

E31 front strut work

First, here is what I have made for the floor jack to jack up the E31, it basically goes into the elongated slot where the jack pad fits, I remove the jack pad and then with this tool on top of the floor jack align it to the slot and jack up the car.



Fitted on the top of the floor jack



Floor jack under the car with the jack adapter in the jack pad slot and raising the car.



For safety, I have jack stands that I found that are small enough to fit between the floor jack rails and once the car is raised to the desired spot, I raise the jack stand up so that in the unlikely event of a floor jack failure, the jack stand will support the car.



I have safely had four floor jacks, one at each jack pad location, and raised the car to the maximum of the floor jack limit with jacks stands with each floor jack, car was absolutely stable.

Now for the spring, shock and guide support removal technique.

Once the front of the car has been raised to the desired level, the front wheel removed, place an appropriate jack under the ball joint of the wishbone. I use a mechanical scissors jack that I place under the wishbone at the strut end, make sure that the jack does not lift on any portion of the wishbone arm, only lifting at the ball joint of the wishbone. I use a wadded up shop rag between the jack and the end of the wishbone arm or a block of wood.

Jack the strut up so the tension is removed from the anti-sway bar link and unbolt the link. This is necessary because the anti-sway bar will limit the amount of vertical movement of the strut assembly, it will also limit how far out the strut can be swung after it has been lowered.

Link removed:



Remove the caliper and set it on a box or hang it with a wire from the car, DO NOT let it hang by the brake line!!!!

Insure that the jack under the strut is compressing the spring slightly! Remove the shock nut at the top of the strut assembly.



There is no need to remove the three 8mm bolts that hold the guide support in the strut tower unless it is planned to replace the guide support or add camber plates to the guide support assembly.

Slowly lower the jack under the strut. This is why I use a mechanical scissors jack, I can lower slowly and don't have to worry about a sudden drop or a leaky hydraulic jack. Watch carefully as the shock and spring assembly comes down and separates from the guide support.



Now the strut assembly is low enough to be pulled out of the fender so that the spring may be removed. The H&R springs are much shorter than the OEM springs but the procedure works well with either spring. With the OEM spring, you may have to force the strut a bit lower, just be careful that you don't contact the edge of the fender!



The guide support is still in place and may remain so unless as previously stated, needs to be replaced or camber plates added.



Once the required work had been performed, if the shock was replaced, insure that the shock retaining nut is TIGHT, the rubber dust shield is again in place, clean the spring perch around the strut tube. There is a small drain hole that will fill with debris and allow water to stand inside the spring perch and cause corrosion. Generally it is a good idea to clean everything that has been accessed.

Fit the spring back in place and insure that the spring is properly seated in the rubber isolator and is properly rotated so that the end of the spring is sitting in the depression on the spring perch made expressly for the end of the spring. Carefully move the strut assembly back into the wheel well and set the spring up to the guide support rubber isolator. The upper spring perch on the guide support does not have a relief for the spring end as the top of the spring is more or less flat, don't worry, it only has to be "clocked" into the relief at the bottom perch on the strut, not the top!



Once you have aligned the top of the spring to the guide support, move the strut assembly to align the top of the shock with the main hole thru the guide support. After this start jacking up the strut assembly so that the top of the shock is moving up thru the hole in guide support. Once there is approximately $\frac{1}{2}$ inch of the shock bolt sticking out of the top of the guide support, replace the main shock nut by hand a few turns, this will insure that in the event of anything slipping, the strut is retained in the guide support.

Continue to jack up the strut until there is no more vertical movement of the shock bolt, at this time, secure and torque the main shock bolt.

Slowly jack the strut up further until the anti-sway bar link (previously removed) bolt will align with the hole in the anti-sway bar. Torque the link bolt to specified torque.

Replace the caliper and torque the retaining bolts to the specified torque. Slowly back the jack on the strut down until it can be removed, re-install the wheel, torque the wheel bolts, lower the lifting jack used to raise the car and the job is finished.

Chances are it took me longer to write this up then it would be to do the entire procedure.

Use extreme CAUTION, you are working with springs under compression and they can be deadly if proper precautions are not observed. Always secure the car when on jack by some means to prevent the car from coming down accidentally. If you have any doubt about this procedure, it is far better to ask questions or seek help then to get hurt! If you still have doubts, have someone knowledgeable do the work for you.

