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Nota di contenuto	INTRODUCTION TO NONDESTRUCTIVE TESTING; CONTENTS; Preface; 1 Introduction; 1.1 Digital Technology; 1.2 Smaller Is Better; 1.3 Medical Marvels; 1.4 Improving Shuttle Safety; 1.5 Airport Security; 1.6 Process Control; 1.7 Instrument Synchronization with PXI; 1.8 PCI vs. PXI; 1.9 60,000-Mile-High Elevator; 1.10 Proliferation of Information; 2 Acoustic Emissions; 2.1 Principles and Theory; 2.2 Signal Propagation; 2.3 Physical Considerations; 2.4 The AE Process Chain; 2.5 Time Considerations; 2.6 AE Parameters; 2.7 The AE Measurement Chain; 2.7.1 Coupling Agents; 2.7.2 AE Sensors 2.7.3 Sensor Attachment 2.7.4 Sensor to Preamplifier Cable; 2.7.5 AE Preamplifier; 2.7.6 Preamplifier to System Cable; 2.8 Vallen AMSY-5 High-Speed AE System; 2.8.1 Frequency Filter; 2.8.2 The A/D Converter; 2.8.3 Feature Extraction; 2.8.4 Transient Recorder; 2.8.5 Data Buffer; 2.8.6 Personal Computer and Software; 2.8.7 Sensor Coupling Test (Autocalibration); 2.9 Location Calculation and

Clustering; 2.9.1 Location Calculation Based on Time Differences; 2.9.2 Clustering; 2.9.3 Sample Analysis Screen; 2.9.4 Visualization of Measurement Results; 2.10 Advantages and Limitations of AE Testing 2.10.1 Advantages 2.10.2 Advantages of Using Operating Medium (Gas or Liquid); 2.10.3 Advantages Compared to Other NDT Methods; 2.10.4 Limitations; 2.10.5 Location Errors; 2.11 AMSY-5 Main Features; 2.12 AE Transducers; 2.13 Kistler Piezotron® Acoustic Emission Sensors and Couplers; 2.14 AE Sensor Construction; 2.15 Summary of AE Sensor Features; 2.16 Technical Specifications-8152B2 Sensor; 2.17 AE Coupler Features; 2.18 Technical Specifications-5125B Coupler; 2.18.1 Input; 2.18.2 Output; 2.19 Acoustic Emission Technology; 2.20 AE Applications; 2.21 AE Theory; 2.22 Applications 2.22.1 Behavior of Materials-Metals, Ceramics, Composites, Rocks, Concrete 2.22.2 Nondestructive Testing During Manufacturing Processes; 2.22.3 Monitoring Structures; 2.22.4 Special Applications; 2.23 Advanced Equipment; 2.23.1 PCI-2 AE Unit; 2.23.2 Key Features; 2.23.3 PCI-8, 16-Bit, 8-Channel AE Unit; 2.23.4 MicroSAMOSTM, Budget, Compact AE System; 2.23.5 DiSP Systems; 2.23.6 PCI/DSP-4 Card; 2.23.7 Features of PCI/DSP-4 System Board; 2.23.8 PCI/DSP-4 Board Operation and Functions; 2.23.9 DiSP System Block Diagram; 2.23.10 Other Company Products 2.24 Codes, Standards, Practices, Guidelines, and Societies 2.24.1 Sheer Numbers; 2.24.2 Terminology; 2.24.3 Common Term Definitions; 2.24.4 General Principles; 2.24.5 Measurement Techniques and Calibration; 2.24.6 Areas of Opportunity; 2.25 Application and Product-Specific Procedures; 2.26 Impact-Echo Method; 2.26.1 Background; 2.26.2 Finite Element Code; 2.26.3 Ball Bearing-Generated Stress; 2.26.4 Impact-Echo Transducer Development; 2.26.5 Frequency Domain Analysis; 2.26.6 Theory of Operations; 2.26.7 Propagation of Waves; 2.26.8 Impact-Echo Instrumentation; 2.26.8.1 System Components 2.26.8.2 Heavy-Duty Carrying Case

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## Sommario/riassunto

This updated Second Edition covers current state-of-the-art technology and instrumentation. The Second Edition of this well-respected publication provides updated coverage of basic nondestructive testing (NDT) principles for currently recognized NDT methods. The book provides information to help students and NDT personnel qualify for Levels I, II, and III certification in the NDT methods of their choice. It is organized in accordance with the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A (2001 Edition). Following the author's logical organization an

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