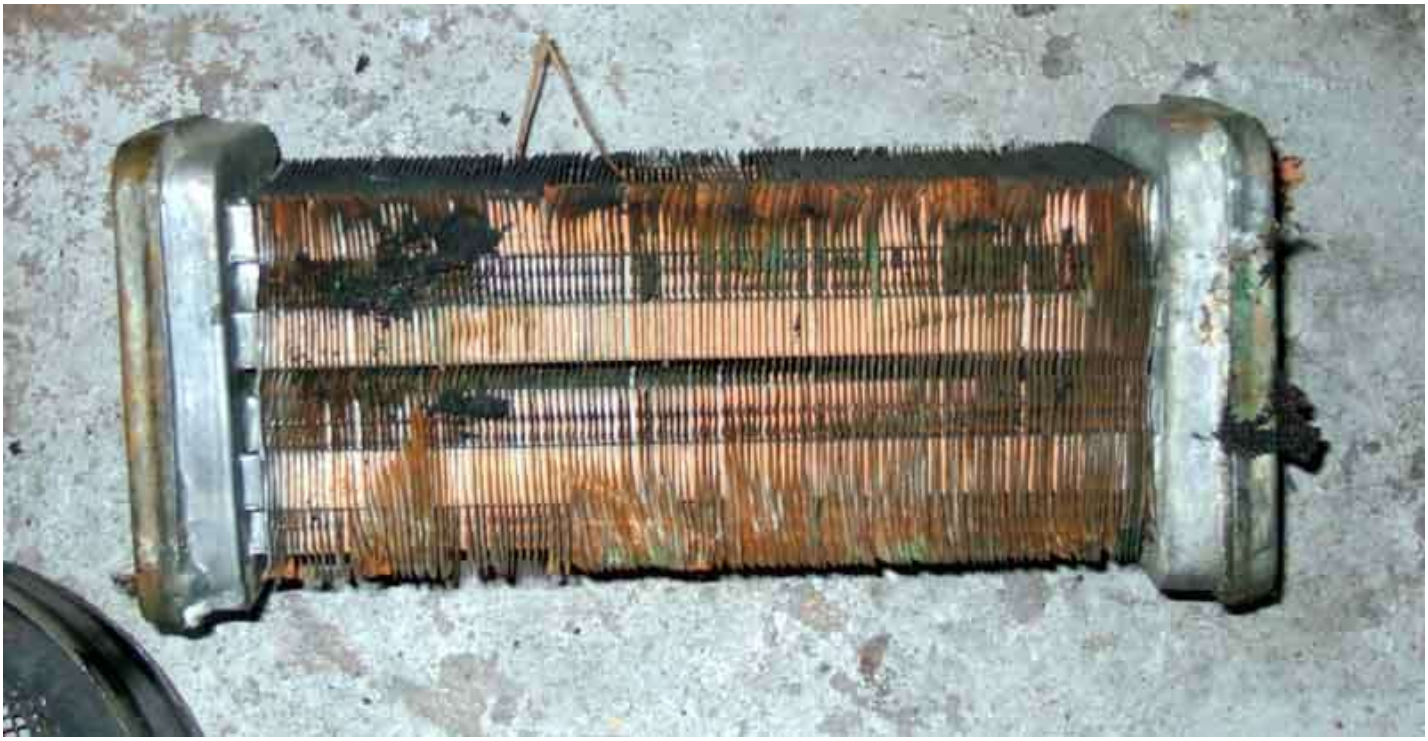
The hidden side of the heater, with the rubber block at the bottom, and the air-direction cable to the right.



Heater cover removed, manky foam on top of the matrix ...



... and no foam at all on the other side ...



... just lying in the bottom. This means that a significant amount of air would have been able to bypass the matrix, reducing its output. I'm not surprised, in the past I've noticed little bits of old foam blowing out of the vents from time to time, and it's never been as effective as Bee's heater.

Back of the cover

Bottom of the heater, rubber block upper-most, with the felt/foam strips coming unstuck from the flap and the surround - more reduction in performance. No less than six strips on the flap and in the channel up to 1/4" thick, seems overkill. Stranded inner on the flap, which as it has to push as well as pull (no spring return) seems strange. However given the routing it takes - out of the bulkhead then across behind the dash to the control, it is more flexible. This is manky at the flap end, with a couple of broken strands, so I'll replace it with stuff I've had for years. That's thicker, but it does go through the inner and the trunnions, and will be stronger but still flexible.

Next visit was with a pal in his BMW estate to remove everything else from the workshop i.e. dismantled engine, gearbox, and all their ancillaries. The painter said we can store the gearbox there so that went round first. Then we went through a two-page parts list ticking off everything I could see that should be there from the parts catalogue, workshop manual, photos, and anything else I could think of. They were all there, but all the nuts, screws, washers and bolts were in one of two small boxes so too many to trial fit there and then,

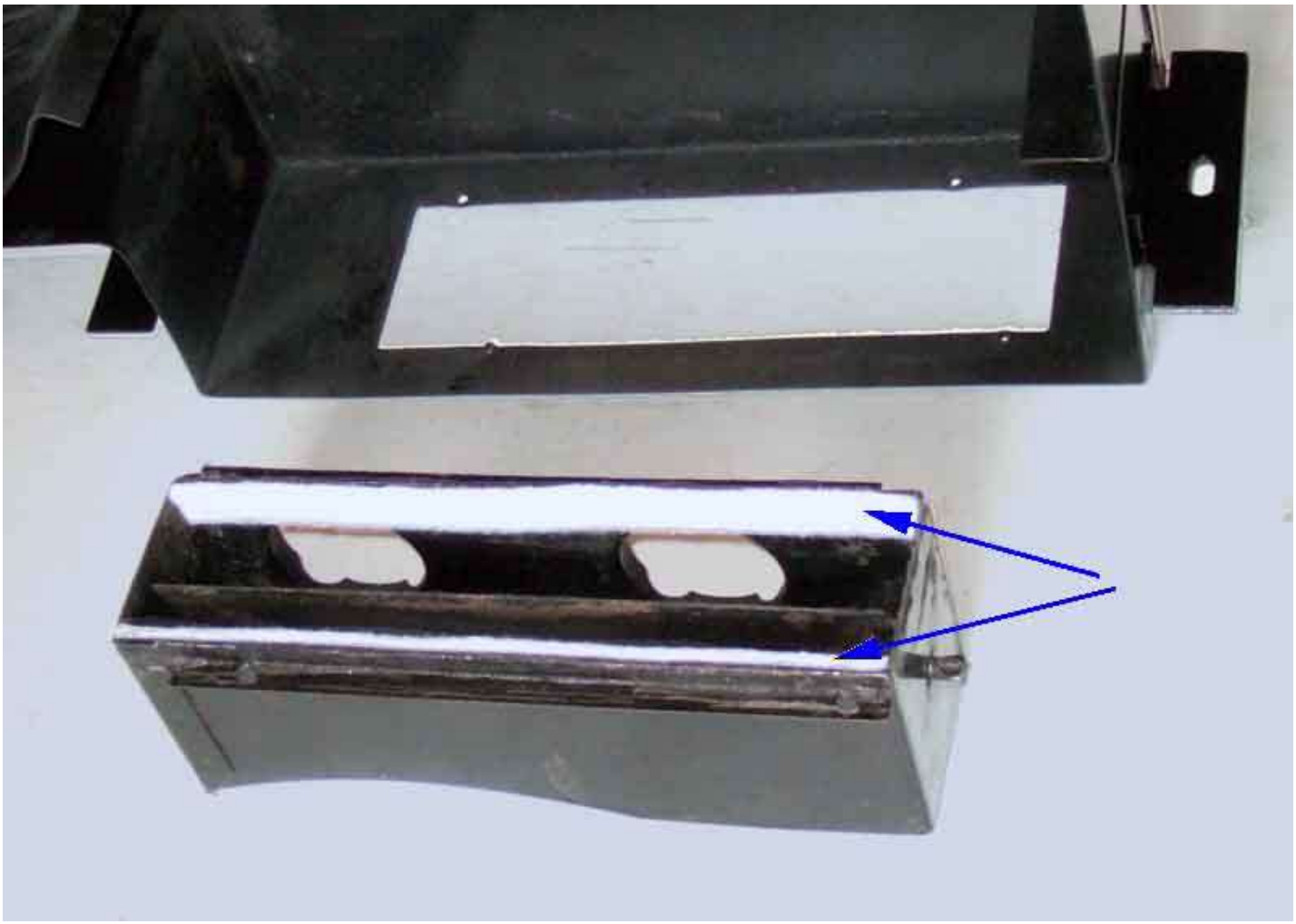
something to be done before it goes to the machiner. Last thing was the exhaust - in a single length. Fortunately the paint shop is only a few hundred yards from the workshop so I walked it over while pal with everything else drove round to meet me. Then back home, and unload into the garage.

Plenty of scope there for cleaning and painting! Next week it's over to the machine shop with the block and crank for him to have a look at, and get an estimate of costs.

But first a dry-fit of all the parts that will go to the machiner for him to assemble, to check all the fasteners are present. (The plenum, carbs, airbox and filters are as a unit so dropped onto the inlet manifold for a bit of fun.)

The heater casing is in quite good condition, but a rough (to the touch) area on the top proved to be very slight rusting under the paint, so the case and cover gets rubbed down to clean metal, two coats of zinc primer and two of satin black to-coat. I decide to pressure-test the matrix. In the past I'd made a Tee with a Schrader valve to insert in the small remote header tank hose to pressure-test a pals late-model system, so wrapped duct-tape round that to build up the size to fit a length of hose that would fit in the matrix spigots, and used one of the rocker-cover breather hoses on the other matrix spigot. Used my foot pump to build up some pressure to prove it was air-tight, then poured water into the matrix to a level just above the tops of the spigots, then pressurised it to 20psi. Left it overnight, still some pressure left next morning, but more importantly no water on the vinyl-topped workbench, so the matrix is fine.

