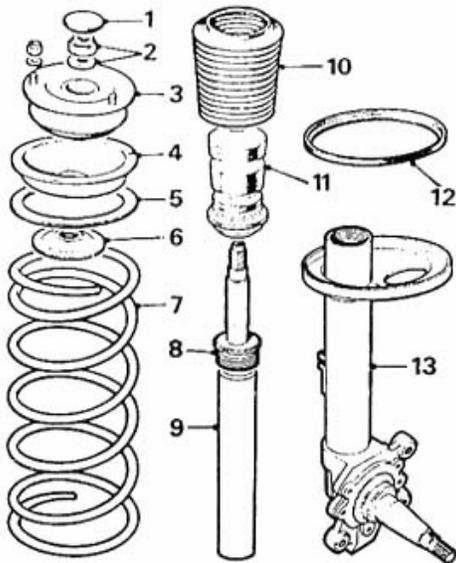
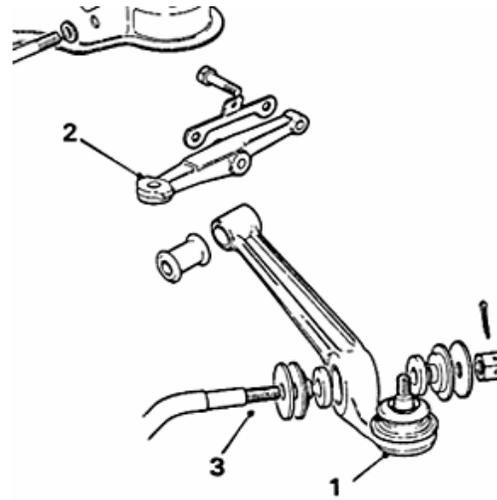


## Cautionary Notes on Front Damper Replacement for the Rover SD1



Front damper and spring assembly

1. Plug
2. Nut and washer
3. Strut mounting and bearing
4. Road spring seat
5. Shim
6. Gaiter retaining plate
7. Road spring
8. Gland ring
9. Damper
10. Gaiter
11. Bump stop
12. Spring seat rubber
13. Strut



1. Track Control (or Lower) Arm
2. Steering Arm
3. Anti-roll Bar, Bushes and Washers

digest it with a degree of caution regarding the value of DIY. It simply describes my own sequence of events, some easy, some hard, some risky and lived to tell the tale.

- This is not for timid members of the Rover SD1 community and just reading it may cause heart tremors.
- The work is generally undertaken only by experienced owners or those so strapped for cash they value their well being less than the need to pay good money to a third party to get the job done. What follows is not a substitute workshop manual so please
- If one's SD1 is in torment every time it rides a bump, the steering feels too light, the front of the car wanders all over the place or the front suspension bounces like the springy guy in the Magic Roundabout, then it is time to replace the front dampers.
- Obtain a workshop manual and read it. Raise the front of the car and place axle stands under the chassis rails suitably protected. Lifting one side only puts the anti-roll bar under considerable strain making it very difficult if not impossible to work with.
- Some workshop manuals suggest disconnecting the steering ball joint and it is one way to proceed, but it is equally possible and probably quicker to remove the brake caliper assembly leaving the steering arm loose and the ball joint untouched. Support the brake caliper on a suitable platform to eliminate strain on the hydraulic pipes or use a stout wire sky-hook formed and hung on a "convenient" hole in the inner wing.

- If the intention is to also inspect and/or replace the track control (lower) arm, remove the inner bolt from the sub-frame and the nut retaining bits on the anti-roll bar being careful not to break the plastic nut cover. Remove the nut and note the location sequence of the bushes and their washers.
- Remove the plastic plug covering the top bearing and undo the large nut one turn only at this stage. Remove the three nuts securing the unit to the suspension turret. Keep toes out of the way as the fall of gravity accelerates the unit to terminal velocity as it hits the deck. Heavy is an understatement!
- On the other hand, if the track control arm can be left in position in the sub-frame then removing the anti-roll bar fixing is also unnecessary but the bottom ball joint has to come apart instead. Loosen the top nut as above and only loosen the three suspension turret nuts to retain the damper assembly when it comes free at the bottom.
- Special tools are available to split a ball joint once its retaining nut is removed but there is another way. With the retaining nut off, use a six foot scaffold pole placed strategically under the sub-frame to lever the track control arm and anti-roll bar down and at the same time, whack the side of the ball joint with a four pound club hammer.
- Yes! It's impossible for one person to perform this move but two people working in harmony make it easier and if upon reassembly the tapered joint is properly protected against corrosion its a cinch for one person to free the bottom end with leverage alone. Now, simply undo the three nuts and support the strut before it crushes any toes.
- With spring/damper assembly, hub, disc and track control arm (if still attached) lying on the workshop floor, if the latter part is to be replaced, separate the ball joint using recommended tools. If corrosion is so bad and whacking the side of the ball-joint with the big hammer fails, then saw off the threaded part of the ball-joint complete with nut. It is not hardened! The hammer will now easily free the track control arm.
- Danger Ahoy! Take extreme care and lots of time to compress the spring evenly with a pair of suitable, well greased spring compressors until the top spring seat is loose. Undo the large nut on the top of the strut and remove the strut mounting plate, bearing, spring seat and shim, gaiter plate and gaiter.
- Carefully remove the spring complete with compressors and store well out of the way. A locked cupboard is good! The energy stored in the spring at this stage is lethal. Compared to the alternatives, a broken arm counts only as a minor inconvenience if it lets go so be careful. Remove the bump stop and spring seat rubber. Clean up all parts.
- Now the hard part! Unscrewing the gland ring from the damper tube is difficult and prayer doesn't work. For "first time ever" removal, the gland ring is probably made from die cast zinc alloy. Over time, much corrosion will have occurred so flood with penetrating fluid and gently tap all around with a pin hammer to break the oxidization.

