AIRCRAFT SET OF EDDY CURRENT FLAW DETECTOR "EDDYCON C" FOR AIRCRAFTS TESTING

Member company of
«OKO ASSOCIATION»
Group

- Surface and subsurface defect detection.
- Assessment of defect depth.
- Conductivity measurement.
- Paint thickness measurement.
- EN 13860-1 Compliant
- EN 13860-2 Compliant

CE MARKING

PRP™

www.oko-ndt.com

PURPOSE

Set of eddy current equipment for non-destructive testing of aircraft parts on the basis of "EDDYCON C" flaw detector is used for detection of surface cracks in various parts, cracks in holes and multilayered structures, surface and subsurface corrosion. Eddy current is an acceptable method for detecting conductivity of non-ferrous materials and paint thickness.

ACCORDING TO THE REGULATORY DOCUMENTATION THE EDDY CURRENT IS USED ON:

- Window and door frames.
- Aircraft wheels.
- Pre-buy aircraft inspections.
- Surface crack high-frequency inspection.
- Subsurface low frequency inspection.
- Multi layer of metal crack detection.
- Part edges.
- Crack progression verification.
- Marking the start and end of a crack to facilitate stop drilling.
- Cracks around fasteners.
- Aircraft part extent of corrosion verification and damages from mechanical peeling.
- Crack detection on Aluminum, Titanium, Iron, Stainless Steel, Inconel, Nickel, Magnesium.

FLAW DETECTOR ADVANTAGES

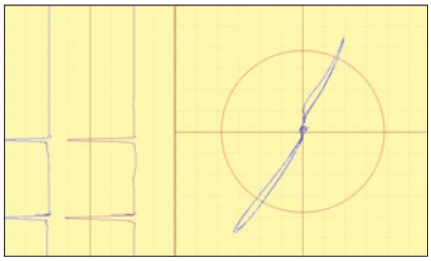
- Tuning out from the influence of an operating clearance and inhomogeneity of electromagnetic properties of a testing object.
- Storage of a great number of setups and testing results in the flaw detector memory.
- Mode of two-way connection with PC via USB port (for inputting the information from the flaw detector memory into PC and possibility of this data printing as well as setups loading from PC into the flaw detector memory).
- Upgrading the flaw detector software using USB Flash Card.
- Conditional assessment of a defect depth and length.
- Readily removable battery.
- Time of contentious battery operation _____8 hours.
- Light and sound ALARM system.
- Operation simplicity due to the intuitive interface.
- Small mass and dimension parameters.

FLAW DETECTOR DISTINCTIVE FEATURES

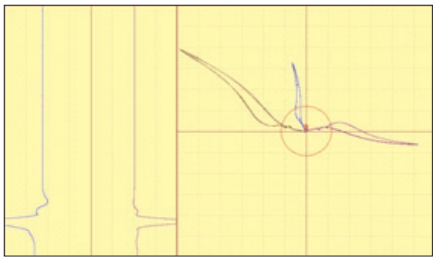
- Color high-contrast TFT display.
- ALARM system: 4 three-color LEDs, sound alarm.
- Possibility to operate in two-frequency mode.
- Possibility to assess the paint thickness.
- Simplified procedure of instrument calibration on standard calibration blocks.
- Possibility of encoder and eddy current rotary scanner connection.
- Exceptional signal/noise ratio.
- Possibility to operate with eddy current probes (ECPs) and rotary scanners from different manufacturers.
- USB slave.
- Compliance with BSS7048.
- Allows to carry out the testing according the requirements of NON-DESTRUCTIVE TEST MANUAL (51-00 PART 6, 71-20 PART 6 and etc.)

SPECIFICATIONS AND SERIVCE FUNCTIONS OF THE FLAW DETECTOR

- Detecting defects with the depth _____from 0.05 mm and width _____from 0,002 mm.
- Setup range of operating frequencies _____from 10 Hz to 16 MHz.
- Generator output voltage (double amplitude) _____from 0,5 V to 6 V.
- Adjusted gain range _____100 dB.
- Signal phase change (range of signal rotation from 0° to 360° with a step 0.1°, 1°, 10°).
- Samples frequency _____up to 10 kHz.
- Digital signal filtering (there are 4 filter types: Lowpass, Highpass, Bandpass, Averaging).
- Eddy current signal display:
  a) complex plane (XY) - allows to detect defects among interferences by analyzing the signal waveform;
  b) mix of two frequencies can be used for suppression of interfering factors and reduction of their influence on testing results (for mixing an operator can choose one of 4 algorithms: summation, subtraction, summation with horizontal inversion, summation with vertical inversion).