The section that contains the air-direction flap is screwed to the bottom of the main case, so can be removed making cleaning and replacing the felt easier. Originally there seemed to be strips stuck to both sides of the top and bottom of the air channel, plus two or three stuck to the movable flap as well, i.e. about seven altogether. I used 3mm felt from a hobby-shop and felt (ho ho) that four pieces stuck to the channel top and bottom and both sides was thick enough to form a seal with the moveable flap at either of its extremities of movement.

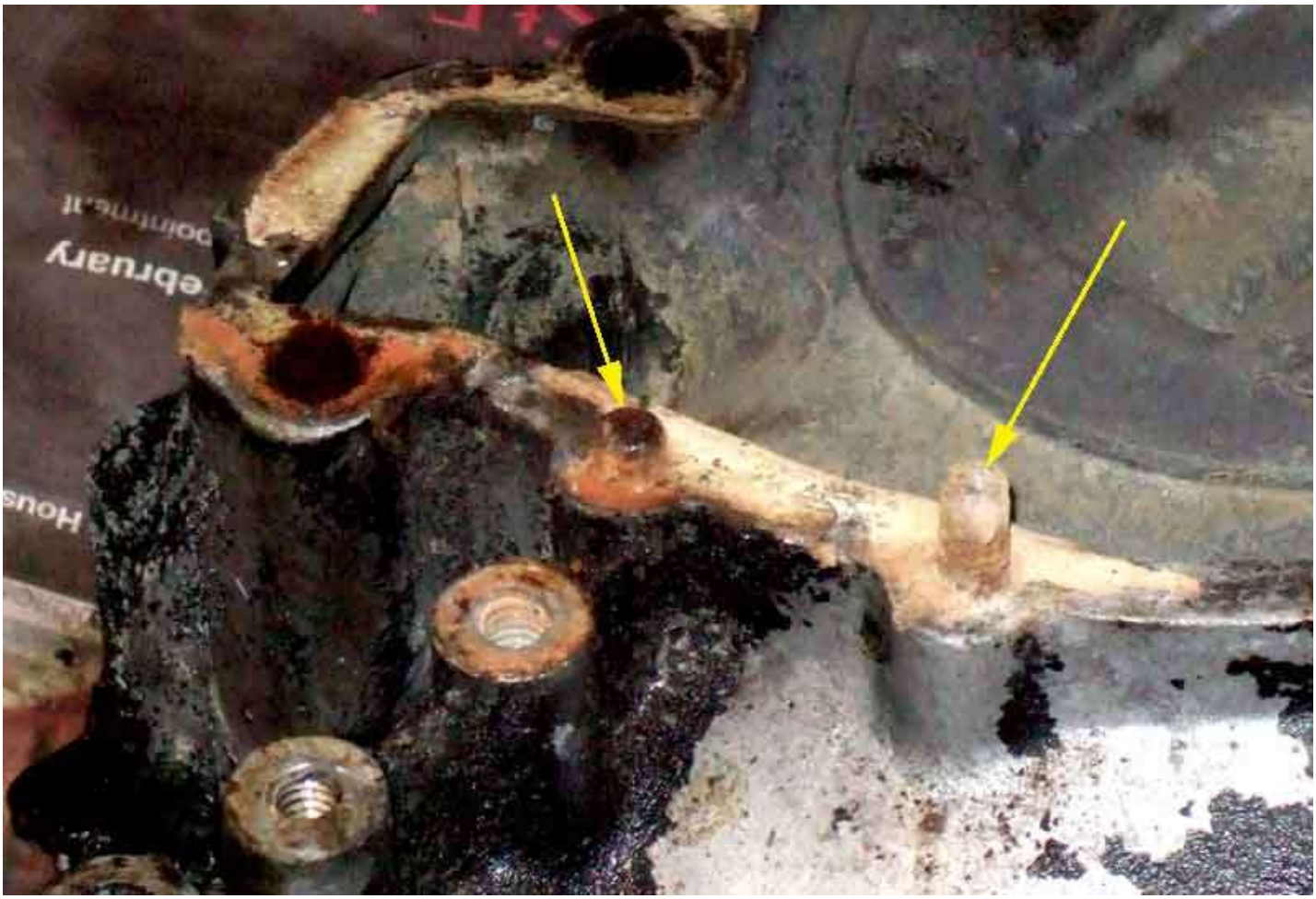


By this time I'd finished painting the case and cover so screwed the air-direction section back and put the matrix in with its new foam seal. With hindsight the right hand end would have been better near the bottom of the matrix, so it was wedged between it and the case, like the other end is at the top. But it already had to be stretched to fit over the matrix, so that would have stretched it more.

A new one on me, and very fortuitously mentioned by Ray Longsheds during a discussion about steering wheels, were these matrix port grommets (7H1993). Not on either Bee or Vee, and not in my Parts Catalogue. Seemingly stocked by all the usual suspects, but only listed for the MGA by MGOC. They finish it off nicely.

Other painting has been two satin-black top-coats on the pedal cover and fan guard, plus derusting and two coats of Hammerite satin black on the pedal frame, water bottle box, servo brackets, and rear cross-member.

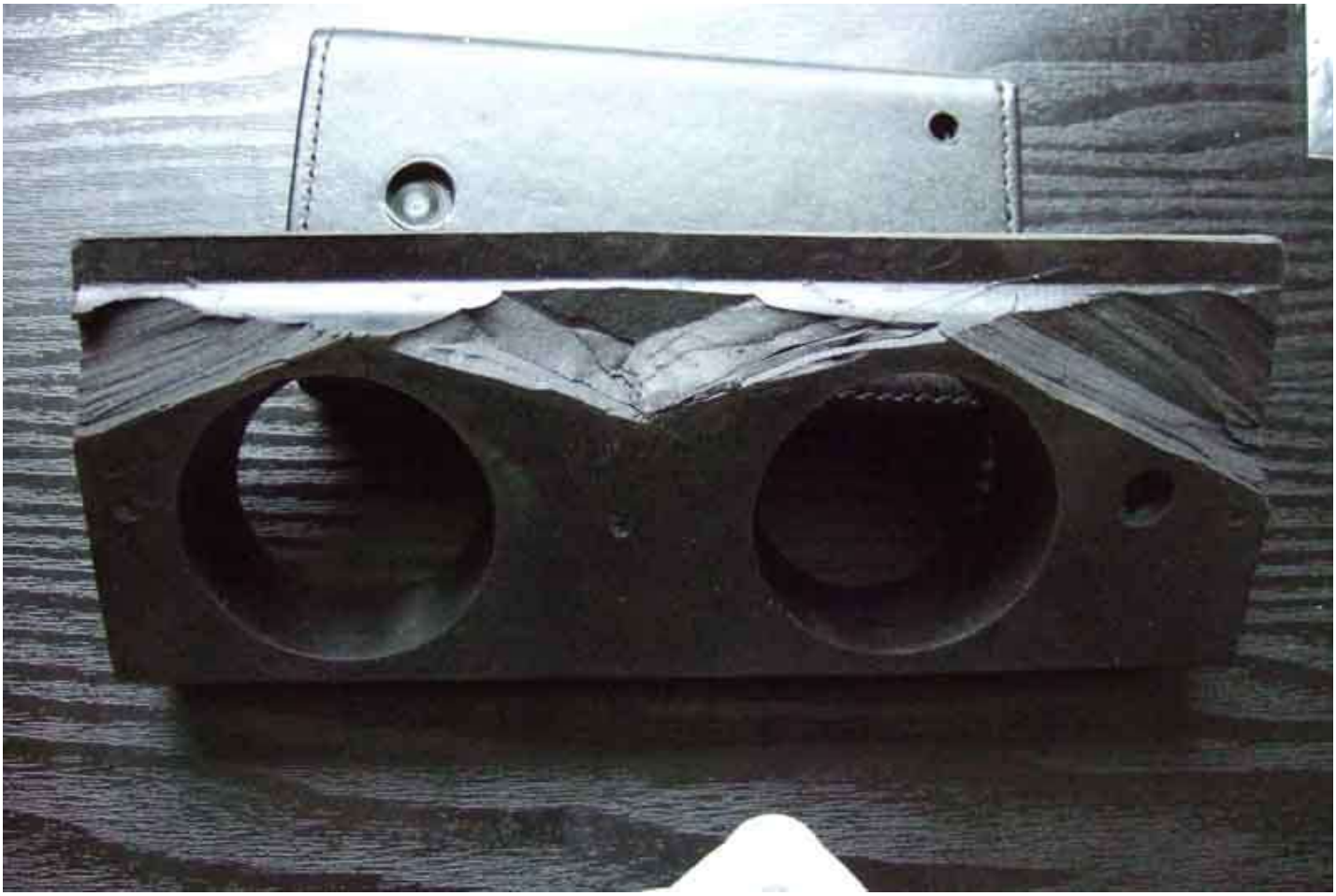
I've been puzzling over the water-pump bolts. The books say 5 1/4" bolts, but I only found four, and the fifth hole (at the top) was 5/16", so I came to the conclusion that one had stripped and been drilled and tapped to 5/16". But then while dealing with the alternator and its mountings I realised the 5/16" is for the end of the adjuster bar, which still left a missing 1/4" bolt hole. Then looking at the front cover I thought "Why would they put two dowels next to each other?" And of course they haven't, one of them (arrowed on the right) is a sheared bolt! So along with a new water pump, there'll be a new front cover (because of other issues as well as this). And because that has deeper oil pump gears I'll need new gears as well. The 12-point oil-pump cover screws were a bit of a pain. I don't know what the size is supposed to be but an 8mm socket was a better fit than a 5/16", but still a little loose. I bought a 9/32" but that was nowhere near going on. Three of the screws came out with the 8mm, but for the others I had to drill the heads - one off completely, the other two the heat and vibration from drilling meant they undid with grips.



