

*This article. was started when Mike D'Arthur, in New Zealand asked me to find some instructions for rebuilding his 'jampot' rear suspension units. With help from the indispensable 'Christians Archives' I directed him to a couple of articles that had appeared in **Classic Mechanics** (author John Doust) and **Classic and Motorcycle Mechanics** (author Brian Crichton) in the '80s. The intention was to publish the rebuild methods, in order to help others in the same position. This piece was intended to be a distillation of those two articles, but since then I have had help from a number of other AJS&MOC club members which has enabled me to update and simplify it. Many thanks then to Roy Bellett for his loan of a complete jampot unit, to Jim Gunn of JSL for loan of a 016424 ring nut, Paul Guse for photographs of the disassembled unit and his (very professional) workshop tools and to Mike, of course, who set me on this path initially. Thanks also to Mortons Media Group Ltd., for kind permission to publish parts of the original articles. You will find details of all their publications on their website at www.classicissues.com.*

The part numbers referred to in the article are shown most clearly on the wall chart no.800067 available from Jampot Spares Ltd., but their parts catalogue also has a smaller reproduction.

Simon Hoskins

REBUILD THOSE LEAKY JAMPOTS

The AJS and Matchless 'Jampot' type of rear suspension unit must be one of the few that can be stripped and reconditioned. The reason behind this lies mainly with their method of construction. In essence, they are shortened fork legs – in fact most of the internals are similar to the *Teledraulic* forks.

I've broken down the rebuild following the (hopefully!) simple steps listed in *F.W.Neill's* contemporary handbook, incorporating various caveats from AJS MOC members (mainly Mike D'Arthur and Paul Guse) who have already done the job. One thing I found surprising about both magazine articles was the willingness of the engineers to use rather crude methods, viz. stillson-type pipe wrenches, to grip and turn the bodies of the dampers. I much prefer Mike's and Paul's method of making up clamps, either in wood or aluminium, to grip the bodies without marking, so that purchase can be gained and the evidently large turning forces can be exerted on the units. I've included photos of both their special tool sets – Paul's are works of art, Mike's are perhaps more pragmatic but perfectly satisfactory for dealing with just two dampers – I've used similar home-made tools on my (whisper it!) BMW. I think you'll find that although the overhaul of these units will never be an easy job, with care and some preparation the strip / rebuild process should be within the reach of many of our multi-talented members. Should anyone fancy a challenge, there seem to be quite a few secondhand jampot units for sale.

Dismantling the units

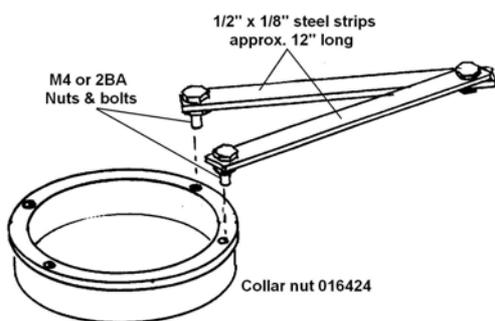
Probably the first thing to do is to study the original diagrams of the units that are included at the end of this article; they give you a much clearer idea of the parts involved. Those of you who are knowledgeable about these things will know that there are in fact two distinct types of Jampot damper. The first, which was used up to about 1954/5, employed a screwed-on lower collar ('ring nut') (016424) which supported the spring and bottom outer cover (Photo 1). The later type had a simpler (read 'cheaper'?) arrangement where the lower (chrome) collar (021654) is retained by a circlip (021655) fitted around the damper body (Photo 2).



