



## LOTUS SUSPENSION ANALYSIS -

Lotus Suspension Analysis provides a user friendly tool for the design and analysis of suspension geometry. Standard suspension types using individual pre-filled templates provide easy creation of kinematic models in either 2D or 3D modes.

### TEMPLATES

Lotus Suspension Analysis templates include: Double Wishbones, Macpherson Struts, Trailing arm, Semi-trailing arms, Pull-rod and Push rod damper actuations, 'A' frames and 'H' frames. Users can create and distribute their own unique templates.

### KINEMATIC RESULTS

Kinematic results include Camber Angle, Castor Angle, Toe, Kingpin Angle, Roll Centre Position, Damper Ratio, Spring Ratio, Track Change, Wheelbase Change, % Anti Squat, % Anti Dive and % Ackermann.

Results can be displayed either graphically or numerically over specified Bump, Rebound, Roll and Steer articulations.

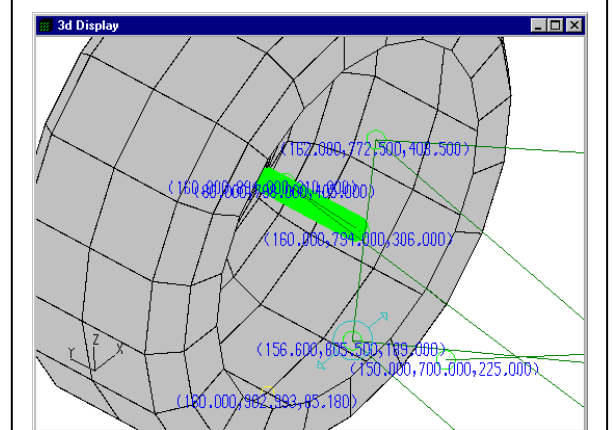
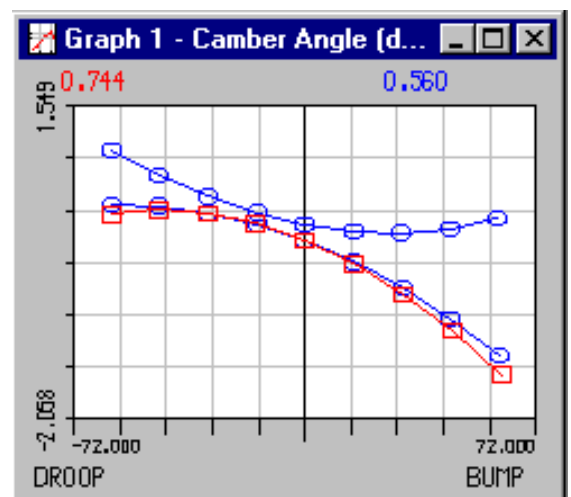
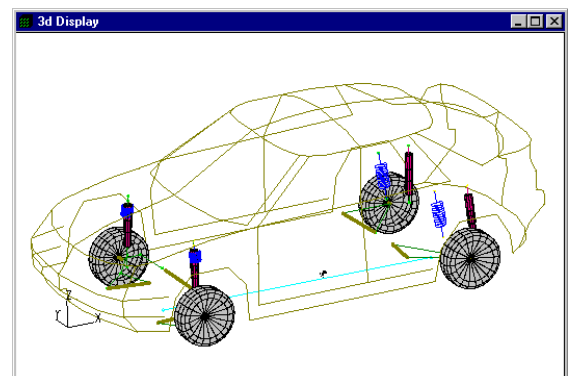
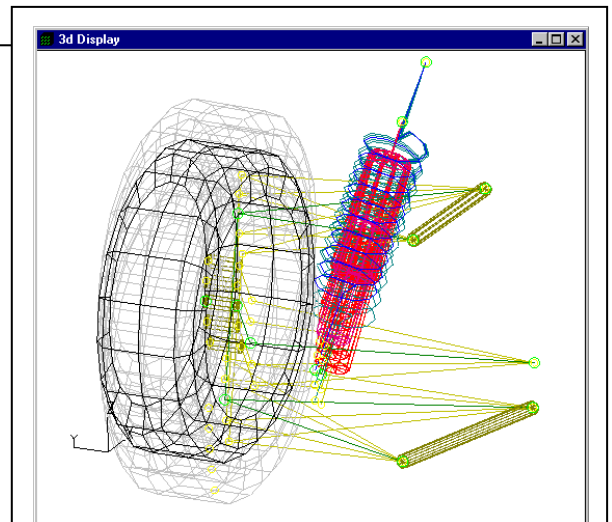
### HARD POINT EDITING

The suspension hard points can be selected on-screen and simply edited to review changes to the suspension characteristics. Alternative approaches can be used including point editing through on-screen dragging. Picking a point and dragging it along one or more axes, the graphical results being updated as you move the point.

Points can be moved as a 'group' such that the dimensional relationship of a wishbone can be retained.

### TOLERANCE ANALYSIS

The effect of point tolerance on the calculated suspension derivatives can be calculated and displayed through the same interactive environment, by simply selecting the point and setting the tolerance value.



# LOTUS SUSPENSION ANALYSIS - SHARK

## COMPLIANCE ANALYSIS

To enhance the capability of Lotus Suspension Analysis the stiffness properties of all bushes can be defined to calculate compliant displacements and bush forces.

