MGB front suspension Overhaul

Peter Wallage tackles the job himself and discovers that it wasn't quite as straightforward as it first appeared . . .

OVERHAULING the front suspension of an MGB is an easy straightforward job — at least the one I did some years ago was. But that one had been reasonably well looked after. When you come to do one that has been neglected, all sorts of snags can rear their ugly heads, as you'll see.

The need to do the job arose soon after I acquired the Jaguar 420 (see the May issue of T&CC). My wife Valerie decided that as the wife of the Practical Editor she too ought to have a classic, and decided on an MGB GT. "Let's get one that needs some work doing on it," she said. "We'll get it cheaper and you can restore it and write about it." I've fallen for worse ploys than that, so we started looking.

After some searching we found one in the classified adverts in the back of T&CC — yes, we waited till it was on the bookstalls, to be fair to other readers — and to cut a long story short we bought it.

It came with a current MOT, a rebuilt engine, though not a works rebuild, and five nearly new Cinturato tyres, but that was about the limit of its virtues.

Basically the structure is sound, though the bodywork needs a great deal of attention, but the need to do something about the front end was apparent on the way home. It was stiff and harsh, even by MGB standards, there was a tendency to drift towards the nearside and a clonk every time the brakes were applied hard. It all sounded pretty urgent.

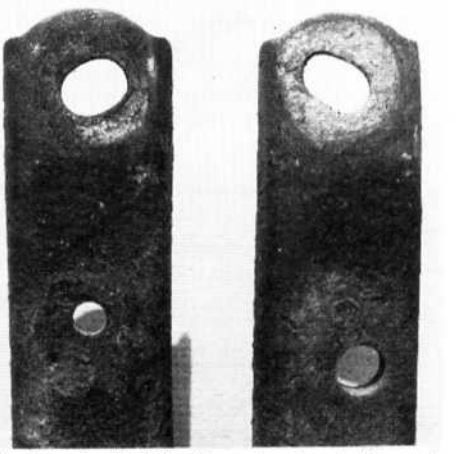
The front suspension on the MGB is a coil spring and double wishbone arrangement with the arms of the shock dampers forming the top wishbone. As with all suspensions of this type, you can't find any wear by jacking the car up in the middle of the front and letting the suspension hang. It has to be supported under the suspension itself or the compression of the coil spring masks any looseness.

Despite the symptoms on the road, very little wear was apparent when I investigated in the usual way with tyre levers. There was some play in the bottom outer wishbone trunnion on one side, but the rest seemed quite firm and tight. However, we decided to strip it down to have a look. The whole suspension unit will come off the car complete with its crossmember without much trouble, but then you need something to support the unit while you work on it, so we decided to leave it on the car and dismantle each side separately. The car was jacked up and put on axle stands to leave the front end free.

Number one snag came when we tried to take off the offside front wheel, and gave us a taste of things to come. The splines seemed to have grown together, and wouldn't budge. Much application of Plus Gas releasing fluid got things to the point where the wheel would rock, so it was left overnight for the fluid to soak in, and next morning it came off after a struggle.

The whole suspension was covered in light to medium rust, and was as dry as a bone. Not a sign of grease or oil was to be seen anywhere, and very little road dirt either. I suspect that the previous owner had steam cleaned underneath and forgotten that steam also removes oil and grease as well as dirt. The whole thing should have had a thorough greasing afterwards, but it hadn't, and that was the cause of all the trouble.

The brake calipers were unbolted and supported on boxes to save straining the hoses, and dismantling started. In the MG workshop manual it says you need a hub puller to take the front hubs off, but as they're taper roller I've never quite seen the point.



The trunnion bolt had been turning in the ends of the wishbone arms and worn the holes oval. New arms were not quickly available, so the holes were welded up and redrilled.