March: Stripped the old bonnet sound-deadening as it has shrunk and was very ratty, after measuring the positions of the cut-outs for the carbs and the rad. These will have to be cut in the new insulation as there are no pre-cut pieces for the V8, not even for 77 and later 4-cylinder cars with the radiator in the V8 position. I questioned the need for the cut-out for the radiator, especially whether it needs to be a large rectangle, as the filler plug is the highest part by a good 1/2" so only a small circular cut-out would be needed - if that. In the event, with rad and bonnet fitted, there is still 1/8" clearance between the top of the plug and the underside of the uncut insulation.

If it moves, lubricate it. If it doesn't, paint it. Everything that is going to be painted, painted.

The heater block - modified to reduce how much has to be compressed to get it into the recess in the bulkhead, without reducing the holes the demister pipes push into.



Almost ready for priming, final masking-off to do

Engine bay already primed

First primer and guide-coat ready for flatting.

One side flatted, about 3 very minor imperfections to be filled.

As part of the preparations for reassembly I have been checking I had all the fasteners, obtaining replacements for those that the original people had lost, and making sure they fitted. I could not get new nuts on the propshaft bolts in the gearbox flange, jamming after about a quarter-turn, both Chris (he does mechanical restoration as well as body) and I felt that the bolt size or thread was wrong. In response to enquiries no one was aware of any oddities with these - which should be 3/8" UNF, and Roger Parker at the MGOC confirmed that the special bolts and the nuts that they have did fit each other, so in the worst scenario I could replace the bolts as well, but at £20 for a set! I would also have to remove the flange from the output shaft to replace them. However a pal had a 3/8" UNF die, which ran down the threads with relatively little

force, and after than the nut went on easily. The die fetched out a lot of gunge, so that's all it was - gunge in the bolt threads preventing a new nut going on. The interesting bit is that as I went to put the die on the first bolt while it was still in the flange, I noticed a flat below it on the OD casing ... which allows the bolts to be removed! One lives and learns.

April: Final primer - two coats of sky-blue which should suit the Tahiti Blue top-coat better, ready for flatting and top-coat.

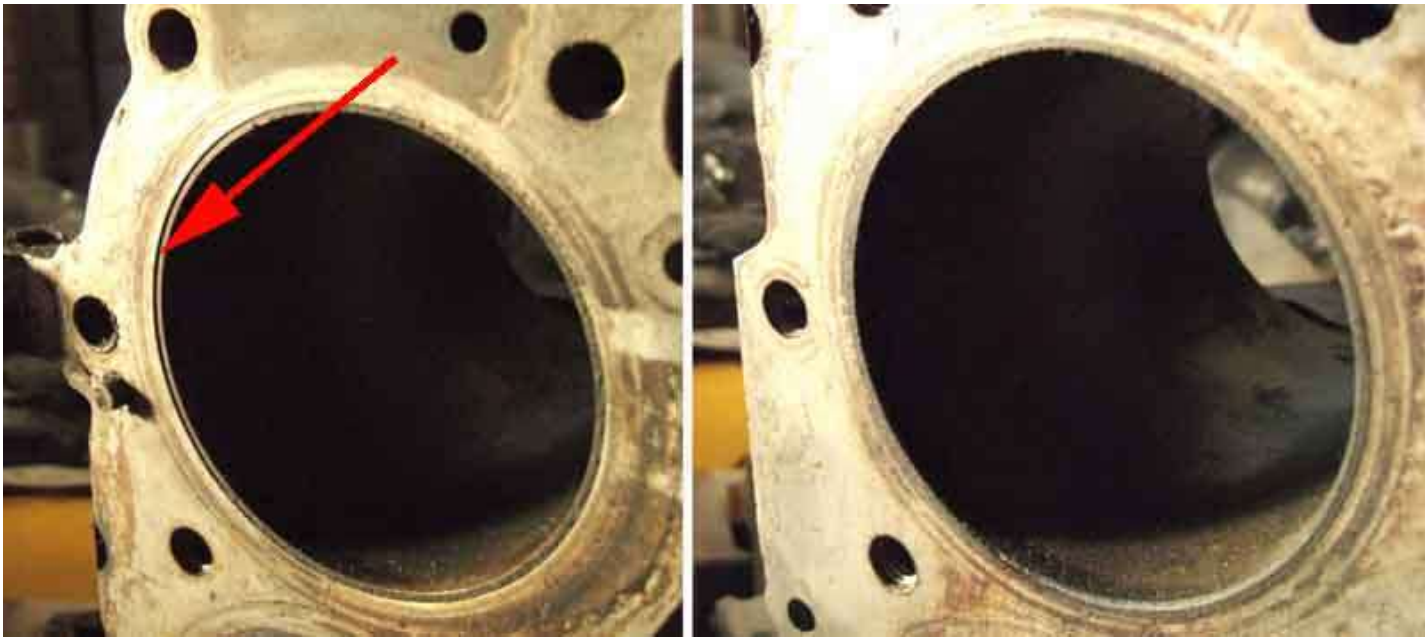
Tailgate is on a rack in the main workshop

Next step is to top-coat the engine bay, then I can fit that out, ready for the engine and gearbox to be reinstalled.

A moments panic over the engine as the machiner said the main bearing caps were the wrong ones for the new block. They are installed to a newly-cast block, then line-bored to take the shells, to make sure they are all exactly in line. Fit the wrong caps, or get them in the wrong positions, or the wrong way round, and it can lock the crankshaft. The machiner needs the right caps to mount it on his boring machine, to make sure the rebore is exactly in line with the crank in both fore/aft and side to side directions. Having had both my old

engine complete and the new block and its caps in my possession at one point, and shipping the new ones off to the engine man, I thought I had been careful to keep the right ones with each block. However, after supplying the 'other' set, the engine man said they were the right ones - phew! Because the replacement block and caps were new to me I couldn't be sure they matched, and had they also been wrong I would have been without an engine.

He also had a look at the old block and said it was no good as the liners were slipping, and indeed you can see that it has for No.1 cylinder on the left here, all the others are flush, as with No.3 on the right. Lit from the left clearly shows the recession:



The noise has certainly been coming from the front, less easy to decide which side, and it seemed to be coming from both top and bottom. It certainly wasn't like that when I had the heads off over 10 years ago as I was looking for it. Nor was there a gap to the 'lip' at the bottom when I had the sump off a few years later. And more recently when I had both the sump off and one of the heads it was the other head. But of course, it would be typical of the Law of Sod that when looking at the top it would be up, and when looking at the bottom on another occasion it would be down.

Engine-bay painted - it's very blue! Acrylic 2k in there as it is more hard-wearing - four coats. Externally it will be base coat plus clear coat to give a good finish.

Wiring fed round the front and down to the toe-board stud. Hydraulics reinstalled, clutch slave hose left loose until it can be bolted to the bell-housing to get the correct alignment.

Fuel filter, screen washer box fitted and bonnet release fed round to the front. Heater is waiting for grommets for the ports, only belatedly discovered these as neither Vee nor Bee has had them.

Heater installed ...

Wiring etc., oil gauge pipe and heat insulation ...

... attached to the inner wings.

Oil filter, pipes and cooler, cooling fans, horns etc. still to install at the front of the engine bay but I'm leaving those until after body-paint to avoid overspray.

May: Bottom-end built up ...

... cam and timing gear fitted. Waiting for front cover to arrive to fit that and the sump. Some more work on the heads then they can be fitted, then transported to the paint shop.

Backs of bonnet and tailgate painted ...

... seals fitted ...

... and backs of the doors and the air dam painted.

Bonnet insulation installed - much easier upside down than when fitted as with Bee! As well as two coats of spray adhesive on the backing I ran an additional narrow strip at the edges the edges, then when laid in place wedged strips of hardboard under the reinforcement flanges to hold the edges down while they dried.

Shut lines round bonnet, doors, windows, hatch and light mounting points painted ...

... and bagged up to keep the dust out until painted.

Original (left) and replacement (from Clive Wheatley, right) front/timing covers. No mounting points for the original timing pointer (arrowed) on the new cover, but Rimmers have a modified pointer (£45 inc P&P!) which hopefully will mount to the new cover somewhere. Deeper oil pump gears (circled) should maintain oil pressure at hot idle.

These covers also have another tapping under the distributor (arrowed, the other hole is for the distributor clamp bolt), which has to be plugged for this application - I'll be using a 3/8" x 3/4" UNC button screw. A grub screw has been mentioned but you don't want that screwing itself into the cover and hitting the timing gears. Also Clive's remanufactured water pumps have metric tappings for the pulley despite him having asked for - and got - Imperial in the past, taking an M6 x 16mm fully-threaded set screw in place of the original UNC.

Because of the delay with the engine, other projects and needing to do paying work, did mean the exterior would have to be painted prior to engine and gearbox installation - not ideal. However another project came

in which gives me another couple of weeks. Although unfortunate timing means I am away for two weeks at the end of May/beginning of June, so engine ancillaries and first run won't be until after that, I'm hoping the finished engine will be delivered to the painter ready for installation by my return.

June: More delays as the engine man had some questions about valve stem seals while I was out of the country for two weeks and had lost my mobile number. Still, that is sorted now, heads skimmed, completed engine should be at the paint shop ready to be reinstalled Tuesday next week. Note the false rainbow patterns, similar to feathers and butterfly wings this is caused by very fine grooves on the surface, so fine that they refract the light like a prism, changing the colour according to the viewing angle. Some speckling from pinking/detonation on the faces inside the combustion chamber, but nothing to worry about. New valves and guides, whilst the old exhaust valves had flat faces and these have a slight dimple which would tend to lower compression ratio, the new inlet valves have a significantly shallower recess than the old ones which will more than compensate. The effect of that, the skimming and tin-shim gaskets should be interesting ...

Doors and tailgate fitted, and bagged-up until final flatting and paint.

