

Getting started with Mitchell in Swansea Metropolitan University, School of Automotive Engineering

This is a brief introduction to getting started on the Mitchell Win Geo software. There are extensive help files in the programme and some of these have been included in this guide where appropriate in an italic font.

QUICK START - FOR VERY EXPERIENCED USERS

There are two indisputable laws of personal computer documentation:

Law #1: You cannot sell software without extensive, thorough, and well-written documentation.

Law #2: No one wants to read documentation, even if it is well-written, particularly if it is extensive and thorough.

Consequently, RACING BY THE NUMBERS (tm) uses a common Windows pulldown-menu user interface. This may allow the experienced user to run the software without reading the documentation. The experienced user(who has already learned several Windows programs) will quickly see how the RACING BY THE NUMBERS (tm) menus operate and will learn the basic structure of the program.

However, even the most experienced user should read the documentation to learn the details of the program. A thorough understanding of the software requires reading the documentation.

Sorry.

TO BRING UP THE START SCREEN AND ENTER DATA

Log onto the system using your own P number

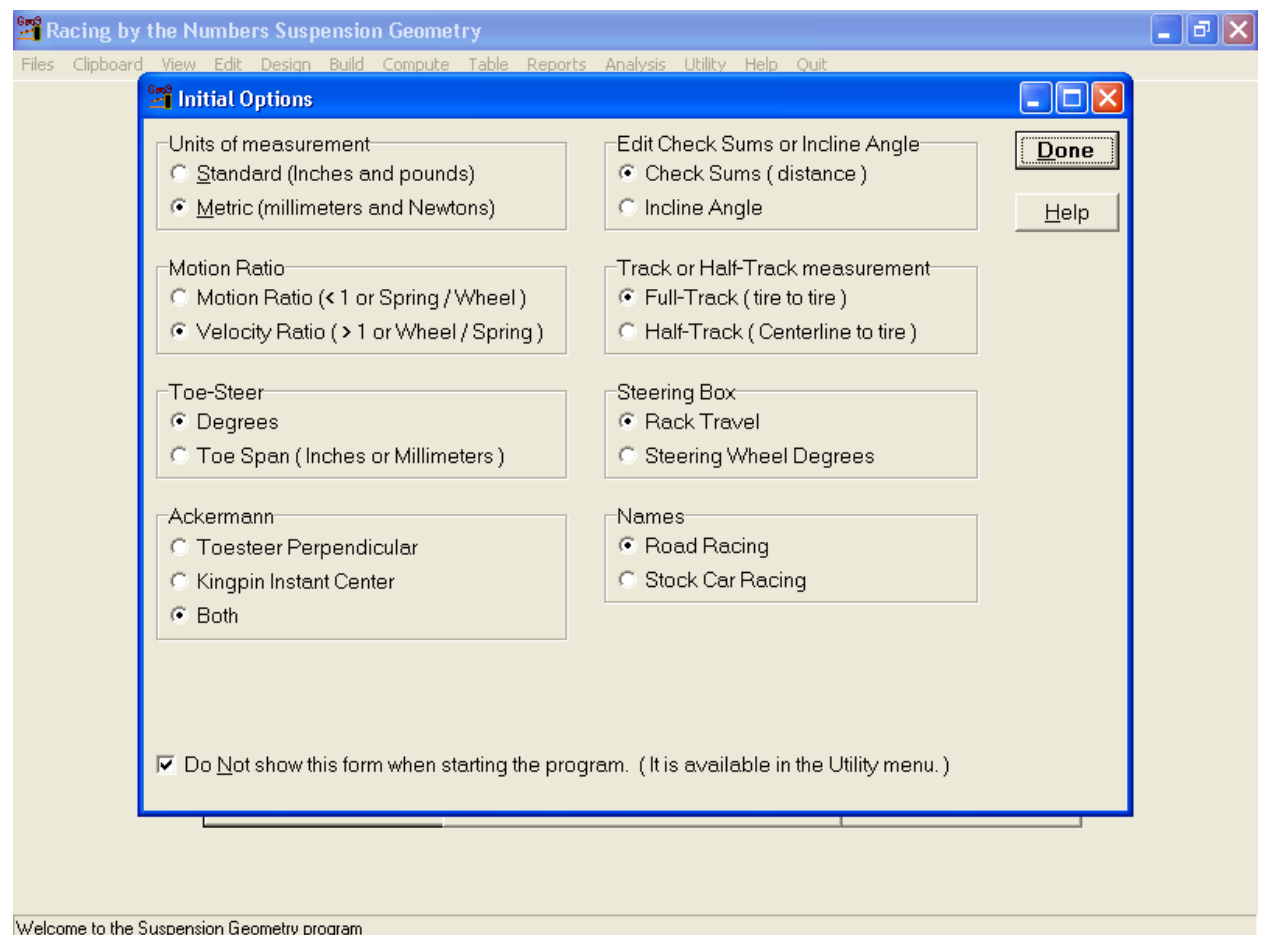
From desktop click

[Programmes]

[Geometry]

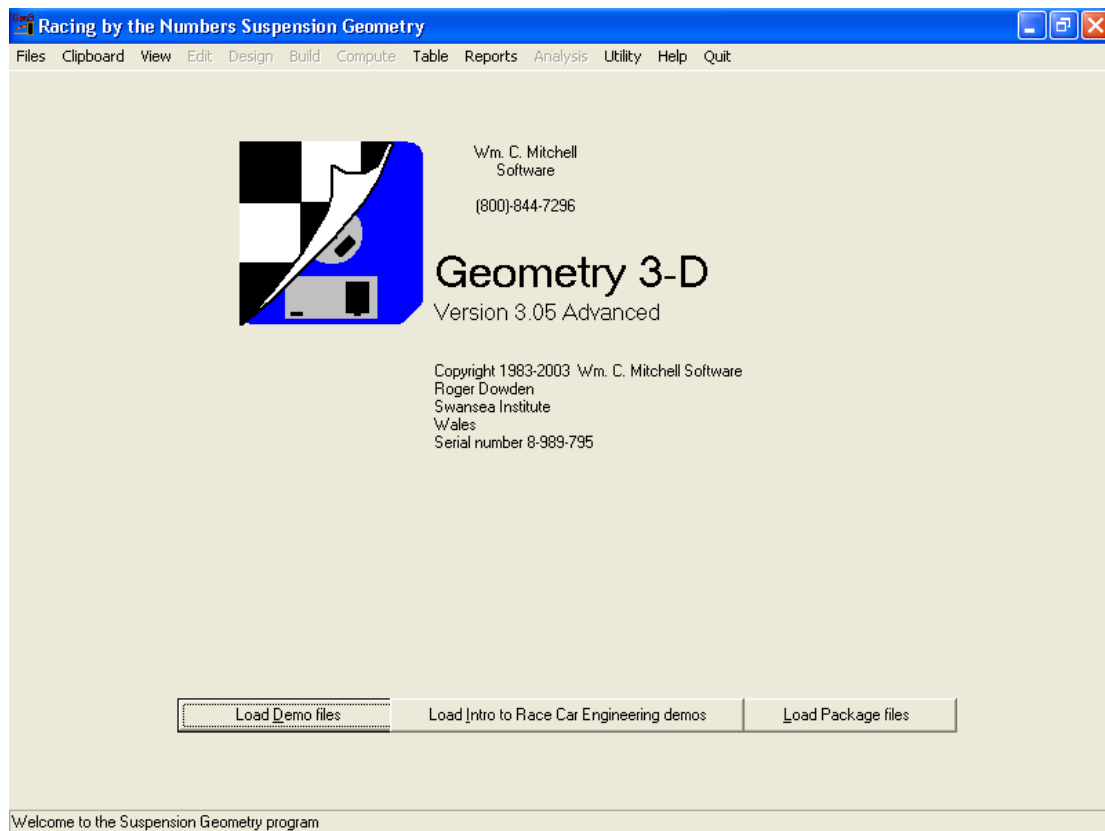
[WinGeo3]