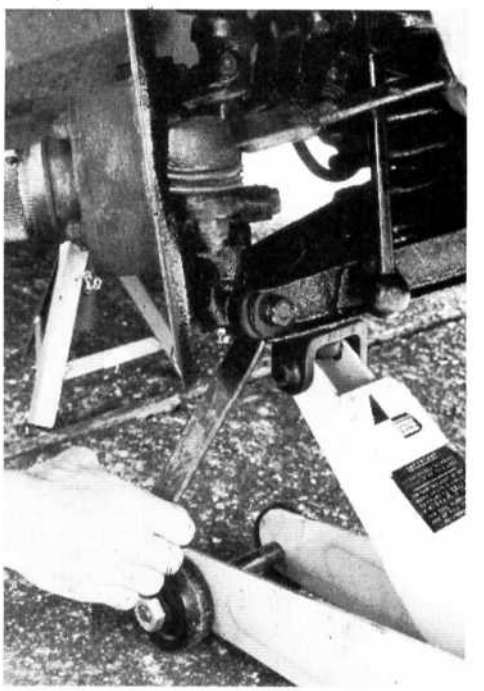
Right, to test for wear in the bushes you must support the suspension in its road going position. If you let it hang, the pressure of the coil spring masks any looseness.

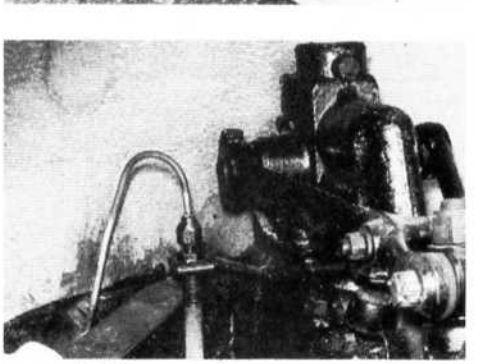
The old and the new. On the left are the distance piece and bolt which had seized, and next to them the replacements. At the top on the right is the trunnion dust seal, and below that the new and old sealing washers.

When the hub nut is undone, a few rocks of the hub and disc assembly frees it, and it lifts off. As usual, the outer taper race fell on the floor, together with some of the shims. Other shims stayed in the hub. Unlike some taper roller hubs where the necessary running clearance which taper rollers need is obtained by backing off the nut, the MGB has shims. There is a distance piece between the inner and outer races, which fits with its tapered end outwards, and the nut is done up tight. The necessary clearance, or end float, is obtained by putting shims between the end of the distance piece and the outer race. If you're taking one to pieces, watch carefully for these shims, it's easy to miss one in the general grease.

Behind the rear race is a distance collar which fits with its internal chamfer inwards to clear the radius on the stub axle, and bears on the grease seal in the end of the hub. One of these collars was tight on the stub axle and had to be helped off by tapping a screwdriver blade behind it as a wedge, but the seals were in perfectly good condition with good lips. Often, they're worn or they're hard and brittle, and in either case need renewing.

The bearings were also in good condition when we washed them off in paraffin and spun them. This is the only way to check bearings, either roller or ball, you can't tell anything about them when they're smothered in grease. Remember though, that paraffin is a great ally of rust, so after you've checked them leave them in a tin of engine oil till they're needed again.





On the MGB you should also check with a tyre lever that the mounting rubbers, where the crossmember sits under the body, are still in good condition.

Because of the complete cleaning job the steam had done, every nut on both sides of the suspension was seized almost solid. Generous applications of Plus Gas helped with the large nuts, but the smaller nuts and bolts holding the spring pan to the wishbone arms just wouldn't give.

We didn't waste a lot of time on them, they were split with a nut splitter and a note made that new ones were needed. The anti-roll bar, however, was a real swine to get off. The pins in the ball jointed ends of the bar links also hold the spring pan to the wishbone arms, so there was no alternative but to get them out. Plus Gas had no effect, nor did putting a flame on the nuts. I didn't want to get them too hot because the rubber in the ball joints seemed in good condition, and at something like £6 a side I didn't want to ruin them. The trouble was that if sufficient pressure was put on the spanner to turn the nut the pin tried to turn in the rubber. There was no room for the nut splitter.

I had to resort to one of the methods I mentioned in the April P.S. Tips. I didn't want to use a cold chisel for fear of distorting the wishbone arms, so I had to saw through the nuts alongside the pins. There was just about room for an inch-and-a-half stroke with a Junior Eclipse hacksaw, and it took ages, each side. My thoughts about people who steam clean without painting or oiling afterwards don't bear repeating.

I must mention, of course, that as each rusted bolt was taken out between the spring pan and the wishbone arms, a new nut and bolt was put in its place and done up just a little more than finger tight because as yet there was nothing to contain the compression of the coil spring.

Always treat coil springs with respect. Even when the suspension is on full rebound and hanging, there is enough compression left in the spring to damage the car should it fly free and, much more important, severely damage the person taking things apart.

