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BMW Front Suspension Evaluation
By Mike Miller

Many readers write in to ask what suspension parts they should replace at what mileage. The answer is, it depends on what is palpably worn or outright worn out. To answer that question, you need to know how to check BMW suspension parts. While this article deals with the front suspension, the same principles apply to the rear suspension.

When checking a BMW front suspension the first thing you'll need to do is buy 16-inch tongue in groove pliers such as these from Channellock:

http://www.channellock.com/acb/stores/1/460__16_inch_Tongue_and_Groov_P21C3.cfm

This tool is required to check the tie rod ends and ball joints.

Squeeze these parts top-to-bottom using the Channellocks, looking for movement. There is no tolerance for play. The rule is, if there's play throw it away.

On a car with rack and pinion steering the inner tie-rod end is just a pivot ball to compensate for movement of the steering linkages through their range of motion. There are cars out there (non-BMWs) that tend to wear the inner tie rod end faster than the outer tie rod end for some reason, but the opposite is normal on a BMW. Check the inner tie rod ends with the front suspension on jack stands. Grab the tires or the rotors if the wheels are off the car, at three and nine o'clock and try to wiggle the steering assembly. There should be no movement. If any movement is present watch carefully to see where it is occurring. If it is occurring at the inner tie rod ends then that's the time to replace them. If it is occurring at the rack but the lower part of the steering column is not moving then that indicates internal rack play. More than about 6mm of rack play would justify replacement in my opinion.

Modern BMWs have front ball joint integral to the control arms. If you need a ball joint, then you need a control arm. There is no need to replace them in pairs, but if the existing control arms (and therefore the existing ball joints) are very old, then it's probably a good idea. I would say 100,000 miles or more constitutes "very old."

Control arm bushings (aka thrust arm bushings) are checked visually. You're looking for signs of cracking or deterioration in the rubber and you can also take a pry bar and torque around on them to see how they look under deflection. It's good to replace the control arm bushings with the control arms, but it's not always necessary.

Some BMW front sway bar end links use miniature ball joints on the end. Check these by wiggling them. You're looking for signs of binding or squeaking. If you find them, replace the end link.

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Shocks, front and rear, are checked visually for signs of leakage (note that a little wetness on the outside of a Bilstein shock is normal), and for weak compression and rebound damping during road testing and bouncing on the corners of the car. It's a "feel thing." There are plenty of cars that do not "need" new shocks, but would benefit from them anyway. This is because the loss of shock damping does not come all at once. It is a gradual deterioration of performance.

Most BMW models have a rubber flex joint in the lower part of the steering column, under the car. This part has to be checked for cracks in the rubber around the bolts and other deterioration.

Most BMW models also have a universal joint in the lower part of the steering column. This part wears just like any universal joint and it has to be checked for play. There is no spec for play – if it has any, it should be replaced.

There is no set mileage for replacing any of these parts. Service life depends on service demands, and the parts have to be evaluated as above. Everything here can be the cause of a vibration, "steering looseness" or pulling steering.

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