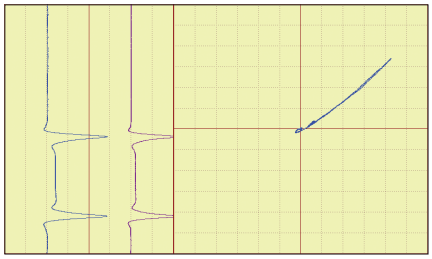


a) Complex plane (XY)

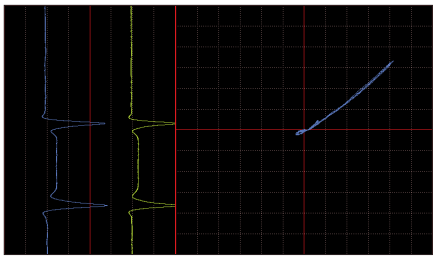


b) Mix of two frequencies (MIX)

- possibility to move the complex plane center to any visible part of the screen;
- two modes of instrument operation: “Dark” - for operation with faint outer lighting;
  “Light” - for operation with intense outer lighting;

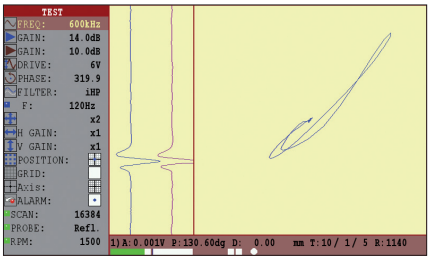


b) “Dark” mode

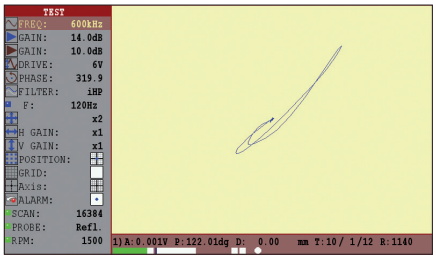


b) “Light” mode

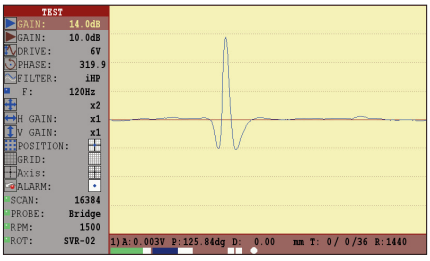
- various types of information display on the flaw detector screen:



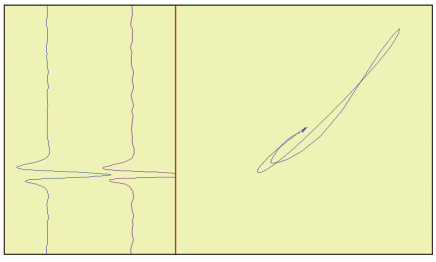
a) Menu+XY+A(t)



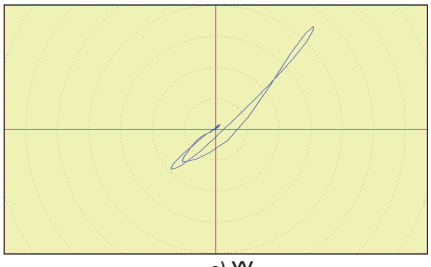
b) Menu+XY



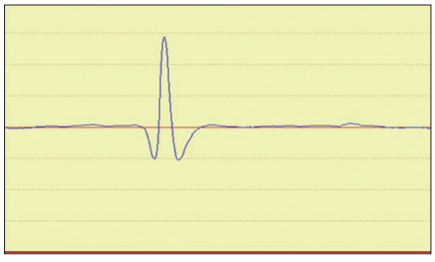
c) Menu+A(t)



d) XY+A(t)



e) XY



f) A(t)

- time of flaw detector operation mode setup ___up to 1 minute;
- “Persistence” function (adjustable time for clearing the screen is from 0.1 s; 0.5 s; 1 s; 2 s; 3 s; 4 s);
- built-in clock and calendar;
- screen backlight and screen brightness control;
- overload indicator of an input circuit;
- battery life indicator;
- possibility of ECP connection of various constructions:
- differential ECP;
- differential ECP, connection by the bridge circuit;
- differential transformer ECP with center-point ground;
- differential transformer ECP;
- single (parametric) ECP;
- absolute transformer ECP.
- possibility of eddy current rotary scanner connection for the testing of openings and special-purpose scanners;
- user-friendly multi-language interface;
- time of continuous flaw detector operation with the fully charged storage battery ________at least 8 hours;
- total average life ______ at least 10 years;
- flaw detector is powered from the built-in storage battery with rated voltage 12 V and rated capacity of 4500 mA·h;
- operating temperature range ___from minus 20 °C to plus 45 °C;
- weight of flaw detector with a storage battery ____no more than 0,9 kg;
- overall dimensions of the flaw detector - no more than 230 x 135 x 98 mm.

