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Wheels and Tyres

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Balancing Centre Lock Wheels and Hubs Converting to Wires from Rostyle/Disc NEW Punctures Tracking Alignment Tyre Markings Tyre Pressures Tyre Sizes Tyre Valves Tyres - What to do with old ones ... V8 Wheels Wheel Nuts Wheel Sizes and Offsets Wire Wheels Links

The sectioned MGB at the British Motor Museum, Gaydon

Barrie Robinson asked on the MG List for opinions on how to stop the theft of wire wheels. He got a number of replies both serious and humorous, I have to admit I contributed to the latter. Barrie then summarised these under various headings which made me laugh out loud and with his permission I reproduce his summary:

The Practical	Put car in lock-up garage
The Humorous	Tie an aggressive dog to each wheel, or use one dog with a very long lead
The Economical	Get a big enough dog and something for it to chase and save petrol
The Comical	Use knock-offs incorrectly labelled "UNDO"
The Easiest	Do not anti-seize the wheels so they rust on
The Philosophical	Wire wheels are not an easily disposed of item - so not attractive to thieves
The Saddest	Current "of-age" thieves would not know how to get them off neither would they know what to use them on.

Another smile was raised by an aside in a description of how centre-locks work by Wilson McComb attributed to a North American writer. Large diameter wire wheels were an uncommon sight in post-war America, but with a number of early MG T-series cars having been brought back by American Forces personnel after WWII, they were christened 'coffins riding on four harps'.

Balancing

Stud-mounted e.g. Disc, Rostyle and V8 alloy
Centre-lock

Care needs to be taken with all original types of wheel if having them balanced at modern tyre fitters with computer balancing machines - it is crucial how the wheel is supported on the machine. Modern wheels are relatively high-precision items compared to original MGB wheels, indeed I've heard it said that Rostyle wheels were often neither round nor concentric and they rejected many! Unlike the Dunlop V8 alloys which were (centre hole excepted) very accurate and very strong - the factory apparently never managed to break one in early tests with massive over-loads.

Modern wheels are mounted on computer balancers using the centre hole and a quick-release spinner as this is much quicker to mount and demount than using studs and nuts. All MGB wheels have these centre holes as well, but on disc, Rostyle and V8 alloys the hole was

intended simply to clear the hub nut and so its positioning wasn't precise. Mount one of these wheels on its centre hole and the tyre fitter is likely to advise you that it is so out of balance/out of round that is unsafe. Centre-lock wheels have to be mounted on the centre hole of course, but the adapters used are crucial, they need to be held at the same machined surfaces as they on the hub, but these are rarely available. Speaking to the MGOC they told me they had to purchase their own balancing machine and get a suitable adapter made as no-one else was able to do them properly. This Dayton Wire Wheel document on taper angles seems to be saying that their centre-lock wheels manufactured since 1990 have had a fully machined hub and as such will mount correctly on a modern tyre balancing machine using two inside cones of 70 degrees (as measured on screen) as opposed to an inner cone of 60 degrees and an outer of 20 degrees (both stated) that are needed for earlier wheels, and presumably those from other manufacturers.

Personally I reckon on-car balancing would be the answer, for all types of wheel, as was the norm in the 70s and 80s. However tyre places with those machines are now few and far between. Another possibility is the home static (anything that spins the wheel is a 'dynamic' balancer) balancer that uses an air-bubble, but I've read these are a bit hit and miss.

Incidentally 'Rostyle' is actual 'R-O style' abbreviated from 'Rubery-Owen style' after the manufacturer of the wheel.

Stud-mounted: These wheels all have stud holes and if the tyre fitter has a four-stud adapter plate for his balancing machine then ask that it be used. If not then you are better off going somewhere else that does, even to pay extra for balancing only. But I'm still not convinced that is the whole answer, see below for my V8 balance problems.

V8 Balance Problems: From being fine when I first bought the car I started getting problems as soon as I replaced the fronts. They lasted the life of one particular pair of tyres despite repeated rebalancing even with the 4-stud adapter plate (see above), so it was obviously the tyres that were at fault. But along the way I read that the wheel nuts used with the V8 cast-alloy wheels can cause a little imbalance and of a way to avoid it.

Unlike Rostyles the V8 wheels and nuts do not have the conical seat to aid location. The shank of the nut goes right through the wheel and a flat washer as a shoulder does the clamping, therefore right up until the time the nuts are fully tightened the wheel can move up and down and side to side a little way, which means that when they **are** fully tightened the wheel can be in one of a small range but infinite number of positions in relation to the hub. Unless the wheel is exactly concentric with the hub some imbalance is inevitable. The recommendation was to use a pair of Rostyle wheel nuts on opposite studs and lightly tighten them. The taper on these nuts, even though it is bearing against a parallel-sided hole, will always locate the wheel in the same position on the hub. The first two V8 nuts are then replaced and tightened, then the Rostyle nuts are removed and the final two V8 nuts replaced and tightened. The Rostyle nuts are a different size 'across the flats' to the V8 nuts, so I welded a strip of metal around the Rostyle nuts to build them up to the same size as the V8 nuts to avoid having to use separate wrenches or spanners for each type. I also mark one hub stud and one hole in each wheel to ensure each wheel goes onto its hub in the same position each time as well as ensuring each wheel goes back onto its own hub (I never rotate my tyres around the car, it leads to premature replacement and all four, or five, wear out together). Since doing that (and junking the dodgy tyres it has to be said) I had no more problems with wheel balance, although after replacing the front tyres again (normal wear) the wobble has come back, and again I have been unable to get rid of it.

Update July 2009: It has been quite significant for a long time now, despite repeated rebalancing, more new tyres, and swapping fronts and backs over. It's not a steady vibration, but fades in and out at a regular rate, as if both are out of balance, one is rotating at a slightly

different speed to the other, so they are alternately cancelling each other out and adding to each other. Also on a long curve on a motorway one way the rate of fading in and out speeds up, and the other way it slows down, also tending to confirm that both are out of balance. As all four wheels are doing the same it could well be that the so-called balancing machine is actually leaving them all unbalanced by the same amount when the machine says they are balanced. A couple of months ago on one trip it seemed particularly bad, which made me do another Google search, and this time I found a reference to BMTR in Birmingham having a special 'Road Force Measurement' machine, and also Vibration Free in Bicester who are balancing specialists, any rotating machinery, and do have on-car balancing facilities. At the MOT the other week the tester made a verbal observation that the rack is showing some play, which it is in the straight-ahead position, so almost certainly due to this wobble over a long time. I don't want to replace that while I still have the problem, so it really is time to do something about the vibration. £55 (plus the dreaded VAT) per hour for Vibration Free and usually a minimum of 2 hours required for four wheels, as compared to £15 per wheel at BMTR, so that was my first port of call.

I had great hopes of it as they tested the wheels with the existing weights first and both were out, one by a long way, whereas other places have just ripped the old weights off and started from there. They were also mounted on the machine much more securely. Ordinarily places will simply mount them by the centre hole against a cone, but MGB wheels were never made accurately enough for that, pre-dating those machines by several aeons. Some fitters including the one I usually go to have a gadget which holds them by the stud holes, but it consists of a hub with four arms which can be swung out to fit any stud spacing, and I've never been convinced that method is accurate enough. BMTR have a set of circular plates with holes drilled at gradually increasing distances from the centre. Pins are put into these holes that engage with the stud holes in the wheel. Instead of a cone on the back of the wheel there is a cylinder, which fits inside the hole in the wheel with some play and a shoulder that butts up to the back of the wheel. That just supports the back of the wheel same as the hub, whilst the four pins with tapered ends are clamped onto the front of the wheel in the stud holes and do the accurate positioning. This method of mounting is used on **all** wheels, so obviously the machine manufacturer doesn't think location by the centre hole is a good idea on **any** wheel! As soon as I drove out of the place I was amazed to find it felt smoother even at low speeds, but then dismissed that as probably wishful thinking. When I was finally able to get on some open road (this place is in the middle of Birmingham frustratingly) I was able to do two or three sprints of 70+ with no wobble - marvellous after all this time. Shan't be totally sure though until I can get on a longer run at those sorts of speeds.

Update May 2010: Will this saga ever end? True enough the balance remained good. But on removing the drivers front on various occasions the very large weight (the only weight) that was on the inside was obviously coming loose, and eventually at the annual service last month I found it was missing altogether, but had noticed no wobble. Thinking it was possible that it had come off on the last outing I took it for a fast run, but on that, and on subsequent longer motorway journeys, the balance was still perfect - very weird! Even weirder had the fronts replaced this week and got them to assess the balance before removing the weights or tyres, and whilst the left font had 10 grams too much on their machine the right front (lost weight remember) was a massive 160 grams out! He couldn't explain why the balance was the same with and without, and I suspect he thought I didn't know what I was talking about, but to be honest I doubt I would believe me either. Had the new tyres balanced as normal, and whilst they are nowhere near as bad as before there seems to be a very slight tremor some times, but not consistently fading in and out as it did originally. On an 80 mile motorway run the only tremor seems to be on concrete surfaces, on new tarmac it is fine. So now that raises questions about the balance machine at the tyre place I have been using for years, as I got these somewhere else.

Incidentally, I noticed that when replacing the wheels the fitter used an air-gun to do up the nuts and only used a torque wrench to check they weren't **under** torqued. Correct torque is 60 ft lb, and back home I used my torque wrench to loosen a couple on the rears (tightened by myself previously) and they needed about 70 ft lb to undo. One of the fronts got up to 100 ft lb before it started to move, very slowly, needing torque to keep it moving whereas they usually loosen quite quickly, another got up to 120 ft lb and then the torque wrench (bendy bar type) broke! I had to use a breaker bar on the rest, and they were very variable in how much force was required. This place (National Tyre and Autowreck) also use a different method of raising the car - you drive over a short ramp that the wheels straddle, then they place rubber blocks under the body and lift it with those, which I really didn't like. I may take wheels there for tyre replacement in future, but I would never take a car again.

