



~ SUPLEX 5L ~

Five Link rear suspension system for 'classic' Morgan 2 seaters.

[Marketed and Sold by SUPLEX UK Ltd through selected agents]

The SUPLEX 5L, when used in conjunction with the SUPLEX RS up front, creates a complete balanced whole car suspension system for road use. Besides giving good ride on urban roads the system will provide excellent control at high speeds.

The '5L' was developed over 2 years and thousands of miles on English roads on three cars:- a new 1.6 4/4, a new 3.7 Roadster and a 30yr old 2.0 4/4. Development included setting the spring rate progression, roll stiffness, damper rates and structural aspects.

Basics: The '5L' is a retrofittable five link rear suspension system that positively locates the standard rear axle and uses 'coil over damper' suspension units with spring rates and damper rates optimised for the Morgan. The system bolts onto the chassis and axle with no welding and, depending on the age and specification of the vehicle, no drilling.

Some Benefits:

1. Ride: A more supple ride for good comfort over poor road surface for less fatigue on long journeys. This is achieved with a soft initial spring rate that stiffens in bump. There is a spring stack of two coil springs in series that provide significant spring rate progression (gets stiffer with load). The ride characteristics in terms of spring and damper rates have been set to match the SUPLEX RS up front.
2. Handling: Excellent axle location for precise control during hard driving. Progressive roll stiffness is built in to minimise roll in hard cornering and to replace that lost by removal of the leaf springs.
3. Touring: There is an increased ability to cope with a heavily laden car as the spring rate stiffens as the load is added, thus handling is still secure with passenger and heavy luggage. The adjustable damper option also offers the driver personalised tuning of the ride preferred for different driving styles (eg: a gentle tour along poor roads through countryside or pushing on hard up Alpine mountain passes – for instance).
4. Traction and grip: There is no axle tramp as the system does not wind up like a leaf spring does when accelerating and with assertive gear changes and clutch engagements. The reduced mass of the system (5L weighs less than leaf springs) and the use of sophisticated monotube dampers that respond very quickly to inputs means that the tyres stays in better contact with the road surface for more consistent grip.

Damper technology: Sophisticated ‘monotube’ dampers (adjustable and nonadjustable) are included, these have a very consistent performance when used hard and can be tuned to give the characteristics needed. Nonadjustable Bilstein dampers of a similar type to those in the SUPLEX RS are available or adjustable Quantum dampers like used on the Williams Automobiles Morgan race cars may be preferred by those likely to run heavy luggage on long trips or do a few 'track-days' and want to chose their own settings.

[Aside: ‘monotube’ dampers as opposed to ‘twin tube’ dampers, separate the oil from the gas so that there are no ingrained gas bubbles in the oil that delay response of the damper and result in loss of damping when used hard, just when the dampers need to provide their designed performance. These dampers are also highly gas pressurised to prevent cavitation that would also degrade the damper performance when used hard].

Some details: The axle location is by five links. There are two pairs of trailing links, each pair are nonparallel and unequal. Lateral location is by a true Panhard rod articulating through horizontal in a typical bump. So although in true axle bump (like hitting a step change across the road) the axle deflects by articulation of the links, in roll the links 'fight' each other. So rubber bushes have been chosen for the link pivots that add some compliance to allow some roll, but as the cornering loads increase the progressive stiffness in the bushes provides increasing roll stiffness. All this is achieved without significantly stiffening single wheel inputs that need to be soft for good ride, and without antiroll bars or excessively stiff springs as both methods will also degrade ride.

Fitting: can be fitted to both wide and narrow chassis cars, so no drilling (unless no Panhard Rod previously fitted) and no welding to chassis nor axle. The system accommodates both axle fore/aft locations for early and later cars. Axle stays in place during fitting.

Fitment: there are designated fitters of this system including Morgan Motor Company, support is always provided by SUPLEX UK Ltd, even to establishments not on the list.

Spring design and system development: Dan White MD of SUPLEX UK Ltd.
Design Engineer: Peter J Ballard. CEng. MIMechE.

Model types so far fitted:

4/4 1.6 Sigma, 4/4 (narrow) 2.0 Zetec, +4 Rover M16, +4 Ford Duratec, Roadster Ford/Jaguar 3.0 V6, Roadster 3.7 Ford V6

Comments from a 3.7 Roadster Owner:

“The 5L harmonizes quite well with the “upped” power/torque of my 3.7 (currently has the AR ECU and further mods fitted, so should be at some 380Nm and ca. 320-325 bhp by now) – no tramping, no sidestepping even with “full load” applied.

A revelation!

Absolutely NO question about the RS (with Hard Chrome king pins in my case) – this seems a “must” to me, for each & every traditional Morgan – it’s a no-brainer to me!

Comfortable the whole SUPLEX mods are indeed – almost to the point of me thinking “can it be this is still a trad Morgan I’m charging along in?”