I don't have the Leyland tool for letting the coil springs down on an MGB. I have a couple of long threaded spring clamps intended for the external springs of MacPherson struts, and on some wishbone suspensions there's room to get these inside the coil spring. There wasn't room on the MGB, so we enquired of our local Leyland dealers. None would hire one, which wasn't really surprising, but only one offered to get one for us. One storeman even said that to supply special tools "wasn't Leyland policy". The chief storeman at the largest distributors said this was "a load of cod's wallop", or words to that effect, and offered to order one for us. This, however would have taken several days, and we wanted to get on with the job so we used the trolley jack method.

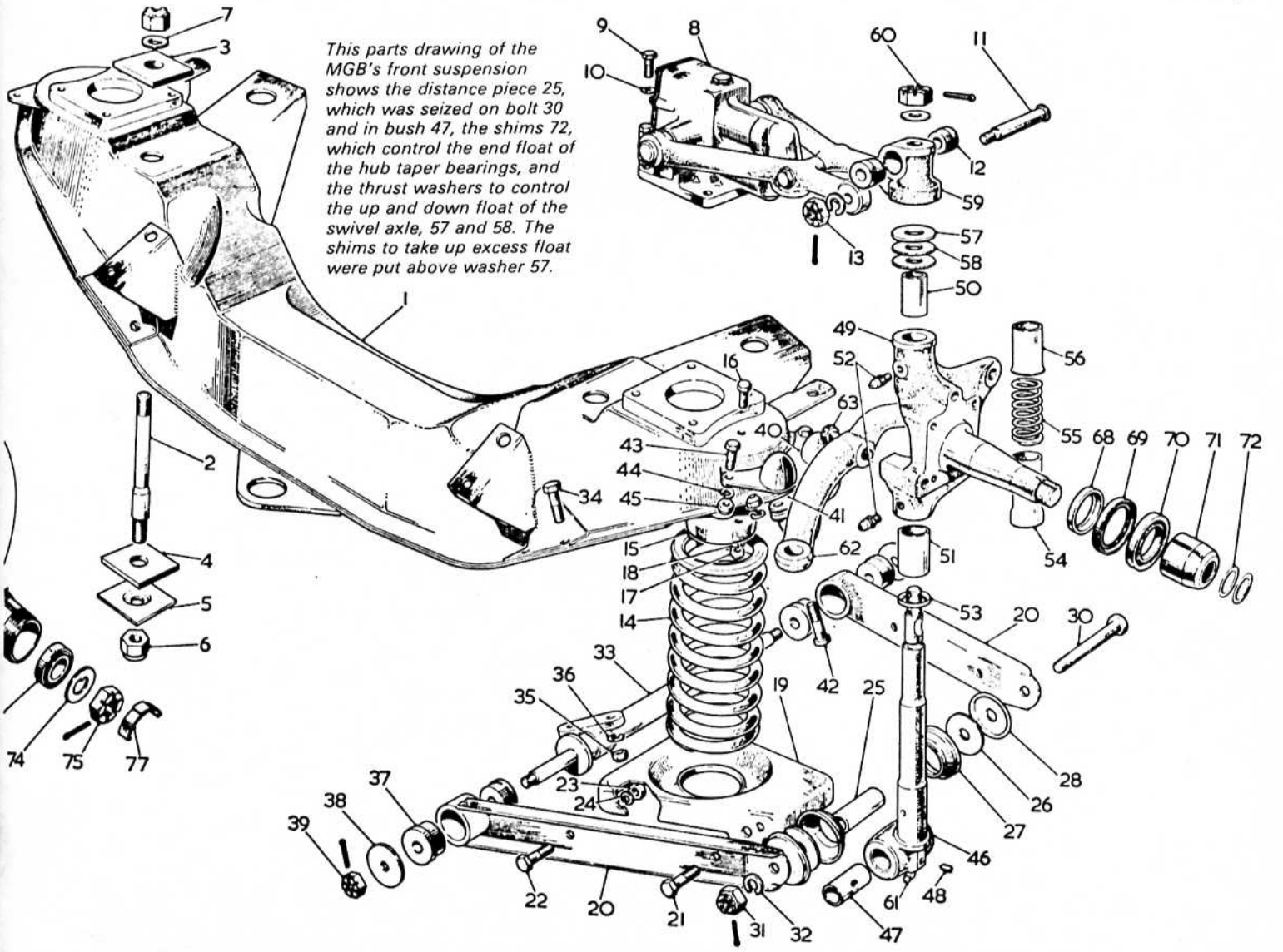
I don't want to frighten anyone off doing their own suspension overhauls, but please be careful with this jack method. I would try it only with a trolley jack because with a screw or bottle jack you're too near the action should anything slip.

