The majority of these tips have appeared in club newsletters over the years. Please note that you use them at your own risk as neither the Bristol Austin 7 Club nor the authors can be responsible for the results of trying to follow the instructions given.

## Spring Pin Removal - Ian Moorcraft

I fitted a pair of new rear springs on the Chummy a while ago and noticed that there was some side play between the spring bushes and the axle case.

I left that job for another day giving everything a while to settle down before taking a measurement and producing a packing washer to suit. As can be seen from the photo the shiny new washer 0.048 thick completes the job. (1)

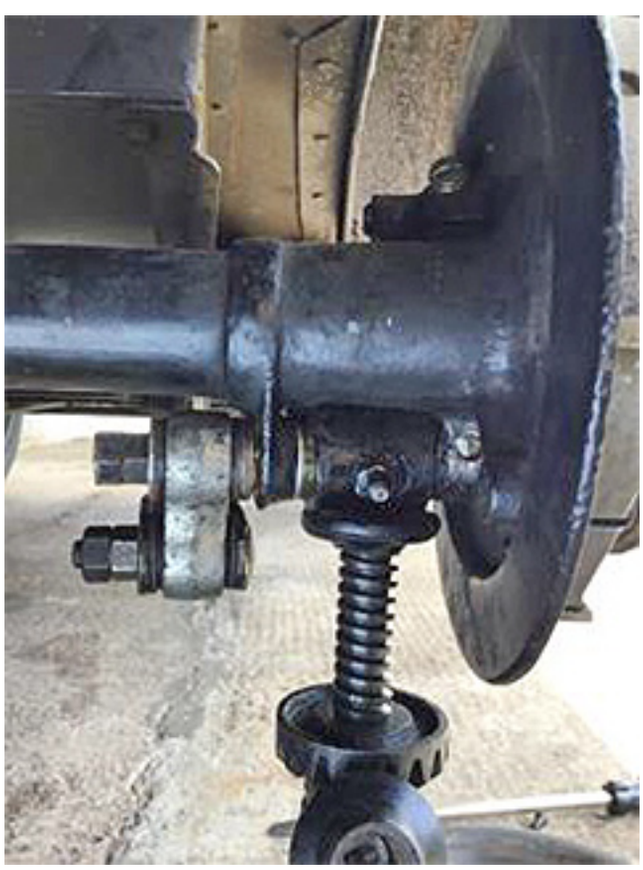


image 1

There as been some discussion on the net recently on the best way to tackle the removal of the spring pins, no one really set out a comprehensive answer so I thought I would do so here. Whether you need to fit these washers, fit new springs or new pins and bushes the procedure is the same.

Start by jacking one side of the car, two Austin Seven jacks are ideal with one directly under the spring as shown and the other wound up lightly under the axle case leaving enough room for the axle pin to be removed.(2) Also use blocks or axle stand under the rear cross member. I have found the job is much easier keeping the relationship between the axle and the chassis at normal running dimensions when removing and refitting the axle pins. If you jack up one side of the chassis with the spring hanging down it can make things really difficult.

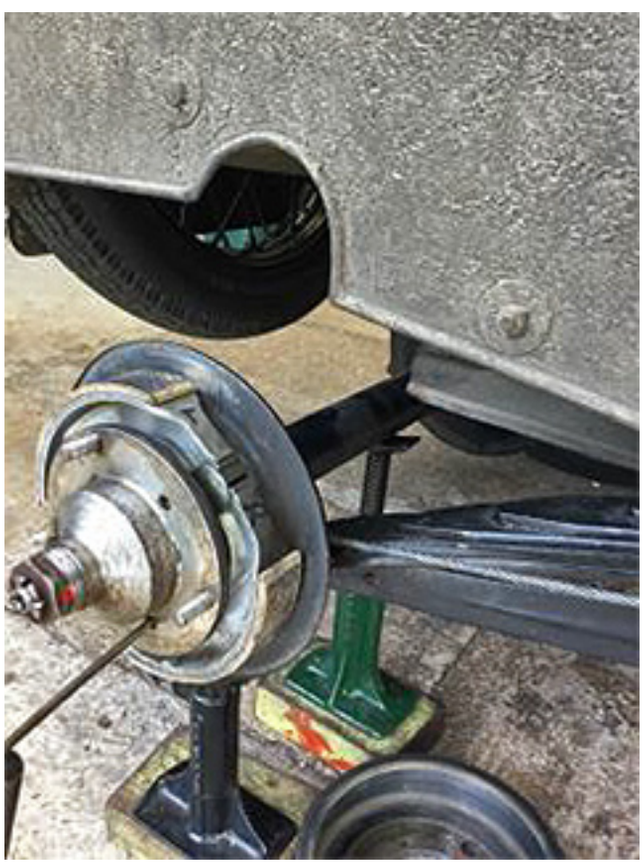


image 2

Undo the cotter nut (shown just next to the spring (fig 1A) until it’s flush with the end of the thread, using a brass drift, one nice sharp clout with a decent hammer should have the nut back against the case, remove the nut completely and punch out the cotter. Now if you found the cotter has been fitted with the nut on the rear of the axle case rather than forward as in the photo, you will quickly learn why not to do it that way next time. It’s much easier to fit the cotter with the nut facing back, but it can be almost impossible to remove it.

