

BMW

Steering and Suspension System 6 Series Coupe



In The beginning all there was to control was a horse and buggy. Bumps, curves and uneven roads were not an issue. As time would have it, from a buggy and horse to the 6 Series BMW, the demand in horsepower is of a different spectrum.

Engineers know that highways we travel have imperfections. With even the smoothest of roads a vehicles dynamics are important. A bump in the road causes the wheels to move up and down perpendicular to the road, which causes vertical acceleration. That vertical acceleration transfers to the frame of the car sometimes making the wheels leave the contact of the pavement, decent, and slam back down. That's where car suspensions and steering are getting the attention. Engineers develop ways to absorb this energy so the car's body is undisturbed while the wheels continue to bump on the road.

The suspension system maximizes the friction between the tire and the road giving a car the ability to smooth out bumps in the road. It provides steering stability for good handling and gives a car the ability to accelerate, brake and corner safely. Combined this gives a comfortable ride.





4-Wheel Independent Suspension System

The BMW 6 Series Coupé features Dynamic Stability Control (DSC) for even safer driving enjoyment. All BMW's are engineered with fully independent suspension at all four wheels. Each wheel reacts independently to bumps. For example: if the left rear wheel hits a bump while cornering, the right wheel will stay in contact with the pavement. This makes for a safe smooth ride because the stability is maintained.

Lightweight construction

BMW uses both, aluminum and steel in the construction of the BMW 6 Series Coupé. The wishbone front suspension and the integral aluminum rear suspension are almost entirely made of aluminum. Simply stated, this reduces weight and ensures even load distribution between front and rear axles.

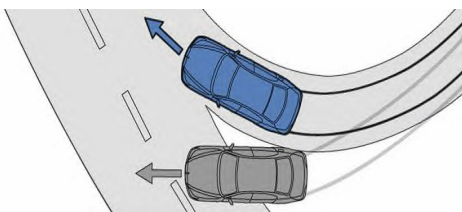
The BMW's Active Steering system is the planetary gear set incorporated into the steering column. It uses an electric motor to vary wheel angle, which will increase, or decrease depending on the speed of the vehicle. If the car is traveling at a medium speed the steering ratio is very direct, while parking only requires two turns from lock to lock.

Active Front Steering electronically varies the degree to which the front wheels turn in relation to steering input from the driver. The "active" suspension control system is designed to reduce body-roll, or lean, while cornering.

Five New DSC Functions (Six-cylinder models)

The BMW 6 Series Coupé offers five new DSC functions.

1. Brake stand-by for reduced stopping distances in an emergency.
2. Brake drying for improved brake response in wet conditions.
3. Hill-start assistant – no rolling backwards.
4. Fading compensation for consistent braking even when the brakes have heated up.
5. Soft stop for smoother stops and reduced brake drive.



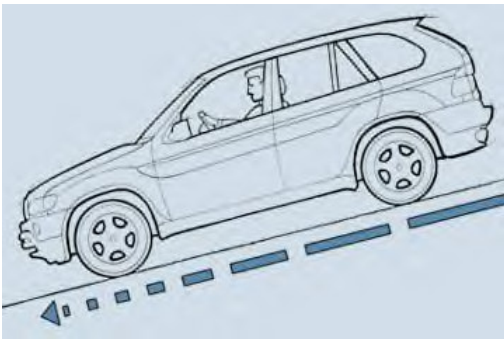
Dynamic Traction Control

Dynamic Traction Control increases wheel slip at the driven wheels in order to ensure optimum traction on any surface. Which allows the behavior of the BMW 6 Series Coupé to be

controlled entirely by the driver. The Dynamic Stability Control system will intervene in critical situations and at higher speeds.

All Season Traction

Also part of the Dynamic Stability Control is the all season traction. It provides better stability and control in slippery road conditions, sandy and rough roads, or other adverse road conditions year round. The system processes data from the anti-lock braking wheel speed sensors. For example when a rear "drive" wheel begins to lose traction the system will modify the engine's electronic throttle and ignition timing to reduce torque. It also controls wheel spin by acting on each rear brake individually or simultaneously or as needed.

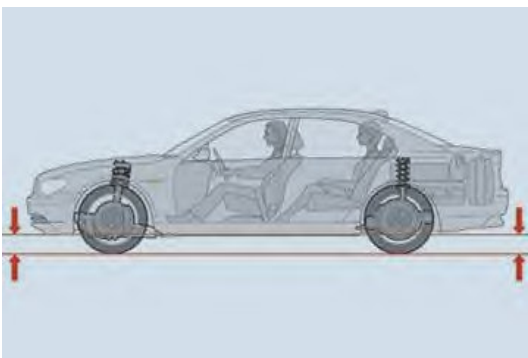


Hill Decent

Hill Descent Control can be activated by pressing a button on the console.

Riding the brakes during a deep hill decent is common. It is hard to maintain stability and speed. By activating the Hill Descent Control system it gently applies the

brakes, reduces speed to a near constant 3-6 miles per hour, and maintains control for the driver. The driver can also brake strongly to stop the vehicle if necessary.



Electronic Damping Control

The Electronic Damping Control automatically adjusts the shock absorber settings to meet changes in speed, load, or road and driving conditions. The driver selects either "Sport" or "Comfort" from the drive "Settings" menu. The Electronic Damping Control then modifies the shock absorbers, from softest to firmest setting. This allows for exceptional riding comfort and fluid, responsive handling.

In conclusion, the steering and suspension is a major system in all vehicles. The study of vehicle dynamics is based on ride and handling. It allows for exceptional riding comfort, stability and control.

As driving conditions, consumer demands for bigger and better, and car designs continue change...so will technology.