Start by putting a stout rope round one of the coils of the spring and tying it back to the chassis or crossmember. Then if it does slip it won't fly across the garage, nor into you. Put the jack under the spring pan and raise it till the car is just but not quite on the point of lifting from the stands. Then take out the bolt which clamps the damper arms together, and the top trunnion bolt of the swivel at the end of the damper arms, and swing the hub and king pin out of the way. Now, you can lower the jack gently and the bottom wishbones will pivot down to let the spring free.

You might ask why we tackled the spring pan nuts first. Normally we would have taken the spring out first, but the anti-roll bar had to come off before the wishbones could be lowered, and as this held the pan we tackled the other seized nuts at the same time.

Having got thus far, things should have been easy, but both bottom trunnions gave trouble. The set up of these trunnions may not be familiar, so I'll run through the principle. The bottom eye of the king pin has a bronze bush which runs on a hardened steel hollow pin, called in the parts manual the distance piece. This distance piece is clamped between the arms of the wishbones with hardened steel thrust washers either side, plus mild steel shaped washers with rubber dust covers. The distance piece is slightly longer than the king pin eye, so that when the bottom bolt is tightened the king pin can pivot on the clamped distance piece.

On the nearside, the bolt came out easily enough, but the distance piece was seized in the king pin. There was some wear on the bolt where the distance piece had been pivoting, but a new bolt fitted snuggly, so we reckoned that if we could get the distance piece out with-



This parts drawing of the MGB's front suspension shows the distance piece 25, which was seized on bolt 30 and in bush 47, the shims 72, which control the end float of the hub taper bearings, and the thrust washers to control the up and down float of the swivel axle, 57 and 58. The shims to take up excess float were put above washer 57.

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out damage it could be used again. A gentle application of a flame melted the old hard grease holding things, and the distance piece was tapped out without undue force. Both it and the bush in the king pin were in almost unworn condition, and as the rubber bushes at the end of the damper arms were also in good condition it looked as if the king pins had been renewed not long before the steam cleaning.

This was borne out by the king pins and the bushes in the swivel axles. Apart from being dry, they were almost perfect. Had they been worn, the swivel axles would have been taken along to a Leyland dealer, or an MG specialist, for them to rebush and supply new king pins because a stepped-diameter reamer is needed to ream the bushes in line.

The offside was a different kettle of fish. The nut came off the trunnion bolt without much trouble, but nothing else wanted to shift. No wonder the suspension felt harsh, it was seized solid.

By taking the wishbones off at their inner rubber bushes we got things off the car, but were left with one wishbone arm firmly attached to the end of the king pin. Alternate applications of a flame and Plus Gas eventually got the king pin off the distance piece, but it needed almost red heat to get the bolt out. Had such heat been needed on the king pin I would have got a new one because the heat might have upset the heat treatment of the steel, and I don't fancy taking a chance with a king pin that might snap off like a carrot on the road.

We used alternate applications of heat and Plus Gas. Have you ever seen Plus Gas burn? It goes a treat while the flame's on it, so if you try the same thing do it in the open well away from the car. I wouldn't advise it on anything still attached to the car. When we got things apart, we found the holes in the ends of the wishbone arms elongated where the seized bolt had been pivoting in them. This probably accounted for the pulling to the left, the steering geometry must have been quite a few degrees out. Scuffing was only just beginning to show on the tyres, which bore out the previous owner's statement that they'd done only a couple of hundred miles. If they'd done much more they'd have been ruined.

When Valerie drove the car home she reported that the brakes seemed reasonable, though not as good as they ought to have been. When we examined the pads, those on the offside were about half worn, one on the nearside was less than half worn but the remaining one, the only one on which the piston wasn't stiff, was worn to the point where the metal was just touching the disc on heavy applications.

