

ACOUSTIC EMISSION

Analysis of Acoustic Emission - A View

by A.K. Rao and C.R.L. Murthy

The theoretical basis for acoustic emission (AE) techniques in nondestructive testing applications are discussed. The sources of AE signals in structural materials are described, including macrosources (crack growth) and microsources (dislocation movements). It is shown that these two broad classes of sources require independent experimental and analytical treatment in order to properly interpret AE test data. Some problems related to the processing of AE signals in an automated AE test system are discussed, with emphasis given to mathematical estimates, the distortions due to the measuring medium, deconvolution techniques to eliminate distortions, methods for identifying distortion-insensitive signal characteristics and the development of laboratory techniques for recording stress-wave forms at the source. Illustrations of some typical AE stress-wave forms are provided. *Advances in Fracture Research*, 1, 669-689 (1986).

laboratory techniques for recording stress-wave forms at the source. Illustrations of some typical AE stress-wave forms are provided. *Advances in Fracture Research*, 1, 669-689 (1986).

OPTICAL METHODS

Holography: The Nondestructive Testing of Composite Structures - Aerospace Structures

by P. Barbier and C. Lefloch

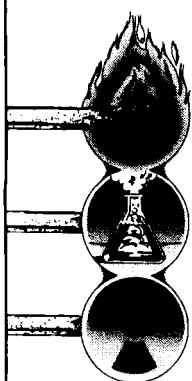
The principle of nondestructive testing by laser holographic interferometry, and the parts to be controlled (parts of motor cases in composite materials) are discussed. The test facility, which involves a complex mechanical system, is described and the technical choices are justified. The economic aspects of the technique are outlined. *Proceedings of the Third European Symposium on Spacecraft Materials in Space Environment*, 161-165 (Nov. 1985).

INSTRUMENTATION

High Temperature Static Strain Sensor Development Program

by C. Hulse, R. Bailey and H. Grant

Electrical-resistance strain gages useful for static-strain measurements on nickel or cobalt superalloy parts inside a gas-turbine engine on a test stand are being developed. Measurements of this type are of great importance in meeting the goals of the Host program because, without reliable knowledge of the stresses and strains which exist in specific components, it will be difficult to fully appreciate where improvements in design and materials can be implemented. The first part of the effort consisted of a strain-gage alloy development program which will be followed by an investigation of complete strain-gage systems which will use the best of the alloys developed together with other system improvements. Tech. (Host) 37-40 (Oct. 1983).




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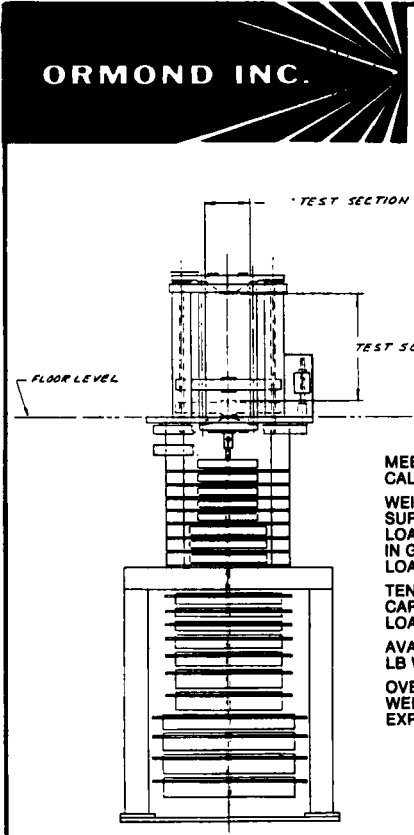
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