

**Haynes**
shows you how

BMW 3-Series and Z4 (99-05) Includes 2006 325ci/330ci Coupe and Convertible models Haynes Online Manual.

1 General information

The independent front suspension is of the MacPherson strut type, incorporating coil springs and integral telescopic shock absorbers. The MacPherson struts are located by transverse lower suspension arms, which use rubber inner mounting bushings and incorporate a balljoint at the outer ends. The front steering knuckle, which carry the brake calipers and the hub/disc assemblies, are attached to the MacPherson struts, and connected to the lower arms through balljoints. A stabilizer bar is connected to both suspension struts/lower arms by connecting links (see illustration).

1.1 Front suspension components (2004 325i model shown)

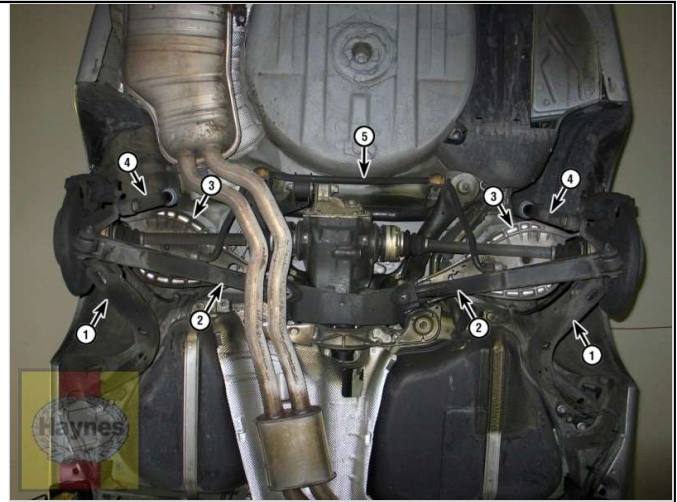
- 1 Lower control arm
- 2 Tie-rod end
- 3 Strut
- 4 Stabilizer bar
- 5 Front reinforcement plate



The rear suspension is fully independent consisting of a trailing arm with an integrated knuckle, which is linked to the rear axle carrier by upper and lower control arms. Coil springs are installed between the upper control arms and vehicle body, and shock absorbers are connected to the vehicle body and trailing arms. The stabilizer bar is connected to the upper control arms by connecting links (see illustration).

1.2 Rear suspension components (2004 325i model shown)

- 1 Trailing arm with integrated knuckle
- 2 Lower control arm
- 3 Upper control arm
- 4 Shock absorber
- 5 Stabilizer bar



The steering column is connected to the steering gear by an intermediate shaft, which incorporates a universal joint.

The steering gear is mounted onto the front subframe, connects to the steering knuckles using tie-rods with balljoints on the ends. The tie-rod ends are threaded, to facilitate adjustment.

Power-assisted steering is standard. The hydraulic steering system is powered by a belt-driven pump, which is driven off the crankshaft pulley. **Note:** *The information contained in this Chapter is applicable to the standard suspension set-up. On models with M- sport suspension, slight differences will be found. Refer to your BMW dealer for details .*

#Frequently, when working on the suspension or steering system components, you may come across fasteners which seem impossible to loosen. These fasteners on the underside of the vehicle are continually subjected to water, road grime, mud, etc., and can become rusted or “frozen,” making them extremely difficult to remove. In order to unscrew these stubborn fasteners without damaging them (or other components), be sure to use lots of penetrating oil and allow it to soak in for a while. Using a wire brush to clean exposed threads will also ease removal of the nut or bolt and prevent damage to the threads. Sometimes a sharp blow with a hammer and punch is effective in breaking the bond between a nut and bolt threads, but care must be taken to prevent the punch from slipping off the fastener and ruining the threads. Heating the stuck fastener and surrounding area with a torch sometimes helps too, but isn’t recommended because of the obvious dangers associated with fire. Long breaker bars and extension, or “cheater,” pipes will increase leverage, but never use an extension pipe on a ratchet - the ratcheting mechanism could be damaged. Sometimes, turning the nut or bolt in the tightening (clockwise) direction first will help to break it loose. Fasteners that require drastic measures to unscrew should always be replaced with new ones.

Since most of the procedures that are dealt with in this Chapter involve jacking up the vehicle and working underneath it, a good pair of jackstands will be needed. A hydraulic floor jack is the preferred type of jack to lift the vehicle, and it can also be used to support certain components during various operations. **Warning:** *Never, under any circumstances, rely on a jack to support the vehicle while working on it. Whenever any of the suspension or steering fasteners are loosened or removed they must be inspected and, if necessary, be replaced with new ones of the same part number or of original equipment quality and design. Torque specifications must be followed for proper reassembly and component retention. Never attempt to heat or straighten any suspension or steering component. Instead, replace any bent or damaged part with a new one.*

