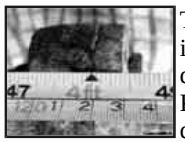
Rear Axle

Last updated 16-Dec-2011

Axle Length Bearings and Oilseals Centre Lock Hubs Converting between Wires and Rostyle Handbrake Cable Level/Drain Plugs Oil Change Rebound Straps Slave Cylinders and Backplates U-bolts Links
NEW NEW NEW **The sectioned MGB at the Heritage Motor Centre Museum, Gaydon** NEW NEW NEW

Axle Length



The axles on original wire-wheel and Rostyle equipped cars differ in length, Banjo and Salisbury types also differ. The following dimensions were supplied by Larry Hoy (who got them from Kelvin, who ...) and are measured from brake-drum face to brake-drum face - at least that's what the source said. But my old steel wheel Salisbury axle measures a shade under 48.5" between the bearing cap outer faces, i.e. the machined faces the back-plate sits against. Between brake-drum faces would add about another 4".

Axle Type	Wheel Type	Length
Banjo	Wire	44.5"
	Steel	46.25"
Salisbury/Tube	Wire	47"
	Steel	48.5"

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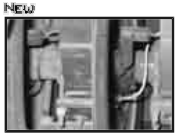


It's relatively easy to tell which you have on your car, by looking at the length of the axle tube between the U-bolt and the weld for the bearing housing at the end of the casing, as shown in this picture.

When swapping Tube-type or Salisbury axles also be aware of the year. From the 77 year on the casing had extra mounts for the rear anti-roll bar drop-links, and a further bracket for a different system of handbrake compensation. Probably not an issue if fitting a late axle to an earlier car, but it would be the other way round. If you change the axle type you will also need to replace the handbrake cable, as the wire-wheel one is correspondingly shorter.

Bearings and Oilseals

My experience is limited to the later Salisbury or 'tube type' axle.

I bought a used wire-wheel axle for rebuilding to replace the Rostyle axle with conversion hubs that I had been using for some years. The rebuilder insisted on having a stripped axle - no hubs, backplates, or even half-shafts - so I was faced with stripping the axle on the ground, i.e. I was not going to be able to use the weight of the car to lever against if I came up against any stubborn nuts and bolts. This concerned me a bit as when removing the hubs from the Rostyle axle some years ago I had to take it to a garage for them to use a five-foot breaker bar before

they could undo the left-hand nut. Mind you, it didn't help that the mechanic thought it was a left-hand thread (all the hub nuts are right-hand threads as they are secured with split-pins, and in any case a left-hand thread would have been on the right-hand side) and managed to tighten it a bit first! In the event everything came off remarkably easily - except the bearings from the hubs.

Updated April 2007. To remove the hub nuts: The socket for the rear (Salisbury/tube axle) hub nut is 1 5/16" AF (same as for the crankshaft/pulley nut). That converts to 33.34mm, but it has been reported that 33mm is snug but fits. Some people seem to have a problem in obtaining a socket for the rears that will fit inside the wire-wheel hub. Mine came off-the-shelf from Halfords, is a 1/2" drive non-impact type, and fits without difficulty. North Americans often talk in terms of having to obtain a 'thin walled' socket or grinding a standard one down, but then they also talk in terms of 3/4" drive and impact wrenches, maybe that makes the difference. My socket is 1.73" outside diameter, the ID of my hub is 1.863" and David Darby reports that his hub is 1.867" so there should be plenty of room. I wedged a 4-foot bar between two hub studs and rested the other end on the ground, in such a manner that when applying 'undo' force the bar wedged against the studs to stop the hub from turning. I put the 1 5/16" socket on the nut with its 'outer end' resting on a block of wood standing on the ground. Simply standing on a tommy-bar in the socket was enough to undo the nut, as the weight of the axle, my weight on the tommy-bar, the socket on the block of wood, and the 4' bar, were all applying their forces down through the hard-standing, which wasn't going anywhere!

With the hub nut undone the next thing is to break the taper between the hub and half-shaft. I have some steel wedges so tapped two in between the back of the hub and the heads of two diagonally opposed back-plate bolts, and off the hubs popped. This has left two tiny little marks on the back of the hubs that I am not really concerned about, but others have written that by tapping on the back of the hub with a soft-metal mallet they achieved the same effect, and I can imagine without damage.

