BOOK REVIEWS

Advanced Technologies in Failure Prevention: Proceedings of the 43rd Meeting of the Mechanical Failures Prevention Group

Reviewed by C. G. Scott and A. T. Riga, research engineer and senior research chemist, respectively, The Lubrizol Corporation, Wickliffe, OH, 44092.

REFERENCE: *Advanced Technologies in Failure Prevention. Proceedings of the 43rd Meeting of the Mechanical Failures Prevention Group*, T. R. Shives, Ed., Cambridge University Press, New York, 1991, ISBN: 0-521-41226-9, $49.50.

This book is a well-organized compilation of 27 papers reviewing a variety of modern technologies applied in improving mechanical systems and structures. The increasing demand for safety and reliability in both structures and mechanical systems, and the high costs associated with unanticipated failures, provides the basis for this book. The scope and objectives are clearly defined and maintained. The papers presented narrate and detail specific systems and technologies and are aimed primarily at engineering and field personnel assigned to the design and maintenance of structures and mechanical systems.

Papers are grouped into three general sections:

(1) Overview—Mechanical Failure Prevention Programs (1 paper)
(2) Detection, Analysis and Prognosis (12 papers)
(3) Material Durability and Mechanisms of Failure (14 papers)

Addition of a Foreword or expanded editor's note, or both, directed towards providing a more general overview of mechanical failure prevention programs, would be helpful for students. The listing of MFPG publications provided in the Appendix provides the reader with an excellent source of references for all aspects of the area being addressed. References accompanying individual papers, however, are limited. Although highly detailed, tables and figures are informative.

NOTE: Cover reads "Advanced Technologies . . ." versus "Advanced Technology . . ." on inside pages.

Inspection Errors for Attributes in Quality Control

Reviewed by A. T. Riga and C. G. Scott, senior research scientist and research engineer, respectively, The Lubrizol Corporation, Wickliffe, OH, 44092.

REFERENCE: Johnson, N. L., Kotz, S., and Wu, X., *Inspection Errors for Attributes in Quality Control*, Chapman and Hall, London-New York, 1991, ISBN: 0-412-38770-0.

This is a well-organized book divided into three parts: acceptance sampling, identification of nonconforming items, and a miscellaneous section that includes estimation of error probabilities and stratified populations-grading. This book is the 44th monograph in a series on statistics and applied probability initiated in 1960.

The motivation of this monograph as described by the authors was based on two "godfathers," H. L. Sorkin and R. E. Dorfman. Compound distribution in inspection error in quality control and the theory and practical application of group testing for nonconforming (defective) items are the basis of the twelve chapters. The authors included material on some modern developments in discrete applied probability theory.

The scope and objectives were clearly defined in the preface and introductory chapter. The 140 references round out the successful tasks set forth by the authors in producing a significant technical contribution to the statistical and probability literature.