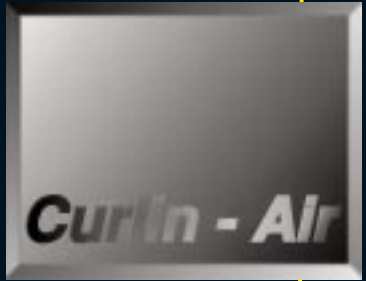




Curlin - Air

Portable AIRBORNE Ultrasonic Flaw Detector



*STILL the best
in Ultrasonic
Performance!*

Nondestructively Inspect Material Integrity With An Airborne Ultrasonic Beam

- ▶ No liquid couplant needed (just air!)
- ▶ No surface contact needed
- ▶ Remarkable penetrating power
- ▶ Applicable to numerous materials throughout Industry
- ▶ Portable for production line or field use
- ▶ Simple to operate
- ▶ Helps assure product quality and safety
- ▶ Cost effective

Unconventional Design Concept Opens a Realm of Inspection Opportunities

Performance Plus
Curlin-Air is a new and radically different type of portable ultrasonic flaw detector that features a unique (and much needed) combination of performance capabilities.

Its *remarkable penetrating power* provides the opportunity to readily inspect an increasing variety of *extremely attenuative materials* that are generally considered "un-inspectable" with conventional ultrasonic flaw detectors.

To top off matters, Curlin-Air performs inspection with an *airborne ultrasonic beam* – which *eliminates the need for material contact or liquid couplants*. This outstanding capability greatly facilitates material scanning and overall practicality. It also makes Curlin-Air an alternative choice for certain applications where conventional flaw detectors are used. Plus, it extends the applicability of Curlin-Air to various liquid-intolerant and contact-intolerant materials.



NDT Systems
Worldwide Excellence In Ultrasonics

UNCONVENTIONAL DESIGN CONCEPT OPENS A REALM OF INSPECTION OPPORTUNITIES (CONT'D)

And since Curlin-Air is a miniaturized portable, it is equally suitable for applications along a production line or in the field.

Potential Benefits

Curlin-Air can play an important role in helping to assure the quality, performance and safety of applicable materials and products. Its use ranges from material inspection during manufacturing to scheduled maintenance inspections of in-service products. Curlin-Air can help optimize manufacturing processes (including lowering scrap losses), as well as speeding up inspection procedures which translates directly into improved productivity and profitability.

How It Works

Operating in a through-transmission test mode, Curlin-Air typically uses an optional lightweight, handheld yoke for manually scanning the ultrasonic beam throughout the material (Diag. A). Structural flaws tend to cast a "shadow" when present in the beam. This reduces



the detected signal amplitude displayed on the instrument (see signal photos) and triggers an audible/visible alarm.

Applications

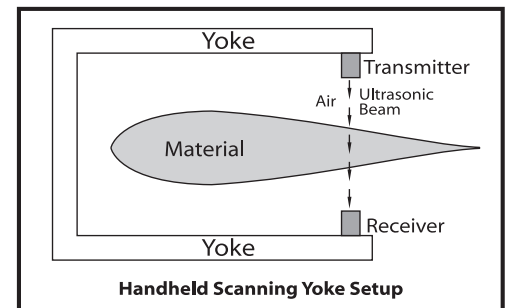
Flaw Detection: Hidden internal flaws, such as delaminations, splits, blows, inclusions, cavities, impact damage and fractured/crushed cores can be detected in a wide variety of nonmetal-

lic or metallic materials, as exemplified by Table A. Extremely attenuative materials such as polyurethane foams or foam-core bonded laminates are readily inspectable.

Miscellaneous: Curlin-Air offers applicability as a densitometer for various plastic foams, and also, for detecting entrapped water in honeycomb aircraft structures.

Simple To Operate

Curlin-Air is exceptionally simple to operate, with setup taking only a few moments. Operator training is brief, requiring minimal technical experience.



Diag. A

Curlin-Air Specifications

Principle: Airborne ultrasonic tone-burst

Test-Mode: Through-transmission, non-contact

Signal Presentation: A-scan

Design: Microprocessor-based (32-bit) selectable on-screen menus

Display: High-speed LCD with switchable back-light, 4-1/2" W x 2-5/8" H

Receiver Gain: 115 dB (variable attenuation)

Range: 1 to 200 inches in air (FS)

Delay: 0 to 199 inches in air (FS)

Velocity: 0.005 to 0.7500 inches/microseconds

Pulse Length: Adjusts cycles in tone-burst

Setup Memory: Stores up to 50 setups for easy recall

Alarm: Adjustable trigger level, audible and visual, ± logic

Print Screen & Freeze Screen: Self explanatory

I/O Port: RS-232 format, transfers data to and from a computer

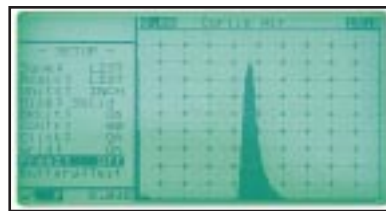
Power: Batteries: NiCad, 7-1/2 hr max life between 10 hr re-charges or Alkaline, 16 hr max life
AC Line: 120/240 VAC auto-selectable

Controls: Color-coded, sealed membrane pushbuttons

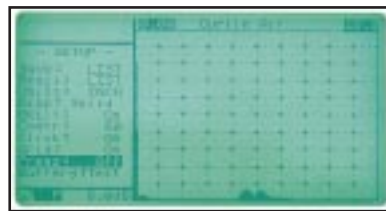
Size: 5-3/4" H x 10-1/8" W x 4-1/2" D (rubber-clad aluminum case)

Weight: 6.3 lbs.

Signal Photos



Good Material



Flawed Material

Included Accessories
NiCad batteries, charger, power cord and carrying pouch.

Required Accessories
Two Curlin-Air transducers and two transducer coaxial cables

Optional Accessories
Handheld scanning yokes, variety of transducers and transducer accessories, built-in data logger

POTENTIAL APPLICATION AREAS

Plastics foams	Aircraft laminates
Ceramic foams	Aircraft honeycomb
Foam-core laminates	Rotor blades
Foam-core doors	Aerospace composites
Fiberglass laminates	Radome
Tires	Marine composites/foams
Particleboard	Solid rockets
Plywood	Cork laminates
Flakeboard	Refractories
Dry-wall board	Ceramics
Brake pads	Circuit board stock

Table A

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