Centre-lock:

Centre-lock wheels must be held by the inner and outer tapers just as they are by the hub and locking-cap or they will not be centralised, with similar comments to mounting studded wheels by the centre hole as above. Modern balance machines usually have a set of tapered adapters of different sizes that are slid onto the balancer machine shaft so as to mount wheels with different sized holes. All the ones I have seen are conical in shape with the contact surface for the wheel on its outer angled surface. These are fine for the inner face of the wheel as it is similar to the hub, but because the quick-release spinner presents a flat surface to the wheel it doesn't hold the outer face of the wheel properly. I've seen them slide another taper onto the shaft and then the quick-release spinner, but this utilises the inside surface of the hole in the wheel and not its taper with the same results as before. Unless your fitter has a taper of the correct type i.e. one with a conical **hole** then again don't have them balanced. When first fitting chrome wire wheels the last thing I wanted was weights attached, especially to the outside, so opted to try them unbalanced first. Maybe I was just lucky, but I have never had any balance problems.

Updated January 2010: Following a discussion on the MG Enthusiasts bulletin board Richard Davidson emailed to anyone who was interested details of an adapter that will mount centre-lock wheels correctly on balancing machines. I'm sure he won't mind if I make his documents available here. He is going to have some made up by a friend with the necessary CNC facilities, making further copies relatively easy to obtain. Unfortunately he lives in South Africa, so postage to places like the UK and North America is likely to be an issue! I'm making enquiries locally to me in the UK about having some made here. However, it occurs to me that maybe only the outer cone that replicates the spinner may be needed, one of the balancer standard cones being adequate for the inner taper. Come to that, maybe an old spinner could have the end machined off to slide onto the balancer shaft. Or even an old hub and spinner modified to clamp the wheel correctly and slide onto the balancer as an assembly.

Updated April 2010:

Son-in-law found me a machinist in Birmingham who quoted me £35 to make an outer cone, and £30 for an inner (collected prices), had one set made and collected them this month. I replaced two rear tyres last year and since then have felt some body vibration at typical wheel imbalance speeds of 65mph and greater. Put these on the fronts and had severe vibration. Took them and the cones to my local tyre place, and first had them assessed using how they would normally mount them (test 1), then with just my outer cone (test 2), then with my inner and outer cones (test 3). A noticeable improvement in run-out using my cones, and more balance weight required, in tests 2 and 3 over test 1. Had them weighted up using my cones, and back on the car they are as right as ninepence (which is more than it cost me to have them done (apart from a bung), which is why I'm reluctant to say who did them in case they get into trouble). Incidentally these are Cooper tyres and one needed 110grams and the other

150grams, which are large amounts. As the first tyres I put on when changing from Rostyles to wires needed no weights, I rather suspect these tyres are the problem instead of my wheels. I need new tyres for the front soon, so it will be interesting to have the wheels checked with the tyres off first, then again with the new tyres on, and I shan't be buying Coopers!

There was no difference between tests 2 and 3, which indicates that the standard cones used on the inside of the wheel is perfectly adequate on its own, hence only the outer cone is required. However offering the standard cone up to the wheel shows that it is contacting the taper right at the inner edge of the taper, i.e. right where the splines start. If there were any damage i.e. burrs in this area then it would hold the wheel incorrectly. By contrast my inner cone contacts the wheel right in the middle of the taper. This inner cone sat exactly square in the wheel, however the outer cone exhibited a slight rock on all five of my wheels. As the axis of the rock stayed with the wheel as I tried the cone in different positions it can only be a slightly warped hub. Perhaps not surprising, it is only a pressing (India Dunlops anyway), this taper is right at the edge and not in the middle as with the inner cone, with spokes close by under significant and variable tension. On the car the spinner is banged up pretty tight which probably helps to overcome this, on a balance machine it won't be as tight. Nevertheless my wheels came up with zero after balancing, and feel perfect on the car, so that is proof enough.

If you want to obtain the cones then I have left the drawings with the machinist for him to use as and when he wishes. He is:

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Centre Lock Wheels and Hubs

Self-tightening? Or not? The theory is that centre-lock spinners, or locking-caps, are self-tightening, although some poo-poo it. Certainly the threads are different from side to side - with left-hand threads on the right-hand side of the car and vice-versa (*Update November 2010: This is not the same on all cars, for example the Lotus Elan has the left-hand thread on the left-hand side, apparently because the spinner contacts the **inside** surface of the wheel hub and not the outside as on the MGB. However there is an error in the logic part way down the link: One contributor writes "I don't fully follow the LH & RH thread thingy because the loads reverse themselves depending upon whether the car is accelerating or braking." The forces involved are **not** dependant on accelerating or braking, but are simply the weight of the car and the direction it is travelling in, which is the same for both accelerating and decelerating).* With seized spinners the advice is usually to drive in reverse in a tight circle with the seized spinner on the outside for the greatest load, and towing advice is **never** tow a centre-lock equipped car backwards with any wheels on the ground. Definitely mine take more effort to undo than I put in to doing them up, and that is when clean and lubricated and after only a short journey, so no seizing there. I came across a description of the self-locking action on a TR web-site, reprinted by permission from Safety Fast (MG Car Club), written by

Wilson McComb, which he attributes to The Autocar Handbook of 1918! I reproduce the guts of what he wrote here, I hope none of the aforementioned object.

The crucial components consist of the centre part of the wheel, known as 'the wheel centre', the axle hub it slides onto and the spinner or 'locking cap' that secures it. The wheel centre is not pressed up against the brake drum as with a conventional wheel with four or five studs and nuts per wheel, but there is a gap of 1/8" or so. It is the inner taper of the wheel centre which contacts a corresponding taper on the inner part of the hub that achieves this. The wheel centre has another taper on its outside surface, which contacts a similar taper on the locking cap. When the three components are assembled and the locking cap tightened the wheel is held firmly between these two tapers, which centralises it with a small clearance over the splined section. These splines don't support the wheel but only provide driving and braking forces, and there has to be a small clearance between the two splined surfaces or you would need to press the wheel on and off the hub - not really convenient when you get a puncture. Moving out from the wheel centre we have the spokes, which are prevented from pulling out of the centre by a nipple bearing on the inside surface. At the other end of the spoke we have an adjuster to control the tension in the spoke. Because of this the wheel centre only ever hangs on the upper spokes. The lower spokes are never in compression - if they were loose enough the nipple on the wheel centre end would be pushed free of the wheel.

Because the weight is always carried by the upper half of the wheel it means the forces on the upper part of each pair of tapers is different to that on the lower half. A slight clearance exists between the tapers at the bottom, and also between the spinner and hub threads at the top. As the car moves forward, a different portion of the wheel rim takes the weight, and hence different portions of the tapers and the threads, and relative movement occurs between wheel centre, locking cap and hub. The effect of this is to tighten the locking cap (which is the only part than can move any significant distance in relation to the other two), and the locking action continues until there is firm contact between the tapers all round when it ceases. The physics involved means it turns in the opposite direction to the movement of the forces around the tapers. Exactly the same effect can be seen by spinning a plate (**not** your wife's best china given to her by your Mother-in-Law ...) on a flat surface - the plate starts off at right-angles to the flat surface, but as it slows its angle gradually flattens and approaches the horizontal. As it gets close to the horizontal, and if the plate is coming to rest upside down, compare the direction of movement of the point of contact with the ground with the rotation of the plate about its own axis, and you should see it is opposite. An untightened centre-lock wheel locking-cap is similar to the plate in the flattest part of its spin i.e. shortly before it comes to a stop, except the wheel cannot rotate relative to the hub, so the locking cap rotates relative to the wheel and the hub. This contra-rotating action of the locking cap combined with the direction of the threads means there is always a tightening action when the car is travelling forwards.

The clearances involved are, of course, minute, but the locking action is nevertheless completely positive and entirely automatic. There are people who deny the very existence of the locking action, and presumably attribute the left and right hand threads to sheer cussedness on the part of the manufacturer, and who refuse to believe the evidence of their own eyes that spinners need more force to remove than they received when being tightened. They are, no doubt, the people who bash their locking caps with heavy hammers.

This effect is nothing to do with a quirk of wire-wheels e.g. their flexibility, it applies equally to alloys which are very rigid. On the other hand I have read that one North American motor manufacturer used left-hand threads on their first studded disc wheels believing that the same principle applies with these too. I don't believe they do - the forces involved in a disc wheel do not rotate around the centre-line of each stud and nut but move across them from one stud to the next around the wheel. And I think we have been living with right-hand threads on studs and nuts on both sides of the car now to dispose of that theory.

How tight? McComb says the earliest instruction he came across was never more than finger-tight. However the looser they are the more the one set of splines is likely to fret against its opposite number, causing wear, and instructions for many years have been to hammer them up then check after 20 miles and retighten if necessary. 'Hammering' means with a copper, hide, lead or similar mallet (see below) and not beating the living daylights out of it with a steel sledge-hammer. Manually overtightening could well distort the wheel centre affecting

the tightness of the spokes and the 'true' of the wheel, hence causing balance problems. The recheck after 20 miles can only be a belt-and-braces check maybe against having left it finger tight or less when refitting, given the self-tightening action 20 miles will probably have tightened it up anyway. I bought the MGOC 'lead-faced' hammer with my wire wheels but the 'lead' seemed far too hard to me - one tentative whack confirmed my fears by marking my brand-new chrome spinner, so I had to resort to using a block of wood as a buffer for several years.

Then I discovered a Thor hammer in my local Halfords that had nylon one side and aluminium the other, and in 10 years or so of use it (the nylon end) hasn't left a single mark on the spinners. Click here for the Thor web site for UK sales, although I can't currently see a picture of the exact hammer I have. Anglo American are agents for Thor hammers, see here for North American stockists. Thor also do the correct (for older MGs really) copper and leather hammer but is very expensive.