Undo the two lock nuts on the shock absorber arm, hold a weight against the outer arm just next to the bolt head and knock the bolt out. The bolt has a locating

peg that can stick and bend the outer arm if you don’t keep the weight against it. Push the arm down to the ground out of the way, if it’s already dropped down you need to look at your shock absorbers next!

If the object of the operation is to fit washers to reduce side float, now is the time to measure the gap between the spring bushes and case lugs with feeler gauges. I would make the washers 0.008 less than the gap to help fitting. The way I file my washers to the correct thickness is to use a hardwood block with an old gudgeon pin tightly fitted into it, tap the pin just below the required finish size to hold the washer as you file,(3) use a file that is wider than the washer. The washer will spin as you file, but this seems to even out errors, the one in the photo was less than 0.002 thinner on one side after removing 0.012 so well within ‘amateur mechanic’ tolerances!

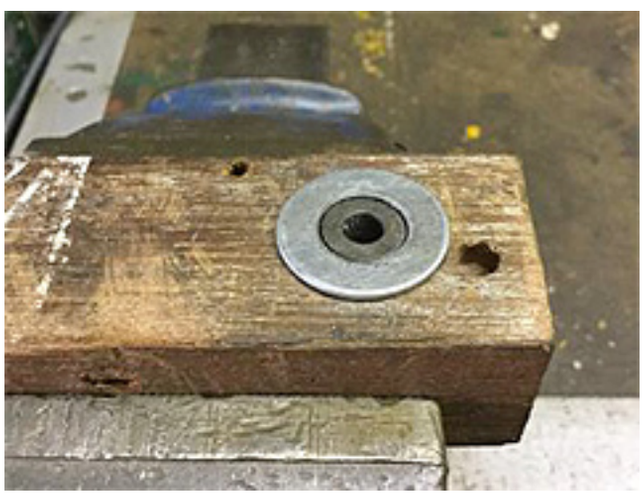


image 3

Now we tackle removing the pin, you will note that the shock absorber alloy link is still fitted on the pin, leave it on as it will help with something to grip for rotating the pin when realigning the cotter slot later. If the pins have been removed at some time in the recent past it’s worth trying to punch them out. Remove the brake drum, using a piece of 3⁄16” rod you can push it through one of the holes vacated by the drum screws.(4) If you hold the rod against the back plate while rotating the hub you should be able to “feel” the end of the pin. If you need to buy a piece of rod, get stainless as it’s much stronger. The photo of my car shows the method, and also here using a spare axle showing more clearly what you are actually doing.

If all else fails you will need to gather odds and ends to make a puller, this is what I made mine from for this article: a piece of tube 1 ⅛” long just large enough to clear the flange on the pin, a nut to fit the thread on the pin (⅜” BSF) two nuts large enough to go over the pin (cam shaft nuts I think) and a rear shock absorber dished washer.(5)

Remove the alloy link on the pin and assemble the tube followed by the dished washer and one of the large nuts. Do up the ⅜” nut as far as it will go, remove

and put on the second large nut, by the time you wind the nut down as far as it will go this time the pin will be free from the back plate. (6) Use the 3⁄16” rod again to remove the pin completely .