With the hub off I could remove the four bolts and nuts that held the backplates and bearing retaining caps to the axle casing. Amazingly, even though the axle had been on a car for many years, and had been stored outside for a considerable length of time since it had been removed from the car, all came off as if they had only just been put on.

The bearing inner is a tight press-fit on the half-shaft, and the outer is a slightly looser press-fit into the axle casing and the retainer cap, so the half-shaft complete with bearing has to drifted out of the axle in some way. I loosely refitted the hub and this time I **did** tap round the back of the hub with a mallet (the back-plate no longer being in the way) and the retainer and half-shaft came free. *Update July 2010:* Another more 'engineered' method is to get two long bolts with nuts - the 'pullers'. With the hub off put the threaded end of the bolts in opposite bolt holes in the end of the axle casing, heads facing outwards, with the nuts positioned on the bolts so that with the hub back on the half-shaft, and the hub nut on just a few threads, the heads of the 'puller' bolts are pressing against the back of the hub. Then

when the hub nut is tightened, it pulls the bearing and half-shaft out of the axle casing.

Although the rebuilder was going to deal with the diff and its bearings I also wanted new outer bearings and oil seals of course. As I have said the bearings are a tight press-fit on the half-shaft, and although I have read of people putting the half-shaft in the freezer and the bearing in the oven, I didn't think my long-suffering other-half would stand for it, so I had arranged for someone else to press the new bearings on. The big mistake was to think that, everything else having gone so well, I could get the old bearings off myself. After beating on one for what seemed like hours I did manage to get it off, but that was more than enough for me so left the other one on for the press-operator to remove.

Two important things to be aware of:

> Firstly, between the bearing and the hub there is a collar that slides onto (and off) the half-shaft fairly easily, but it is not obvious at first glance. This is the running surface for the oil seal. If yours show any sign of grooving, or in any case to be absolutely sure, replace them, they are not expensive.
>
> Secondly between the bearing and the shoulder on the half-shaft it butts up to there is a spacer. This spacer is essential to ensure the bearing is the correct distance along the shaft, and hence the shaft and hub will be in correct relation to the diff and backplate. The spacer has a concave face and a flat face. The concave face butts up to the shoulder on the shaft, and the bearing butts up to the flat face. Why bother with a spacer and not just have the shaft machined so that the bearing can butt right up to it? Because the bearing is machined with a very tight external radius between its face and its internal diameter and the shoulder is machined with a larger internal radius. The concave face on the spacer has an even greater radius and this allows the faces on shaft, spacer and bearing to all butt together. If the spacer were not used these radii would interfere and the face of the bearing would not be right up against the shoulder. Why isn't the shaft machined with a tighter internal radius than the bearings external radius? Dunno - cost? 4th April 2004: Toby opines that a sharp radius on the half-shaft to match the bearing would lead to a weak point, cracking, and eventual failure of the half-shaft. The radius makes it stronger and hence the spacer is required to join the dissimilar profiles. Sounds reasonable.

Update October 2007 Whilst reiterating this process to someone the question of wire wheel hubs and split-pins raised a question in my mind. On wire wheel hubs the split-pins and nuts are deep inside the hub tube. The hub tube has holes in the side to enable insertion/removal of these split pins, so logically the holes must line up with the holes in the end of the half-shaft. So this must be borne in mind when refitting the hub to the half-shaft, and a wire-wheel hub must be correctly orientated, whereas a disc-wheel hub can be fitted any-old how.

Converting between Wires and Rostyles

When I restored my roadster I opted to convert it to chrome wire wheels. It was well worth it - when given the full clean and polish treatment they look stunning in the sunshine even though it takes about five hours, but there were one or two learning experiences on the way.

As shown above steel wheel axles are wider than wire wheel axles. This is because the wheels differ in the distance between the hub face and the outer face - steel wheels have the hub face nearer to the outside face of the wheel than wire wheels. The result is that, on a given axle, a pair of steel wheels will be closer together than a pair of wire wheels. In order for the wheels of both types to run central in the arches the wire-wheel axle is narrower than the steel wheel axle by an inch or so.