Lubrication: Essential to avoid the wheel, hub and locking-cap seizing together, with the aforementioned difficulties in the event of a puncture. Splines, locking cap and hub threads to aid self-tightening as well as removal and the surfaces of the tapers. When first fitting new wheels and hubs one probably puts on too much as it fills up the grooves in the splines and the threads, the excess working its way out into the wheel centre. Once on the spoke nipples it will work its way through the wheel centre and along the spokes. I've seen a recommendation to use silver grease so it doesn't show, but in my experience it is the dust and dirt that stick to the grease that you can see on the spokes, and this is always black or very dark brown, making the original colour of the grease immaterial. In the 15 years and 40k miles since fitting my wire wheels I haven't had to re-grease the splines or threads since first fitting, and once I'd cleaned the excess out of the centre of the hub, where the spoke holes are, I very rarely get any up the spokes. At each service I just wipe the thinnest smear over the tapers, and usually this is simply redistributing what wipes off the area between the taper and the splines with a finger-tip, and applying it to the tapers. The tapers should keep dirt out of the splines and threads in normal use, make sure you don't introduce any when removing wheels.

Spline wear: Because the splines have some clearance, and even when the centre-cap is fully tightened, it is inevitable that there is very slight rotational movement between wheel centre and hub when repeatedly accelerating (rear wheels only) and braking. Initially this is very slight but each time the one does move relative to the other the faces of the splines are brought together with a bit of an impact. This 'hammering' gradually deforms the splines, making them thinner, which increases: the gap between the faces of the splines; the distance each spline travels when it changes direction; the impact when it finally reaches its opposite number; and the rate of wear. Initially and with lubricated splines, this movement and impact is inaudible, but eventually wear increases to the point of causing an audible 'clonk' (not to be confused with a similar noise from the diff which is caused by worn thrust washers). New splines have a cross section that looks like a triangle with the top cut off. As they wear i.e. the splines get thinner the flat top narrows, until the top of the triangle is pointed again, and the triangle may lean to one side. Further wear will eventually cause the triangle to bend right over and the two sets of splines can wedge on top of one another seizing the wheel to the hub. Alternatively, i.e. under sudden heavy braking, the tops of the splines can be snapped off and then the wheels can rotate independently of the hub, which can be a bit traumatic! I'm told that new hubs have a diameter at the splines of 2.440", fairly worn (sharp point instead of flat top) may be **greater** than this, stripped splines will be less than this.

The following drawings have been taken from British Wire Wheel. However in my opinion the flat top to an unworn spline is much more evident than shown in their drawings:

Updated July 2010: There also seems to be some confusion caused by slight rotational movement of the wheel and tyre, when the tyre is grasped and turned, with the brakes on, wheel off the ground, and the spinner hammered up tight. Look carefully at the brake drum as the wheel moves back and fore, and if this moves with the wheel, that is not spline wear, but the shoes moving against the back-plate. As such this has no effect when running as the handbrake is off. If however the brake drum remains stationary as the wheel turns, that is indeed play in the splines. As stated above there **must** be some play in the splines or you would never get the wheel on and off without a press or puller, it's clonks from the wheels that indicate spline wear. Some is inevitable as the wheels and hubs get older, and when you start hearing clonks that is when you start keeping an eye on the shape of the splines, and definitely replace **both** (unfortunately) at the latest when the splines develop a sharp point, if not before. You may well find that it's the brake drum that turns initially, but then with increased force on the tyre, especially if you are hearing clonks from the wheel, that the wheel moves further but the drum doesn't. It's this second movement that is spline wear, and with correctly tightened spinners should be quite a bit harder to obtain than the initial movement with the drum.

Wire Wheel Conversion: Wire wheels are a bit like Marmite - you either love them or hate them. The reason for loving is the 'classic' appearance, especially chrome wires twinkling in the sun, the reason for hating is the effort needed for a full clean to keep them twinkling. As someone who loves them (chrome) the effort of cleaning (about an hour per wheel two or three times a year) is well worth the end-result. Although some people at the factory said they hated them as an anachronism, they were fitted - both painted and chrome - to some cars as standard, and were always available as an option.

I'm specifically talking about wire wheels here even though other styles such as Minilite and other centre-lock alloys are available as after-market items. Although the process for converting to both types is basically the same, there are special considerations affecting wire wheels that don't apply to the 'solid' centre-lock wheels and this is due to the different 'offsets' on wire wheels to 'solid' wheels. The upshot is that due to their design and construction the mounting face of wire wheels is much closer to the centre of the wheel than for solid wheels, which usually have a 'positive' offset which moves the mounting face closer to the outer face of the wheel. What this means is that for a given axle, the track with wire wheels will be significantly more than with solid wheels such as disc, Rostyle or LE/Jubilee/V8 alloys. "So what", you might say, but given that on chrome bumper cars the tyres are tucked up inside the arches, and the only lateral axle location is performed by the leaf springs, on cornering the body tends to move across the axle towards the outside of the bend. And as it does so the arch lip on the inside of the bend is very likely to rub on the sidewall of the tyre, especially when touring fully laden. It's true that at the same time the arch on the inside of the bend tends to rise relative to the tyre, but it's rarely enough to prevent the rubbing unless your ride-height is higher than 'normal'. For that reason MGB wire wheel axles are almost 2" shorter than stud wheel axles, giving more clearance to the arches, both banjo and Salisbury.

Again I say that this only affects chrome bumper cars - or lowered rubber bumper. On unlowered rubber bumper cars the arch is clear of the tyre to start with, and that clearance increases during cornering. Also it also only affects wire wheels, as 'solid' centre-lock wheels would presumably be obtained with a suitable offset to clear the arches.

But conversion is quite popular, and replacing the axle is quite a large and expensive undertaking (and the job is already pretty expensive anyway). You could fit standard wire-wheel hubs to a stud wheel axle (only with the Salisbury axle, on the banjo the half-shafts and other components differ as well), but with chrome bumper cars the tyres would rub very

badly. For that reason there are conversion kits available for existing axles, which consist of specially machined rear hubs - to replace the original stud wheel hubs. These allow the wheels to sit a little closer together, compared to standard wire-wheel hubs on a stud wheel axle. However it's only about 1/4" - 1/2" closer each side, and given that the axle is nearly 1" wider each side, this still leaves the wheels sticking out more than they would on a pukka wire wheel axle. And the upshot of that is that you can still get rubbing, in some cases severe. The first time I went out in mine after the conversion I swung round a corner and was shocked by the graunching noise, and the marks it left on the tyre, and it was even worse when touring two-up fully laden, even though I cut the arch flange back to about half its depth. Something Had To Be Done, as I was concerned that it would fail the MOT.

There is another aspect of MGB construction that makes this lack of clearance worse on one side than the other. For some reason the clearance between the tyre and the arch on the left is almost always less than that on the right, both left and right-hand drive, and the reason has never been fully explained. Some think the axle is the problem and cut off and reweld the spring mounting points, but I've done a full longitudinal, horizontal and diagonal alignment check and my rear axle is in line with the front wheels, so moving the mounting points would simply make the car crab - not good - and I've seen the same offset when a non-MG axle was used in a V8 conversion. Also on my car the left rear arch bulges out round the wheel slightly, which in theory should **increase** the clearance to the tyre, making the **smaller** clearance even more strange. You may be able to get a more even clearance by supporting the body, slackening the U-bolts, levering the axle to the right and holding it there while retightening the U-bolts. Some people have described using a baseball bat to 'roll' the flange on the left-hand arch upwards, almost completely back on itself, however this will create a dirt and moisture trap.

In an effort to control the rubbing I fitted new rear springs which made no difference, then rubber bumper roadster rear springs, which did lift the rear of the car enough for the arches to clear the tyres. But over some surfaces the ride was very choppy and unpleasant, so I decided to fit a pukka wire wheel axle, and refit the correct springs. I found one at a small parts supplier that was from a dismantled car. The CW&P was bad but I had the axle rebuilt including new bearings through Clive Wheatley, who had a stock of good 4-cylinder CW&Ps removed from axles that had been modified with V8 units as part of his V8 conversion business. This also needs a replacement handbrake cable because of the shorter axle. Another thing to bear in mind regarding the brakes is that Mk2 roadsters have smaller wheel cylinders than GTs, which have locating pins in different positions on each type, and consequently the back-plate being drilled slightly differently. This needs to be borne in mind if the replacement axle comes with back-plates and you decide to refurb them so the axle change becomes a simple swap, rather than having down-time while you refurb the originals.

The axle swap was successful ... until I fitted 175 tyres at the rear in place of 165s (when I couldn't get 165s). They now rub again, but only very slightly and occasionally, so I can live with it, but will go back to 165s in the future if possible. So in conclusion I can't recommend the conversion kits, you try them at your own risk.

It's not an issue at the front, the lateral locating of the front wheels relative to the body is much more positive than with the leaf springs at the rear, and the arches being clear of the tyres (to cope with steering!) will never rub anyway. If you chose to go the conversion kit route the kits available these days contain simple conversion hubs which bolt onto the wheel studs (which may need shortening to clear the wheel) of the standard hub, but you will need a method of locking the hub while tightening the nuts (similar to locking the gearbox output shaft to remove/tighten the flange nut). When I did mine these weren't available, one had to obtain a pair of standard hubs. Second-hand it is wise to replace the bearings, so the end-float has to be set-up, and you will need the correct grease caps with the threaded stud. Using the conversion hubs you could get away with the original grease caps, but would need to remove

the hub extensions in order to remove the grease caps for any reason. The big benefit of these front conversion hubs is that it makes life much easier if ever you need to remove the hub and reset the end-float e.g. for replacement wheel bearings, compared to working down the long tube of standard wire-wheel hubs. You would almost certainly need to swap the front hubs if replacing the axle with a pukka wire-wheel one as I can't imagine the front conversion hubs are available on their own.