You will then have this screen :-

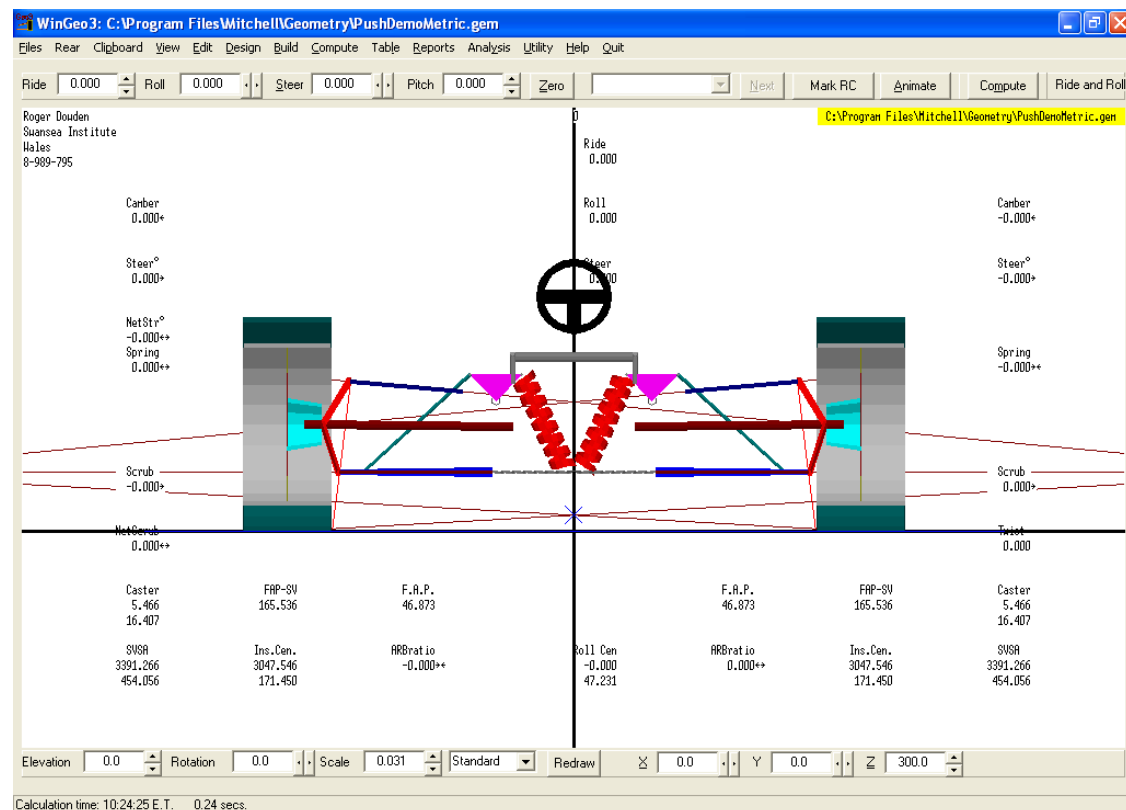


If not then click on [Utility] menu item and [Initial Options]

Check options as shown and then click [Done]



On the first time of using or when starting a project click on left button
 [Files]
 [New]
 [Push rod double A arm]



HOW TO USE THE WINGEO3 PROGRAM

When you start the WinGeo3 program you will see a standard Windows program screen with a Files menu. This will permit you to load a Demo file, to load a previously used file, or to create a new file. After creating a New file or Opening an existing file Edit the data to represent your situation. The Edit menu allows you to control the portion of the data you can edit.

When you load a suspension a graphic will appear on the screen. You can manipulate the chassis in Ride height, Chassis roll, or steering input. This manipulation can be done with standard Windows controls or with the arrow keys familiar from the old DOS Freebody program.

The Up and Down arrows change Ride height. The left and right arrows change Chassis roll. When you have selected a chassis position you can calculate the suspension values by clicking the Compute button or hitting the Enter key.

You can also perform iterative calculations. For instance, you can run Ride height through a range of values and examine a graph of camber as a function of ride height.