Consequently putting wire-wheel hubs on a steel wheel axle, which is the usual way of converting, ends up with the tyres much closer to the outer wing/fender arches and they can rub badly when cornering, especially when laden. There are special conversion hubs available which are machined differently so that the wheels sit closer to each other than if standard wire-wheel hubs were used, but they still stick further out than the steel wheels did. I used conversion hubs but still experienced bad rubbing when fully laden, more so on the left than the right. (This offset to the left seems to be very common, and in my experience must be due to the way the body panels were assembled on the original jigs, since the axles have the same spring-mount to back-plate measurement at both ends. I have also seen the same offset when a non-MG axle was used in a V8 conversion.)

Grinding down the turned-under lip of the wing on the left-hand side didn't help much, neither did fitting new rear springs. I had to do something with a major trip to France coming up, so invested in rubber-bumper roadster springs all round. These lifted and stiffened the rear enough to stop the rubbing under all but the most extreme cornering manoeuvre when fully laden, and together with the front they also eliminated most of the roll and dive, which initially was a bonus. However the down-side was a very harsh and unpleasant ride over some surfaces, and a much increased tendency for the rear to break away in the wet, neither of which I was happy with.

After a few years, as the original rear axle had been whining for some time and had the not uncommon diff-clonk, I decided to invest in a proper wire-wheel axle. Found a used (very used) one, had it reconditioned (which was a bit of an exercise in itself), fitted it without any problems, and refitted my 'new' chrome bumper rear springs. At last a decent ride without any rubbing under any conditions. Still find the rear tends to break away in the wet, but only when braking in a curve. I still have the RB front springs fitted, whether this is something to do with it I don't know.

Update August 2011: Just spotted in Clausager that factory wire wheels were modified in September 1976 to give increased clearance to the wheel arches. This was probably the offset, wonder how the after-market wheels compare.

At the front, completely standard hubs are used. The bearings and seals are the same but it isn't worth drifting out the ones from your old stud hub, fit new.

Remember to move the bearing spacer across if the splined hub doesn't come with one, you will need to reset the end-float, and will need the correct grease cap with the threaded stud.

NEW Cut-away Images


A couple of pictures from the 'divorce' MGB at Gaydon.

Handbrake Cable *Added August 2008*

Be aware that the handbrake cable attachment is completely different on the 77 and later model years. It includes a much simpler compensation arrangement of just a flap of rubber, rather than the rather expensive pivot arrangement used previously. Whereas the pivot mounted using two of the diff-cover bolts the rubber flap is bolted to a flange welded to the casing of the axle near the left-hand side. Whereas an earlier cable can be fitted to a later axle once you have obtained the pivot, the later cable will need the axle flange, or something akin to it.

It's been claimed that the change in handbrake cable was something to do with the provision of the anti-roll bar which arrived at the same time, but this is not the case. The changes for the cable and the anti-roll bar have no interdependence, it just made more sense (and was almost certainly cheaper as anyone with experience of getting sub-contractors to change things can testify) to make both changes at the same time. The handbrake cable was almost certainly common to other BL vehicles of the day, in design if not dimension.

Level/Drain Plugs

Quite why the drain plugs for sump, gearbox and axle have to be so different is beyond me and the original reasons probably lost in the mists of time. For the axle one could say that because the drain plug is virtually flush with the axle casing there is no loss of ground clearance and no chance of the head of the plug getting ripped off or damaged by grounding. So why do the gearbox and sump have protruding heads? And having decided to have a protruding head, why does the gearbox have a tapered plug with a hex head of smaller diameter than the plug, which means it protrudes further than the sump plug, which has a lower profile, head wider than the threaded portion, and less protrusion as a result? And why do the axle plugs have to have a tapered drive hole, which makes it more likely for a tool to slip out than if the drive hole had parallel sides? Yes, I know the plug is tapered, but I can't see that having a parallel sided drive hole would make that much difference, and would avoid the need for a special tool with no other uses.