- Mount the leg securely in a big bench vice and use a C spanner of the correct size. If unsuccessful use a suitable drift or better still a blunted cold chisel and a good hammer with many light blows. Try tightening it before attempting to undo it. If that fails, progress to a good pipe wrench. After that, use the biggest stillsons in the shop being careful not to distort the damper tube. If the gland ring has a hex nut its a bit easier.
- If heat has to be applied remember there may be oil in the damper tube. Do not go mad with the blow-lamp. Alternatively, use yellow pages to find an engineering shop that has the tools and know-how to undo the little jigger for the price of a few drinks.
- When the much mangled gland nut finally moves, as it surely will, catch the oil as it unscrews. The original struts used the outer tube as part of the damper assembly but replacement cartridges from the likes of Monroe, Spax or Koni are separate units fitting inside the undamaged tube.
- Cover the assembled parts with waxoyl or copper grease before fitting, likewise the replacement gland nut (now made of steel with a spanner-friendly hexagon).
- Reconditioned exchange struts have always been available as are brand new units from Rimmer Brother's current (2007) Ex-India stock but since this involves taking the hub assemblies apart it makes the job longer and may require new oil seals too.
- Having said that, these days, most Rover SD1 owners are restoration geeks so if the rest of the strut is disassembled it is a good time to clean up all the parts and spray on a couple of cans of "Hammerite". The same goes for all the other exposed metal parts.
- The bearing in top mounting may not be worn but they can and do get dirty. Ease out its metal cover with a thin screwdriver, extract the bearing, clean it with paraffin or similar, inspect for wear and if OK, re-assemble, packed with general purpose grease.
- Bump stop, gaiter and disc guard are all vulnerable to damage so they are well worth replacing with new items whilst they are readily available from the Ex-India stock.
- During re-assembly, use rubber grease on the bottom spring seat rubber, top swivel, anti-roll bar bushes and inner track control arm bush/bearing to aid re-assembly. Liberally dose waxoyl and/or copper grease everywhere, especially on threads, to ensure the next removal is a lot easier than this one.
- Re-assemble all the parts in the time honored reverse order and remember to take care when handling and refitting the compressed road spring Note the top road-spring seat is asymmetrical to make allowance for the bottom spring seat being offset on the strut. Screw up the top nut just finger tight at this stage.
- Notches and holes in the top and bottom spring seats magically align when correctly assembled so check it is correct before carefully removing the spring compressors.

- Even now it is possible to adjust the alignment by tapping the top road spring seat around with a drift and light hammer blows into its notch.
- It can take two people to lift and fit the whole deal back into the suspension turret to loosely attach the three turret nuts.
- The six foot scaffold pole will easily depress the track control arm and anti-roll bar to allow the bottom ball joint to relocate in the strut. Do not fully tighten its nut. Re-assemble the brake caliper and steering arm but again do not fully tighten the bolts.
- Failure to follow explicit guidelines about final tightening of suspension fixings only after the car is resting on its wheels will not allow the bushes to centralize, leading to inefficient suspension and premature failure. Not at all easy on a Vitesse with deep chin spoiler so lower the wheels onto ramps or similar raised platform allowing room underneath to fully tighten all the suspension fixings with the safety tabs correctly folded over. Double check they are all tight including the top and the turret nuts.
- And that's it! But given thoughts of blissful road holding, rock steady steering and no bouncy business, also reflect on the possibility of bruised and damaged knuckles of both hands, a near-death experience if one of the road spring compressors lets go and the fact that pussy will go all of eighty feet down the garden path without touching concrete if it wanders into the workshop at that moment. Thus there is something to be said for "SKIing" (Spending the Kids Inheritance) to get this job done by a third party.
- Explain to the children the choice is theirs. Either they agree to let you spend their money or they must take responsibility for the consequences. Their answer may well influence any changes to ones "Last Will and Testament". Thus, one reinforces the suggestion that this is not a job for the unskilled or fainthearted. Indeed, on two earlier occasions someone else worked their magic on my TP Vitesse and the Vdp Efi.
- My first presentation of this article (to be found in a magazine and elsewhere on the net) was composed without the benefit of first hand experience, just vivid imagination, after hearing of the scary experiences of former SD1 Club member, Ian Ralston.
- However in 2006 it came up again so the decision was to bite the bullet and do the job with the help of a favorite son-in-law for the scary bits. Subsequently unhappy with the resulting ride height the modification was undertaken with no help whatsoever.
- So, for the record, in 2007 your scribe became an expert on the described, simplified, one person process, to remove and refit the front suspension legs on a Rover SD1 TP Vitesse using a six foot scaffold pole as friendly persuader. Thus, dear reader, when it seems a good idea to tackle this job please take care and may your god be with you!

Ramon

[www.vintagemodelairplane.com](http://www.vintagemodelairplane.com)