Tuesday came and went and it was only when I phoned to ask what was happening that he informed me there was a problem with the front cover, something about bolt holes not lining up, but as usual he gabbles away, talks in half-sentences, and ends up saying "but it's up to you". So another trip over there after a night stressing about how big the problem was, only to find that there isn't a problem at all. This modified cover has two extra lugs with bolt-holes, that have nowhere to go on this block. But they have all the original bolt-holes as well, so these can simply be left. One would think he would have had enough experience to know that, but there we are.

Flywheel machined ...

... he said it was pretty bad, and hasn't been able to machine all the surface cracking out.

But the engine is 'fully' (as fully as the engine man is going to do, leaving water pump and inlet manifold for me) built, so should be delivered Wednesday ... or is it Thursday? In any case I'm not available Friday, the paint shop isn't open weekends, and I'm unavailable again Weds, Thurs and Fri next week which only leaves Monday pm and Tuesday to get the flywheel and clutch back on, the gearbox attached, and get the lump in and on its mounts before the painter is on holiday for a week. His mate should be there so as long as the engine/gearbox is in I'll be able to carry on fitting-out, otherwise it'll have to wait until the painter gets back.

I can't find any way of mounting Rimmers modified timing pointer to indicate TDC, so have to fabricate my own. But with the old engine, front cover and water pump at home, I decide to best place to mount one is on two of the lower water pump bolts - one that goes right through the front cover and the other just into it. With the original pointer (which I had lost, but found again when it came back with various bits from the engine man this week) I was able to make a card template, and from that cut one out of sheet metal. With the pulley (which I now have back as well) in the front cover I turn that so the original pointer is over the TDC mark ...

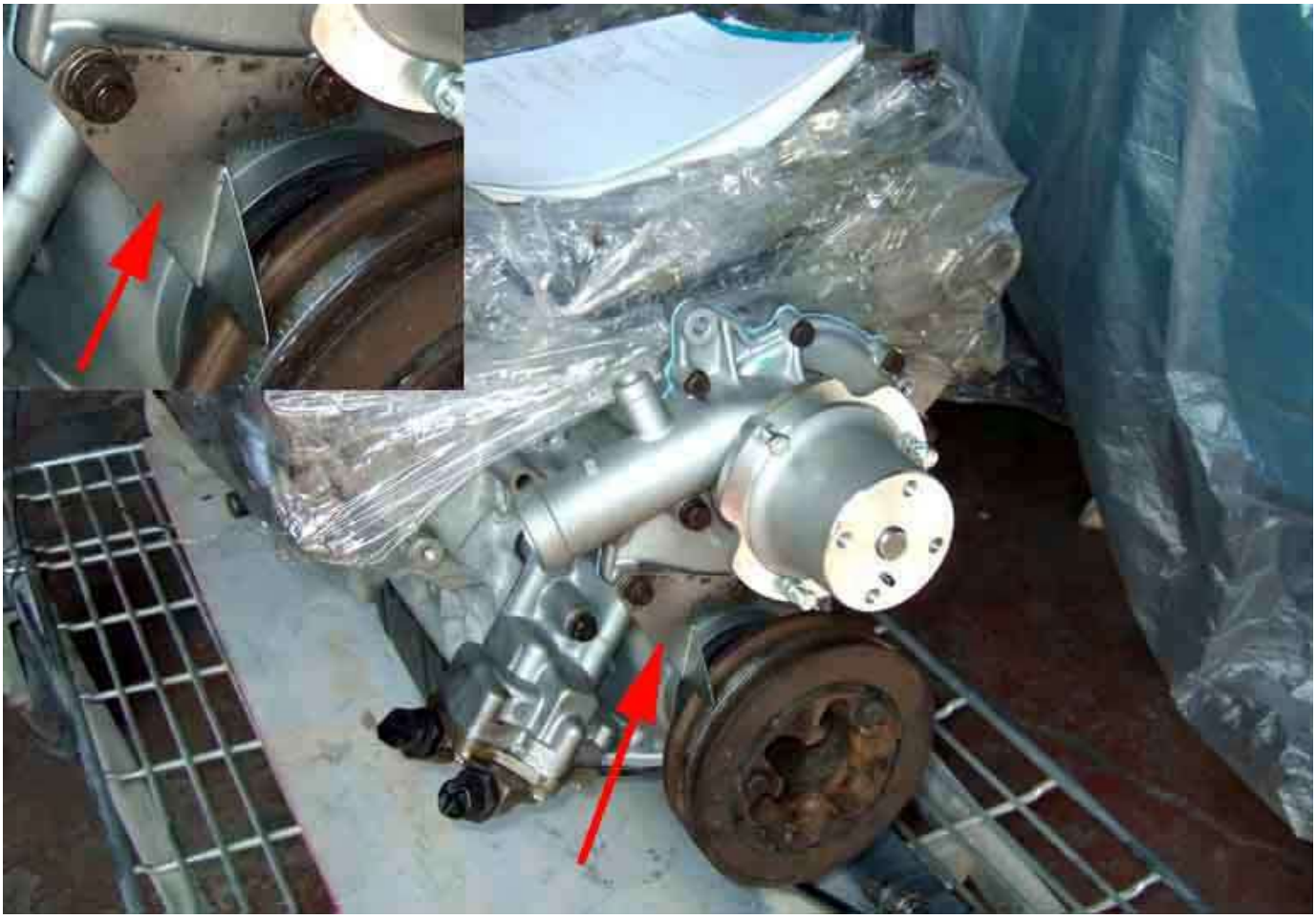
... then remove that and fit the new one, for final tweaking of bolt holes and pointer angle to be in the same position. I say 'in the same position' but here it's actually a bit less than one degree retarded, pending final tweaking once on the correct rebuilt engine. Not that the original is that accurate, it is adjustable which on the face of it may be to cope with different-sized pulleys, but from the normal viewing position it makes a significant difference to timing as well - about 7 degrees! However exact timing is less of an issue with low compression engines, and this is a 9.35 block with standard 8.25 pistons, lightly skimmed heads, and the exhaust valves being almost flat rather than dished as per the originals, so what the final comp ratio will be is anyone's guess. I'll be conservative to start with, and think about ideal timing when I know it runs as it should!

At last the engine reaches the body shop!

Flywheel fitting ...

... and clutch. I bought a smaller alignment tool as the 4-cylinder one didn't fit the spare crankshaft I had at home, Vee's being with the engine man. But it turned out to be way too small, and I hadn't taken the bigger one. Body man had a set, none the right size, but padding the next size down with tape got the friction plate approximately right, then peering into the splines with a torch and comparing the edges of those with the pilot bearing one small tweak to get it to where I thought it was right, and a trial fit proved it OK.

Water pump fitted, with my fabricated pointer.



Engine mounts fitted. Only discovered then that the upper bolt had sheared off in the block, so flush it was almost invisible. The mounts were the only things I didn't trial-fit to the block. But using the mount plate - held by the lower bolt as a guide - I drilled and retapped. Also found one of the block drain taps damaged, but I had taken a couple of spares taken from the old block and another I had and replacement only took moments, although the off-side one tripped me up later on.

Then an opportunity to experiment with the crossmember and find the best way to attach it to the angled studs on the rubber mounts, and also which-way round everything goes - there are 32 combinations, and only one is right!

Gearbox fitted and ready to install. However big problem with the release bearing - it wouldn't fit as it was a completely different design! Details here, I had to reuse the old one.

It was only after looking at these pictures I realised the engine mounting plates were on the wrong sides, despite what I thought was careful consideration beforehand. They are handed, fit either side, but make a fore and aft difference in the position of the engine by about an inch. Vee came to me with them on the wrong sides, only discovered when the sump wore through from rubbing on the front crossmember. Changing them over at that time with the engine in-situ was challenging! Next day I confirmed they were on the wrong sides, so swapped them over. You also have to be careful to get the chassis studs in the lower of the two possible positions. Getting ready for installation, rear of the car raised on the lift.

Half-way in, and we find that the legs of the ramp hit the wheels before the engine has gone in far enough. So careful co-ordination of ramp and hoist was needed to lower the car and slide the front arms under the body, then lift the whole car until the hoist legs would go under the wheels.