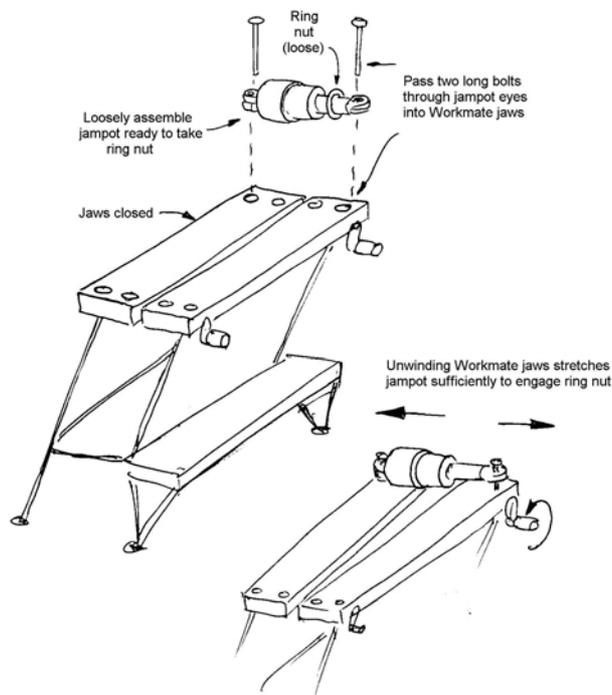
In dismantling the two types, the technique only differs in that whereas the early collars unscrewed (or at least, they did when new....), on the later ones, the circlip has to be removed and then the rest can be dismantled.

Step One - Remove the collar nut or collar circlip.

Everyone who has tackled this job seems to agree that this can be the most awkward part. To remove the threaded collar nut the main body of the damper must be held either by a clamp (1 $\frac{7}{8}$ "") around the outer tube, or by holding the bottom pivot in a vice. If you do hold the bottom pivot, fit either a packing piece (a large washer or a spanner) between the lugs, in order to avoid bending or breaking them. The collar nut can then be unscrewed. Try to avoid the hammer-and-pin-punch method by making up a tool such as Mike Young's 1996 suggestion as shown below.



The circlip and collar on the later units are under pressure not only from the main spring, but also from the buffer/rebound spring inside. It is quite difficult to compress the main spring, but compressing the buffer spring can be accomplished by stretching the unit across a Workmate (see below). This was also suggested by Mike Young in the July 1996 *Jampot*. I've tried it, and it works – the amount of movement is small, but sufficient to give access to the circlip, and a light tap with a soft hammer will help to free off the spring support collar.



Once you've got the collar off, you can drop the spring and cover tubes down to expose the inner tube (016406) at the top of the damper.

Step Two – Remove the top pivot.

Removal of the top pivot requires use of a smaller 1½” clamp around the inner (top) tube. Gentle heating of the top pivot helps to free this part off. Notice that Paul Guse’s photo (Photo 3) shows use of a large bar through both sides of the clevis/lugs in order to avoid damaging it, although this necessitates removing the pivot bushes. If the suspension unit has never been apart before, this pivot will be very tight. Once the pivot is off, the rubber buffer (016251) can be removed from the tube.



Photo 3

Mike D’Arthur used a slightly different method to turn the pivot:

“Application of heat will facilitate the removal of the top pivot from the inner tube. Using a smaller diameter timber clamp around the inner tube and a suitable packing bar in the slot of the top pivot, unscrew the top pivot.”

Step Three – Remove the bottom pivot and drain the oil.

Following a similar method, but using the larger clamp on the lower outer tube, the bottom pivot can be removed. This will also be very tight. You should then find a quantity of oil dripping on to your feet/into the prepared oil drainer – or not, depending on the units’ history. Pour any remaining oil out of the unit.

And here are Mike’s comments on this step:

Having followed the magazine articles’ suggestion to use a pipe wrench to undo the bottom pivot, “...since it proved to be tight and parts easily marked, I would now caution against the use of any type of pipe wrench since they are capable of crushing the outer tube. I subsequently discovered this on re-assembly when bush 016075 refused to slide readily in the outer tube. This resulted in my spending a considerable time polishing off the ‘high spots’ caused by crushing.

With this problem in mind I made a clamp for the outer tube from a piece of 4” x 2” hardwood cut in half (Photo 4 below). I used timber since it was only going to be used a couple of times”.

Step Four – Remove damper rod assy. from bottom of inner tube.

Returning to the top of the unit, lifting the damper rod (016342) up as far as possible enables you to hold the screwed collar 016343 (that seals the top of the inner tube) gently in a vice and undo the locknut under the collar. Remove the collar, and the damper assembly will slide out of the bottom of the outer tube.

Step Five – Remove screwed collar/oil seal/etc.