With Dunlop wires at least you will need inner tubes (although some more expensive brands may claim to seal the spokes). Some people say that you need special tubed tyres to run tubes, or imperfections and knobbles on the inside of the tyre will puncture the tube, but I haven't had that in 27 years and several sets and brands of tyres. However I have found they exhibit a very slow air loss and can benefit from slight over-inflation, more info here.

NEW Punctures *July 2017*

Just a warning, really, about the use of Holts Tyreweld 'puncture repair in a can' and similar. For a long time I've had problems with one wheel on the ZS with a very slow puncture, almost certainly due to a poor seal at the bead, even though the last time the tyre was replaced the fitter derusted and painted the rim. Eventually I decided to try a repair can, and it does seem to have fixed it. Then just a few days later I had a genuine puncture on a different wheel, this time from an embedded screw, so bought another can. The can says to remove the offending item, and connect the can with the hole at the bottom. I did, and the gunge immediately started issuing from the hole. Went for the required 6 mile drive, and came back to find the gunge sprayed round the wheelarch. I was left with a slow puncture, so again as recommended when to my local tyre place. The first thing he said was that the tyre was worn out as the inner edge - not easy to see on the car - was smooth, so as both front tyres were not far off the bars across the rest of the tyre I opted to replace them anyway. The second thing he said when the tyres were off the rims was that having used a repair can they wouldn't have been able to repair it anyway! So unless you are really desperate, or have run-flat tyres that can't be replaced anyway, use of these cans is not ideal. And if you have run-flats it's not needed in any case. And if you do choose to use it, probably best to leave the cause in the tyre as it couldn't seal the hole left by even this small screw:

But bear in mind it won't be repairable afterwards.

Tyre Markings

Added March 2010
Decoding the tyre wall. For modern tyres you will typically see (on the ZS for example) '205/45 R17 88W' where 205 is the width of the tyre in millimetres, 45 is the aspect ratio or height of the tyre sidewall as a percentage of the width (in this case 45% of 205mm), 'R' is Radial construction, '17' is the diameter of the tyre's inner rim in inches, '88' is the Load Capacity (in this case 560kg), and 'W' is the Speed symbol indicating the max. speed for the tyre at full load (in this case 150mph).

Originally radial tyres for the 4-cylinder would have been marked '155SR14' for the roadster, '165SR14' for the 4-cylinder GT and '175HR14' for the V8. '155/165/175' is the width of the tyre in millimetres, 'S' and 'H' are the speed rating (113MPH and 130MPH respectively), 'R' signifies Radial construction, and '14' is the rim diameter in inches. No aspect ratio is given as most tyres were 80s, i.e. the sidewall height is 80% of the tread width. 80 profile tyres aren't commonly available these days, so it is quite normal to see 70 or 75 profile tyres used with an increased tread width to keep speedo accuracy. No load rating given either. Modern tyres, for the V8 for example, will be marked '185/70 R14 H88' i.e. 185mm tread width, 70 profile, radial construction, 14" rims, H speed rated, 88 load rated.

It's interesting to note that with the change from crossply to radial the tread width units changed from Imperial to metric, even though it was long before general metrification in the UK. This may well have been to give a clearer indication of construction than a simple code letter, as crossply and radial must **never** be mixed on the same axle, nor can their be radials on the front with crossplies on the rear. However the rim diameter continues to be in inches, because there are few exact, round number conversions between metric and Imperial, and the

rim diameter needs to be to very close tolerances or you won't get it on, it will leak, or even worse come off the rim, and there is little point in specifying tyres for a 14" wheel as '355.6mm' just so as you can use metric units. Why do UK wheels continue to have rim diameter in inches when they could be metric? Probably because tyre manufacturers for the UK market would then have to produce tyres in both Imperial and metric, with only tiny differences between some of them.

Speed ratings:

"N" For cars with a speed capability not exceeding 140 Km/h (88 MPH)
"P" For cars with a speed capability not exceeding 150 Km/h (94 MPH)
"Q" For cars with a speed capability not exceeding 160 Km/h (100 MPH)
"R" For cars with a speed capability not exceeding 170 Km/h (106 MPH)
"S" For cars with a speed capability not exceeding 180 Km/h (113 MPH)
"T" For cars with a speed capability not exceeding 190 Km/h (119 MPH)
"U" For cars with a speed capability not exceeding 200 Km/h (125 MPH)
"H" For cars with a speed capability not exceeding 210 Km/h (130 MPH)
"V" For cars with a speed capability not exceeding 240 Km/h (150 MPH)
"W" For cars having speed capability not exceeding 270 Km/h (170 MPH)
"Y" For cars having speed capability not exceeding 300 Km/h (190 MPH)
"VR" For cars having speed capability over 210 Km/h (130 MPH)
"ZR" For cars with a speed capability over 240 Km/h (150 MPH)
"ZR+W" Tyres marked with both designations for cars with speed capability over 240 Km/h but not exceeding 270 Km/h (168 MPH)
"ZR+Y" Tyres marked with both designations for cars with speed capability over 240 Km/h but not exceeding 300 Km/h (186 MPH)

Load ratings:

Load Index	Load in kg	Load Index	Load in kg	Load Index	Load in kg
62	265	84	500	106	950
63	272	85	515	107	975
64	280	86	530	108	1000
65	290	87	545	109	1030
66	300	88	560	110	1060
67	307	89	580	111	1090
68	315	90	600	112	1120
69	325	91	615	113	1150
70	335	92	630	114	1180
71	345	93	650	115	1215
72	355	94	670	116	1250
73	365	95	690	117	1285
74	375	96	710	118	1320
75	387	97	730	119	1360
76	400	98	750	120	1400
77	412	99	775	121	1450
78	425	100	800	122	1500
79	437	101	825	123	1550
80	450	102	850	124	1600
81	462	103	875	125	1650
82	475	104	900	126	1700

83	487	105	925		

Tyre Pressure

Added April 2008

For years I've felt I'm the only MGB owner in the world that uses the manufacturers pressures of 21psi front and 24 rear for 'normal' use. The discussion cropped up again last week when a new owner complained of a poor quality ride. As well as questions of 'What are you used to?' and vehicle condition, once again I chipped in with the manufacturers figures, had those dismissed as being for cross-ply tyres (they aren't, the pressures for cross-ply tyres are lower than that at 18 front and rear for 'normal' use) and others as usual saying they should be in the 30psi range. But it did occur to me that my old Celica, my Son's BMW, and my new ZS all do have pressures in that area for normal use, so I decided to make mine 28 front and 32 rear prior to the Daffodil Run this year. It was immediately apparent how much harsher the rise had become, and going over larger bumps the suspension was crashing whereas previously even bottoming the suspension was done quietly albeit with a bit of a jar, so mine are going back to what they were before. A couple of days later the original poser of the question writes back:

> "I wanted to thank who ever it was (probably Paul) who said they were running 21 psi F and 24 psi B. My tires were at 32psi and I was feeling every defect in the road as a huge jolt and now that they are at 21 and 24 wow what a difference. I thought they would feel sloppy like under inflated tires but they feel great and since the car is so lightweight, and you don't get that mushy flat tire look. It actually looks normal. I'm gonna keep them this way from now on."

Will that change anyone else's mind? Probably not. However having wire wheels that need tubes I do notice that they lose air very slowly, so now inflate to +5 each end, more info here.

Those figures are for the roadster, for completeness 4-cylinder GT figures are 20 or 21 front (cross-ply or radial) 24 rear, V8 21 front and 25 rear. At maximum weight increase the rear pressures by 2psi, and for sustained high-speeds increase front and rear by about 6psi.

Tyre Size *Added May 2009*

Rolling Radius

I've always been aware of various tyre sizes listed in the Workshop Manuals, but it's never been an issue when replacing mine - I've always been able to get like for like 'off the shelf', as it were. However the last time I changed any was quite likely 10 years ago, and things are very different these days with low- and ultra-low profile tyres being standard fitment on many cars including the ZS. None of the roadster or V8 tyres quote a profile on the sidewall, and when enquiring about tyres for the roadster I was asked what profile I wanted. I had an idea that '70' was the default profile where none was specified on the tyre, a quick web search seemed to confirm that, my fitters had those in stock, so along I went. However when they took the old tyres off they said they were 80s, and 70s would give a significant reduction in rolling radius which would lead to over-reading speedo and poorer touring economy, albeit with better acceleration, which I didn't want. They had some wider (175) tyres at the same (70) profile which gives nearly the same rolling radius as 165/80s so I had to go for those as I needed them for the imminent New Forest run plus a few days touring Dorset. No big deal with that (except the considerably increased cost!) but I subsequent found fully laden over bumpy twisty unclassified roads one of the tyres is occasionally rubbing the arch, so not ideal. Not much I can do about that now, as I can't swap them with the fronts (which has a lot more room) as it is illegal to have tyres with more grip on the front then the back. So time to do some research into tyres sizes.

