

TMA4275 Lifetime Analysis (Spring 2013)

Exercise 8

Problem 1 – Accelerated Life Testing

One has observed the following 18 lifetimes (in days):

410, 483, 492, 124, 780, 264

804, 1334, 1025, 1267, 327, 1581

876, 804, 1582, 2801, 570, 2390

- a) Use MINITAB to estimate a Weibull model for the data, and create a plot that shows the fit to the model. Comment.
- b) The data are actually taken from three groups of components, where the conditions are somewhat different. The six first observations are in group 1, etc. From this is defined a stress variable s with three values, 1, 2 and 3, respectively, for group 1, 2 and 3. Try to identify an accelerated life model (ALT) which is appropriate for the data (using MINITAB). Create for example “relation plot” and “probability plot”. Explain what the plots tell us.
- c) Do you conclude that the ALT model in b) fits better than the pure Weibull model found in a)?

Problem 2 – Cox regression

Exam June 2005: Problem 1.