PART D

SUPPORTING THEORY

Underlying the techniques described above is a substantial level of theory. This is best presented in its own right to avoid detail and duplication in the technique chapters.

Chapter 1   Boolean Algebra

This chapter explains the basics of Boolean algebra.

Chapter 2   Bayesian Statistics

This chapter identifies differences in applying Bayesian statistics against applying classical statistics and comments on the main areas of application in R&M work.

Chapter 3   Statistical Distributions

This chapter presents an overview of statistical distributions and summaries of the distributions mainly used in R&M work.

Chapter 4   Monte-Carlo Simulation

Monte-Carlo simulation is useful for determining quantified information from complex probabalistic models. This chapter explains the basic approach.

Chapter 5   Pareto Analysis

Pareto analysis provides a means of presenting the comparison of data relating to different options or categories. The application and benefits are discussed in this chapter.

Chapter 6   Probabilistic R&M Parameters and Redundancy Calculations

This chapter provides a basic introduction to the range of R&M parameters available and the applicable arithmetic.

Chapter 7   Test Results Analysis, Parameter Estimation, Confidence Intervals & Hypothesis Testing

This chapter provides an introduction to the mathematical theory behind the treatment of test results.

Chapter 8   Reliability Growth Models

This chapter supports Part C Chapter 15 through a discussion of available models and their foundation and application.

Chapter 9   Availability Demonstration Plans

This chapter supports Part C Chapter 39 through a discussion of available plans and generation of plans to specific parameters.

Chapter 10   Reliability Demonstration Plans

This chapter supports Part C Chapter 40 through a discussion of available plans and generation of plans to specific parameters.

Chapter 11   Maintainability Demonstration Plans

This chapter supports Part C Chapter 41 through a discussion of available plans and generation of plans to specific parameters.