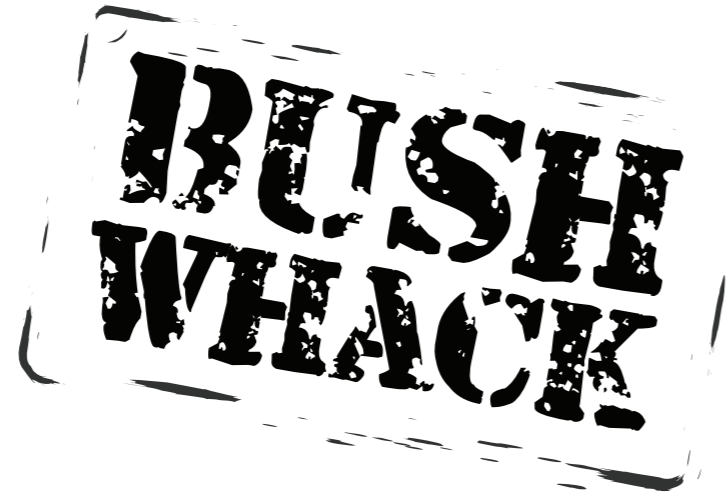


Tech Focus: Poly bushes

Words & photos: Rob Hawkins



We visit RS Tuning to fit a full set of Polybush polyurethane suspension bushes to an Evo VI

One of the cheapest and most effective suspension mods you can make is fitting uprated suspension bushes. These can firm up the handling, make the steering more positive, reduce body roll and provide better noise damping.

Uprated suspension bushes are usually made from polyurethane, which lasts a lot longer than standard rubber bushes and can soak up hard use. So it was a full set of Polybush polyurethane suspension bushes that we elected to fit to an Evo VI. RS Tuning of Leeds kindly volunteered its car, to which we fitted a full kit of Polybush 'Performance' bushes (other ratings include 'Dynamic' and 'Comfort').

The whole thing took three days to complete because there were challenges involved. Our import Evo had endured over ten years of road muck and salt, so the fittings were tough to undo. We escaped lightly with one damaged drop link and two sheared bolts on the rear trailing arms. A copious amount of penetrating fluid left soaking overnight was the best approach.

It's a tight squeeze if all you have is a trolley jack and a set of axle stands. You can do it like this, but a two-post ramp or

full-length pit makes things a lot easier.

It took us a full day to remove the front and rear lower arms, rear upper wishbones and trailing arms. Thankfully we managed to fit new anti-roll bar bushes without having to remove the bars. Some of the bushes could be pressed out using a hydraulic press, but the walls of the sleeves for standard bushes are very thin, so finding a suitably sized socket or tool isn't easy. We attempted to remove some of them using a vice, but often we had to resort to burning the innards of the rubber bush, then carefully cutting out the metal sleeving. Whilst this method may seem brutal, it's probably the easiest way. However, this procedure must never be conducted in a confined space, as the burnt gases can be poisonous.

Fitting the new bushes was feasible using a vice in most cases. Polybush stipulates that grease must not be used to help fit the bushes, only soapy water or tyre soap. Grease can cause the bush to spin and if dirt gets in, it will start to erode more quickly. Applying a smear of grease to a bolt thread is still worthwhile, however.

If you're new to fitting suspension bushes, we recommend starting with one or two bushes and taking your time. If you

Contacts & prices

RS Tuning – 0113 243 6444
www.rstuning.co.uk
Polybush – 01978 664316
www.polybush.co.uk
Full bush kit for Evo VI – £344.59

Useful tools

Ball joint splitter
Cable ties and exhaust clamps
Chisel
Electric drill with hole cutter
Hacksaw
Hydraulic press
Large vice
Oxyacetylene set up with blowtorch
Penetrating fluid
Pry bars
Spanners and socket set
Trolley jack and large axle stands or two-post ramp
Various sizes of hammer

have some experience and want to fit a full kit, set aside a very long weekend to complete the job. In the case of the Evo VI and similar models, once the new bushes have been fitted, settings such as the rear camber will also need checking.

Front bushes

1. Undo the 14mm nut for the lower part of the drop link, then release the drop link from the lower arm. If the stud of the drop link spins, there's a 14mm 'flat' on it to grip it.
2. Undo the 22mm nut which secures the outer bottom ball joint on the upright to the outer section of the lower arm.
3. Use a ball joint splitter to separate the lower arm from the ball joint on the bottom. It's worth doing this now because if it's the last job, the lower arm can spring out and hit you.
4. Undo the two 17mm bolts at the rear of

the lower arm. These also secure the rear of the front subframe to the underside of the bodywork, so they should be loosely refitted after removing the lower arm.

5. Use two 17mm spanners to undo the nut and bolt that mounts the front of the lower arm to the underside of the car. Once undone, tap out the bolt with a rubber hammer, then extract it with a screwdriver.
6. The lower arm is now ready to be removed. Use a pry bar to remove it from its front mount. When it drops down, be

prepared to hold the weight of the lower arm and remove it from the car.