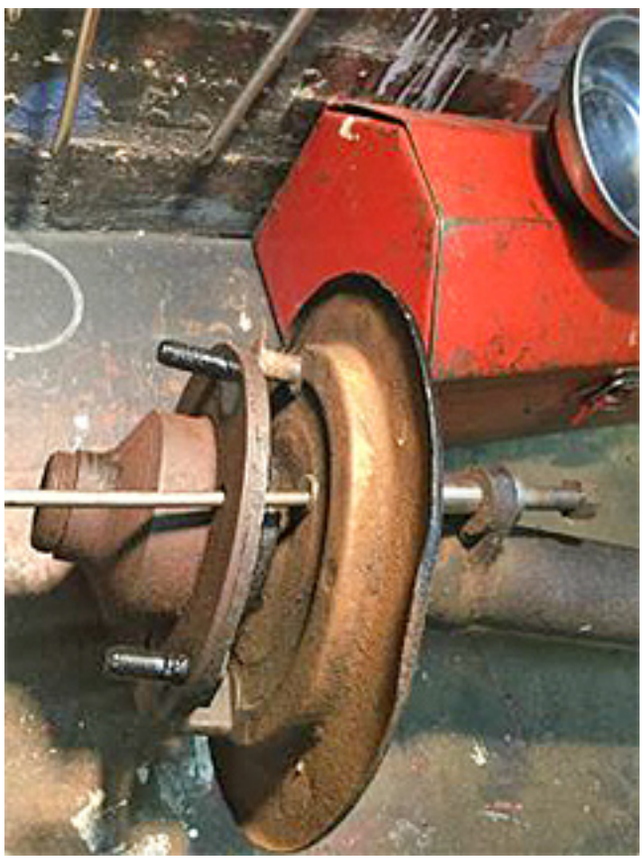
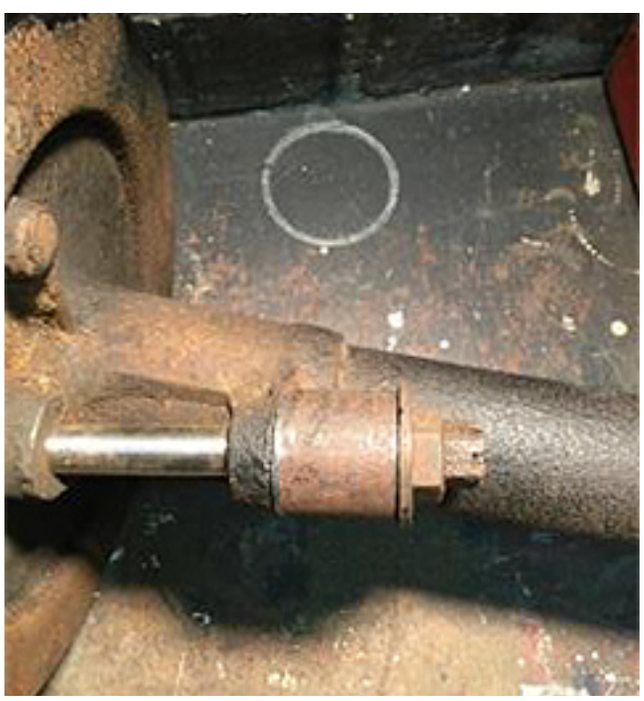


image 4



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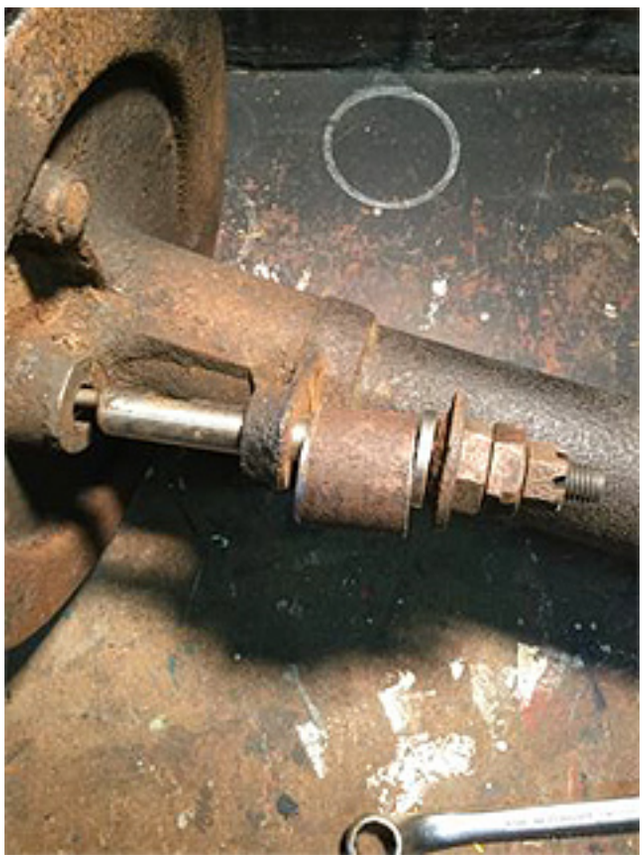


image 6

Now your spring pin is out, what you do next will depend on why you removed the pin in the first place. You can wind down the jack under the spring, knock out the bushes and fit new ones using a piece of ⅜” threaded rod two nuts and two washers to pull them into place. Be sure to try your new pin to see it fits, I’ve never had to ream them in the past but modern replacements may not be so well made.

Jacking the spring back into position complete with side float washers (if your car required them) and inserting the new pin can give two problems to watch for, the first can be mitigated against by filing a generous chamfer on the end of the pin to aid alignment, a square ended pin can be really difficult to get a start through the lug and spring eye, plus you can damage the bush.

