

Fuselage Inspection

ECA Subsurface Corrosion Detection



Aircraft around the globe are repeatedly subjected to drastic temperature changes, which cause condensation and humidity to collect on the inside of the aluminum skin. This humid environment between layers leads to hidden corrosion that must be detected and repaired during regular in-service inspections.

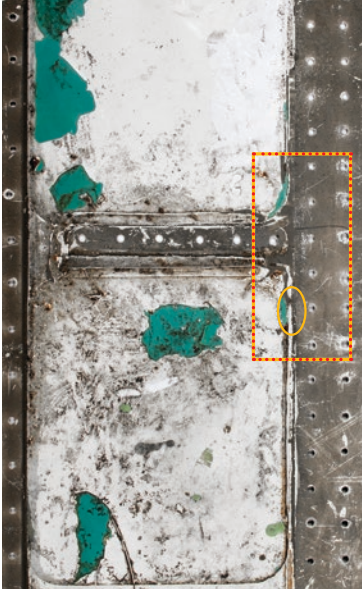
Olympus offers an innovative fastener and subsurface crack inspection technique using eddy current technology as part of our aerospace solutions. This technology detects, sizes, and evaluates the depth of corrosion between the aluminum layers of commercial and military aircraft, providing efficient and reliable results.

Features

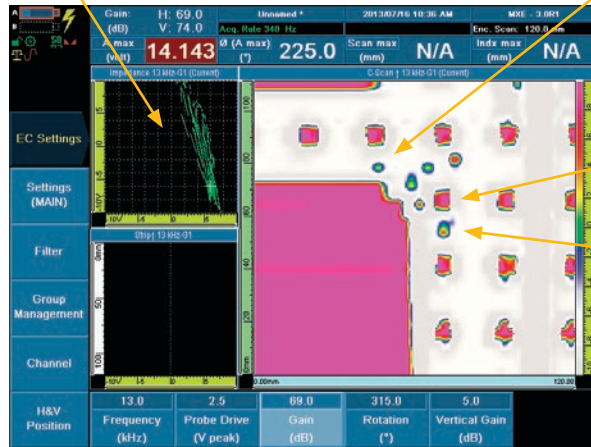
- Replaces magneto-optical imaging (MOI)
- 32-coil probe provides large coverage
- No need to remove paint; fewer steps means time-savings
- Detection similar to conventional eddy current, plus, with ECA:
 - the area of corrosion can be sized; and,
 - the depth of corrosion can be evaluated
- With continuous mode, the scan imagery reveals inspection results without interruption
- Data recording for professional reports
- Optimized to detect typical subsurface corrosion in aluminum sheets with thicknesses of up to 2.5 mm (0.1 in.)



Internal Subsurface Corrosion Area



Conventional eddy current impedance plane with a 32-channel signal

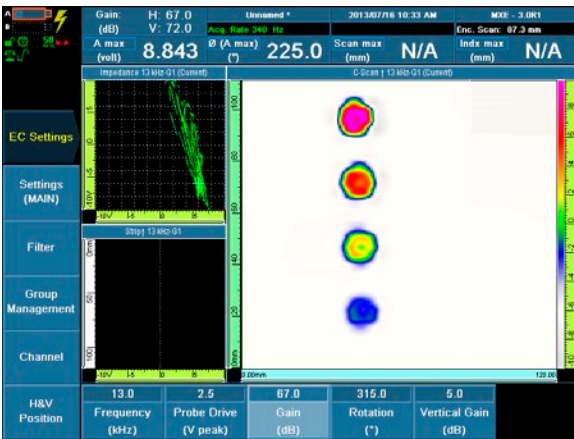


Detailed subsurface crack ECA imagery

Typical fastener indications

Multiple corrosion indications with areas and depth color sizing

Area and Depth Color Calibration



In this example, corrosion detection gives these values:

PINK= 40% corrosion depth

RED= 30% corrosion depth

YELLOW= 20% corrosion depth

BLUE= 10% corrosion depth

Ordering Information

Item Number	Part Number	Description	Penetration in Aluminum
U8270161	SAA112-ENC	Semirigid ECA probe, 112 mm coverage, 32 channels (reflection side-by-side), 1–25 kHz, 3 m cable, and integrated encoder. This is a factory-assembled probe kit, ready to use, consisting of an SAA-112-005-032 and ENC1-K-ECA encoder.	up to 1.2 mm (0.05 in.) (Commercial)
U8270162	SAA128-ENC	ECA semirigid probe, shielded TX-RX mode, 128 mm coverage, 0.4–10 kHz, 32 elements, 3 m cable, and integrated encoder. This is a factory-assembled probe kit, ready to use, consisting of an SAA-128-002-032, and ENC1-K-ECA encoder.	up to 2.5 mm (0.1 in.) (Military)
Spare Parts			
U8779368	ENC1-K-ECA	Eddy current array probe encoder with full holder 2.9 m cable with DE15 connector type.	
U8270003	SAA-112-005-032	Spare ECA probe, SAA112-ENC without encoder.	
U8270014	SAA-128-002-032	Spare ECA probe, SAA128-ENC without encoder.	

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