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SDT North America &  
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## Level 1 Airborne Ultrasound Training

23-25 Apr 2008

24-26 Sep 2008

(Singapore)

### Course Overview

Level 1 Airborne and Structure Borne Ultrasound Inspector's course is a 2 ½ day comprehensive mix of theory and practical experience. Working from the Level 1 course guide, students are exposed to introductory sound theory and how it is applied to the inspection disciplines demanded by an effective airborne ultrasound program.

### Course Objectives

- Promote Inspector Confidence
- Provide a Deeper Understanding of Ultrasound Technology
- Ensure Inspectors Meet the Standard Level of Knowledge and Expertise
- Uphold the Unique and Significant Place of Ultrasound Inspection in Predictive and Preventative Maintenance Programs

### You Will Learn

- The principles of Ultrasound Applied to Predictive Maintenance
- Properties of Leaks
- How to Quickly Find Leaks in Any Industrial Environment
- How to Apply Sound Based Techniques to Lubrication Tasks
- How to Apply Sound Based Techniques to Predict Mechanical Failures
- How to Identify a Faulty Steam Trap
- The Effects of Electrical Faults and How to Safely Detect Problems

### Who is the trainer?

Tom Murphy is an Acoustics graduate from Salford University and has 25 years experience in the world of industrial vibration measurement. Tom is the Managing Director of Adash 3TP Limited, based in Manchester England, a Company specialized in the application of vibration, infrared and ultrasonic technologies to improve maintenance.

### Learn New Inspection Techniques!

#### • Leak Detection

Improved innovations and technology mean new methods for leak detection. Learn the answers to common questions like, "How can I quantify accurately the true cost of compressed air leaks" or "Can I really quantify a leak based only on the dB level?"

#### Bearing and Mechanical Monitoring

Discover the newest principles for digital inspection and AVM Acoustic Vibration Monitoring. Get updated on the industry's trend toward sound-based lubrication scheduling and sound-based applications of lubricants.

#### • Electrical Inspections

Ultrasound and Infrared inspections go hand-in-hand when it comes to inspection of high and low voltage electrical systems. Discover important tips for inspection of switch gear panels. Learn to



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distinguish the sound characteristics of arcing, tracking, and corona discharge. Study important safety tips for ultrasound inspectors working in high voltage areas.

• **Evaluating Steam Traps and Valves**

How do you know a steam trap has failed? Temperature? Ultrasound? Visual Inspection? Or all of the above? We will show you how to save precious hours inspecting internal leakage on hydraulic valves.

**Course Outline**

**Day 1 ( 8:30 a.m. – 5:30 p.m.)**

- Overview of the SDT Certification Training
- Principles of Sound
- Types of Sounds, Wavelength, Mediums, Sound waves
- Human Ears and Hearing
- Types of Ultrasound
- Airborne Ultrasound Equipment Construction and Characteristics
- Airborne Ultrasound Testing Methods
- Indications and Types of Leaks
- Properties of Leaks
- Principles & Techniques in Leak Detection & Location
- Effects of Undesirable Leaks
- Electricity and Safety Considerations
- Disruptions in Electrical Flow
- Types of Electrical Discharge
- Effects of Stray Electrical Discharge
- Principles and Techniques in Corona, Tracking and Arcing Inspections
- Review the Day

**Day 2 (8:30 a.m. – 5:30 p.m.)**

- Review and Questions from Day 1
- Principles of Structure-borne Testing Method
- Valves and Steam Traps
- Operating Principles of Valves and Steam Traps
- Effects of a Defective Component
- Principles and Types of Mechanical Inspections
- Stages of Mechanical Failures
- Principles and Inspection Methods of Rotating Mechanical Equipments
- Principles and Methods for Valves and Steam Traps
- Principles of Acoustic Vibration Monitoring (AVM)
- Predictive Maintenance and Asset Management
- PC Interface

**Day 3 (8:30 a.m. – 12:30 p.m.)**

- Testing and Documentation Review & Questions from Day 1 & 2
- Written Examination
- Practical Examination

