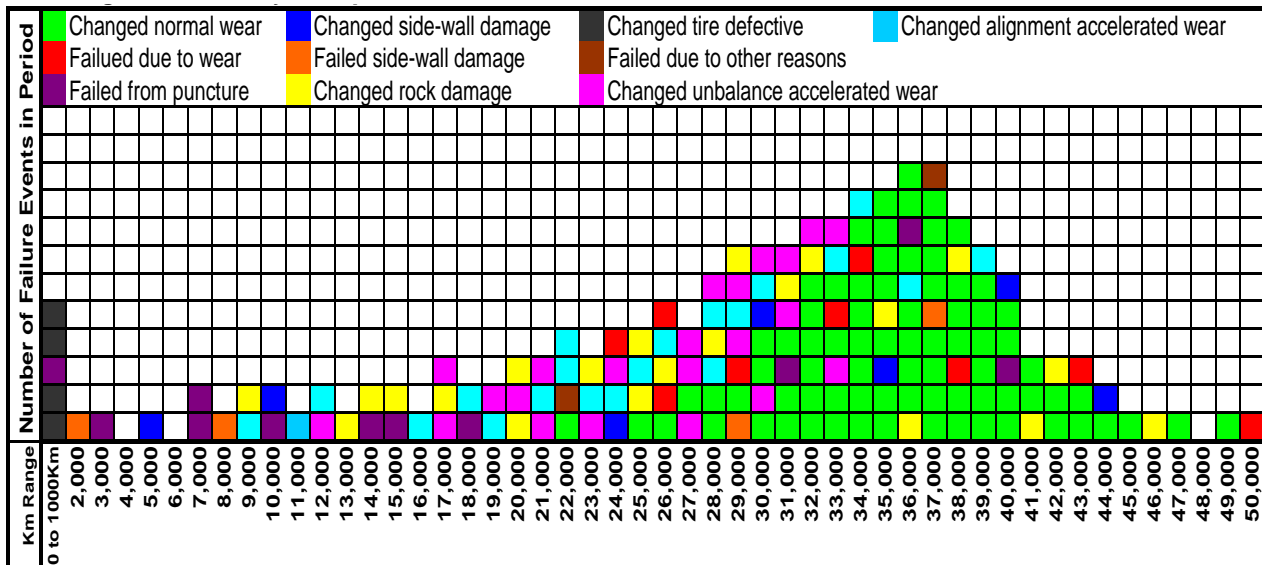


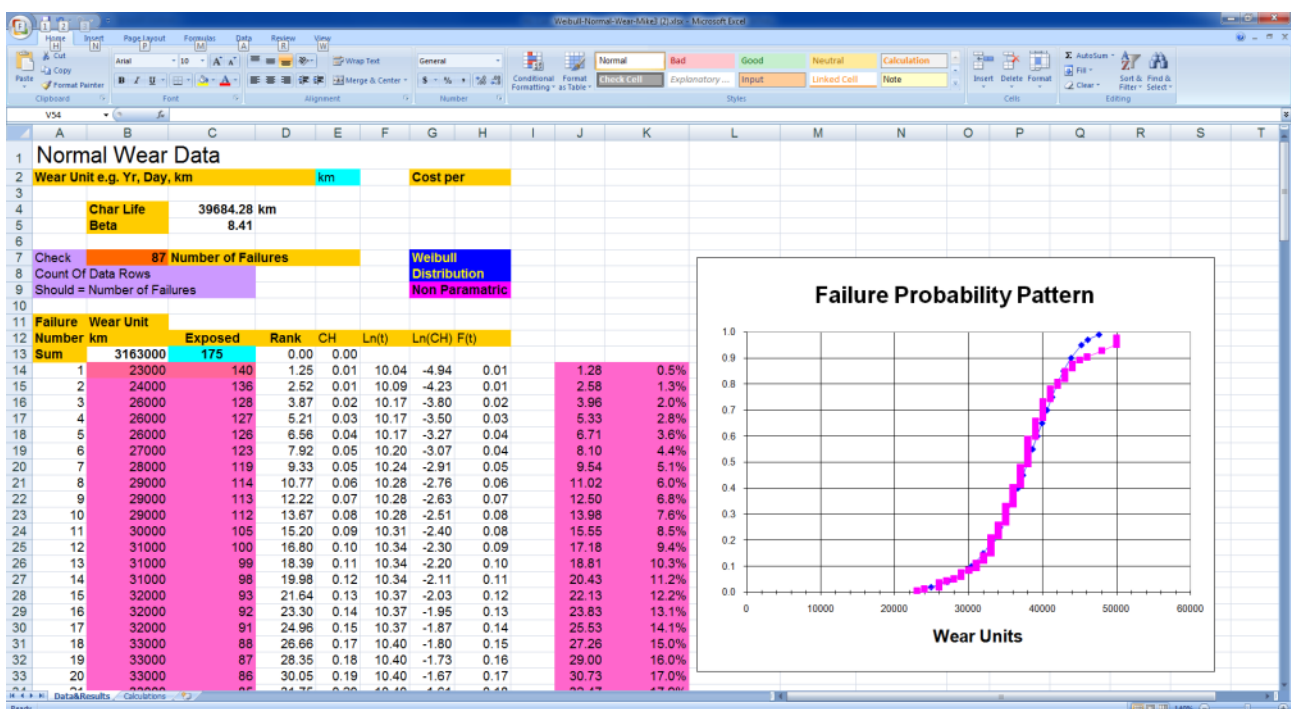
Example Weibull Probability Plots using the Weibull Excel Model