And a removal tool is the object of this section. For 17 years with Bee, and 14 years

with Vee, at least once a year I have been able to remove the level plugs using nothing more than the 1/2" drive of a socket wrench, which admittedly only just fits in to the top of the drive hole, but pressing it in with one hand while I turn it with the other has always done the job. However this year I could not shift Vee's to check the level, I must have had two Weetabix or an extra portion of spinach the last time I tightened it.

I could have bought one of those multi-headed wrenches, but eight of the nine heads would have been no use to me, and it is a large lump of metal to add to the already crowded tool-box, so I reckoned I could come up with a socket-set attachment which would be much smaller.

It occurred to me that a bolt with its threaded portion as large as the widest part of the tapered drive hole could be ground down to fit the taper, and with a socket to fit the head of the bolt away you go. The drive hole (in one of my plugs at any rate) is 0.37" deep, 0.55" wide at the top of the hole, and 0.45" wide at the bottom. The largest bolt I could find in my box of bits was slightly smaller than ideal, as the peaks of the thread were only slightly larger than the widest part of the taper, whereas ideally you would use a bolt where the **troughs** of the threads would be slightly larger. But it was worth a go. I cut down the bolt so that the threaded portion was just longer than the depth of the drive hole, then just ground the taper bit by bit by eye. As I went I tapped a spare plug (make sure you clean out all the gunge from the hole first) onto the bolt which showed the high spots by leaving rusty marks on the shiny bolt. When the same marks started appearing on the cut end of the bolt it showed it was bottoming in the hole.

At that point I decided to try removing Vee's level plug, but immediately noticed that the head of the bolt went all the way into the socket of course, which meant the socket was hard up against the diff cover and my modified bolt wasn't being pressed into the level plug drive hole. This was easily resolved by dropping a suitably sized nut into the socket first, so the head of the bolt sat neatly at the end of the socket, and I could press the bolt into the plug as I turned it. The drain plug came undone without further ado - a result.

The nut doesn't have to be the same as the bolt of course, anything larger than the 1/2" drive hole in the socket and smaller than the bolt head will do, as it is only a spacer. In hindsight I could have dropped the bolt into the socket then cut it down to leave the required amount sticking out, then tapered that part. But rather than cut up another bolt I decided to weld the nut I had used as a spacer (which was pretty chewed-up anyway) onto the back of the bolt head. This was fine depth-wise, but it wobbled about a bit in the socket. I found a bit of thread which I had cut off another bolt for another project goodness knows when (yes, I even keep bits like this rather than throwing them away, remember "If you haven't found a use for something yet, you haven't kept it long enough") which just fitted nicely into the square drive hole in the socket **and** the nut I had chosen to use as a spacer, so welded that in as well, then cut it down to a stub that still allowed the 1/2" drive of

the wrench to fit all the way into the socket. Again in hindsight, I could probably just have welded this length of thread onto the head of the bolt and it would have acted as a spacer (instead of the nut) as well as a stabiliser, but there you go. The only socket I had that would fit the bolt was 24mm Metric, whereas the bolt is probably Imperial at exactly 15/16" AF. Subsequently I discovered the bolt was only slightly larger than my largest Imperial socket - 1/2" Whitworth - so I ground the head down slightly to fit that, as I don't usually carry Metric sockets with me.

The thing to remember is that it is only a relatively soft bolt, not a hardened tool, so I won't use it to tighten the plug, or I could be back to square-one again and not be able to remove it. So I used the 1/2" drive of the socket wrench on its own (as I have always done) to tighten the plug, knowing that the adapter I have made should always be able to remove it, being able to apply more leverage than the 1/2" drive on its own.

Other possible starting-points for making a tool such as this are:

- An parallel-sided drain plug key like one of these that you grind a taper onto. However the only square-drive ones I have seen are 11mm, which is way too short. There are 17mm hex-drive items which are big enough, but would require more work grinding a square taper on to them, and both use 3/8" drive anyway. Fine if you have one, but I don't. A 1/2" to 3/8" drive **expanding** adapter (although I have only found reducers) might help, but then you might be exceeding the space available between the back of the diff cover and the tank.
- A short 1/2" drive extension (like these) with the appropriate taper ground into the male end. However the shortest single I have seen are 3" which probably exceeds the space available, although there are 2" available as part of a set. Whilst you are wrecking the item (as far as its original purpose goes) you could cut it down to the minimum length i.e. leaving just 1/2" of male stub on the end of the female part and grinding the taper into that, but the section between the female and male ends is only 1/2" diameter **round** bar, and you need at least 0.7" of round bar to grind down to a square taper to fit the plugs.
- I then found this 50mm 1/2" drive wobble extension which is just 2" long overall and because it is a wobble extension already has a taper, and so may well do a good job without any modification, **and** be available for its original function as well. *Update February 2008* I purchased one of these at Stoneleigh this year but unfortunately the way the 'wobble' feature differs to the plug taper it just turns out of the hole, so that is a dead-end.

June 2011: Servicing Vee last year I couldn't undo the level plug so this year was determined to do so as leaving the level unchecked for any longer isn't a good idea. In the end I had to chisel it round, tapping on opposite corners of the square recess, and eventually it started to turn but not without fracturing one of the sides off. I have a spare from Bee's old axle so that isn't a problem, but the whole thing is a pain and I start wondering if there is a hex-head plug that would fit, like the gearbox drain/level/filler plug! The two hex plugs on the rubber bumper gearbox are the same part number, as are the two square recess axle plugs. Asking on the usual mail lists got me nowhere, but Googling the part numbers threw up an MGA thread which stated that early MGA gearboxes had the square recess plugs, later

had the hex headed, the two were interchangeable (the poster recommended using the earlier square recess plugs on the later gearbox "to save carrying two tools". Goodness knows why, you check the level a couple of times a year, it's much easier to use a spanner on the hex head, you are hardly going to take your 3/4" spanner out of your toolbox, whereas being able to leave the multi-headed 'dog bone' tool in the garage makes more sense), and it quoted the same part numbers as for the MGB items. So on the face of it a straight swap, so at the moment I have an enquiry out for a used item or two rather than buy new (2K5380, MGOC seem the cheapest of the usual suspects).

In the meantime I have welded the stub of a cut-down 3/4" AF bolt to the mangled plug as a possible alternative, and will get under the car sometime to see if it fits the side of Vee's gearbox to confirm whether the threads are the same or not.

And they are not, comparing the two plugs! The gearbox is significantly larger diameter, even if the thread profile is the same, dimensions as below:

Plug	Thread tip		Thread root	
	Max dia	Min dia	Max dia	Min dia
Axle level	0.814	0.804	0.752	0.737
Gearbox level	0.906	0.883	0.845	0.821

However being tapered it's quite possible that the smaller diameter would eventually tighten into the larger hole, as long as there are enough threads in the hole, and this is maybe why the writer of the MGA thread got away with using axle plugs in the gearbox (although how many threads are actually engaged is debateable). If the hole in the axle back-plate were deep enough, and the axle plug normally sat a long way in, then it's possible that the gearbox plug may also start to screw in to the axle, although again the question is how many threads would be engaged. Sure enough the axle plug does eventually tighten in the gearbox hole, but ends-up being recessed, so you don't know how many threads are engaged, and more importantly if there is enough clearance to rotating parts inside. As an aside the gearbox level plug only screws into the gearbox casing 13 flats to fully tightened, i.e. barely more than two threads engaged.

All this means there is no chance of the gearbox plug screwing into the axle without the back-plate being rethreaded, so it's back to plan A.

Oil Change

The most important thing to be aware of is the oil to use. Whilst the minimum performance level quoted by BL is the same for both gearbox and rear axle of the V8, when it names individual manufacturers products there is a difference, and those specified for the V8 rear axle are also specified for the 4-cylinder rear axle. Whilst both V8 gearbox and rear axle oils are typically based on 90wt, the V8

gearbox contains EP whilst the rear axles contain a higher pressure hypoid variant. For example and quoting just two, the Workshop Manual specifies Castrol Hypoy or Esso GP 90/140 for the gearbox, but for the rear axle it specifies Castrol Hypoy B90 or Esso GX 90/140. None of the recommended products seem to be available still, unsurprisingly, and in fact I could only find Castrol products. These are labelled a bit more clearly these days, as 'EP-90 Manual Transmission Fluid' for the V8 gearbox and 'EPX 80W-90 Differential Oil' for the rear axle in both V8 and 4-cylinder cars. Note that the 4-cylinder gearbox and overdrive takes engine oil of the same grade as for the engine e.g. 20W/50. The earlier Banjo rear axle takes 2.25 Imperial pints, 1.28 litres, 2.75 US pints so you will typically need two 1-litre bottles, and have more than enough left over for top-ups. The later Salisbury/tube type axle takes 1.5 Imperial pints, 0.85 litres, 2 US pints, so a typical 1 litre bottle should be ideal for a change plus future top-ups.