## EXTERNAL FORCES

In addition to the defined suspension spring properties, external forces can be defined to review the effects of compliance on suspension geometry and its derivatives.

## ANIMATION DISPLAY

The compliant deformation can be animated either throughout the suspension travel or as a scaled 'deformed geometry' sequence at a particular suspension position.

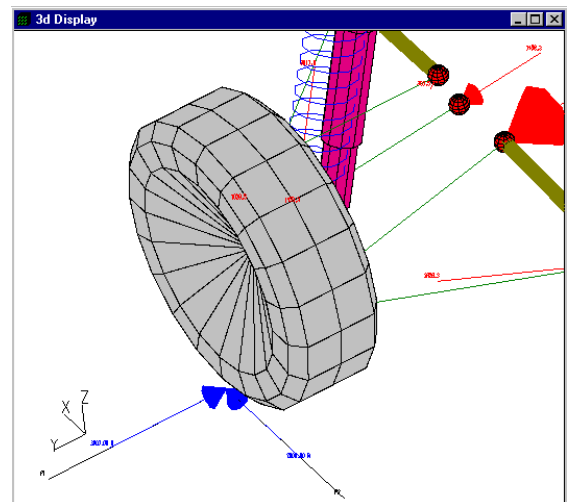
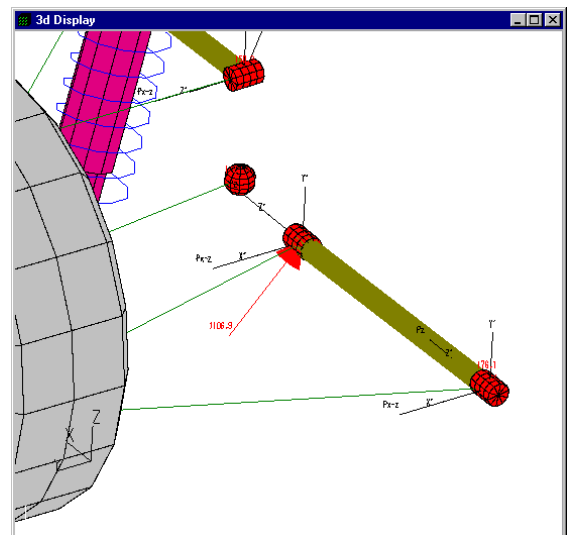
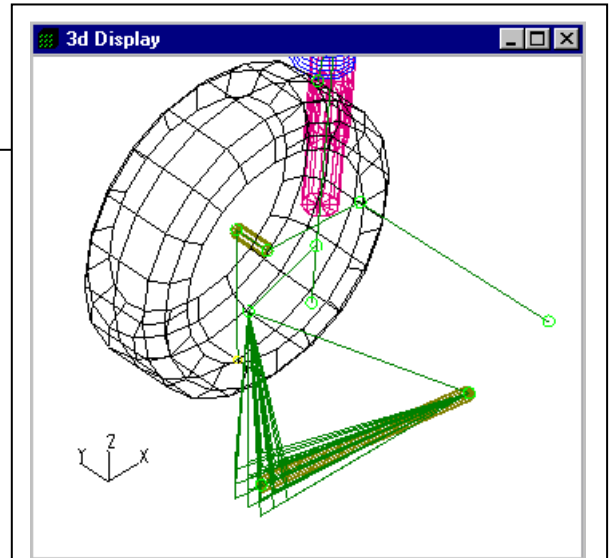
## EXTRA FEATURES

Additional features are included to list results in textual form, list hard points at a particular suspension increment, re-set ride height, scale track and wheelbase.

Graphical results include options to 'store' the currently displayed line, compare to a user defined curve and sum deviations of both as a numerical value.

## USER TEMPLATES

Users can define their own kinematic templates through a combination of defining parts, hard points and key hard point tagging. Bushes are added at connections between parts such that kinematic models can support compliant analysis. User templates allow anti-roll bars, lever systems, twin outer ball joints etc. to be included.



List SDF

File

FRONT SUSPENSION - BUMP TRAVEL

TYPE 1: Steerable double wishbone - damper to lower wishbone

INCREMENTAL GEOMETRY VALUES

BUMP TRAVEL (mm)	CAMBER ANGLE (deg)	TOE ANGLE (deg)	CASTOR ANGLE (deg)	KINGPIN ANGLE (deg)	DAMPER RATIO	SPRING RATIO
0.00	0.0084	0.0004	0.1103	5.5638	1.424	1.247
5.00	-0.0656	-0.0033	0.0208	5.6378	1.423	1.246
10.00	-0.1455	-0.0074	-0.0677	5.7177	1.421	1.244
15.00	-0.2314	-0.0117	-0.1552	5.8036	1.419	1.242
20.00	-0.3233	-0.0162	-0.2416	5.8955	1.418	1.241
25.00	-0.4213	-0.0209	-0.3270	5.9935	1.416	1.239
30.00	-0.5254	-0.0257	-0.4112	6.0975	1.414	1.238
35.00	-0.6355	-0.0306	-0.4947	6.2076	1.412	1.236