You should now be able (with your newly-minted special tool) to unscrew the threaded collar (016078) at the top of the outer tube which retains the upper bush (016077) and oil seal (017569).

Mike employed his home-produced special tool (see Photo 4 below):

“...the collar that retains the oil seal can be unscrewed from the top of the outer tube using another C-spanner or Mike Young’s tool and the timber clamp. Heat may be usefully employed to minimise effort.”



Photo 4

With the retainer removed, pull the inner tube sharply upwards to remove the oil seal and plastic upper bush. If this doesn't work, remove the inner tube and drift the seal and bush out gently from below. Take note which way 'round the oil seal goes – metal side uppermost.

The inner tube carries the buffer spring and the lower steel bush, which is retained by a circlip. If the inner tube and its steel bush are both in good condition there is no real need to separate them unless you're renewing the tube.

Step Six – Dismantle the damper assembly and inspect all parts.

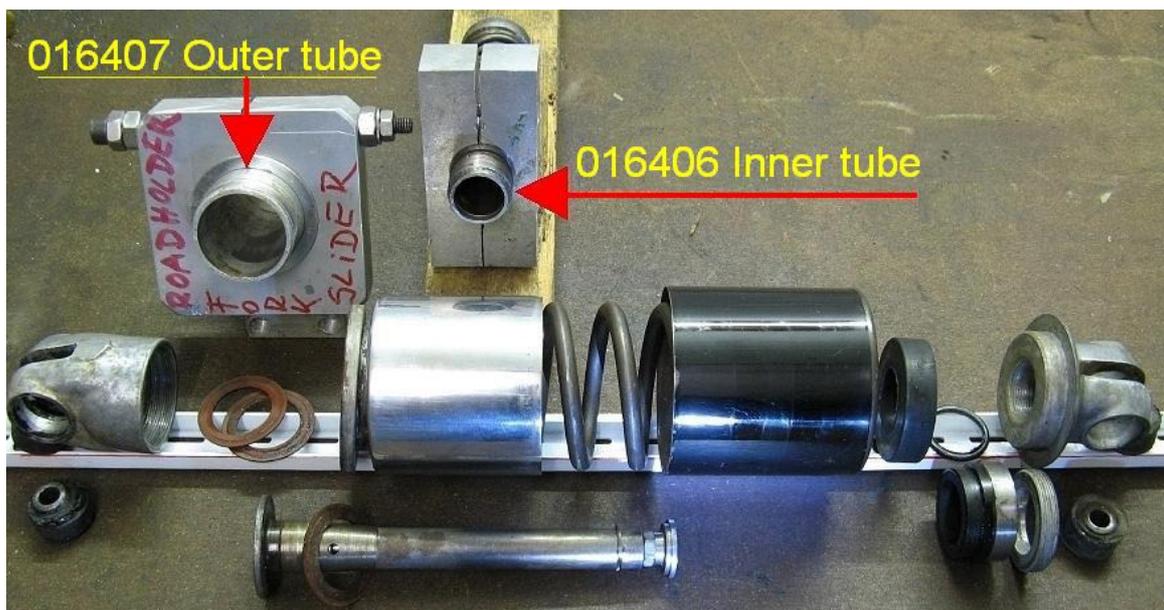
Remove the rebound ('buffer') spring. Wipe down and examine surface of inner tube for pitting. The quality of the surface is the key to oil tightness. It's better to renew if the inner tube surface is marked at all by rust pitting. If only lightly surface pitted, this can be removed by careful smoothing with fine emery cloth.

Almost all the parts to rebuild these units are obtainable from JSL, the only exceptions being the rebound springs and the upper and lower pivot lugs. Luckily, a lot of the parts for jampots are common to Teledraulic front forks. There is a list of parts available at the end of the article. Note that some part numbers alter according to the type of unit.

Remove the circlip (016339) which retains the bush in the damper tube using pliers. Reversing the damper rod, a slight tap on the end will remove the bush from the damper tube. The damper tube is often fractured at the slot where the circlip fits. Inspect carefully that there are no cracks at the top of the damper tube adjacent to the slots for retaining the circlip.