So, with both bottom suspension trunnions seized, too much up and down play in one king pin, worn rubbers which we found at the inner end of one pair of wishbone arms, the holes in the outer end of the same pair of arms elongated and no grease to be found anywhere — not to mention sticking brake pistons — it was small wonder Valerie had found the handling "a bit peculiar" on the way home. And the car had a current MOT with quite a few months to run. Oh dear! An unsuspecting buyer could have been in real trouble, and scuffed out a pair of good Cinturatos in the bargain. The moral is that if you think the front end, or anything else for that matter, isn't as it should be, investigate it even if there isn't any excessive wear apparent.

So, with everything stripped out, off I went to my local main MG distributor armed with a list. I wanted rubber bushes for the inner ends of the wishbones, two bottom trunnion bolts, a trunnion distance piece and bush, four hardened washers and dust seals, a pair of wishbone arms, a thicker thrust washer to take up the excessive up and down float on one king pin and sundry nuts and bolts to replace those we'd had to split or saw.

I was mildly surprised to get most of what we needed over the counter. The trunnion thrust wahsers weren't available, but three of the old ones cleaned up and I found a substitute for the fourth in my bits and pieces box. I don't know what it came from, but it fitted. The thicker king pin thrust washers were also unavailable, or at least they were available but I'd have had to buy a new king pin and bushes to get them because they're stocked only in sets. Over £10 was too much for a thrust washer, so we used shims above the upper thrust to take up the clearance. The wishbone arms weren't available, but this had been a long shot anyway. The storeman offered to order them, but to get the car back on the road the elongated holes were welded up and re-drilled.

With everything cleaned and renewed or repaired where necessary, it all went together again like clockwork. The up and down end float of the king pins and the end float on the trunnions were checked dry with feelers. One king pin was all right, and the other, as mentioned, was shimmed to bring the float to the point where the axle swivelled easily with no feelable end play. The manual quotes 0·002 in maximum, but this is not easily measurable without a dial gauge indicator, so it was done by feel. The end float on the trunnion at the bottom of the king pin has a much greater tolerance, 0·008 to 0·013 in. The side with the new distance piece was within limits, but the other side, where I'd had to tap the seized distance piece out, was tight because I'd flattended the end of the distance piece a little. This was dressed up flat with a fine file, and the boss on the king pin also filed to get the correct clearance.

The wishbone arms and the spring pans were bolted together with the bottom trunnions, but the arms were fitted on the inner rubber bearings first, and tightened so that the rubber bushes squashed out an equal amount each side of the bosses on the arms. If you tighten these after the arms are clamped in the spring plates it's very easy to get them one-sided. When everything was put together and the car back on its wheels, the nuts were loosened and the car bounced a couple of times to settle the rubbers in their neutral position.

But I'm running ahead of myself. The coil springs were positioned up in the cross member, and once again tied to the crossmember with rope, just in case, and the swivel axles assembled on the king pins. Then the trolley jack was used to raise the bottom arms till the bolt through the end of the damper arms could be fitted.

The old bushes were used in the damper arms because they were in good condition, not because new ones weren't available. If you fit new ones you'll find that the inner end has to be cut at a chamfer to fit where the king pin passes through the top trunnion. I don't know what they do on assembly at the factory, probably use a big press or a clamp, but without this it's impossible to fit the trunnion in between the arms of the damper because the rubber bushes won't push in far enough by hand. The bushes, by the way, have a metal tube inside them so the bolt is done up tight. On the lower inner rubber bushes there isn't a metal tube so they're done up by feel and the look of the end flanges where they squash out.

The hubs were reassembled with their shims, and though nothing was altered, the clearance for the taper rollers was checked by putting the wheel on tight and rocking it. The correct end clearance on the taper rollers is given in the manual as between 0·002 and 0·004 in, but you need a dial gauge indicator to mesure this. Were I fitting new bearings, I would shim to the point where the hub revolved freely with just a perceptible shake at the wheel rim when it was rocked.

The brake pistons were freed, cleaned in methylated spirit and reassembled with red brake grease to save them sticking again. Note that this is a special grease, in effect the same as brake fluid only in grease form. It is the only grease that must be used anywhere near brake hydraulic seals because any grease based on mineral oil will make them swell and go sticky. A new set of brake pads was fitted and the job was done. Now all we have to tackle is a slight clonk from the prop shaft when you take up the drive a bit heavily, and we can start on the bodywork. See you next month. ●

Right, heat from a butane torch, reflected from a brick, was needed to free some of the parts.

Below, this job was done on an MGB GT but would also apply to the open two seater.