

Inspection around Countersink Fasteners

Application Note

Inspection Challenges

When inspecting for fatigue cracks around countersink fasteners in aircraft surfaces, maintaining uniform distance from fastener edges can be difficult even when using a circle template. Inspecting painted surfaces greatly increases the inspection time and the NDT technician's time. This often leads to asset owners having to remove paint prior to the inspection which is costly.

Recommended Solution

Zetec offers a solution to reduce inspection time, while increasing the probability of detection (POD) using a Surf-X™ Flexible Array Probe with a MIZ®-21C Handheld Eddy Current Instrument.

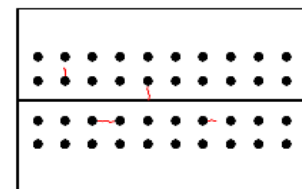
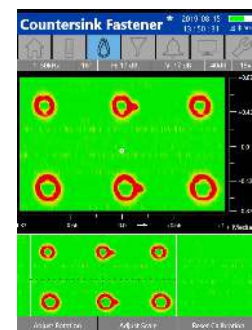
Eddy current surface array probes allow for fast inspection of surfaces with varying materials and geometries. Surface preparation is not necessary as compared to penetrant inspection methods. Additionally, removing the need to use chemicals also eliminates environmental concerns as compared to paint removal methods. Simply align the probe with the seam and scan down the rows. With a 1.7 inch coverage width, multiple rows of fasteners may be inspected in a single pass. This makes array inspections much faster than pencil probes and ensures complete coverage of the entire inspection area.

Surf-X Flexible Array Probe

Ultimate flexibility

Advantages:

- ▶ **Faster Inspection.** Greatly speed up inspection time by simply scanning over two fastener rows at a time instead of inspecting each individual fastener one by one
- ▶ **Highly Flexible Design Featuring Interchangeable Multi-Coil Probe Sets.** Users in the field can change a coil set in less than a minute enabling the probe to easily adapt to different materials and surface geometries at the inspection site
- ▶ **Multiple Probe Handles.** Attach various flex probe handles to accommodate different applications and geometries
- ▶ **Intelligent Design.** Embedded ID chip aids in proper probe configuration



Crack Progression --->

Scan two fastener rows in a single pass!

MIZ-21C Eddy Current Instrument

Fully integrated portable performance

Advantages:

- ▶ **Surface Array in a Handheld.** Cost-effective, highly portable solution that delivers significant advantages over Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT).
- ▶ **C-scan Display.** Easy to read graphical display of the inspection component makes flaws easy to detect.
- ▶ **Increase Uptime, Wherever You Go.** Features up to a ten-hour battery life so users can operate the unit for an entire shift without recharging. Replaceable batteries support 24 hour operation.
- ▶ **Ergonomic Design.** Small, lightweight and comfortable to handle in tight spaces. MIZ-21C minimizes arm fatigue common with other portable instruments.
- ▶ **Intuitive Touchscreen.** Quickly rotate, zoom and pan using the two finger capacitive display. The onscreen keyboard further increases user efficiency.
- ▶ **Universal Symbol Buttons & Multi-Language Software.** One model for worldwide use and deployment. Universal symbol buttons handle all functions and are ideal for gloved inspections.
- ▶ **Built for Demanding Environments.** Fully sealed and temperature rated for most outdoor conditions. Drop and vibration tested for rugged use.



Total Solution Advantages

- ▶ Greatly increased inspection speed over conventional pencil probe inspections
- ▶ Easy to analyze C-scan display improves (POD)
- ▶ Saves time by eliminating the need for surface preparation work
- ▶ Excellent detection of cracking regardless of orientation
- ▶ Provides two fastener row inspection in a single pass
- ▶ Industry leading signal-to-noise ratio (SNR)

The Zetec Advantage

Zetec is a global leader in nondestructive testing (NDT) solutions for the critical inspection needs of industries the world counts on every day—including aerospace, power generation, oil and gas, transportation, heavy industry and manufacturing. By integrating design and engineering with our own manufacturing, Zetec delivers solutions that optimize productivity, safety and total cost of ownership.

For more information about the Surf-X array probe, MIZ-21C instrument or other Zetec products contact your local Zetec representative, email us at info@zetec.com or visit www.zetec.com.



Zetec holds ISO 9001
and ISO/IEC 17025
certifications



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