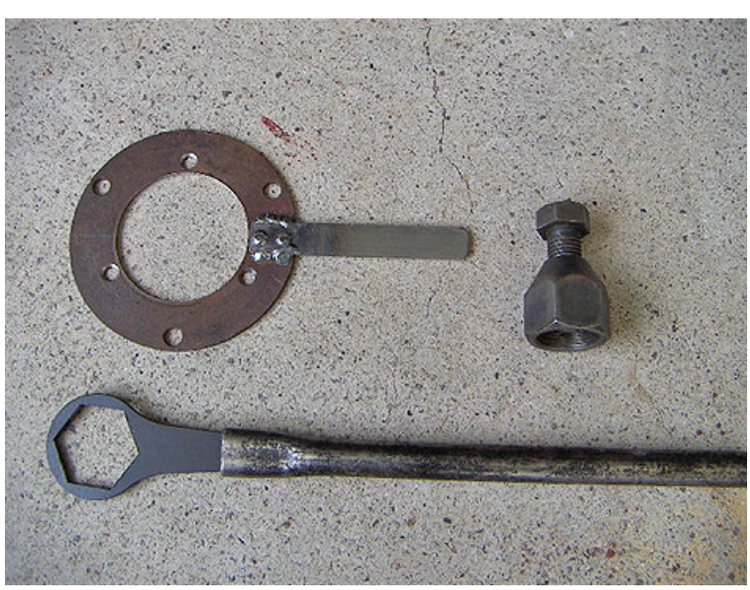
The majority of these tips have appeared in club newsletters over the years. Please note that you use them at your own risk as neither the Bristol Austin 7 Club nor the authors can be responsible for the results of trying to follow the instructions given.

Hubs - rear - by Ian Moorcraft

When using my Austin Seven as an everyday car and covering thousands of miles a year, what was sure to let me down were the rear hubs. This was mainly down to my own misunderstanding of how a taper joint worked or should be fitted, but in my defence I think the design leaves a lot to be desired anyway.

I spent many Saturday afternoons making up ‘stepped keys’ to fit into the badly worn keyways. I was unaware that it is actually the taper that keeps the hub tight on the shaft, and with a perfect fit the car could be driven without a key at all!

If you hear a sharp ‘click’ when starting to reverse it’s a possible sign that the half shaft is loose in the hub, so you need to investigate as soon as possible.



Tools for the job: Austin Hub puller (far right), home made spanner for the flat nut (bottom) and a homemade tool for holding the hub still when tightening the half shaft nut (top).

Remove the wheel and brake drum; remove the split pin and shaft nut. Unlike the front hubs, the rears need to have the outer hub removed separately from the inner stud carrier which itself is held on by a large thin nut.

If the threads are good on the outer hub (often they're not) and you have an Austin Seven hub puller, screw it right down as far as it will go, tighten the puller nut; if when you begin to tighten the puller centre nut you find that with very little pressure the hub outer comes loose then you have to investigate why. A good fit of the hub will not be a loose fit, it should be hard to get off. If you can't shift it put everything back together and go down to the pub leaving well enough alone.

If you don't have a puller and the hub threads are stripped, you can split the joint by hitting the end of the shaft inwards as there is plenty of clearance on the diff end of the shaft. Most good DIY mechanics will put the nut on the end of the shaft before hitting it, I've found you have more chance of bending the thread if you do this and don't hit the nut dead square or use too small a hammer. The method the old scrap dealers always used was to leave the nut off and using a full size sledgehammer let it fall under its own weight rather than swinging it, one knock and it was always free. Picture above shows a hub puller (top right), home-made spanner for the flat nut (bottom) and home-made tool for holding the hub still when tightening the halfshaft nut (top left).

One of the inevitable consequences of working on an Austin Seven is that there will be plenty of evidence of previous owners' handy work, who often had very few if any, decent tools. It is not unusual to find that the hub outer has been removed by banging 3 screwdrivers between the flanges. If this is the case another set will need to be found as straightening them is near impossible for most of us.

I have never stripped an axle that has not had cold chisel digs in the large nut that holds the inner half of the hub; most can be dressed back and filed back to shape, new ones are available.

After everything is cleaned up, your original parts or any replacements for damaged items will need to be inspected carefully. Look for cracks coming from the edges of the key slot in the half shaft, hub outers suffer cracks where the boss meets the flange and should give a sharp 'ring' when tapped. As far as the hub inners are concerned check the studs are not 'wasted' and check the fixing rivets are tight. The new paper washer that goes between the hub halves is only about 12 thou. thick so flanges on both should be dead flat, or leaks into the brakes will be inevitable.

The big decision is do I need to remove the half shaft from the axle to lap the hub onto the shaft? The answer really should be yes to do a proper job; unless the half shafts look really good you could get away with lapping the hub with the shafts in situ, but you will need to find a way of stopping the shaft from sliding back into the case. I have recollections of tapping a thread into the hole for the lock washer and fitting a short bolt to stop the shaft sliding back but can't remember if it was a success or not.

Whichever method is chosen, the lapping process will be the same. Start by carefully removing any obvious ‘high spots’ on the shaft key slot and taper. Do the same within the hub taper that will inevitably have a few spots where it has ‘picked up’ in service. Look carefully at the small end of the hub and you will see a wear mark about 3/32” from the end made by the shaft ‘digging in’, you need to file this out so that the shaft will be clear to travel past this mark as you lap. You should now find the hub outer will spin without catching on the shaft, if it does catch find out why as you cannot lap in this condition.

Put some valve grinding paste on the hub and shaft and rotate 4 or 5 times, lift up and move to another position and do another 4 or 5 times, the thing is to do the least amount as possible, so inspect the progress often because it is very easy to go too far, you are aiming for a continuous matt appearance on both parts, though in practice this is unlikely to be achieved with secondhand parts but I like to see at least 80% contact; if you have some engineers blue use that to check the fit. If you go too far and the end of the shaft shoulder becomes flush with the hub flat where the nut bears, you will be in danger of the spur gear on the other end of the shaft fouling the inner diff case and so locking the diff solid.

Reassembly is straightforward always with new lock washers, split pins and paper gaskets; if you are using new felt seals I suppose a lick of grease would be what you would use, though the 1920/30s recommendation was a mixture of tallow and white lead. I think the sale of ‘real’ tallow was banned due to the BSE outbreak, and I have never been able to find out what white lead is. A mouse ate my entire tin of tallow, it was 30 years old and full of dirt! I use sealed wheel bearings so dispense with any form of additional seal, and my brakes are as dry as a bone so would recommend the same.

As for the outer hub, be sure everything is degreased, and hopefully you will have already checked that the key was not fouling the top of the hub slot. If your wife will let you (mine won’t), put the hub in the cooker for a few minutes or, as I do, use a hot air paint stripper to make it nice and hot. Fit in quickly checking

Paint blobs to check that nothing is moving.

that the key hasn’t slipped out behind the hub as it can do if it’s a little loose in the slot, and tighten the nut.

There are plenty of stories about putting scaffold tubes on spanners and jumping on them to get them really tight, but I don’t subscribe to that. Just make them sensibly tight for the size of thread and provided you have a good fit all should be well. You can run the car and recheck after a few miles.

I finally put a small blob of enamel paint on the nut flat and thread to enable you to check nothing is moving on service checks.

The most important thing with regard to further serviceability is your left foot, snatchy clutch control puts extra strain on the hubs.

Its well worth the time spent to make up a flat spanner for the large nut from 1/8” flat plate and also a hub holder, made by removing the boss of an old hub, both shown with a common handle made from a piece of conduit with the end flattened.