TO ENTER DATA

Click

[Edit]

[Suspension]

Both sides	X fore-aft	Y width	Z vertical	Check distance	Kingpin axis	Scrub radius	Caster	Caster trail	Upper A-arm	Lower A-arm
Lower Arm: front pivot	A	-76.200	241.300	165.100	A to B= 451.030	131.400	5.466 deg	16.407	329.580	444.501
Lower Arm: ball joint	B	0.000	685.801	171.450	C to B= 451.030					
Lower Arm: rear pivot	C	76.200	241.300	177.800	A to C= 152.928					
Upper Arm: front pivot	D	-76.200	325.121	406.401	D to E= 344.885					
Upper Arm: ball joint	E	25.400	653.289	436.881	F to E= 333.472					
Upper Arm: rear pivot	F	76.200	325.121	406.401	D to F= 152.400					
Wheelbase, track, tire diameter	2540.005	1676.403	622.301	Rollout1955.016						
Camber, Toesteer, Toe span	0.000	0.000	711.201	HubTrak 838.202						

This screen is where you input the data you have collected from the car or from your design ideas

When you have completed entering the data click [Compute]

TO SHOW AND SAVE COMPUTED VALUES AS CAR IS MANIPULATED IN RIDE AND ROLL

Click [Table]

[Show]

Now, every time you click [Compute] after making a change or [Next] which makes a set of standard changes, the variables being monitored will be recorded in the table at the bottom of the page

To save this table for use in Excel click
 [Table]
 [Save Table Content as]
 [Comma separated ASCII]

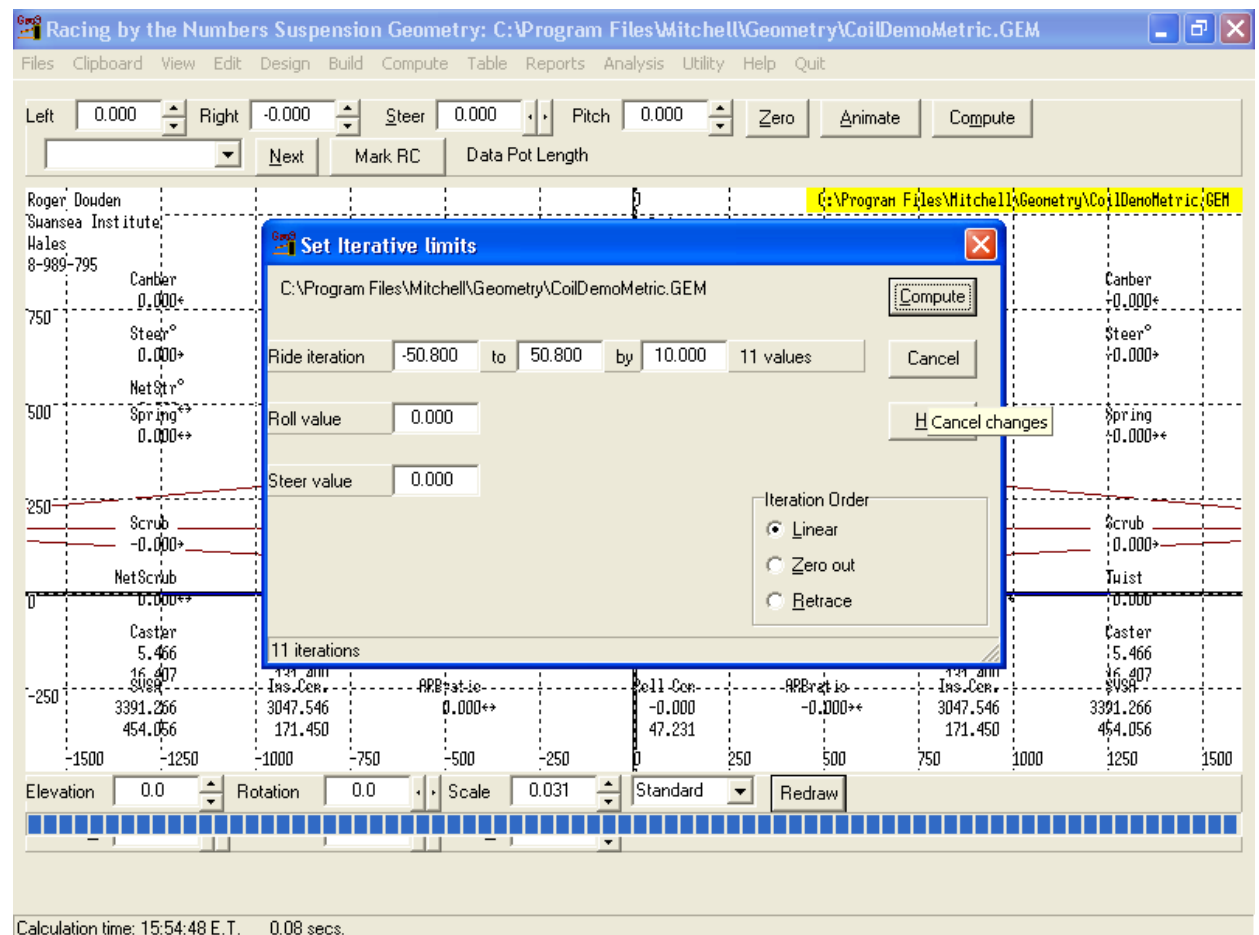
Save in your file space on your network drive, OneDrive – or similar cloud based application or memory stick.