Immediately before changing the oil take the car for a run of 10 miles or so to warm things up and make it run out better. Before you drain the oil **make sure** you can undo the level filler plug. You can live without changing the oil for a bit while you ponder how to shift it, but not if you have drained it and then find you can't refill it! Hopefully the drain plug will come undone (see above for suitable tools), but if not it isn't the end of the world as you could take the rear cover off instead, albeit at the expense buying/time making a new gasket. Leave the oil to drain while doing something else, like draining the gearbox.

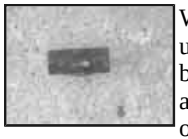
When the dripping has slowed down refit the drain plug and remove the filler plug. On a rubber bumper car if you support the rear of the car by the rear spring front hangers, and let the axle hang down on the rebound straps, the axle should come low enough for you to be able to use squeezy bottles with nozzles the oil comes in - that was certainly the case on the V8. If you have the rear of the car supported with axle stands under the axle the filler will be up behind the tank and much more of a fiddle to fill. However the chrome bumper is just that bit higher relative to the tank and in order to get the last bits out of the bottle I had to fold over the nozzle while I positioned the bottle upside-down above the handbrake cables, then unfold the nozzle as I fed it into the filler hole. If you have both front and rear of the car raised, so it is pretty level, you can get the more or less the correct amount in going by the level at the filler hole. It can take cold oil some time to flow into all the crevices and find its correct level, so I then replaced the filler plug loosely, and ran the engine in gear for a moment or two to distribute the oil, then checked the level and topped up again. **MAKE SURE** the car is supported safely at all times, don't be underneath it with the engine running, and make sure there is some run-off room in front of the car. After that I took it for a run for a few miles and checked again, and it needed a bit more. After standing overnight I checked the level again cold just to be sure but it was fine. Finally check both drain and level plugs are tight, but not overtightened. After the next decent run check the level and plugs again to give you confidence there are no leaks, then you should be fine to leave it the normal service intervals.

Rebound Straps *Added October 2009*

Vitally important to take the shock of unloading the suspension off the top of a yump instead of it being the lever-arm dampers. And whilst the dampers taking the weight of the axle when the body is supported may be OK, you wouldn't want to be under there when one or both of them suddenly parted and the axle dropped that extra bit. When removing the rear dampers prior exchanging them I noticed the V8 straps were a bit ratty, but they were on the car when I bought it and have done 15 years and 75k in addition to anything they had done before. After replacing each damper I tackled the strap that side. Note that various different straps, pedestals and drop-links were used for CB and RB, 4-cylinder and V8, see Suspension and Steering, Rear Lever-arm Dampers.

The usual problem is that the nuts (9/16") have rusted to the pin welded to the axle, and the end of the pin is sheared off. Whilst replacement pins are available and can be replaced it is probably an axle-off job to grind the old one out and weld the new in. If there is a stub of thread left then you could drill through it and fit a split-pin, it's not taking any force, just stops the strap working its way off the pin. The same problem is likely at the top but that is a through bolt and nut (1/2") so is easier to deal with if it shears.

With the car supported on axle stands at the front spring hangers and a jack lifting the axle just enough to take the tension off the old rubbers, I gave the upper and lower nuts a couple of applications of Plus-Gas, and for the bottom nut used a ring-spanner so I could see if the pin was turning as well as the nut. When this happens it has a quite distinctive 'springy' feel to it, so you need to sit back and apply a bit more PlusGas, or a little heat, rather than snap it off. Working the nut back and fore a fraction rather than just turning it may also help to free it. This 'springy' feel of a stud or bolt in the process of shearing is very different to the 'crack' that often accompanies the first time a nut has moved in years. Both sides came undone relatively easily, as did the top bolts and nuts.