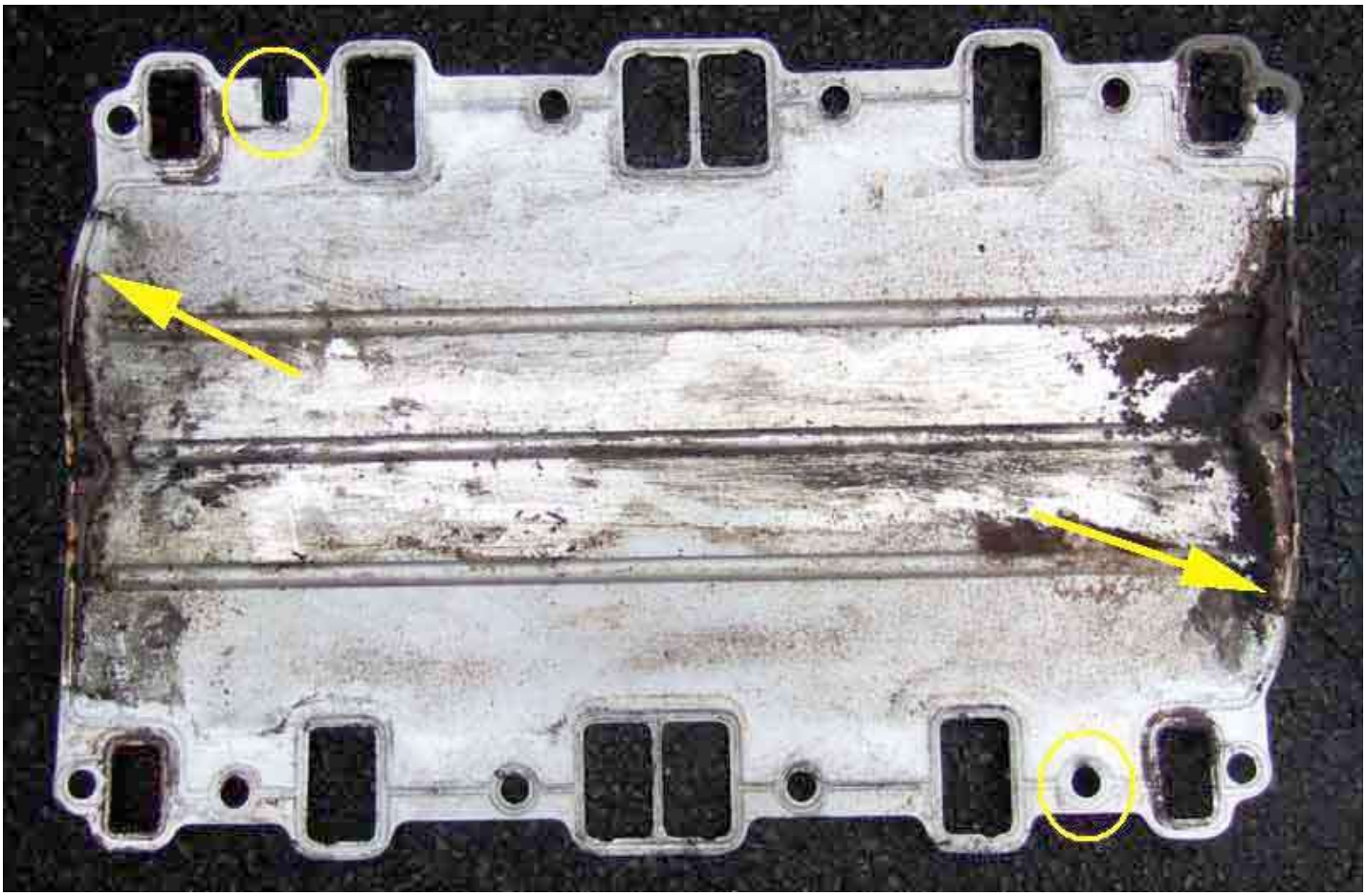
After that it was a matter of inching it down and back, raising the gearbox to get it over the fixed crossmember, and lowering it into position. A final bit of wiggling and levering drops first one, then the other, mount studs into the chassis brackets, as it's not possible to lower it straight down into both at the same time. At least one of the mounts has what looks like two factory spacer plates between the mount and the engine bracket, but on the off-side there was also a circular slotted spacer between the mount and the chassis bracket, which I replaced with a thicker one, to try and stop the exhaust manifold hitting the inner wing that

side. In hindsight it would have been better to remove the 'factory' plates, which would have brought the studs closer together and made it easier to drop into the chassis bracket slots, and fit another circular spacer afterwards. But there we are. These engine mounts are tricky, they have to be high enough so the studs don't sit in the bottom of the chassis brackets slots which would put the mounts in shear instead of compression, but not so high that you can't get the locating plates under the chassis brackets the right way round. More info on mounting bracket, mount, and locating plate orientation here.

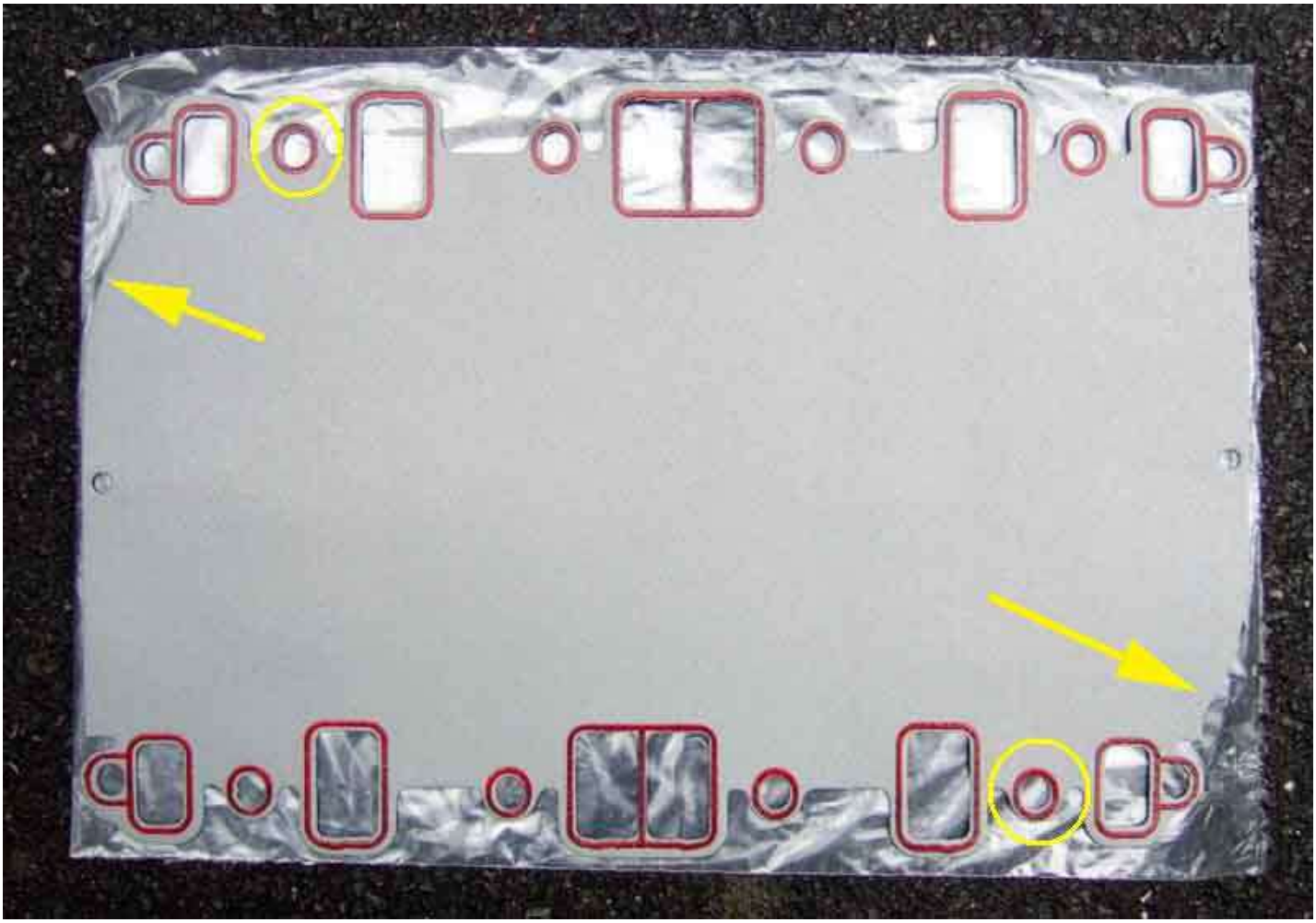
Crossmember installed. It's said that there are at least 16 ways of installing the crossmember, and maybe 32! However careful consideration can eliminate most if not all of these. The first is which way round the crossmember goes, but whilst there are several different types there is enough information in the WSM to get that bit right. Next the bracket that holds the central pin and is attached to the gearbox under the rubber mounts can go either way round. These hadn't been removed on mine, and as everything aligned correctly beforehand I assumed they were correct, and I didn't note which way round it was. Next the bracket under the pin can twist on the pin to go either way round, which changes the fore and aft position of the welded nuts in the bracket under the pin relative to the crossmember, and finally there are two holes each side in the angled brackets on the crossmember for the mount studs to fit into, which changes the fore and aft position of the crossmember relative to the gearbox. Testing the various options before the gearbox had been attached to the engine showed that the only way that the crossmember could be attached to the gearbox so everything lined up was if the welded nuts in the bracket under the pin were virtually in line with the studs on the rubber mounts, and those studs went in the front holes in the angled brackets on the crossmember. Whether that then lined up the crossmember with the correct holes in the chassis rails was another matter! Getting the mount studs in the holes in the crossmember was the next challenge. Some have slotted them, slackening the mount to gearbox bolts made it easier, but then retightening the mount to gearbox bolts was not possible. In the end I found that with one side hooked over its stud, the other side popped in given a hearty upwards shove of the crossmember. Of course it went in the wrong hole, but a firm pull downwards got it off again, and another shove got the stud in the right hole. Time to check how the crossmember to chassis rail holes lined up ... and it was in the original position. All made much easier by standing under the car on a ramp. This is all for the V8 of course, other gearboxes may vary.

Exhaust fitted. The manifolds were the usual struggle, not helped by me forgetting to fit the dipstick tube beforehand! However eventually they went on, and again on the ramp and with the help of a transmission jack supporting the full-length exhaust it all went together quite easily. One 'gotcha' concerned the block coolant drains. I'd always been aware that there was a tap on the near-side, but a bolt on the off-side. When stripping the old block I had tried to et the bolt out, but it just wouldn't shift, even with a hammer and chisel. The flats were already badly damaged so I presume a PO had tried and failed as well. My old spare block, and the new one, came with taps both sides, so taps it was. But when I came to fit the off-side manifold it simply wouldn't fit up against the head, because one of the arms of the tap was in the way. Fortunately it came out, and I hacksawed the end off that carried the arms. In hindsight perhaps I should have just cut the arms off, leaving something to grip in case it needed tightening.

The inlet manifold gasket was a pain. The WSM says they are marked 'FRONT' and one of the bolt holes near the front on the right (off-side) is 'open' i.e. slotted. The new gasket has neither, also there are sealing rings round all the holes on one side of the gasket only, and it is flat so not obvious which way up it goes let alone which way round. I ring the supplier and he doesn't know, so he rings his supplier who says the sealing rings face downwards i.e. into the heads. Fine. However when I compare it with an old tin gasket, I realise that it can only go up one way, as the right bank is offset relative to the rear, and that puts the sealing rings uppermost! Still no info regarding which way round it goes, but careful comparison indicates that the two ends are identical, so it doesn't matter. Old tin gasket, with circles round two bolt-holes only one of which is 'open', and arrows where each bank is offset relative to the other.