When Excel is running open the text file and follow the wizard instructions to end up with an Excel table of results.

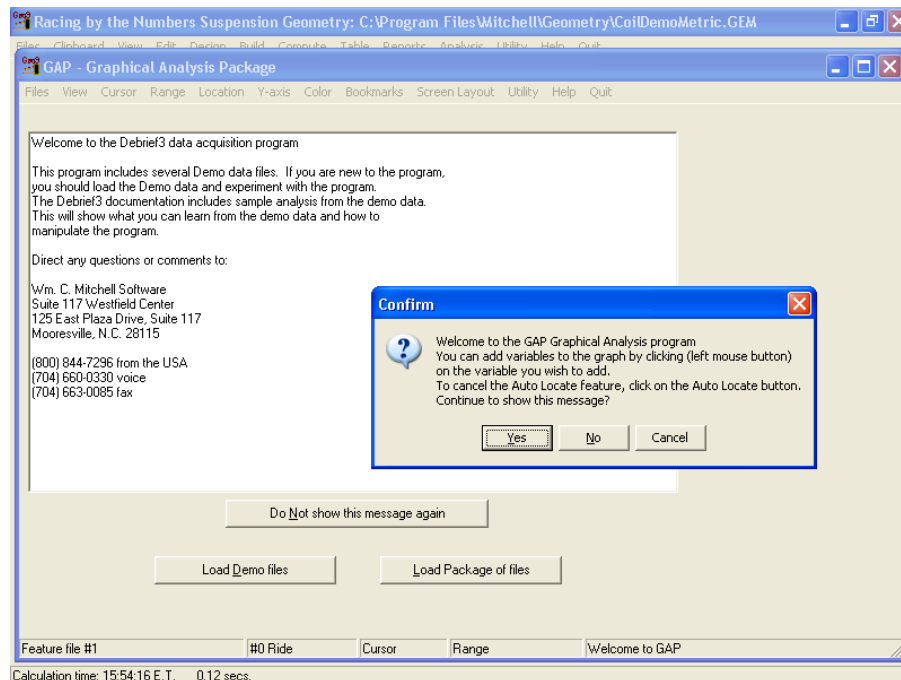
TO USE THE ITERATIVE PROCESS TO DEMONSTRATE SUSPENSION CHARACTERISTICS

Click [Compute]
 [Ride Iteration] or [Roll Iteration]

