



**Fig 1.14** On track data, as measured by a data logger and suitable sensors. It can be very confusing to look at if you are not used to it but that soon changes. The traces are colour coded for clarity. Values shown here are for suspension travel and speed of the bike but all manner of data can be recorded if suitable sensors are fitted. Note: Colours used in this book do not always follow the original, since some do not show up well in print.

detail and work out all that has gone on every time you make an adjustment. For this reason, all of the serious teams make use of chassis set-up software in some form or other.

The software is effectively a mathematical model of the chassis that calculates the new value of all the important static variables when you make adjustments. If you decide to change the rear spring(s) and preload, you enter the new data and then the software calculates how this will affect things like steering geometry and so on. It displays the new values (and usually the old ones as well) on the computer screen.

Some software such as MotoSPEC (see Fig 1.15) also enables you to see what happens to those variables while the bike is on track. To find out, you input the dynamic suspension positions taken

from the on-board data logging and the MotoSPEC software calculates how much this changes the original static values.

So let's suppose that the bike works well when you are testing. On another day, at another circuit, the same static settings may not work as well as before and the reason why can often be found in the dynamic values captured by the data logger or determined by the chassis set-up software.

What you have to do then, at least as a starting point, is to alter the static values in such a way that the 'good' dynamic values are restored. It may not achieve all you need but it is a good place to start looking for solutions. Clearly this involves a lot of work which is why top teams have staff dedicated to data gathering.

For the data to be correct, everything has to be clearly defined and it is always best if the same person does the same job. For example, I recall a bit of a disaster when the person who positioned some fork legs in the yokes chose to measure from the top of the yoke to the top of the fork cap. That's fine, except the person who normally did it always measured to the top of the tube but forgot to say so. He wrote the distance down but not where from and where too. It's an easy mistake to make.