Sedan required a special suspension

Mazda has earned a reputation in the automotive community as an innovator in rear-suspension design, based on the success of the Twin Trapezoidal Link (TTL) rear suspension of the 323 and 626 models and the sophisticated Dynamic Tracking Suspension System rear suspension of the RX-7.

Mazda's engineers realized the new 929 luxury sedan would require a rear suspension specifically designed to meet the comfort and handling requirements of its class.

These requirements included: outstanding stability at high speeds, responsive handling, smooth ride and a precise road feel. These requirements are often contradictory, if not mutually exclusive. The job of the new 929's suspension was to achieve the optimum compromise.

The rear suspension of the Mazda 929 consists of an upper transverse link, two unequal length lower transverse links, a trailing arm, a hub carrier, a concentric coil spring and shock absorber and an anti-roll bar. When viewed from above, the wheel and the three transverse links form the letter "E" - hence the E-link designation. This multiple link design controls the suspension's dynamic geometry changes for optimum stability and handling. An exemplary balance of ride and handling has been achieved by combining low spring rates with firm shock absorber settings. Large bushings attach the suspension members to a sturdy subframe. This subframe is mounted to the bodyshell of the 929 by four large rubber blocks, which greatly reduce the transmission of road noise and vibrations.

The design and development of the E-Link rear suspension focused on minimizing rear toe-out and camber changes in order to increase stability, especially under acceleration and in cornering.

Rear wheel toe-in can be induced by lateral force (i.e. cornering, rapid lane changes) because the bushing on the front lower link is more compliant than the bushing for the rear lower link. Therefore, when lateral force is applied to the wheel, the front bushing "gives" more than the rear lower bushing, and the wheel assumes a toe-in attitude.

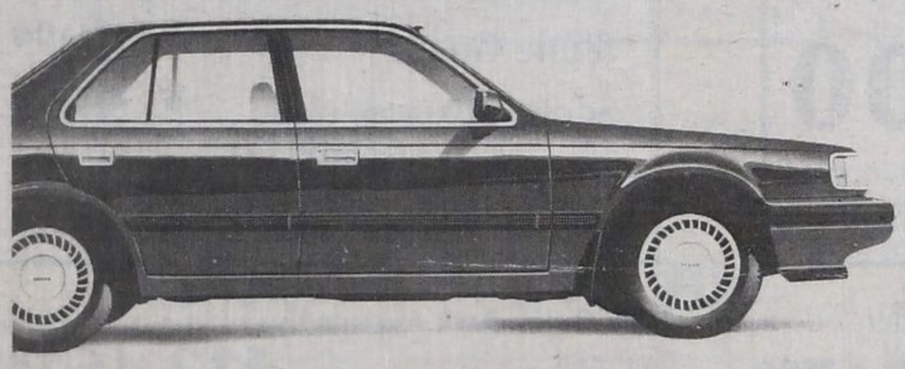
Under acceleration, the rear tires move rearward due to compliance of the soft trailing arm bushings. This movement is restricted by the E-Link suspension's lower transverse links. Because the front link is shorter than the rear link, this would produce a toe-in attitude for the rear wheel. However, as the wheel assembly moves rearward, the softer front link bushing moves outward, offsetting the toe-in created by the geometrical change. These two movements cancel each other, allowing the rear wheel to maintain a neutral (straight-ahead) attitude.

When the rear wheel encounters a bump, the upward movement of the rear suspension causes the lower links to move upward. Toe-in is produced in this event, because the front lower link is shorter than the rear lower link and moves in a tighter arc.

The primary function of the upper link is to minimize wheel camber changes caused by suspension movement. This upper link is designed to maintain a degree of negative camber, even during bound and rebound, allowing the tire to remain in optimum contact with the road for improved roadholding.

Finally, the geometry of the E-Link rear suspension is similar to that of a double-wishbone suspension. Therefore, wheel travel has very little effect on the width of the rear track. This gives the 929 a more stable feel during cornering on bumpy roads.

THE ALL-NEW MAZDA 929



Car buyers thinking twice

Now, more than ever, potential car buyers think twice before making such a costly investment.

Many buyers, especially young people, are not aware of how expensive it is to operate a vehicle. The costs related to the purchase of a car can be categorized as: initial purchase price, license fees, gasoline prices, insurance premiums and maintenance.

INITIAL INVESTMENT

The initial purchase price is usually the determining factor between choosing a particular model versus another. A new car depreciates as soon as it leaves the dealership lot. On the average, a car loses 25% of its value in the first year and less with subsequent years. So understandably, this loss must be taken into account if purchasing a new automobile.

LICENSE FEES

License plates are less expensive for smaller vehicles. Currently, owners of large cars can expect to pay higher fees and the trend is likely to continue and possibly even accelerate.

GASOLINE COSTS

Obviously, this expense will be a reflection of your particular driving habit. The days when gas sold for 5¢/gal. are gone forever! If deciding between two different models, think about gasoline consumption and prices.