Select the range over which you wish to investigate the suspension



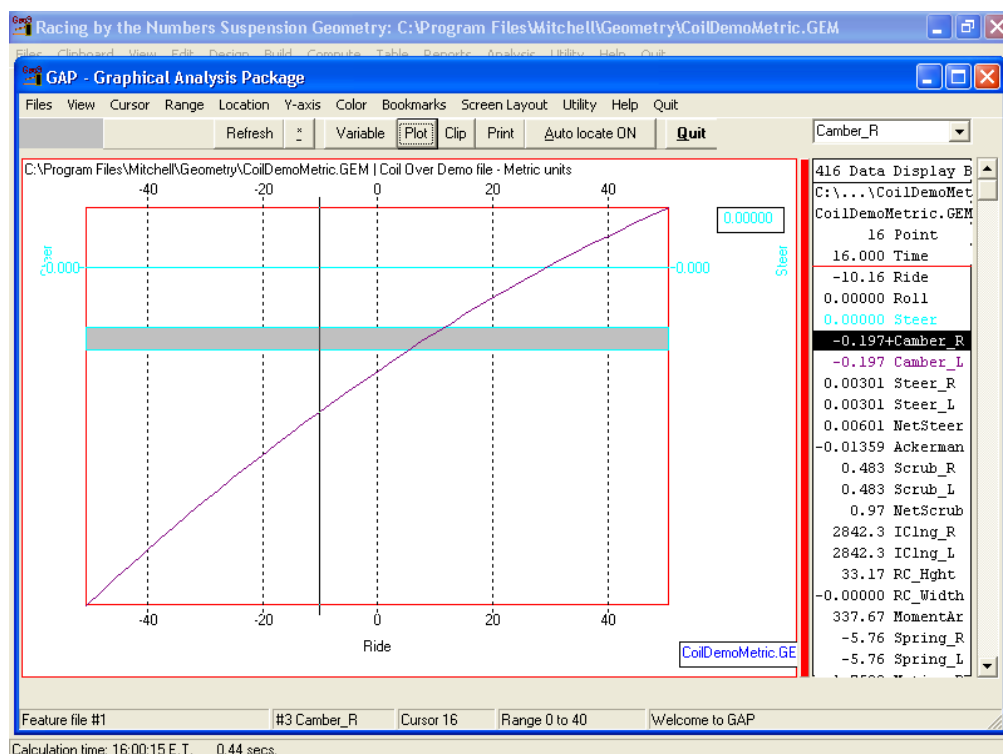
Click [No] to question do you want Dos type reports?
 Click [Yes] to do you want Gap



By clicking on the item you wish to plot on the right hand column you can draw the graph of that suspension characteristic.

By clicking on [Location] The layout of the graph can be modified

By clicking on the item again with the right button and then clicking [Default] the curve can be removed.



Suspension Geometry Definitions

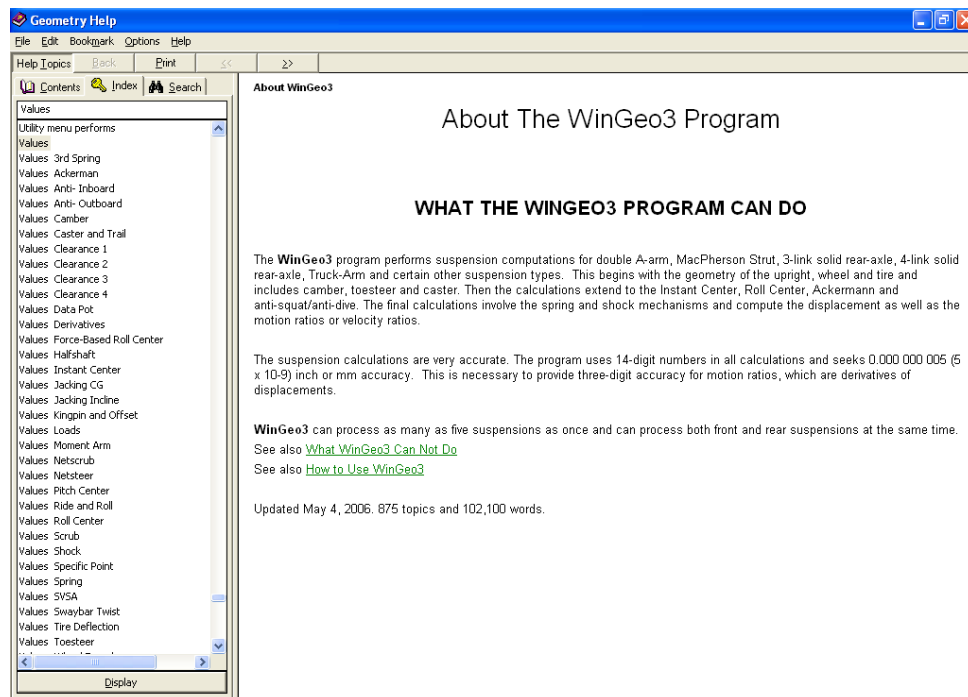
The tutorial section of the WinGeo3 software can be found by going to the Help item on the toolbar of the main screen and then following through to this screen.

Help

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└ Values



The tutorials can now be accessed by opening each Values section