The damper unit is now completely dismantled. It is possible that a number of the damper parts may be damaged. Pay particular attention to the damper valve (016304), the damper bush (016072) and the damper tube (021650), as below. Obviously, it's best to completely dismantle your jampots prior to ordering any new parts.

Paul Guse's photo 5 shows all the parts cleaned and laid out, but note that the damper tube and rod are shown still assembled. This picture shows, at the left rear, the early type of outer tube (016407) (with screw collar) held in Paul's special clamp. Centre rear is the inner tube (016406) (complete with rebound spring and steel bush) held in its own clamp. In the foreground, from left to right, are lower pivot lug (bushes removed), fibre washers, screwed-type collar, lower shroud, main spring, upper shroud, rubber buffer, O-ring seal and top pivot lug (bushes removed). Lying in front of those parts are, in the centre, the damper assembly and on the right the plastic bush, oil seal and threaded retaining collar.



Step Seven – Reassembly

Having cleaned, refurbished and replaced parts as needed, you are now ready to rebuild the jampots. Naturally you will have burnished all parts to showroom condition before reassembly.

First fit the plastic upper bush (016077) into the top of the alloy outer tube, tapping it home till it rests on the shoulder within the tube. It's a good idea to measure the distance between the shoulder and the top of the tube and the width of the shoulder on the bush, so as to be sure when the bush is fully seated. A large socket is ideal for drifting the bush home.

Refit the steel bush and circlip (if removed) to the inner tube; fit the buffer (rebound) spring and insert the inner tube into the outer tube from the lower end, up through the plastic top bush. Now wrap plastic electrical tape around the threaded upper end of the inner tube to protect the oil seal, oil the taped tube well and gently pass the oil seal over the tube, using a twisting movement. The seal must be fitted with the closed metal side up, away from the plastic top bush. A suitable tube or box spanner may be used to tap the oil seal home against the bush, and the retaining collar screwed into place. Tighten the collar with the peg spanner.

It is essential that the oil seal and bush are put in with the inner tube in place. Do not fit oil seal, plastic bush and oil-retaining collar before attempting to fit the inner tube in. This will surely damage your oil seal.

Take damper rod and renew, if necessary, the damper valve. To do this, remove the nut at the bottom of the damper rod. Note the assembly sequence – retaining pin (010721) fits into the hole through the damper rod, damper valve (016304) fits down over the pin followed by the brass seat for the damper valve (010719) and finally the locknut.

Replace the damper bush (016072) into the damper tube and fit the retaining circlip. Re-insert damper rod into damper tube and place the locking nut on top of the damper rod.

Now find a real glass jampot! Part-fill the container with paraffin and draw the damper rod up and down within the damper tube to check that the damper is functioning correctly. This action should be carried out gently. It will draw paraffin up through the top of the damper tube and squirt paraffin all over the place if you're not careful.

Place a fibre washer on top of the damper tube flange and insert the damper tube into the inner tube. Depending on the type, place either circlip/collar or threaded collar loosely over the outer body.

Put a fibre washer inside the lower pivot (in other words, make sure you place a fibre washer both above and below the flange of the damper tube). Loosely screw lower pivot on to outer body. Replace the screwed collar (016343) on top of the damper rod and secure with the locknut.

Place a leather washer in the base of the stainless steel lower (main spring) cover tube. Put on lower cover and spring. It may be advisable to oil or grease the spring lightly, since it will rust. Note that the wider coils of the spring are at the bottom. Place a second leather washer on top of the spring followed by the top cover.

Fit the rubber buffer over the inner tube and push down below the level of the top tube. Renew 'O' ring oil seal (016291) in the upper pivot. Screw upper pivot on to inner tube.

At this point, the methods given by the various manuals and articles differ. F.W.Neill's guide advises filling the suspension unit with oil through the upper end of the inner tube before replacing the upper pivot. The others tell us to fully tighten the upper pivot, before removing the (loosely tightened) bottom pivot and to add the oil by lifting the damper tube and filling with 85cc of SAE20 oil. Since the oil came out of the bottom pivot, it would seem sensible to put it back in there. Whether there is any difference is debateable.