Updated July 2011: Bee needs two front tyres, and sourcing is now much harder. My usual place said they should be able to order two Toyo 165/80 14s but then started mucking me about with tales of the ordering system being down and may not be back for a day/week/month. Black Circles seem to have the size, but you have to be careful to filter out the van and commercial tyres and just look at car tyres, and that leaves just one 'value' tyre that isn't even named. Selecting 175/70 S rated (minimum speed rating for the MGB) returns 51 options from £45 to £82, and selecting T (next highest speed) returns 43 from £45 to £82. The cheapest one with a name is Falken, but at the time that name meant nothing to me and as they are cheap I was a bit doubtful. In the event my son told me he has a set of Falken winter tyres for his BMW M Coupe which have been very good in the wet and frost, and they are highly recommended in BMW circles (pun not intended). Black Circles have an arrangement with 1200 tyre fitters across the country so you order and pay for them online selecting a fitting centre, date and time. Service was good with emails confirming order, and delivery to the fitting station, and I was able to bring the fitting date forward as something else had come up in the meantime. The fitting station was a bit further away than my usual place but not that much so, and I took just the wheels in. They had all the pukka fitting and balancing kit, and I gave them my wire-wheel balancing cones which they were happy to use, but 'elfin safety' being what it is I had to wait elsewhere. The proprietor popped back to say they had done the first one and put 25 gram weights each side. I hadn't thought to say I didn't want weights on the outside as my usual place avoids that automatically. So round to the workshop where they take the outer one off, saying it would need 130 grams of stick-ons on the back of the spokes instead, which they weren't happy to do for some reason. So I left it with just the rim weight on the inside, although they said I might get some vibration over 65 mph. The problem is this is Thursday, and we are off on Saturday for three days for the Pendle Run. No problem for the run but the journey up and back is going to be motorway, and I don't really want to have to keep below 65mph. I could take the car out and see if the vibration is there, but Thursday afternoon is wet, the car is all fettled to go, which only leaves Friday morning (Friday lunchtime being spent at the pub...). In the event I decide to swap front and back wheels over as I have run the rears on the front when I had those balanced and they are fine, and out of balance wheels are much less of an issue on the rear. Convenient I ended up with 175/70 on the front as well as rear then, otherwise I wouldn't have been able to (safely) swap them. So should be OK for the run, then I can swap them back at my own convenience and see how the new tyres are on the front, and get them balanced at my usual place (OK, for a fee) if needs be. The 175/70 do rub a little bit at the rear so I would have preferred 165/80s all round, but I'm stuck with them now. It's likely to be another 10 years before I have to replace them, and I don't like to think how old I'll be then!

April 2014: Black Circle seems to have quite a few 165/70s now, at reasonable prices. A pal went to his local garage (not tyre fitter) asking about tyres, mention Black Circles, and they and they could get and fit them for him. He thought that 'one-stop shopping' would be more convenient, having already looked into buying on-line, but ended up paying noticeably more for them. The price you pay online covers everything, even though they are supplied and fitted to a fitter of your choice.

The original tyres for the roadster were 5.60-14 (crossply) or 155-14 (radial) as an option. The first number is the tread width - 5.60 inches in the case of the crossply, 155mm for the radial, even though 5.6" converts to 142mm! '14' is the wheel diameter at the tyre bead. When the GT was introduced its tyres were 165-14. At the time the sidewall height (which is the major factor in rolling radius) wasn't specified, but was always '80', which represents 80% of the tread width. It was the same for both 155 roadster tyres and 165 GT tyres, which means the GT has a slightly higher rolling radius, which will have a small effect on speedo reading. Wheel width was something else altogether, at 4" for roadster disc wheels, 5" for GT disc wheels, but 4.5" for wire wheels on both! It's this difference (in disc wheels) that accounts for the different tread widths. When Rostyles replaced disc wheels both models used 5". The alloy wheels used on some special models late on were also 5", but had 185 width tyres, with

70 profile instead of 80, and RV8s used a 65 profile! Confused? You have every right to be. Speedo reading isn't as much as an issue as you might think, as most markets accept speedos that fit into a band where they don't under-read, but can over-read (i.e. show you are going faster than you really are) by up to 10%. 5mm increase in the width for the same profile results in about an extra half inch (in typical MGB tyres) of radius, which equates to about 2%, so well inside the 10%. Germany was the exception and required much more accurate speedos, so GTs had a different speedo to roadsters to cope with the wider tyre with the same profile and hence the larger rolling radius, with a lower turns per mile - 640 as opposed to 660mm (which is actually turns per kilometre not turns per mile). Speedo operation is governed by a number of factors including tyre rolling radius, axle ratio, speedo drive gears in the gearbox, as well as the gearing inside the speedo.

Added October 2009:
As well as width, profile and wheel size speed rating is also important. Neither the Leyland Workshop Manual nor Haynes specify a speed rating for the 4-cylinder cars, but Clausager states it was SR. However today the 'R' seems to have been dropped and the rating is just 'S' which is good for up to 112mph, comfortably over what a standard car should be able to achieve. However the MGOC seems to only be offering MGB tyres in T and H ratings, T is rated up to 118mph and H is 130mph. They also offer them in 15", which is the MGC diameter, which should definitely have H rated. Originally V8 tyres were specced as 'HR' ('H' in today's parlance) which is good for up to 130mph, which doesn't give much leeway. Of course any increase in performance that even reaches these figures, let alone exceeds it, means that the appropriate higher rating must be fitted. Beware those websites that show speed ratings with column graphs, as well as being pointless and taking up far more screen space they are confusing if not downright inaccurate as they appear to show each rating as having a lower speed than they actually have. You are better-off with a simple table from the likes of BlackCircles.com or the RAC.

Added July 2009:
Table of standard tyres, plus various options for 4-cylinder cars as compared to the original 155/80 roadster radials:

	Wheel size	Tyre width	Profile	Speedo Error
Roadster (cross-ply)	14	5.6	100	0.0
Roadster (radial)	**14**	**155**	**80**	**0.0**
GT	14	165	80	-2.6
LE/Special Alloy	14	185	70	-1.79
Option 1	14	175	70	+0.3
Option 2	14	205	65	-3.1
Option 3	14	195	70	-4.1
Option 4	14	165	70	+2.7
Option 5	14	185	80	-7.8
Option 6	15	175	65	-0.7
Option 7	15	185	65	-3.1
Option 8	15	165	65	+1.4
MGC	**15**	**185**	**70**	**0.0**
Option 1	15	185	60	+3.6
Option 2	15	195	60	+2.4
V8	**14**	**175**	**80**	**0.0**

Option 1	14	185	80	-2.3
Option 2	14	185	75	+0.39
Option 3	14	185	70	+3.6
Option 4	14	195	70	+1.3
Option 5 see note	15	175	65	+7
Option 6 see note	15	185	65	+2.2
RV8	**15**	**205**	**65**	**0.0**

Note: Recommended for the 15" all-alloy wheel by the V8 Register site, but the 175 is significantly under-sized. 70- and 75-profile tyres would be much closer to the originals, but unfortunately 70s are about four or five-times the price and 75s are not available for a 15" rim. This makes 185/65 the best option out of those two, but the lower-profile will make for a harder ride. 195/65s can be had for around £50 each, but then they are a struggle to get under the cover in a GT, as well as the harder ride.

Rolling Radius and speedo error: *January 2017*
Correspondence in the MGOC mag has been arguing about radius, circumference and distance travelled for five months now. It started in September 2016 with one contributor giving his experiences of different tyre sizes and the effect on speedometers.

Next month someone who put a string of letters after his name said "It is obvious from observation that the distance travelled by a vehicle for a complete revolution of the wheel is the distance that would be measured by putting a tape measure round circumference of the inflated tyre" which just goes to show that not everyone with letters after their name knows what they are talking about.

The original contributor came back in November with a very simple test that anyone can do to prove the point, which boiled down to making a chalk mark on the tyre and another adjacent mark on the road. Roll the car forwards until the tyre chalk mark is again in contact with the road, and measure the distance from there to the first chalk mark, and compare that with the measured circumference. His tests also showed how the same tyres with different pressures rolled different distances. He also indicated that this isn't the whole story, one would have to do the same as the factory and measure at a specific speed with a specific pressure in order to get precise speedometer gearing information, which anyone who watches Guy Martin take is Transit van to Nevada's 'Open Road Challenge' will see in practice. Despite pressure sensors on the wheels and sophisticated computer software, they miscalculated the instantaneous speeds they had to travel at in order to complete a given distance in a given time and achieve an average of exactly 150mph, purely because the local expert miscalculated how much the tyres on the Transit would change in size with speed.

A brief respite in December, then in January someone else pops up basically saying what the first person said can't possibly be true, invoking his own engineering credentials and making comments about the curvature of the earth, epi-cyclic gearboxes, tyres slipping round wheels etc., and saying the distance travelled is solely governed by the length of the tread round the circumference of the tyre. He obviously is an arm-chair theorist and hadn't bothered with the simple test given in November.

I have, and my results are as follows:

Unloaded radius	302mm
Loaded radius	276mm
Unloaded circumference	1884mm

Loaded circumference	1887mm
Loaded distance travelled	1836mm

This clearly shows that whilst the loaded and unloaded circumferences are only 3mm different, the distance travelled i.e. rolling circumference is significantly less than either. Perhaps slightly surprising is that the circumference increased by 3mm from unloaded to loaded. I measured both with a single length of masking tape around the centre of the tread. Masking tape does not really stretch, and only sticks very lightly to the tread, so the length should not change between measurements. Also I measured it unloaded first, made a pencil mark where the overlapping end crossed the cut end, peeled it off, laid it on a flat surface and measured it. Then with just the middle of the strip stuck to the bottom of the tread lowered the wheel onto the ground then wrapped the two ends back round the centre of the tread and overlapped them on the top. The pencil mark was now 3mm away from the cut end of the tape. As a double-check on the consistency of the tape I jacked up the wheel again, and could feel crinkles from slack in the tape around the lower half of the wheel. Peeling the ends back to just leave a short section stuck at the bottom, I wrapped the ends back round again removing the crinkles, and now the pencil mark was exactly over the end of the tape. Why this change in circumference from unloaded to loaded? It seems unlikely that it should be purely from the difference in air pressure in an unloaded and loaded tyre. One of the arguments against the difference in measured circumference and distance travelled is that 'you can't travel less than the length of tread around the circumference of a tyre'. But rubber is 'elastic' in that it will stretch, compress, bend and twist under various forces, so perhaps it is just down to the bulge in the sidewalls at the bottom of a loaded tyre. The body of the tyre is continually being distorted as it goes through this 'bulge' region where it contacts the road - this is one of the factors that causes a tyre to heat up while driving not just cornering, accelerating and braking, and it is my contention that it is this distortion that results in the rolling circumference being less than the measured circumference. E&OE!