New gasket, no 'open' hole, the same offset. Although this means the sealing rings are always upwards, it doesn't seem to matter which way round the gasket goes on.



Then the WSM says 'fit the gaskets but do not tighten the clamp bolts until after tightening the manifold bolts". The gasket clamps are either end of the crankcase, between the two sets of ports, and are metal brackets that press the gasket down onto a rubber seal that fits onto the crankcase. However after suffering a persistent oil leak from the right rear corner that someone said was from this gasket, and is very common, it occurred to me that it could be because those clamps are only tightened **after** the manifold bolts. The holes in the gasket are larger than the bolts, so there is 'wiggle room' of the gasket relative to the heads and manifold. The gasket is also flat, and springy, so when then the manifold bolts are loose the gasket is trying to push upwards in the middle, i.e. away from the crankcase and rubber seal at either end. If you tighten the manifold bolts first it clamps the gasket in position, so when you tighten the clamp bolts it is trying to pull the gasket down, but it won't go. So I reckoned that if I fitted the gasket using one manifold bolt at each corner first to position it, then fitted the gasket clamps but didn't tighten the bolts, that would hold the gasket in the right position while I removed the four bolts, dropped the manifold on, fitted each manifold bolt again not tightened. Then I could tighten the clamp bolts to pull the gasket right down onto the crankcase, and only then tighten the manifold bolts. What with silicone sealant (not something I would normally use but felt probably better here than non-setting) on the crankcase edge and on top of the rubber seal, and sealing compound round each port of the heads and the inlet manifold, it was all a bit of a palaver.

Water pump and heater hoses fitted, and heat valve cable.

Oil filter and hoses fitted. This front cover has deeper oil gears, so the pump cover is lower relative to the chassis rail. The hoses come off the cover over the chassis rail, and after seeing a roadster conversion where someone had ground away the lip on the chassis rail at that point I wondered if I would have to do the same. Asked on one of the fora and was told by someone with the same arrangement that he hadn't found it necessary.

However the clearance on the front hose is very small, about 1/8", and the gauge hose is close too. Give the amount I know the engine has rocked in the past with the exhaust manifolds hitting the inner wings, I think it is too small. Rather than grinding and welding straight off, I think I'll try battering the lip over first, to present a smooth face as well as being lower.

Cooler fitted.

Carbs installed with all plumbing including crankcase breather and controls

Clive Wheatley engine steady bar. Battering the chassis rail lip over gave me enough clearance to insert the end of a forefinger, and that together with the steady bar should be enough. Bar installation needed some thought to get the engine bracket holes to line up with the head. There are rear shackle rubber mount rubbers between a pair of cup-washers, and a set of those both sides of the engine bracket and both sides of the inner wing and strengthening plate under the wing. There are also adjuster nuts on the inner-wing end of the bar, which should initially be screwed all the way onto the bar. Tighten the engine bracket nut using a spanner on the inner adjuster nut, to compress the rubber bushes that end so that the slightly smaller cup-washers fit inside the larger ones. Then tighten the nut under the wing to compress the bushes that end, which will pull the engine bracket across the end face of the head. Keep tightening the nuts until the holes in the engine bracket have come past the holes in the head. Then tighten the adjuster nuts onto the wing to compress those bushes more, until the engine bracket has moved far enough back across the face of the head for the holes to line up, and insert the bolts - including the engine lifting bracket on the inside so it doesn't get lost - and tighten the adjuster locknut. This ensures the engine is sitting in its 'natural' position, and not pulled or pushed to one side by the steady bar. Of course if you find you need more clearance one side, then that can be set with the adjuster nuts.

Alternator, fan-belt, radiator, expansion tank and hoses installed. I must say after nine months of seeing an empty engine bay and having had so many problems with the first workshop and two engine rebuilders I had been despairing that it would ever come together. Seeing what is virtually a fully-equipped engine bay now gave me quite a lift.

July: Then back at home I wondered if I would have to remove the radiator again to fit the cooling fans, as it is impossible to remove the blades from the spindles ... and I did. Refitted the rad and fitted the coil. Threw in 5L of Millers running-in oil, primed the oil system with my tool in a drill. I thought I could feel the additional load on the drill which indicates it had primed, but by the time I had pulled off the drill and got to look at the oil gauge nothing was showing. So next time did it for longer, and this time it was showing. Next to fit the distributor, which was a real struggle. These are always tricky as the distributor engages with a spiral gear on the end of the camshaft first, which rotates the rotor arm slightly, before it engages with the oil pump shaft. This engagement is a tongue and slot, so has to be exact, but once the distributor is in that far you can't turn the shaft like you can on a 4-cylinder, and neither can you turn the oil pump shaft. So as well as putting the engine at TDC on the compression stroke of No.1, and orientating the distributor body correctly (clips in a line fore and aft), with the vacuum capsule pointing to the right as you look at it, and the rotor pointing at the cut-out in the body for the cap location, you have to twist the oil pump shaft to the correct position. The only way to do that is to initially insert the distributor until it stops about 1/4" from fully seated, note the rotor position, remove the distributor again, move the rotor back to the noted position, then look underneath the distributor at the tongue on the bottom of the shaft, note it's angle, and position the slot in the oil pump shaft accordingly. Try again, and if it baulks again remove and alter the position of the oil pump shaft a smidgen, try again, and repeat.

That's bad enough, but the distributor was a bit stiff in the front cover - something else I'd failed to trial-fit. With the inning and outing, and twisting it back and fore to pull it out and push it in, it was getting stiffer and stiffer. Eventually it had to be levered out with a pry-bar, and inspection showed the thicker part at the bottom of the distributor shaft body, and the corresponding part inside the front cover, both being alloy, were getting roughed-up and locking together. Not enough clearance in the new cover, but I probably should have greased it anyway. So I had to file the roughness off the distributor body, and file round the rest of that part to reduce its diameter slightly, greased, and tried again. Better, but still stiff, so out again to show the witness marks on both the upper and lower parts of the shaft, and file those. Eventually it went in and out OK, so then it was down to small adjustments in the position of the oil pump shaft, until it went in!

Next the distributor clamp, and more problems. I've mislaid the original somewhere although I know I got it back from the original workshop as I ticked it off on the list. Got a 2nd-hand one off eBay ... which didn't fit.

As well as the clamp not lining up with the bolt hole in the cover because there was a protrusion on the cover in the way, the hole for the bolt was significantly further out along the clamp than the hole in the front cover. So first job was to grind off part of the shoulder on the clamp to overcome the first problem which was easy enough, then I had to file out the hole so the bolt holes lined up. Over 1/4" with a small rat-tail file in steel about 1/8" thick took some effort, and the whole job took a good couple of hours. The back of the original cover is flat, and comparing a picture of the new cover with the old the centres of the two holes should be at 41mm whereas they are at 34mm.

Next fit new spark plugs ... and yet more problems. This era of V8 heads have short-reach plugs in a recess which covers the hex. When I first got Vee I found my 1/2" drive spark-plug socket would not fit in the recesses, but found another one at Halfords which was a slightly smaller external diameter and just fitted all the plugs. But that only just fits one of the new heads, and binds, and doesn't fit the other head at all. Fortunately I have my box-type plug spanner and tommy-bar still in the car, which I had modified to fit after rethreading one of the spark plugs resulted in it being canted over slightly, and meant my socket no longer fitted. Using that I was careful not to overtighten, and fitted the distributor cap and leads. Filled the cooling system - just water at this stage ... then really there was nothing to go for except engine-start.

Reconnected the battery after unplugging the alt in case of problems. Before connecting the earth lead I turned the cut-off switch on, so I could tap the earth clamp on the post to see what kind of a spark I was getting, in case of shorts. A larger spark than I was expecting, the usual squawk from the alarm system, then I became aware that the engine was cranking! Removed the clamp, pulled the solenoid wire off the starter relay and tried again, but it still cranked. Pulled the operate wire off the solenoid (which meant removing the heat-shield), and this time no crank, so somewhere that operate wire has shorted to one of the brown wires. Ponder that later, so in the meantime use one of my test wires with a croc-clip at either end to connect relay to solenoid, and turning the key cranks as it should.

However I now note there is no ignition warning light or fuel gauge. Check there is power on the white from the ignition switch ... and suddenly realise I had unplugged the alternator - Doh 1. Plugged that back in, and warning light. Still no gauge, but I know that is because the rear (and gearbox) harnesses have not been reconnected to the main harness yet. Next, no fuel pump. Not been used for many months, so possibly points.

Checked power was reaching the pump, took the end-cap off (fortunately easy on an RB being in the boot), flicked the points but nothing. Tested for voltage on both sides of the points and coil, and also found it on the pump body. Then realised with the number -plate removed there was no earth - Doh 2! Jury-rigged a temporary earth, switched on, and pump action. Slowed and stopped, and no signs of dripping, so plumbing and float valves OK.

Now there really is nothing to do except go for a start. Choke out and cranked for a few seconds, but nothing. Then I remembered that years ago I had noted that the distributor was installed one position out clockwise, but I had installed this time as per the manual. So wound the engine round to TDC on No.1 compression stroke again, took the cap off, and sure enough the rotor was pointing at the wrong plug lead, so moved them all round one. Cranked again, and this time after just a few seconds it burst into life. Oddly not an exhilarating moment, just completely calm. Just a couple of seconds of slight rattling as the hydraulic lifters charged up, then it sounded lovely. A quick check round and underneath in case of fluid leaks, but all OK. Quite a bit of smoke off the exhaust which is to be expected. Then it was a case of warming it up, and continuing to look over, under and round for things that should be there. As it warmed and the stat opened I became aware of a slight bubbling and weepage from the gasket under the thermostatic fan switch, which is odd as that hasn't been touched, probably dried out over the past nine months. What was more concerning was signs of coolant around the second inlet manifold bolt from the front on the alternator side. That bolt didn't torque up as well as the others, using a bendy-bar it went up so far and seemed to stop, so I left it at that, hoping the adjacent two bolts would do their stuff, together with the sealing rings on top of the gasket and the Wellseal I had used both sides. Unfortunately this is to one side of the water passage. It's a slight seep, disappointing but again just completely calm and not thrown into a panic, I'll ponder possible solutions later.