Clamp the inner tube with your alloy or wooden clamp, and tighten to somewhere around FT. At this stage the bottom pivot is only screwed up temporarily. You then need to refit either the screwed spring collar or the circlip/collar.

Mike D'Arthur's units were the older 'screw-collar' type, which needed 'stretching' to enable fitment of the collars. Mike used a similar method to that used when he dismantled the jampots. Notice that the method can be used for the 'circlip' type of collar as well:

"You now have to stretch the unit against the internal return spring sufficiently to start the ring nut on its thread (or to install the circlip on the later model). This was made easy by following Mike Young's suggestion re. use of a Workmate" (see above)

Invert the unit and again clamp the upper pivot in the vice; remove the lower pivot, raise the damper flange slightly and add 85cc of SAE20 oil. Special fork oils might be better.

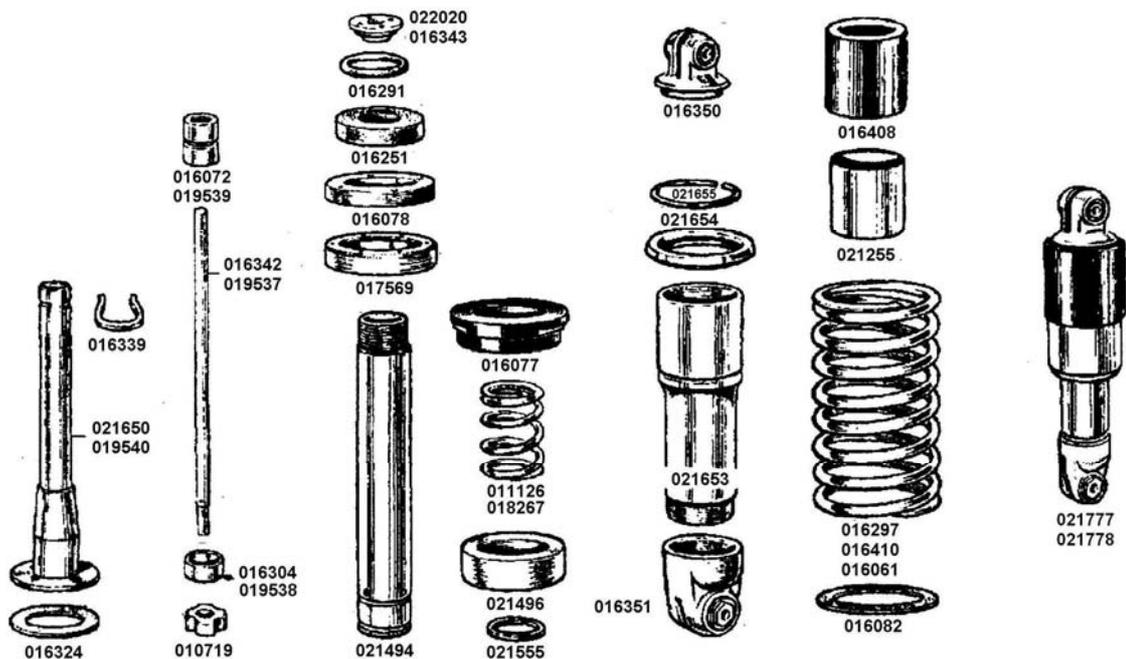
Make sure the second fibre sealing washer is in place (there must be one on either side of the damper flange) then refit the bottom pivot. Clamp the outer tube and again tighten to FT. Press new rubber bushes and spacer into the pivots - a little rubber lubricant will aid fitting - and the job is done.