There are any number of tyre size calculators on the internet that give the effect in speedo accuracy, and the vast majority of those talk about rolling radius or circumference. Some go as far as including the effects of speed, dynamic rolling radius is higher than static loaded radius as at speed the tyre tends to expand outwards, the figures shown in the tyre size table above are for 60kph/37mph. There is no way that number of web sites would exist if the effect did not exist practice - now that is 'obvious from observation'!

Note that a wider tyre with the same profile, will have a higher rolling radius, and will result in the speedo reading lower for a given speed by the percentage shown in the table above. The speedo usually **over**-reads by up to 10% but should never under-read, so it might be considered that somewhere around the middle of that band would be the norm, giving some degree of leeway with a tyre that results in a speedo reading lower than before. However from my tests and others, the speedos are pretty accurate in the lower speed ranges, maybe getting progressively more optimistic at speeds over 60mph. In that case you have to be careful that your tyre choice doesn't result in the speedo under-reading at 30, as some cameras have little or no leeway despite the oft-mentioned '10% plus 3mph'. A higher rolling radius may give the car a slightly higher top speed, but will definitely reduce acceleration. Conversely a 'smaller' tyre will cause the speedo to over-read even more than originally, will probably reduce top speed, but increase acceleration.

To calculate other options see this calculator from 'Will They Fit.com' (other tyre size calculators are available ...).

Tyre Valves *Added January 2011*

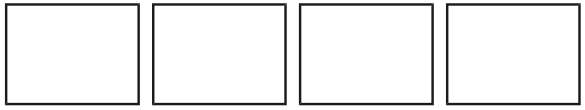
Ever since I changed Bee's wheels to wires with inner tubes they have gradually lost pressure at the rate of about a couple of pounds a week. I thought that might have been a feature of

inner tubes somehow (my bike tyres always needed pumping up) until I had a puncture and as a matter of course replaced the tube rather than repairing it. I then found the 'new' tube - which in fact I had been carrying round as a spare probably since I fitted the wheels (as well as a spare wheel with its own tube) - hardly lost any air at all, no more than I had been used to with other tubeless wheels. For some reason I still thought it was the tubes, pumping up three tyres every now and again instead of four, until very recently when changing tyres on the ZS, when I suddenly wondered if it could be the valves. The tyre fitters removed the valve core to deflate the tyre, dropping the old core on the ground. I picked it up and pocketed it (together with the cap to replace a split one on one of my other wheels) then back home deflated Bee's other rear wheel (jacked up so the tube wasn't crushed), swapped over the cores and reinflated it to the same pressure as the one with the replaced tube (weight now back on the wheels). One point of interest was that the core I was taking out of Bee's tube had a red core, whereas the one I was putting in was black About a month later I checked the pressures to find neither rear tyre had lost any pressure, even though the replaced core had been on the ground then sitting on the work bench for a couple of weeks i.e. risk of picking up contamination. Next trip to Halfords I noticed they had some, but they were red, so I didn't feel inclined to buy those for the front tyres, and at £3.29 for two I thought they were pretty expensive anyway. So next job is to check the colour of the other three of Bee's cores, before I decide what to do next.

April 2011: Not checked the other valves yet, but after a longer period between checking pressures the rear tyre with the replaced valve but the original tube seems to have lost the same amount as the two fronts with the original valves and tubes, whereas the other rear with the replaced tube still had lost virtually nothing. So I'm back to thinking it is tubes again, and not valves. As it means pumping them up before every run or it does feel heavy and soggy, including a Sunday morning jaunt, I now inflate to +5 i.e. 29 front and 25 rear, which seems to be a good compromise. Not too harsh just after inflation, and it stays above 24 and 21 for two or three weeks which is fine for short jaunts.

Tyres - What to do with old ones ...

V8 Wheels



Vee's wheels have never been in the best of nick, the chrome moderately pitted, the paint on the alloys lifting and flaking, and the wheel-nuts a bit rusty where the chrome has peeled off on the edges. A PO had also taken a drill and wire brush to the alloy which had ruined the edges and obliterated the fine concentric rings that should be there, as well as putting circular scratches in the facets. I had attempted to remove these but the only way had been to replace them with longitudinal scratches albeit finer ones. Simple cleaning made the chrome rims look a bit better but they were never going to withstand close examination. I had decided that when I eventually do a full respray I will treat her to new wheels, hub-centres and nuts, but that is a long way down the road. Having done the quarter-panel replacement prior to the 2003 V8 Cornish Tour I was

enthused to cut and polish the body, and 'Black Chromed' the bumpers, but that still left the wheels. In a rush of blood to the head I suddenly decided to refurbish them in the ten days or so before the Tour, knowing full-well that once I started I would have to finish! Click a thumbnail for the full story.

Since writing this someone has posted to the V8 Register BBS their experiences with Solent Wheels. Their chrome was in fairly bad condition and for £50 (£69 'all-in' as of October 2016) Solent stripped and powder-coated the whole wheel - rim and alloy centre - silver then top-coated the alloy part in satin black, finally polishing the areas round the cut-outs. Photo looks pretty good and had my chrome been any worse a better bet than spending eight hours per wheel!

September 2017: Having had the engine and body done, that left the wheels! I'd spent so long debating what to do about said body and engine, taking minimal care of the body and wheels in the meantime, that when I got the car back after over 11 months in sundry restorer and paint shops the wheels looked absolutely dreadful. A wash improved matters slightly, but every aspect of them still looked pretty bad. More research, and I came across this link. Primarily they only restore the centres, which have to be split from the rim. They will split and re-rivet at extra cost, but you have to get the rechroming done yourself, the total cost then approaches that of Clive's alloys. On the plus side they are 'original', but on the minus even if you can get good chrome the reassembly is critical, each centre has to go back in its original rim, in the original orientation, or you may get problems. They also state that apart from the offset of the rims the centres are identical to Scimitar wheels (which they also do) but this is definitely not the case - Scimitar cut-out facets have sharp angle on the sides, V8s have a rounded angle. This raises doubts as to their attention to detail.

In the end I opted to have a go at cleaning mine up. The chrome was the hardest, very discoloured with crusty lumps in the recess between rims and centres. But patient work with Solvol Autosol and a pan-scourer (!) brought most of it up quite well. The crusty bits had to be attacked with a blunt flat-blade screwdriver (!!) to scrape it off, then the polishing. The removable wheel centres came up surprisingly well, apart from the odd dent they look almost as good as new (saving another £100), and the nuts are stainless so they came up well. That left the centres, painted in 2003, and I was surprised to discover how good the condition of the paint was. More polish and pan-scourer brought those back to satin black with very little by the way of defects. The facets came up best with Solvol Autosol again, better than emery cloth, albeit to a smooth finish whereas I think the originals were slightly textured. Six hours work, saving £400-£500.

October 2016: MWS indicate on their web-site that they 'refurbish and restore' V8 wheels but an enquiry as to the price elicited the response that they don't do them anymore, neither does Clive Wheatley even though they are shown on his web-site as well. However a very interesting alternative from Clive are these 15" all alloy wheels, which consist of an alloy rim with the correct alloy centre. Being 15" they will need lower profile tyres than normal, and 175 or 185/65 R15 are recommended. However 175/65 have a 7% lower rolling radius which at an indicated 65 mph result in about 5 mph slower actual speed than the original 175/80 R14, with 185/65 at about 2% and 1.5 mph respectively. On the face of it 70 and 75 profile tyres are a much closer match, but unfortunately 70-profile tyres are about four or five times the price, and 75-profile tyres are not available for a 15" rim. Currently £333 plus VAT or £400 each, plus a tyre, and you also have to consider the effect on suspension going down to a 65 profile from 80.

July 2010: In December 2007 I added a paragraph about someone in the West Midlands who would split and rechrome V8 wheels. I've recently had an email from someone who has had a very poor experience with rechromed **Rostyles** from this person, commenting on a crude

technique for splitting and reassembling, severe balance problems afterwards, and chrome that rusted over winter in a dry garage. So on balance, link deleted!

Wheel Nuts

Various opinions about how tight they should be. Having read a generic figure of 60 lbf.ft somewhere that is what I've been using, however I subsequently noticed the WSM and Haynes both say 60-65 lbf.ft.

Differences between 4-cylinder and V8
Stainless wheel nuts

Stainless wheel nuts: In 2010 I replaced Vee's wheel nuts with stainless after national tyre and auto wreck, following replacement of the front tyres, used an air-gun until it chattered to refit the nuts, and then checked they weren't under-tightened with a torque wrench! After I had freed them using about 120ft lb according to my torque wrench - before it broke - the front ones seemed loose on the studs compared with a couple of rear nuts on the front studs, so I opted to replace them all, the original chrome ones were looking pretty bad anyway. Had to smile as the new ones simply reflect the muck and rubbish on the wheels so they look just the same :o). However if and when I do get the wheels done properly they will look good then.

April 2011: After a winter largely garaged I note that a couple of the washers on the new 'stainless' wheel nuts are showing traces of rust ... hmmm.

November 2013: During 2012 they were a little worse, even though the car is rarely run in the wet and never in the salt, and one of the nuts looks like it is starting to peel - i.e. chrome and not stainless! And by late 2013 one of the nuts is definitely peeling and about half the washers are showing rust to various degrees.

Aware that stainless steel usually has different magnetic properties to ferrous metals I tested a couple of the original chrome, and all of these 'stainless' items to see how they compared. I was quite shocked to find that not only was the peeling nut magnetic, but no less than seven of the nuts had magnetic washers although some showed barely any rusting. The washer on the magnetic nut was non magnetic, as were the remainder of the nuts. In summary I had eight nuts with one of the two components magnetic i.e. ferrous, and the other eight had both components non-magnetic i.e. stainless steel. Therefore it was down to shoddy manufacture, and not the supplier mixing the two types up as the washers are retained by the nut during manufacture. In any case this supplier said they didn't stock the original type anyway.