Next day filled/bled the clutch using my method of doing it from the bottom i.e. reverse bleeding with my EeziBleed. Slave disconnected and hanging down, which makes it easier as the bleed nipple points upwards on these, front of the car raised. The seal in the EeziBleed reservoir went soft years ago which means tightening the cap down too hard it pops out of position so air leaks out flattening the tyre very quickly. Not overtightening also leaks, so I had to reinflate the tyre a couple of times. As soon as fluid is visible in the master I stop and top-off as normal. Slave bolted back up, and I'm aware that the push-rod is not pushing the piston back very far at all, and I think I can see wear marks on the push-rod from the end-cap of the slave, about half-an-inch out from where it is now. Pull off the old release arm gaiter (which is nothing more than a ring) and peer inside with a torch, but apart from the release bearing going back and fore more than I would expect it seems to be correctly retained. Fitted the new gaiter and re-attached the slave. Pedal feels OK - I half expected the piston to be pushed out of the end of the cylinder, so start the engine, depress the clutch, and tentatively select reverse - in total silence, which is more than it ever did before. Test the biting point and it's about mid-way as it should be - phew! I had visions of the engine having to come out again, although as long as the rest of the clutch worked as it should then extending the push-rod would have been the only thing that might have been required.

Next the brakes. Longest run first - near-side rear, takes several re-inflations of the tyre to start to get fluid through and no more bubbles. Off-side rear next, fluid with no bubbles pretty quickly, as with off-side front and near-side front. Pedal doesn't feel bad with the usual 'long but pumps up' showing there is still air in there, so recruit the painter's mate to press down hard on the pedal while I rapidly open and shut each caliper nipple in turn. After that it is better, but still feels a bit long, so I wedge it down over-night. That's all I can do, so pack up my tools and head for home. Since engine going in Monday afternoon last week, I've spent five half days over there, so not bad going considering the trial and error re-installing the crossmember, starter wire problem, and distributor problems. Now it's over to the painter to do his stuff, before shipping her home.

Mid-July she gets five colour coats and four clear lacquer coats. Darker than true colour from having been taken in the workshop.

1975 MGB GT V8 by One Stop Body Shop, chris_onestopbodyshop@hotmail.co.uk

August: Sunroof fitted to give support for flatting and mopping the roof

Bonnet fitted, flatted and polished, just waiting to go on the trailer to come back home.


KEEP
CLEAR

Those wheels and tail-pipe trim really will have to go!

She's back!

10 months and two weeks after going away, and a lot of trauma. Very annoying when backing her into the garage to find she had dropped oil all the way up the drive, seeping from the oil pump cover. I'd previously run her for twenty minutes or so on two occasions in the paint shop with no sign of this, not an auspicious return! The one screw I could get to at that time was barely finger-tight, and the leak seemed to stop with that tightened, but what about the others? First job next day was to pull the rack and investigate all the screws. There are six - five short grey ones and one long black one, and all the grey ones were slack. I decided to remove them all and re-insert with thread-lock if I was going to have any confidence against future leaks, and immediately noticed all the grey ones had what looked like a grey plastic washer under the head, which appeared to have extruded into the gap between the shank of the screws and the sides of the holes in the cover - hardly surprising they had lost torque! I didn't notice them when I bought them, the long black (tight, remember) one didn't have it, so I removed them all. used thread-lock, and refitted. Torque is a pain - being variously given as 13 ft lb in the GT V8 WSM supplement, but 3 or 9 in other manuals. Previously they didn't want to go as far as 13 so I stopped at 10, but this time only went to 9.

Next job was to fit the front valance, which I had foolishly not trial-fitted before paint, and some fettling was needed, but performed without damaging anything. Those two jobs were pretty tiring on a warm day in full sun, so something a bit more restful for the rest of the day.

And that was to fit the door seals (to stop braining myself on the body flange), and because the doors had been wired shut for transit, the latches and striker plates so the doors don't swing open when exiting and entering the garage, and the external handles and locks.

Then the gutter trim and the rear windows and trim. Just the passengers rear window to fit at the end of day 1.

Day 2 was to fit the rear window seal - which was another strenuous job as it appears to be several inches too long to fit in the hole! More info here

For more 'light' relief - fitting the quarter-lights. Got the first one in before I realised the external seal and support strip goes under the quarter-light on GTs, unlike roadsters where it can be fitted afterwards, so off it came again. As the nuts pull it down, and the bolts pull it forwards, tighten one too much before the other and it won't go fully down and fully forwards. I opted to push the frame firmly forwards while tightening the nuts, then tighten the bolts. You also need to make sure the holes in the seal support line up with those in the door skin, put one pop-rivet in first, doing the rest later. Finally with the door shut - carefully to make sure it doesn't foul the gutter trim - adjust and tighten the bracket to the door and the leg to the bracket, so the top of the quarter-light just touches the door seal and doesn't compress it too much. The fit the rest of the seal support pop-rivets. I find 3.2mm are slightly too small, and pull out of the door panel, but have a packet of backing washers left over from when I fitted the side trim to Bee 27 years ago, which solve that problem.

A sudden shower means I have to rush the car into the garage. I've had to leave the rear drop-glass channels for the moment until I finish off the pop-riveting, as the rear one cannot be done (with my riveter) with it in-situ. I ran out, and have ordered some more the next size up - and some of the original size in case the larger ones are too big! With those in I can fit the drop-glasses and regulators. As you can see Waxoyl being utilised wherever anything sits against paintwork - I've had this can since I restored Bee 27 years ago, plus copper-grease on all threads, and Vaseline on electrical connections.

The paint shop had fitted the bonnet prop the wrong way round (release catch at the rear) so that was corrected, and I fitted the bar for the safety catch and the main latch to the slam-panel. Try as I may I could not get the return-spring for the latter attached so the latch had to come off again for the spring to be attached first. Then I found I could not get the latch far enough forwards or to the right so the spring went neatly into the cup without scraping. This was because as previously fitted what should have been a flat panel on the latch had deformed into the over-size slam-panel holes, which limited the adjustment. So it had to come off again, and the three holes in the latch clamped into a vice to flatten them, which has damaged the paint, but after that I could get the correct adjustment. But I intentionally had the slam panel painted without this fitted, so it's only the latch that needs repainting.

Day 3 is a lot of fiddling around under the dash fitting the two top pedal frame bolts which go in from the cabin side, which needed the wiper motor bracket to be removed, plus the indicator flasher clip and

instrument voltage stabiliser, to get them out in the first place. Small hands, 7/16" ratchet ring spanner, and 3/16" socket with U/J and two extensions, and patience needed to get the frame bolts back, then refitting the rest.

Also refitted the demister tubes into the back of the heater, which needed the centre arm-rest and console to be removed, which needed the radio chassis to be removed, plus disconnecting the wiring to the HRW switch and tell-tale, hazard switch, courtesy light, cigar lighter, POs 'Overdrive' tell-tale, and my alarm system LED. It wasn't a job I was looking forward to but with everything out of the way I could get at the holes for the tubes quite easily. I had imagined the plain end on the convoluted tubes pushed into the holes in the rubber block, which was why I had removed them in the first place. One concern was that with a new block the holes in that might not line up with the holes in the bulkhead. There was a very slight offset, but I could reach the block with finger-tips and it pushed into line quite easily. But having got that far I realised the ends of the tubes don't in fact go into the rubber block, but stop short, so I needn't have removed them in the first place! The retainer clips hold the tubes in the holes in the bulkhead, but you need one hand to hold the tubes in while you manipulate clip, screw and screwdriver with the other otherwise they pop free. More patience.

Fitted the wiper spindle covers and nuts - then realised I couldn't get the nut on the bottom of the central washer nozzle, so had to remove them again so I could pull the rack tube down out of the way. Then refitted the spindle covers, and pressed the plastic sockets into the panel for the air intake. I'd opened these out a little with a drill on removal, as I expected the paint to reduce them again, and I got it just about right. One being tight, and all the others firm. All the bright trim except this grille is in pretty good condition and will be reused, this grille has some pitting. I'll take a view on replacement later, the intention is to have Vee as a 'tidy driver', certainly not concourse or anywhere near. Subsequently realised I had forgotten to attach the washer tube, hope I don't have to remove the spindle covers yet again (I did!).

Then started on some electrics - joining up the main and rear harnesses, but the tracer colours are difficult to distinguish in some cases and I'll need things like the rear lights and reversing lights to be fitted before I can complete that. Finally installed the horns, plus clipped the harness to the front of the slam panel, and that was the end of another day. A lot of bending, twisting, contorting, and the full 'James Herriot' behind the dash, but not much to show, picture-wise, for all that effort. Next day is Sunday, so having a day off, before resuming next week.

Day 4 is a half-day, domestic duties in the morning. Fitted the rear lights and number-plate backing, the trim pieces over the cut-outs in the tailgate, finished off the harness interconnections in the engine-bay, fitted the passenger footwell side trim-piece that had been removed when the wing was replaced, and cleaned up and refitted the centre arm-rest.

Day 5 fitting the drop-glasses. Had to drill out the passenger-side rear lower channel bracket as the bolt had seized in the captive nut, the nut was no longer captive, and the bracket was loose on the door. Current brackets have two riv-nuts as they are universal - which needs a decision as to which one to use.