The other problem is as you happily knock your pin in there is a metallic knock as the pin fails to enter the backplate. If you still have the hubs and brakes connected the reason won’t be obvious. I have found on most occasions this happens, it’s because the spring bush will be too low because of a slight twist in the spring. Put a monkey wrench closed up on the spring as near to the backplate as you can get it and pull on it to twist the spring up into position as you tap the pin in. I suppose it is possible that the bush could be too high in relation to the backplate, so try twisting the opposite way, though I have never found it so, it

has always been too low.

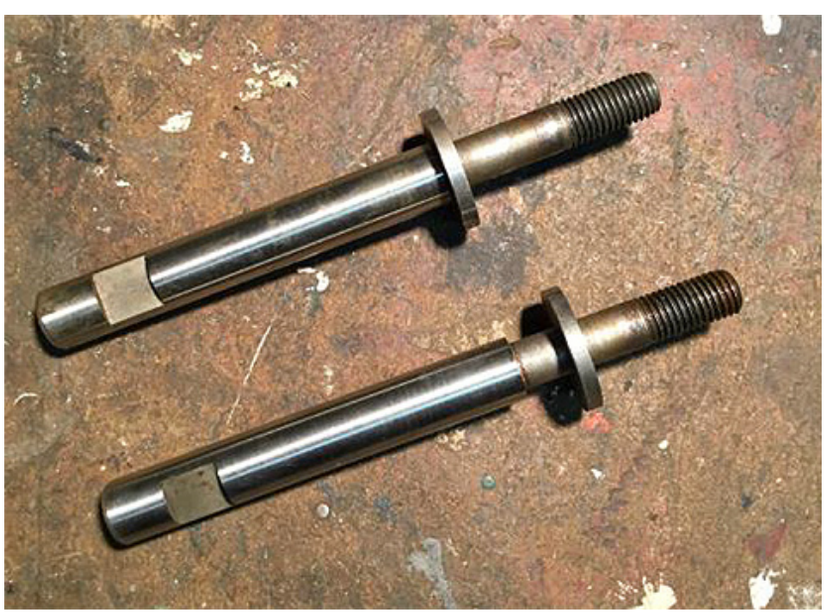
The last thing to do is refitting the cotters; if you are using the originals you will have fewer problems than if fitting new. As mentioned earlier they must be fitted from the rear with the nuts facing forward.

If new cotters are being fitted start off by pushing them the wrong way pointing backwards into the hole, and see if they will go right through (important note: I should have asked you to do this before the spring pins were fitted). If successful that will prove the new cotters are not oversize. Remove them and do the same pointing forward, you will almost certainly find they are too long to enter the hole because of the web casting stopping access. Cut or file the body of the cotter (not the thread end!) just enough to clear the web, you can push it right out the other side to prove you have no restrictions for final fit. If you have problems later it can only be the flat on the new cotter needs a few rubs of the file, or it could be the shoulders of the flat on the spring pin need filing back a touch because they are a catching the cotter.

It’s a good plan to finally assemble with copper slip grease, put a pair of locknuts on the spring pin, and using a ring spanner on them to rotate the pin to align the slot as you push in the cotters. Tighten the cotters, then give them a tap forward from the rear, not easy as your punch will be on an angle, recheck the nuts as they will have loosened a bit.

If you are not doing anything else to the shock absorbers refit the arm to the links not forgetting the red fibre washers between the sides of the arm and rubber bushes.

Tidying up after writing the above article, I noticed what appeared to be a slight defect in the new pin used in the photos showing the removal with the puller.



Close examination of the area where the flange diameter reduces to the pin diameter, and using an engineer's magnifying glass I was surprised to see that it appeared that the flange was in fact a thick washer!

Resting the flange on the vice jaws, and a slight tap with a hammer revealed all, as seen in the photo.

Obviously much cheaper to produce with an interference fitted separate flange than the original method of machining in one piece from a larger diameter bar.

Could this be one of the reasons why some have problems getting the cotters to fit? You possibly wouldn't notice the pin sliding along the flange as you taped it in. It would only need the pin itself to go ⅛" too far into the backplate to give problems fitting the cotter. If the hubs and brake shoes were still in place you could spend a lot of time and a few choice words before the penny dropped.

If this is how all spring pins are made now (they may not be of course), or just in case the ones you are fitting are the same, I would suggest you only ever use a piece of tube or old box spanner resting on the flange to tap in modern pins, rather than a nut on the thread as was the way with original style pins.

Another important thing missing on these pins was the slot along the threaded portion for the 'keyed' shock absorber flat washers. Without these static washers, even with the standard lock nuts a 'plain' flat washer and fibre washers the nuts could come loose with the radial movement of the compressed rubber link bushes.

It's always worth having a really good look to compare new parts with the old to foresee any additional problems that may be encountered if they are not made exactly the same as the originals.