I got onto the supplier and despite emails back and fore, including a copy of the original invoice, and a couple of phone calls, they said they didn't know anything about magnets, weren't prepared to test their stock, and offered nothing more than 'to fight my corner with the manufacturer' if I returned them i.e. in total contravention of the Sale of Goods Act. I consulted Citizens Advice (Trading Standards no longer deal with individual complaints), the MGOC (who were surprised they hadn't offered to replace them at the outset) and the Metallurgy Department of Birmingham University. The upshot was to send the faulty ones back via 'Recorded Delivery Signed For', with a covering letter based on a template from Citizens Advice pointing out my rights and their responsibilities.

Fortunately common sense took over and the supplier agreed to replace them almost immediately. I had asked for a refund as I had no confidence that I would get all stainless this time, but they said they had tested all their stock with a magnet and would definitely send the correct items so I accepted that. A pity they hadn't offered to do that in the first place. I was relieved, as the alternative would have been suing them through the Small Claims Court. I

would have taken that route, regardless of the time and effort required on my part, as I refuse to be sold duff stuff without a fight.

Within a couple of days replacements had arrived, all non-magnetic. I also notice that the washers are retained in a slightly different manner, so perhaps the supplier has changed their source! I can't be the only person to have received nuts like this, but maybe other people don't bother complaining - to the supplier - and insisting on their rights.

Wheel Sizes and Offsets *Added January 2010*

MGB:
- Rim diameter 14"
- Rim Width:
  - Disc (roadster) 4J
  - Disc (GT) 5J
  - Wire (60 spokes) 4.5J
  - Rostyle 5J
  - Alloy (V8/LE) 5J
- Stud Pitch Circle Diameter 4-stud 4.5" (114.3mm)
- Offsets: Rostyle 28mm (early) or 22mm (late), see Note 1. Wires possibly 14.3mm, see Note 2

MGC roadster/GT:
- Rim diameter 15"
- Rim Width:
  - Steel 5J
  - Wire (72 spokes) 5J
- Stud Pitch Circle Diameter 4-stud 4.5" (114.3mm)
- Offset 22mm?

Note: 22mm offset is mentioned in various places, but I measured my Rostyles at 28mm positive offset. *Updated November 2013:* Brian McElroy posted a link to a page by Richard Thompson detailing how early and late Rostyles differed in offset by a significant amount. Richard says 2.814cm for early and 2.384 for late (probably from this article in Hemmings.com), making mine (came to me on a 73 roadster) 'early'. MGOC seem to be the only supplier to show two standard Rostyles - BHH2090NE and BHH2090WE, and they tell me NE (narrow track) is for Chrome bumper and WE (wide track) for rubber bumper, so indicating the date of the change as well. However the Leyland Parts Catalogue doesn't confirm that, specifying 'BHH 123 primer' (painted?) or 'AHH 9149 CP' (chrome plated) as an option up to 76, then from September 76 on 'BHH 2090 painted'. So a different part number, which could well be the different offset and perhaps an omission (changing with rubber bumpers) from the earlier catalogue. But the Workshop Manual General Data section states the track was 1/2" (12.7mm, i.e. close to the offset change in both wheels) wider from car No. 410001, which dates to September 76, indicating that the Parts Catalogues are correct after all. Additionally Clausager says the wheels had a different paint finish from the same date, which may or may not be indicative of the offset change. Whatever, it's odd that the MGOC give the same - later - base part number for both types. The higher ride height of the rubber bumper would indeed allow for a slightly wider track at the rear without the tyre rubbing the arches, but would the factory really go to that trouble when they were so strapped for cash? It seems unlikely, but if the change did come with rubber bumpers the slightly wider track would help compensate for the higher ride height and greater tendency to roll in corners. However it wasn't until the 77 model year that a rear anti-rollbar was fitted, which makes a concerted effort to improve handling by maximising the track as well as fitting the bar more

likely to my mind. The later wheels i.e. less offset i.e. wider track should fit all rubber bumper cars without problems, but would make rubbing on chrome bumper cars more likely.

March 2014:

Steve Hunt (no relation) writes to say there is a quick way to see which wheel you have. The earlier, narrower-track wheel has the mounting face for the 'hub cap' sticking out past the line of the rim by a few millimetres. The later, wider-track wheel has the mounting face virtually flush with the rim.

Note 2: And what about wire-wheels? Stud wheels are easy - you simply measure the distance from the centre-line of the wheel to the face of the wheel hub that contacts the face of the brake drum. But for wire wheels is it measured from the face of the drum as for stud wheels? The back of the wheel hub? Or to the inner mounting taper? And if the inner taper is it the wider diameter? The narrower? Or between the two? Wire wheel axles are 1.75" (banjo) or 1.5" (Salisbury) narrower than stud axles, and the tyres are at much the same position in the arch, so the brake drum face is 3/4" (for a Salisbury wire wheel) closer to the middle of the car than a Salisbury stud axle. The back of the wheel hub is 13mm out from the brake drum, and the middle of the inner mounting taper is 14mm further out from that, i.e. 27mm out from the brake drum. This puts the centre of the wire wheel inline with the face of the brake drum, and not 27mm behind it as with the Rostyle, so it could be considered to have zero offset using the same axle reference point (i.e. the drum face) or 27mm positive offset if using the mounting face i.e. mid-way on the inner mounting taper. The upshot is the track with a 4.5J wire wheel is actually 20mm wider than a 5J Rostyle, but because of the narrower width the outer rim is only 4mm closer to the arch. However these are measurements taken from my after-market Dunlop wheels, where the offset could be anything. *October 2017:* Moss for their MWS 60-spoke wheels specifies 14.3mm 'inset' (i.e. positive offset), and also 'back spacing' (inner rim to mounting face) of 84.5mm +-3mm. This implies a wheel width of 140.4mm ([84.5-14.3]*2), or 5.528", i.e. 5.5J, but the wheels are 4.5J, which shows that the backspacing was measured from the outer rim i.e. a straight-edge across the side of the wheel as this dimension is usually about 1/2" more each side than the stated width which is the width that the tyre bead sits in. With mine the centre of the wheel is level with the drum face, the inner edge of the wheel hub is about 13mm out from the drum face, and the centre of the inner taper is about 12mm out from there. This implies that offset uses the inner edge of the wheel hub. More information on backspacing here.

Clausager mentions (p95) that wire wheels were modified in September 1976 to give greater clearance to the arches, but this is really strange. If the Rostyles could go wider for rubber bumpers, why did wires need to be narrowed? As he doesn't mention the change to Rostyles, perhaps both widened with rubber bumpers (although the MGOC doesn't have the two types like it does for Rostyles), but they went too far with the wires and they had to be reduced. Another of those things that falls into the category of "We shall never know".

So does offset vary with wheel width? To keep the same track, the offset would be the same, which would reduce the clearances both side of the tyre. But if the track was originally made as wide as possible with narrow tyres with a minimum clearance to the outer part of the well, then with wider wheels a bigger positive offset would be needed to retain that clearance, i.e. moving the wheels closer together, which would reduce the track, and the clearance to the inner part of the well would reduce by the whole of the increase in wheel width. And comparing my wires with the original Rostyles, taking the two axle lengths into account, does bear that out. The Hemming article puts the offset change down to the use of 165 tyres instead of 155, but that's not correct as the GT always had the wider tyre. Also whilst the roadster disc wheels were 4J, and the GT disc wheels 5J, when the Rostyles replaced disc wheels they both used 5J.

See this drawing showing other wheel dimensions.

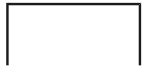
Wire Wheels

- Balancing
- Spoke breakage/replacement
- Cleaning
- Dunlop vs Dayton
- Do I have tubes?

Spoke breakage/replacement: For the first few years I had no breakages, then I started getting the occasional one per year, then gradually more until in May 2007 I found eight altogether - 3 on two wheels and 2 on another, with one wheel with none. It's said to be a particular problem with chrome wires, either the chroming process makes the steel brittle, or possibly once the chrome cracks with the normal flexing it propagates down into the underlying steel. Either way, it is about a tenner in the back pocket of my local tyre man to remove and refit the tyres (marking which tyre goes on which wheel, which way round, and where the valve hole goes beforehand) and a half-hour shlep over to a wheel rebuilder and another few quid depending on how many are broken, for a while-I-wait replacement. This year I only discovered them 3 days before our first run of the season, to Cornwall, probably in excess of 500 miles. I have no idea how many broken spokes are too many but three on one wheel was too many for me. Then thrown into a panic because my rebuilders telephone number was coming up 'not recognised'. Spent some time on Google trying to track them or someone else down with no luck - there seem to be very few people doing spoke replacement or wheel rebuilding for MGBs, I think I only found one other miles away, another chap in Stourbridge supplied hubs and rims but nothing else, and a big place in Coleshill supplied the spokes but wouldn't replace them on MGB wheels! What does everyone else do? I see other cars with them at every run we are on, lots of parts houses supply the wheels new, but none of the ones I spoke (ho ho) to knew anyone who would replace the spokes. Finally I got my rebuilders new address and phone number from Brian Rainbow via the TA/B/C section of the MG Enthusiasts Bulletin Board' for which I was very grateful and got one of the worst wheel's broken spokes replaced before the run, reckoning I could live with the others for a while. I have seen a number of comments from America that stainless steel spokes don't break - or at least they last much longer than chrome. I've had a look at some but they are quite dull and not as highly polished as stainless can be, which would mean the wheel would lose quite a bit of their 'twinkle' which would be a pity. However, at 3 spokes per wheel per year and increasing, it's probably time to consider a full-respoke with stainless.

Update summer 2007. Had the other wheel with three broken spokes completely replaced with polished stainless after the May Tamar Valley and June New Forest runs. These were more highly polished than the ones I had seen earlier, the only real difference being a slight grey tinge to the stainless whereas the chrome have a slight blue tinge. We shall see how they go. As far as the other wheels go I shall get a handful of stainless spokes with a view to replacing them myself as and when they break. Getting the tyre bead off the rim will be interesting, the tyre shouldn't need complete removal as the broken spokes have always been in the outer edge of the rim, not in the well. I have a couple of ideas, including using the weight of the V8!