The Weibull analysis uses the MS Excel [Weibull distribution model](#) available for purchase at the Lifetime Reliability online store.

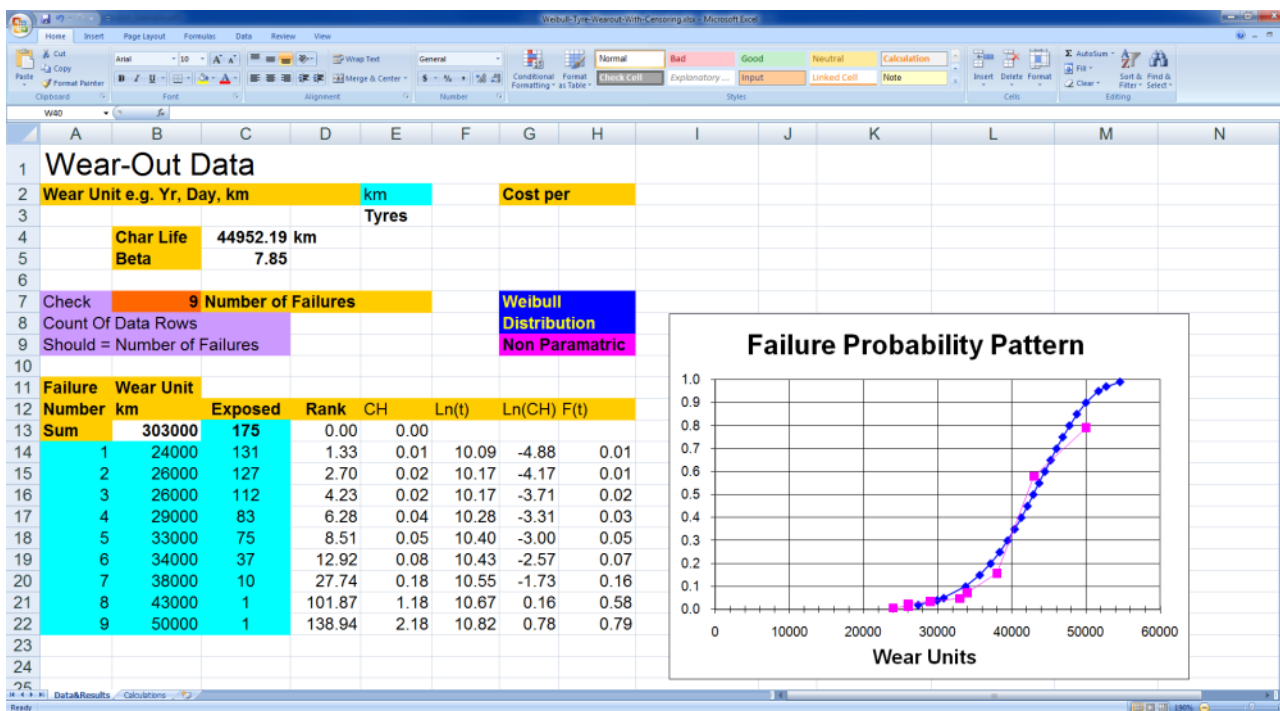
Using historic failure date, like the tyre failure distribution graph below showing the various modes of truck tyre failure, the Weibull Excel model is used to create the Weibull probability plot.



From the failure mode called 'changed normal wear' data (the light green events for tyres changed when the tread was too low) the Weibull probability plot below was developed in the Weibull Excel model. With the plot you can predict the distance at which a percentage of tyres will need to be replaced from normal usage. For example, by 30,000 km about 8% of tyres will need to be replaced. By 40,000 km 75% of tyres will need to be replaced. This lets you optimise your purchasing and storing of replacement tyres. It also lets you determine the optimal mileage to change the fleet's tyres to minimise production impact



For the ‘failure due to wear’ tyre failure mode (when tyres failed due to low tread before they could be replaced) the Weibull Excel distribution plot below is the result. The Weibull model warns us that we can expect tyre blow-outs from worn-out tyres starting at 25,000 km. You ought to carry a couple of ‘emergency’ spare tyres in stock and make sure their bin level quantity never falls below one ‘emergency’ spare tyre at any time.



This simple, low-cost Excel spreadsheet Weibull analysis model can help you make some very good maintenance optimisation decisions.