

# SHOCK TREATMENT

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An often forgotten component in a vehicle's suspension system, this month we show you how to replace those tired rear shock absorbers

Although they are rarely seen and generally given little thought, your vehicle's shock absorbers play a very significant role in maintaining car control, ensuring a comfortable ride and prolonging the life of other suspension components. If you go the cheap option and run old shocks, you run the risk of suspension collapse. Worn shocks increase braking distances, prematurely wear tyres, and can increase the chances of aquaplaning in the rain.

Automotive shock absorbers usually fall into two types: gas-charged and conventional oil-filled dampers. In oil-filled shocks, the movement of a piston within a cylinder is damped by the passing of oil through one or more orifices. In gas-charged shocks, pressurised nitrogen inside the shock helps prevent cavitation, which is the

formation of tiny air bubbles that reduce the effectiveness of the damping oil.

The purpose of the shock absorber is to manage the movement of the suspension, and the action of the spring in particular, to maintain stability and keep the tyres on the road. With the quality of roads in many Australian cities leaving plenty to be desired, it isn't an easy assignment, and the shock absorbers take a serious beating. Contrary to what many believe, they don't last for the life of the vehicle, but how do you know when your dampers are ready for replacement?

First, get on your hands and knees and look at your shocks. If you see any oil seeping, either on the outer tube or on the piston rod, then you're in the market for newbies. Is the outer casing dented or otherwise damaged?

Time for new shocks, pronto.

One way to investigate the effectiveness of your shock absorbers is to drive to a safe area, like an empty parking lot, get up to about 20km/h and then hit the brakes hard. When the vehicle comes to a stop, does the front end keep bobbing up and down? If so, it's time for new shocks.

Stand at one corner of the vehicle and rapidly push down on it and let it go to compress and release the spring. Does the vehicle come right back to position or pump up and down? If it doesn't return to position, the shock is stuffed and it is time for replacement. In this month's DIY feature, we show you how to replace the rear shocks for all you owners of early girls up to VS. The example is my new ride, a VK Berlina, and what an excellent example it is.

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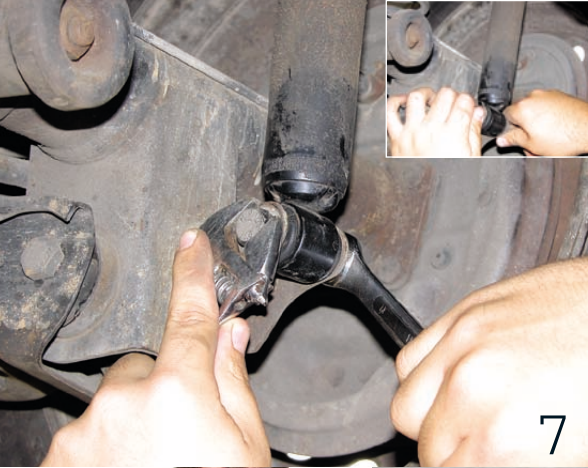
- STEP 1**  
Here are the tools necessary for the job, with a quality jack and axle stands a necessity. Spanner wise, all you need is a shifter and a 17mm ring spanner, but the whole set looks much nicer in the pic.
- STEP 2**  
Open the boot and look for the black caps on the top of the shock tower on each side at the back of the boot. Pull the plastic cap off, which will expose the top of the shock, with lock-nut, bush and washer.
- STEP 3**  
Use the shifter to hold the narrow centre shaft, and undo the lock-nut using the 17mm spanner. When the nut is removed, it will leave the bare threaded shaft exposed.
- STEP 4**  
Before jacking up any car, ensure that the wheels opposite the jacking point are chocked up with a solid, square-shaped object. In our case, we used two boxes of magazines, which was what came to hand at the time.



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**5 STEP 5**  
Position the jack under the centre of the diff, ensuring that the cup is steady, and not resting on one small spot. Raise the car to a point at which you feel comfortable working.

**6 STEP 6**  
Never work under a car supported only by a jack; it is not only unsafe, but stupid as well. Due to the anti-roll bar, we couldn't put the stands under the axle tubes, so we positioned them under the spring housings. Once you are satisfied with their position, slowly lower the car onto them.

**7 STEP 7**  
Using the shifter and your 17mm ring spanner, undo the nut from the bolt at the bottom shock mounting. When the nut is loose, remove it with your fingers, as the shock needs to be supported at this stage. I can assure you it hurts when they fall on you!

**8 STEP 8**  
Now remove the tired old shock from its mounting by removing the bolt and sliding the shock out in a downward motion. It should slide out easily, leaving a bare mounting.

**9 STEP 9**  
With the tired originals removed, it showed just how rooted they were. A shock in good condition should spring back when compressed, and compression should be difficult. Both of these could be pushed or pulled like an accordion, as I demonstrate here.

**1 STEP 10**  
I went with Monroe GT Gas shocks, and in each box you should receive one shock (obviously), two rubber bushes and two washers, along with a new lock-nut.

**1 STEP 11**  
Installing the new shock is a simple reversal of the removal process. Install the shock and replace the bolt through the mounting and eyelet, tightening the bolt until it is firm.

**1 STEP 12**  
Jack the car up and remove the stands from under the car, slowly lowering it back onto its wheels.

**1 STEP 13**  
Tighten the nut onto the top threaded shaft of the shock, but ensure you do not over-tighten. The finished result should look like the picture, with the rubber in line with the outer edge of the washer.

**1 STEP 14**  
Step back and admire your work, and revel in the improved ride quality that the new shocks provide. The bumps will no longer loosen your teeth, and the handling will be improved as well.