

the inspector. The technique under investigation is that of adding and subtracting the value of the sample range, or a portion thereof, to its upper and lower values, respectively. If the sum and difference are still within the prescribed tolerances the lot is accepted. Plans of this type are found to yield approximately the same results as attribute sampling plans requiring twice the sample size. The inspector need only know addition and subtraction for their use.

13. Evaluation of Quality through Demerit Rating System. HARRY G. ROMIG, International Telemeter Corporation.

Where inspection and tests are made for a series of specified requirements, these results must be properly analysed to obtain maximum benefits. Such requirements cover characteristics and other features, termed Inspection Items. When such Items are inspected by the Method of Attributes it is economical and efficient to classify them with respect to their importance or seriousness into definite classes, such as Critical, Major, Minor and Incidental. Various classifications, such as three-fold, four-fold, and five-fold, with their assigned Demerit Weights are discussed and the mathematical relations pertaining to their use are developed. Various uses of these systems in evaluating the quality of different processes, products and activities are presented. The nature of these distributions depicted by the multinomial and approximations thereto are described. It is shown how to use Demerits, Demerits-per-Unit and Indexes for single components, subassemblies, assemblies and Systems, as well as shops and composite plants for evaluating performance quality-wise. Various weighting systems are introduced and evaluated. Procedures for setting up control charts with prescribed limits are given. Finally it is shown how to combine variables results with attributes data to obtain over-all quality ratings for any desired sequence of operations.

14. On Structural Fatigue under Random Loading. JOHN W. MILES, Department of Engineering, UCLA, and Douglas Aircraft Company.

Experience has shown that the fluctuating loads induced by a jet may cause fatigue failure of aircraft structural components. In order to throw some light on this and similar problems, the stress spectrum and the "equivalent fatigue stress" of an elastic structure subjected to random loading are studied. The analysis is simplified by assuming the structure to have only a single degree of freedom and by using the concept of cumulative damage, the results being expressed in terms of quantities that can be directly measured. As an example, a similarity expression for the probable value of the equivalent fatigue stress of a panel subjected to jet buffeting is derived.

NEWS AND NOTICES

Readers are invited to submit to the Secretary of the Institute news items of interest

Personal Items

P. C. Clark has been appointed Executive Vice-President of Hunter Spring Company.

Dr. Edward P. Coleman, formerly Visiting Professor, has been appointed Professor in the Department of Engineering, University of California at Los Angeles.

Dr. R. N. Bradt of Stanford University has been appointed to an assistant professorship at the University of Kansas.