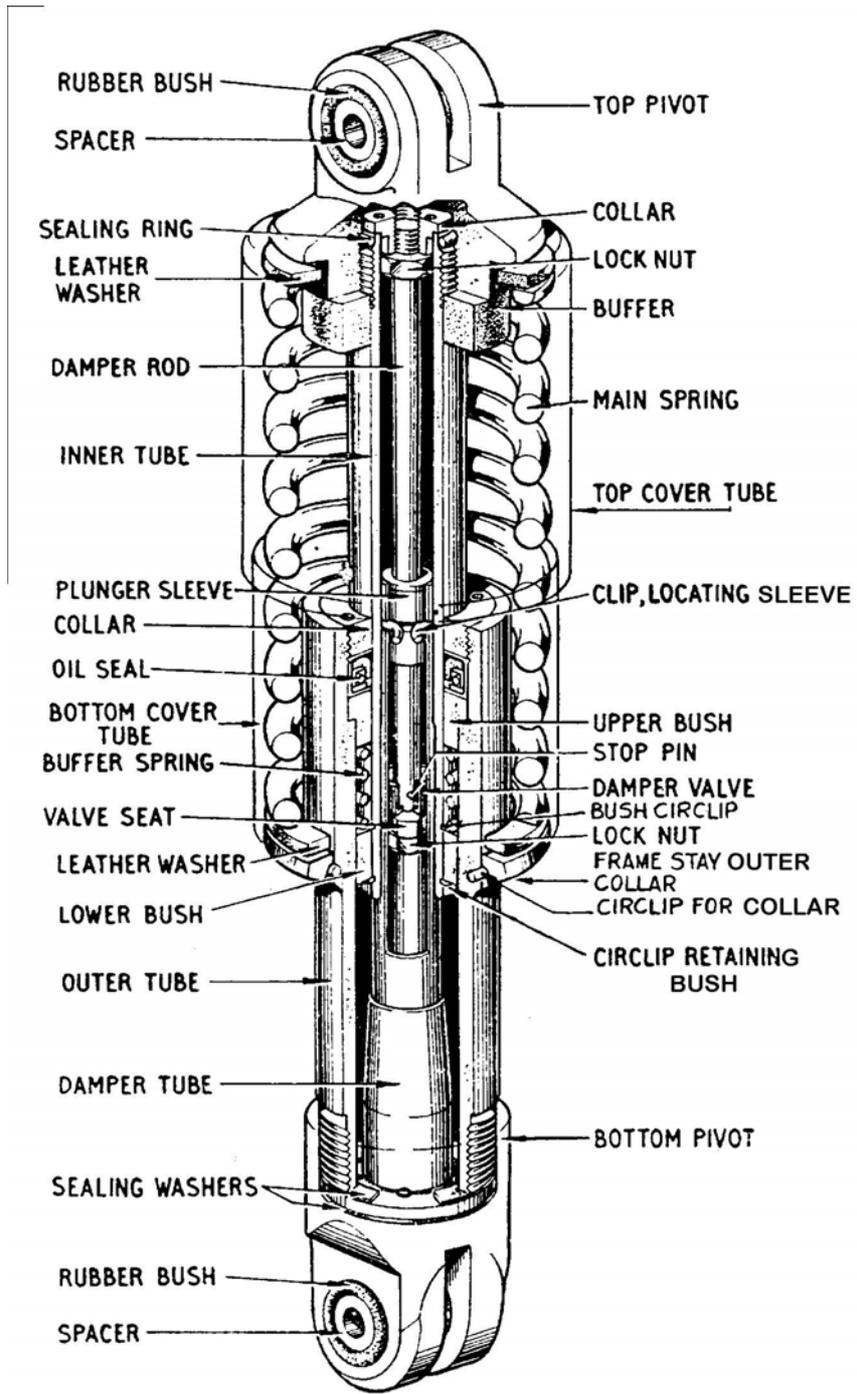
Jampots are known to leak occasionally, so what can we do to minimise this fault? There are three places where leaks could occur: at the top and bottom pivots, and at the oil seal. It may be worthwhile to smear the threads of the pivots with a non-hardening sealant such as Blue Hylomar when assembling. As to the oil seal, we can ensure that the inner tube is without nicks or pitting, and that the oil seal is not damaged during fitting.

Parts available from Jampot Spares Ltd.:

In truth, this is an area that is really well-served by JSL. One can buy almost every part needed for the jampot suspension unit, including inner and outer tubes, damper tubes, springs, etc., etc. Obviously there are exceptions, in particular the upper and bottom pivots, but those seem to survive pretty well anyway. Please ring JSL for your requirements and current prices.

Original diagrams:





TELEHYDRAULIC REAR DAMPER FITTED TO 1954-56 MODELS.

