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shows you how

**BMW 3-Series (92-98) & Z3 (96-98) Haynes Online Manual**

## 4 Front suspension strut - removal, overhaul and installation

### Note:

Always replace the struts and/or coil springs in pairs.

### Removal

1 Chock the rear wheels, apply the parking brake, then jack up the front of the vehicle and support on axle stands. Remove the appropriate wheel.

2 To prevent the control arm assembly from hanging down while the strut is removed, screw a wheel bolt into the hub, then wrap a piece of wire around the bolt and tie it to the vehicle body. This will support the weight of the hub assembly. Alternatively, support the control arm with a jack.

3 Unclip the brake hose and wiring harness from its clips on the base of the strut (see illustration) .

**4.3 Unclip the brake hose and wiring harness from its retaining clips on the base of the strut**



4 On models where the stabilizer bar connecting link is mounted onto the suspension strut, loosen and remove the retaining nut and washer, and position the connecting link clear of the strut.

5 On all models, remove the two lower bolts securing the suspension strut to the steering knuckle, and also the upper nut and bolt.

6 From within the engine compartment, unscrew the strut upper mounting nuts, then carefully lower the strut assembly out from underneath the fender (see illustration) .

#### 4.6 Removing a front suspension strut



## Overhaul

### Warning:

Before attempting to disassemble the front suspension strut, some kind of spring compressor must be obtained. Adjustable coil spring compressors are readily available and are recommended for this operation. Any attempt to disassemble the strut without such a tool is likely to result in damage or personal injury.

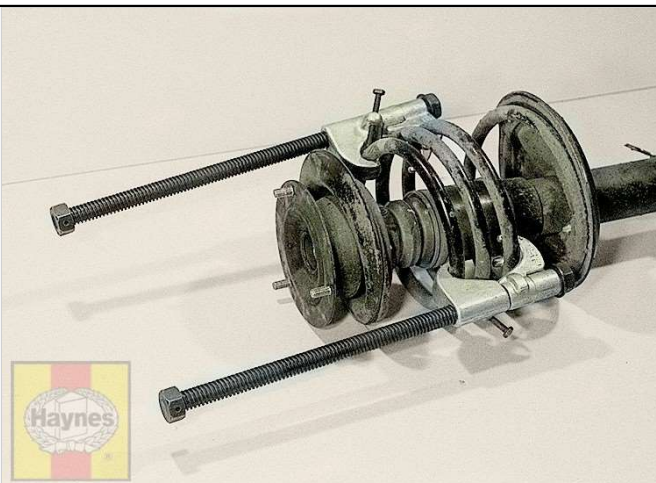
### Note:

A new mounting plate nut will be required.

7 With the strut removed from the car, clean away all external dirt, then mount it upright in a vise.

8 Install the spring compressor, and compress the coil spring until all tension is relieved from the upper spring seat (see illustration) .

#### 4.8 Compress the suspension strut coil spring with a suitable spring compressor



9 Remove the cap from the top of the strut to gain access to the strut upper mount retaining nut. Loosen the nut while retaining the strut piston with an Allen wrench (see illustrations) .

#### 4.9a Remove the cap from the top of the strut mounting . . .



#### 4.9b . . . then remove the upper mount retaining nut



10 Remove the mounting nut and washer, and lift off the rubber mounting plate.

11 Remove the gasket and dished washer followed by the upper spring plate and upper spring seat.

12 On all models, lift off the coil spring and remove the lower spring seat.

13 Slide the rubber seat (if equipped), rubber damper stop and piston dust cover off the strut.

14 With the strut assembly now completely disassembled, examine all the components for wear, damage or deformation, and check the upper mounting bearing for smoothness of operation. Replace any of the components as necessary.

15 Examine the strut for signs of fluid leakage. Check the strut piston for signs of pitting along its entire length, and check the strut body for signs of damage. While holding it in an upright position, test the operation of the strut by moving the piston through a full stroke, and then through short strokes of two to four inches. In both cases, the resistance felt should be smooth and continuous. If the resistance is jerky, or uneven, or if there is any visible sign of wear or damage to the strut, replacement is necessary.

16 If any doubt exists about the condition of the coil spring, carefully remove the spring compressors, and check the spring for distortion and signs of cracking. Replace the spring if it is damaged or distorted, or if there is any doubt as to its condition.

17 Inspect all other components for signs of damage or deterioration, replacing any that are suspect.

18 Slide the rubber damper and piston boot onto the strut piston and (where necessary) install the rubber seat.

19 Install the spring seat and coil spring onto the strut, making sure the seat ridge and spring end are correctly located against the strut stop.

20 Install the upper spring seat so that the spring end is against the seat stop.

21 Install the upper spring plate, aligning its stop with that of the seat, and install the dished washer and gasket followed by the upper mounting plate.

22 Locate the washer on the strut piston, then install the new mounting plate nut and tighten it to the specified torque.

23 Ensure the spring ends and seats are correctly located, then carefully release the compressor and remove it from the strut. Install the cap to the top of the strut.

## Installation

### Note:

New suspension strut upper mounting nuts, a strut-to-knuckle upper bolt nut and lower retaining bolts will be required on installation. On models where the stabilizer bar is mounted to the strut, a connecting link retaining nut will also be required.

24 Prior to installation, clean the threads of the strut-to- steering knuckle lower bolt holes by running a tap of the correct thread size and pitch down them. **Note:** *If a suitable tap is not available, clean out the holes using*

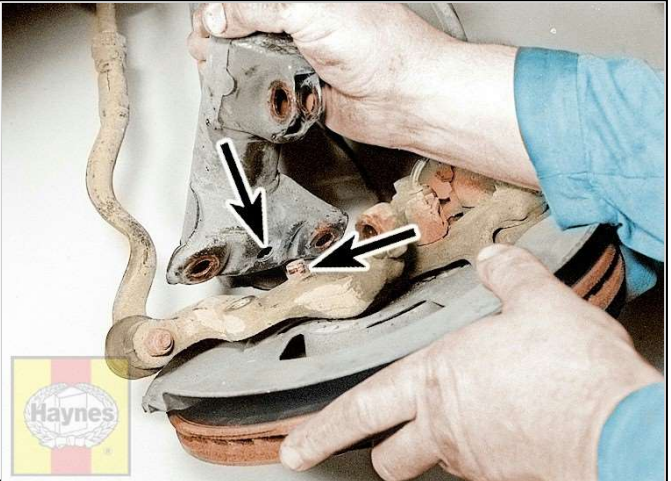


*one of the old bolts with slots cut in its threads.*

25 Maneuver the strut assembly into position, and install the new upper mounting nuts.

26 Locate the knuckle correctly with the suspension strut, and insert the upper retaining bolt and new nut. Install the two new lower bolts securing the strut to the knuckle, and tighten both the lower and upper bolts to the specified torque (see illustrations) .

**4.26a Ensure the strut is correctly engaged with the steering knuckle peg (arrows) . . .**



**4.26b . . . then install the strut-to-knuckle bolts and tighten them to the specified torque**



27 Tighten the strut upper mounting nuts to the specified torque.

28 Where necessary, engage the stabilizer bar connecting link with the strut. Make sure the flat on the balljoint shank is correctly located against the lug on the strut, then install the washer and new retaining nut and tighten to the specified torque.

29 Clip the hose/wiring back onto the strut, then install the wheel. Lower the vehicle to the ground and tighten the wheel bolts to the specified torque.