Day 6 was various bits including headlights, but really annoying to put one of the adjuster screws down in front of the car and it vanished. Also annoying to find I only have the bowl screws for one headlight, so fit both using just two screws, and have to order replacements. (Only to find it a few days later in the chassis rail channel where I'd put it for safe-keeping!)

Day 7 fitting bits of trim including 'Spock's ears', threshold plates, door mirrors, and the aerial back into the front wing. Also give the wheels and tyres a wash so they don't look quite so bad. Probably some other hidden bits, which I can't remember as I'm writing this three days later and I've done loads so it's all a bit of a blur!

Day 8 is a big day - front and rear screens! Pal over for the day to help, five hours struggling with various aspects, more info here.

Day 9 various parts have arrived so I fit the tailgate lock and the rear number plate.

Also finish off the headlights, fit the front bumper, indicators, and the new front number plate. I'd used all-new bullet connectors behind the grille, and for all bullet connections burnished the bullets, and used Vaseline on all bullet and spade connections. Pleased to find the indicators tick at a decent rate even without the engine running, and the battery a little low as it has done so little running.

A couple of days off, and a morning waiting for some brighter weather. 'Day' 10 is an afternoon, and I get the rear bumper on, solder some proper bullets to the end of the HRW wires and connect that up ...

... fit the seats (to be recovered later), and the door trim including a moisture barrier behind the door cards made from DPC membrane (blue, as it happens!) and double-sided sticky tape.

Day 10. Bled the brakes all round using the Eezibleed, a little air out of the rears but none out of the fronts, or when I high-pressure bled the fronts. Pedal better I think, but still pumps up a little. The front bumper was closer to the offside wing than the nearside. Three spacer plates each side so took one out of the nearside with a view to putting it into the offside as the corner of the bumper between the headlight and the grille was very close to the body. But that would have left no threads protruding from the nuts that side, so I settled for three that side and two the other.

After lunch I decided to have another go at the front and rear screen trim, with a lot more success.

Wiper arms to be repainted.

Day 11: Had to order a special 6-way bullet connector as there are five earth wires by the right-hand headlight - one from the earthing point, one to the other side, one from the headlight, one from the indicator

in the rubber bumper, and one from the cooling fans. I added local earths for the cooling fans, so strictly speaking the fan wire didn't need to be connected, but the better the earth the better everything will operate, and parallel earths are better than just one. That allowed me to fit the front grille ... and I almost forgot the chassis and commission number plates.

A break for the Bank Holiday, then over the next couple of days a bit of tinkering fitting the GB badges (nice sheen on the bumper) ...

... fitting the repainted the wiper arms and new intake ...

... and the new washer bottle.

Also fitted the rear cant rail with load-space light ... which didn't work. Testing showed that although 12v was leaving the fusebox it wasn't arriving at the wire that connects to the rear harness, which is only about 6" long! So ran a new one in. This is the second (the first being the solenoid operate wire) wiring problem discovered during recommissioning, plus an open-circuit in the alarm harness. Then checking tyre pressures, exhaust emissions and dwell (no adjustment needed), and a hot detergent wash to get rid of the remainder of the polishing compound in the channels and traces of Waxoyl round fitted parts, then a cold rinse, and leather. Looking pretty good now.

31st August 2017: She gets her MOT, 11 months and 2 days after starting this long and at times traumatic process!

1st September sees a £15k valuation from a local classic specialist, and she has her first decent run of about 30 miles to Warwick on local roads and back on the M40 and M42. Running really well, sounds and feels like she always did but without the horrible tapping from the engine. However the oil pressure is noticeably lower than before, even with this new front cover with the deeper gears which is supposed to improve hot pressures. Also a rattle on start-up, hot or cold which she never did before. With this donor block it could be clearances for the hydraulic tappets, which would cause both symptoms. I'll just have to see how it goes. Refitted the headlamp trim. Now to get some miles in and drain the running-in oil and substitute 20W/50.

Then another weekend away (South Downs Run) in Bee - 480 miles which would have been ideal for Vee, but I'm still building confidence. Next day I fit the side trim ...

... and the day after that get the badges and seat covers from Leacy.

Wing badges on the near-side only as per the original

Tailgate badges were originally slightly curved in both dimensions to suit the panel, but are made flat today. I put the V8 badge over a length of plastic waste pipe and lean on the ends and that puts a neat curve in the length, I can't see it needs one doing in the width which would be more difficult - needing a positive and a negative mould and quite a bit of pressure. The BGT badge is longer so should be easier, but it is also wider which makes it harder. Also it's not flat like the V8 badge, I don't want to end up buckling the edges, manage to put a bit of a curve in it and leave it at that.

Next day is dry and bright so sees another 60 miles on local roads out to Gaydon, and back on the motorway again, giving a range of low and high speeds, and acceleration.

Another day sees the backs of the rear wings and the sills (inner and outer cavities) treated with Dinitrol ML. This is much more liquid than Waxoyl even when cold, and stays liquid for a long time (it's definitely not thixotropic as some claim, that's Waxoyl) so penetrates the very narrow gaps between wings and sills easily. Good from that point of view, but for the accessible parts of panels I'd rather have it sticking where it hits, which is what Waxoyl does (unless you do it in very hot weather and it stays liquid). Then fitting those damned C-pillar trim panels! I replaced them a while ago, they were a pig then, and no easier this time. The holes aren't in the same places as the originals, and because the spring clips slide onto the edge of the hole, placing the 'point' of the clip off to one side of the hole, the trim panel holes have to be offset from the holes in the body. That means you have to work out where to fit the clip around the periphery of the hole, so the centre of the clip lines up the body panel hole. Then there is the screw at the top into the cant rail, and the two screws for the rear window latches. Add in the restricted space and awkward angles, and it is a recipe for much swearing. But eventually they went in. And for a bit of 'light' relief, I re-fitted the rear fog lamps. Installation was OK, apart from the back-breaking angle leaning into the hatch space removing and refitting the rear light clusters to get the wires through from behind the bumper ... to find they didn't work. The switch was lighting up, but no click from the relay. Couldn't see all the spades so had to remove it, to find no earth wire. That would be the earth wire I found in a bag with all the other fasteners from the engine bay and couldn't work out where it came from, and put in a Safe Place. No matter, a couple of minutes work to make up another, and they both work. Note to self: Return the tank and exhaust hanger to standard colours!

I won't bother putting the old front ones back on as one has been broken for years, and I haven't needed to use them for even longer. I may well fit the same DRLs as on Bee instead, as they will fit neatly under the rubber bumper.

Next day sees the plain water I had initially put in the cooling system (in case it had to be drained out again ...) removed and a 30% solution of anti-freeze put back. Halfords have changed the description, what used to be 'glycol' based is now 'silicate' based, but is it the same? It still makes reference to glycol in the safety info, so I hope so, but warns against mixing different types. So just in case I now have one top-up solution for the roadster (glycol), one for the V8 (silicate), and yet another (OAT) for the ZS! Checked the tightness of the hose clamps, ran it up through several cycles of the cooling fans and all seems OK.

Sunday was a day of rest, then Monday pm I decide to paint the new splash panels prior to fitting - and find I have one for the near-side in one bubble-wrap pack and two for the offside in the other bubble-wrap pack!

That doesn't take along at all, so I decide to have a go at cleaning one of the rear wheels, and after that one of the fronts.

Tuesday is a 60-miler to the paint shop to show them the car in all it's glory, they and the chap from the unit next door taking pictures.

Wednesday the front wings behind the splash-panels treated with Dinitrol, the new splash panels and seals fitted, Finnegans underbody seal sprayed at the back of the wing by the headlight bowls (a mud trap and corrosion point), the new splash-panels and seals, and the backs of the wing and sill flanges.

The old off-side panel was looking like Swiss cheese in the lower half.

Thursday sees the other two wheels cleaned - the first rear took me an hour, the first front and the second rear about 90 mins, and the second front about 2 hours as it turned out to be the worst! If I'd started with that one I might not have carried on. Note to self: Paint the brake drums!

Friday sees another 60 miles, almost half-way to the oil-change now. Seat covers to be done, and I'm pondering whether to refit the front and rear mud-flaps.

Next week sees another 70 miles on a trip to collect a brake light switch (saving £6 P&P), and I decide to fit new mud flaps as one of the front ones was damaged years ago. Opted for plain white on black this time, instead of the red and white. Pal brought them up on a planned visit from a supplier local to him, saving more P&P, fitted them that afternoon, and subsequently modified them slightly and the clamping arrangement, which was less than ideal.

Friday sees another 100 miles, 90 to go!

The final week of September sees another 40 miles to get the Sunday paper, the brake drums painted ...

... the overspray removed from the tank and exhaust hangers ...

... and the final miles to 500.

Next day change the oil (and the filter) to 20W/50. First start always takes a while to get oil pressure, the tappets are ticking but that would be 'normal' as they still have the remains of the running-in oil. Max oil pressure at a fast idle is as before i.e. about 38, no leaks, so onto the drive to check the hot idle pressures. Definitely better, once the fans start cutting in it's still 20, and over about twenty on and off cycles it only drops to 15 (at the end of the MOT it was barely registering). One interesting 'feature' of this rebuild is how consistent the cooling fan cycling has become, compared to before. However switched off, left a few minutes and restarted, I get the slight tappet rattle as before, so I'm just going to have to live with that. I still need to see what happens after a motorway run, then idling. That evening is pleasant so a run out to a local pub with a pal who has just completed a restoration on a TR4A.

November, and I'd better do the seats before it starts getting too cold in the garage. Third time I've done recovering, foams and back-boards good enough to reuse, so only a couple of days of effort sees them out, done and back in again.

When I finished Bee's restoration in 1991 I wrote "Was it worth it? Very definitely! Would I do it again? Ditto!" and 26 years later I feel exactly the same way despite the initial traumas. Would I do it again? Yes, but probably not in 26 years!