Update May 2008. Following the rash of breakages found early last year I only had one broken spoke at the end of the season, and so far about 700 miles this year with no more. Quite why that should be with so many last year I don't know, but I've decided to proceed with the experiment of replacing them myself.



As mentioned I found that by jacking up the V8, laying the wire-wheel down under it (on some thick padding to protect the rim edge on the back of the

wheel), and jacking the V8 tyre down on the sidewall of the wire-wheel tyre, the bead came free easily.

With the bead off the rim very little pressure on the sidewall presses it down far enough to get at the nipples of the short spokes (these are the only ones that break in my experience), cut the protective tape and remove the nipple complete with broken spoke through the rim. Cutting the protective tape over the short spokes doesn't matter as the tyre bead covers them and stops the tube coming into contact with any sharp edges.

I took a good spoke as well as a broken one to Central Wheel Components at Coleshill in Warwickshire to have 10 made up at £1.50 each, and they also had a suitable spanner. This has two jaws capable of fitting six different sizes of nipple, the largest one had to be ground out very slightly to fit the MGB nipples, and the edges ground down slightly to get enough 'swing' on it as the nipples only have four flats.

Picked up the new spokes a few days later. Not quite as shiny as the sample I had from them originally, but a few minutes with some Solvol Autosol soon cured that for the one spoke I needed to fit right now.

Inserting the new spoke you soon discover that one of the long spokes has to be undone and swung out of the way, as when the thicker butt of the new spoke reaches the hole in the hub it fouls and can't be pushed in any further. Be careful not to damage the protective tape over the nipples in the well of the rim or it is likely to cause subsequent punctures.

With the adjacent long spoke out of the way you then find that the new spoke can't be pushed directly to its nipple waiting in the rim as it fouls the short spoke on the other side! However inserting the new spoke nearly all the way on the wrong side of the adjacent short spoke, then swinging it past it, is the way to go.

Then it's just a matter of screwing the nipples onto the two spokes and tensioning them. I just tightened until they 'pinged' at about the same pitch as the spokes around them.

One problem I found with the stainless nipples is that they are quite a bit softer than the chrome and distorted as I tightened them. This made the jaws of the spanner loose on the one pair of flats, but the other pair of flats had bulged out so I couldn't get the spanner on them to tighten it any further. As the thread seems to be identical and the chrome nipples are in good condition I reused that instead of the new stainless. A different design of spoke spanner that fits round three or three and a bit sides of the nipple (like a brake/clutch flare spanner) would probably be better, but I've never seen one. I've never seen what my wheel repairer uses as he keeps his trade secrets by making me wait outside while he does them.

Finally I tested the wheel for roundness and run-out by spinning it on a front hub, it had no more than 1mm of run-out and no out of roundness I could detect so that was good enough for me. I ran at various speeds up to 70mph (OK, a bit over) and no detectable wobble or vibration anywhere. Time will tell if this repair holds up, at under an hour and £1.50 per spoke it is certainly cheaper and easier than driving to a wheel place and getting the tyre taken off the wheel, then driving to the wheel place and waiting while they change the spoke(s), then driving back to the tyre place to have the tyre refitted, plus cost at each place.

Update May/June 2009. After the May Yorvik run found one spoke broken, which is the first in twelve months or so, so replaced that prior to the New Forest. On the return from that plus a few extra days in Dorset one more broken in 640 miles, so no big deal, but this is in the

wheel that I had completely replaced with stainless just two years ago, which rather gives the lie to the claim that it is the chroming process that makes those spokes brittle, as I went several years before I got my first chromed failure.

Last but not least, the rebuilder I have used is Ray Phillips & Son at Unit 3, Seven Stars Road, Oldbury, West Midlands, 0121 544 9060 just a couple of minutes from J2 of the M5. On the left (as you look at this map) just about where the green arrow is on this map i.e. between the canal bridge and the A457, even though that is shown as Park Lane and not Seven Stars Road. They've always replaced mine (individual spokes) while I wait and are very reasonable in price compared to the one or two other rebuilders I have found much further away. But ring before you start out to make sure they are there, don't just turn up (even if arranged in advance) as they come and go as they please.

Cleaning:

The best results with the least damage take the longest - 4-5 hours for the four wheels. They get the following full treatment a couple of times a year, the rest of the time they have to make do with a hose brush and cold water on the car. The full treatment is time-consuming and painstaking, but the results are absolutely superb against the Black Tulip paintwork in the sun. This picture was taken in May 2008, the wheels are now 19 years old and have done around 45k miles. When I was doing them prior to the Broadlands Heritage Run two neighbours stopped to admire them, the one saying they looked like diamonds sparkling in the sun as she walked past the end of the drive.

Off the car, hose-brush and cold water in a bucket to get rid of the dirt from the bits you can reach front and rear, MkI digit in a chamois leather to clean and dry off the bits that the brush doesn't reach (maybe I should try Heineken ...). Spray-on wax polish (same as for the body and all other chrome - Turtle Wax) to the back and front of the rims and spokes, hub from the front only, but not too thickly or it takes ages to get rid of. MkI digit in a stockinette cloth to apply polish to all parts of rim, hub and spokes, rubbing at any stuck-on black bits. MkI digit in a clean duster to polish off all parts of rim, hub and spokes. BT miniature 'bottle brush' (about 1/4" in diameter) wrapped in several turns of the corner of the duster to poke in the small 'triangles' where two spokes join the rim and hub (Michael Beswick reports that disposable eyelash mascara brushes work well as an alternative, another dodgy request at the Boot's counter to go with the hypodermic syringe bodies for injecting hydraulic fluid to dampers and grease to bearings!).

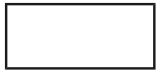
The fronts can take longer, brake dust that has got wet then baked on can be difficult to shift, but it does vary according to disc pad manufacturer I have found. I did buy the 'wire-wheel brush' advertised in certain places when I first had the wheels but I think the bristles are too harsh for chrome. I did try wrapping that in a duster for a while to clean the spokes but find my digits are more effective. I only ever use a so-called chrome cleaner (actually an abrasive) like Solvol Autosol to shift baked-on brake dust from the spokes if I have been unable to shift it with wax polish, stockinette and digit.

Can make the fingers a little sore after four wheels, but you get lovely shiny nails...

July 2015: I've had a large (biggest that will run off single-phase apparently) compressor for a while now and one of the tools is a sprayer tool, which if used without the container for whatever liquid would normally be sprayed gives quite a concentrated jet of air, which is very useful for blowing the water off and drying after the wash. Also I won a bottle of engine degreaser spray a couple of years ago and have found that sprayed on the hosed off as the first stage shifts the grime and brake dust very effectively. Together these save two lots of finger-work, leaving just polish application and removal.

Dunlop vs Dayton *Added January 2010:* There are usually quite a lot of disparaging remarks about Dunlop, not least because they are made in India. I've had mine 20 years/50k miles and apart from one or two rust specks on a couple of hubs which appeared some time ago but don't seem to be getting any worse mine still polish up beautifully, as I say above. I do spray them with WD40 at the start of winter, which I think help keeps the damp off them when garaged, I don't use the car in winter unless dry and salt-free. The usual recommendation is to go for Dayton, which I'd always imagined would be quite a bit dearer. However a British Wire Wheel (USA) price list shows that Dayton standard chrome wires are less than 10% dearer than Dunlop. Dayton's balancing instructions state that from 1990 their wheels have a fully machined hub that allows them to be mounted correctly on tyre balancing machines using standard cones. Before that, and quite possibly still the case for Dunlops, they have to be mounted using special inner and outer cones of the correct angles, which very few if any conventional tyre places have, or they will never balance correctly. On that basis alone it would be worth paying the extra for the Daytons. On the question of spokes British Wire Wheel states that both types have stainless, although Dunlops are chrome-plated. That certainly isn't the case with my 20 year-old Dunlops, which are ferrous. British Wire Wheel also says that if you want a high polish on their Dayton spokes it's another $40 per wheel, which is quite a lot! You would need to see just how dull the standard finish is before splashing out on that, I suggest, except for an all-out show car. There is also some confusion over truing. Dayton say theirs don't need truing. Victoria British say their Dunlops have been shipped 8000 miles and although trued in the factory will need truing before fitting, and again 'after a period of time'. Moss US says to check for loose spokes and run-out when new, and again after a couple of hundred miles, truing is only mentioned in respect of 'old' wheels. No mention in Moss Europe I have found, both reputedly supply Dunlop wheels. The bottom line is that I've never had my wheels trued - when new or since, and when I was having spokes replaced by Phillips I know they checked for concentricity and run-out afterwards and never found any problems. And Dayton don't seem to be available in the UK anyway. There are a number of specialist UK manufacturers/suppliers/repairers which seem aimed at vintage/veteran/exotica (P J Hallewell, SAS, Borrani, Richards) but only one specifically mentioning MGB wheels - MWS. They don't say where their wheels are made, but their logo looks very like one on the inside of my Dunlops from memory, and several sites indicate MWS and Dunlop are one and the same.

Do I have tubes? *July 2015:*



One of the questions with wire wheels is whether they have tubes in them or not. For many years tubes were always required as the spoke holes were not sealed, but lately some wheels are apparently available with sealed spokes and so do not need tubes. It's very easy to tell with the tyre deflated, as a tube valve will push very easily through the hole in the rim, whereas a tubeless valve won't as it is sealed to the rim. It can usually be identified even with the tyre inflated, as the tubeless valve has a mushroom head both sides of the rim to form the seal, whereas a tube valve will have straight sides.

There is also the question of whether you need special 'tube' tyres when running with tubes, as some insist. Presumably this is because imperfections on the inside of tubeless types could damage the tube. However over 26 years and several tyre changes the only puncture I've had so far is from a thorn, so I don't give the damage theory any credence.