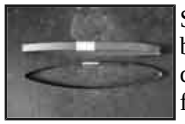
With the rubbers off you will see a spacer tube pressed in to the upper hole of the old strap, this can be pressed out in a large bench vice with a suitable socket larger than the tube one side and a bolt or small socket just slightly smaller than the tube on the other. Both mine had corroded, so I filed the corrosion off the outside with a rasp to make refitting to the new rubber easier. I used Waxoyl inside the hole and the new strap and on the outside of the tube and the vice to press them in.

Similarly the axle pins showed some corrosion, again scraped off to make fitting of the straps to them easier, as did a daub of Waxoyl inside the strap holes and on the outside of the pins as before. Slid them on to the axle pins, and fed them up into the bracket under the chassis rail. One side went up easily and the holes aligned so I could reinsert the bolt, but the other didn't. A quick scrape up there with a screwdriver soon sorted that. Refit large washer, spring washer and nut at the bottom, and spring washer and nut at the top and job done.

Updated October 2010: There have been some complaints about the quality of

these straps in the past, in some cases they are little more than

rubber bands that simply stretch to the limit of damper movement if not snap and so are useless. I measured just over an inch of stretch in mine from just starting to take the weight of the axle to fully taking it, and about an inch and a half from the same start position with the straps **removed** i.e. to the limit vof damper movement. So they are only just holding the weight when gently applied, and could well hit the damper limit with the weight applied suddenly i.e. coming off the top of a hum. The old ones (yes, the ratty old ones) only dropped about 5/16" so a very significant difference. There is obviously cord reinforcement in the originals, but none visible in the replacements, that just look like plain rubber.



Some time later Michael Beswick said that with new straps just bought taking the weight of the axle, one reduced its width at the centre to about 2/3rds of its original, and with the other the hole for the axle pin ended up elongating to about 3-times the original diameter. Not only does this indicate a lot of stretch, but the two reacting significantly different doesn't bode well for consistency. A call to the vendor elicited nothing more than "they are all the same and we all get them from the same supplier", but they seem significantly worse than my Leacy items bought for the V8 less than 12 months ago. He also found that his axle was dropping 1 1/2" with the straps fastened, so was probably hitting the damper stop right away. We discussed some alternatives, and I found this B&Q lashing strap which looked to be a possibility, but would need an industrial-strength sewing-machine to close the loop with square and diagonal stritching if you didn't want to use the ratchet clamp. But Mike had the idea of polypropylene parcel strapping as he knew someone with the tool to fasten the closure and form a loop, to reinforce the rubber strap. He had some made, and was kind enough to send me two sets for the CB roadster and RB v8 which are different lengths.

As the roadster has decent original style I've kept those back, but have fitted them to the V8. As these are an open loop when the springs compress and the rubber strap curves the reinforcer could open enough to come off the axle pin, so we have fitted a nylon cable tie around the two so the reinforcer forms the same curve and shouldn't come off.

U-bolts *Added September 2010*

These clamp the axle and the springs together between two metal plates, but with rubbber pads against the plates. This means that tightening is a very gradual process as the rubber compresses rather than a rapidly increasing in an all-metal joint, and there is no torque value specified. Also especially when new rubber is used the rubber deforms under pressure over time reducing the clamping force. In extreme cases the axle can actually move about relative to the spring as the throttle is applied and released, causing 'rear wheel steering' i.e. a noticeable change in direction despite the steering wheel not having moved.

Whilst under the V8 doing something with the axle rebound straps I noticed an orange staining where the axle butted up against the spring, and that immediately said to me the two had

been moving relative to each other and the occasional wet weather I drive in had washed out the resultant particles and rusted them. Sure enough I could tighten all of them several turns. I'd changed the springs in 2007, and the rebound straps in 2009. I'm pretty sure I checked the U-bolts some time after fitting the springs, and didn't alter them when I did the rebound rubbers nor notice this staining then, but I noticed it straight away this time. So it shows that these need checking several times, say at the annual service, until one year you find they are still tight from last year.