7. After removing both lower arms, it's worthwhile removing the anti-roll bar mounts and fitting Polybushes. The mounts are awkward to access, so slacken the 17mm subframe mount bolts as shown (do not remove them).
8. Wedge the back of the subframe using a pry bar to create more space to access the 12mm bolts that secure each mount and D-bush for the anti-roll bar. Find these bolts and make sure the pry bar(s) are secure.



9. Manoeuvre a 12mm socket and small ratchet into position to undo each anti-roll bar mount. This is very awkward, so avoid rounding the head of the bolt. Once undone, extract the mount and the old D-bush.
10. Clean the anti-roll bar where each mount is fitted and the inside of each mounting bracket. Fitting the new bushes isn't easy, so less dirt and a smooth surface will help.
11. Fit the mounts into position. This is very awkward. The front of each mount needs to be hooked into position, then the mount has to be levered down and over the new bush. Finally, the bolt has to be fitted from the top!
12. If you can't fit the anti-roll bar mounts, try feeding a long M4-5 bolt through and tightening a nut on the end to pull the mount down and over the Polybush. Once located, remove this bolt and fit the correct tapered one.



Rear bushes

1. Disconnect the rear drop links on both sides. These are secured with a 14mm nut. If the thread spins when undoing it, there's a 14mm flat to help secure it.
2. From within each wheel arch, undo two 14mm bolts that secure the upper wishbone to the car. These will be covered in road dirt, so clean the bolt heads first and spray with penetrating fluid.
3. Undo the 22mm nut for the upper arm wishbone's ball joint, where it's secured to the upright. Once undone, you may need to use a ball joint splitter to separate the ball joint.
4. Just one more bolt remaining for the upper wishbone. This is a 14mm bolt with a captive nut. On the offside rear, the bolt cannot be extracted because the petrol filler neck is in the way, so see the next step.
5. To remove the upper wishbone on the OSR, remove a guard for the fuel filler pipe (three 12mm bolts) followed by a 10mm bolt. Use a pry bar to move the filler pipe and extract the last bolt for the upper wishbone.
6. After removing the upper wishbones, we'll now change the anti-roll bar mount bushes. Each mount is secured with four 14mm bolts. Spray lots of penetrating fluid over them first. Work the bolts in and out when undoing them.
7. Each anti-roll bar mount is made up of two brackets and one D-bush. Clean the mount before refitting it with the new Polybush. Refit the front bolts first, then the rear bolts.
8. We're now going to remove the lower arm. Start by undoing the



- 17mm nut and bolt which secure the bottom of the strut to the lower arm. The hub will drop down after removing the bolt.
9. Undo the lower arm's inner mount, secured with a 17mm eccentric bolt (used for camber adjustment). Spray lots of penetrating fluid over it to remove it. This may be difficult, so tap it through.
10. Undo the final 17mm nut and bolt, which secures each lower arm to the bottom of the upright. The lower arm can now be removed from the car. Check the hub isn't hanging down and stretching the brake flexi hose.
11. The final arm to remove is the trailing arm. First, undo the 22mm nut, which secures the trailing arm to the upright. Use a ball joint splitter to detach it. Support the upright with exhaust clamps and cable ties.
12. Undo the 19mm bolt that secures the front of the trailing arm to the car. Once undone, the trailing arm can be removed. We've now finished removing all the rear arms. They can be cleaned with alloy wheel cleaner before renewing the bushes.



Fitting new bushes

1. The rear upper wishbone has two new bushes to fit from Polybush. The outer rear bush can be pressed out using a hydraulic press, then the housing must be cleaned prior to fitting the new steel sleeved bush.
2. The new bush can be fitted using a vice. Avoid crushing the ends of the bush, so use a selection of large nuts or spacers to avoid fouling the ends.
3. The other bush to uprate on the upper rear wishbone includes a mount for the wishbone. Score a line on the body of the wishbone to indicate the position of the mounting lugs, which are part of the bush.
4. If you haven't got a suitable socket to avoid fouling the lugs on the bush in step 3, saw the lugs off. Don't apply pressure solely on the lugs when pressing out the bush as the bush probably won't push out.
5. The new bush with its mounting lugs must be lined up with the scribe marks made in step 3. Use a vice and a selection of spacers to fit the new bush.
6. The rear lower arm has only one bush to renew, which is the bush for the bottom strut mount. This can be pressed out and the new Polybush fitted using a press or vice.
7. The rear trailing arm bush has a thin walled sleeve for the bush that can be uprated for a Polybush item. If you can't press it out, see the following steps for burning out the rubber in the bush and cutting it out.
8. If an old bush cannot be pressed out, one solution is to burn the rubber out with oxyacetylene (use oxygen to cut through the rubber), then remove the rubber innards with a hammer. The arm will become extremely hot.
9. After removing the rubber from an old bush, use a hacksaw to carefully cut through the sleeve, then chisel out the sleeve. Avoid damaging the wall of the bush housing.
10. The front bottom arm has two bushes to uprate. The front most inner bush is the most awkward to press out. The rear bush sits on a spindle, secured with a 19mm nut.