BASIC DELIVERY SET OF THE FLAW DETECTOR “EDDYCON C”

Name and reference designation	Quantity
Electronic unit of eddy current flaw detector EDDYCON C	1 pc.
Mascot 2015/Friwo charger	1 set.
Connection cable (PC/electronic unit, USB)	1 pc.
Registration certificate for Eddycon C	1 copy
Certificate of verification for the flaw detector EDDYCON C	1 copy
Operation manual for Mascot 2015/ Friwo	1 copy
Software for the PC	1 package.
Soft case for the flaw detector	1 pc.
Carrying Case	1 pc.

ADDITIONAL EQUIPMENT

Name and reference designation	
Rotary scanner SVR-02	
Eddy current probes	
Connection cable (Reflection, Bridge, Lemo 12 - Lemo 04 (type 0B)),	1800 mm
Connection cable (Electronic unit /SVR-02, Lemo 12 - Lemo 12),	1800 mm
Connection cable (Reflection, Bridge, Lemo 12 - Lemo 03),	1800 mm
Connection cable (Electronic unit / parametric ECP, Lemo 00 - Lemo 00/BNC/Microdot),	1800 mm
Headphones	
Calibration block 2353.08 (for operation with surface ECPs)	
Calibration block 2353.12 (for operation with rotary ECPs)	

EDDY-CURRENT PROBES FOR SURFACE FLAWS DETECTION

1. PENCIL PROBES

1.1. Straight Shaft Surface Probe (Single / Single Shielded)

Sensing element of eddy-current probe coincides with the handle axis

Designation	Tip ∅ 'D', mm	Length, mm	Centre Frequency	Connector	Material
SU200K3.5Dx25-115 S	3.5	115	200 kHz	Microdot	Fe/NFe

1.2. Straight Shaft Surface Probe (Single / Single Shielded, Bridge)

Sensing element of eddy-current probe coincides with the handle axis

Designation	Tip ∅ 'D', mm	Length, mm	Centre Frequency	Connector	Material
SU200K5A4.5Dx6.4-105 B	3.5	115	200 kHz	Triax Lemo/Fischer	Fe/NFe

2. L-SHAPED EDDY-CURRENT PROBES

2.1. Right Angle Surface Probe (90° Tip, Single / Single Shielded)

Sensing element of eddy-current probe is placed at the angle of 90° to the handle axis.

Designation	Tip ∅ 'D', mm	Drop length, mm	Length, mm	Centre frequency	Connector	Material
SU200K5A4.5Dx6.4-105 S	4.5	6.4	105	200 kHz	Microdot	Fe/NFe

2.2. Right Angle Surface Probe (90° Tip, Single / Single Shielded, Bridge type)

Sensing element of eddy-current probe is placed at the angle of 90° to the handle axis.

Designation	Tip ∅ 'D', mm	Drop length, mm	Length, mm	Centre frequency	Connector	Material
SU200K5A4.5Dx6.4-105 B	4.5	6.4	105	200 kHz	Triax Lemo/Fischer	Fe/NFe

2.3. Angle Shaft Surface Probe (45° tip, single / single shielded)

Sensing element of eddy-current probe is placed at the angle of 45° to the handle axis.

Designation	Tip ∅ 'D', mm	Drop length, mm	Length, mm	Centre frequency	Connector	Material
SU200K3A4.5Dx6.4-105 S	4.5	6.4	105	200 kHz	Microdot	Fe/NFe

2.4. Angle Shaft Surface Probe (45° tip, single / single shielded, Bridge type)

Sensing element of eddy-current probe is placed at the angle of 45° to the handle axis.

Designation	Tip ∅ 'D', mm	Drop length, mm	Length, mm	Centre frequency	Connector	Material
SU200K3A4.5Dx6.4-105 B	4.5	6.4	105	200 kHz	Triax Lemo/Fischer	Fe/NFe

2.5. Surface MDF-Type Probes (Multi-Differential)

The probe sensitive element is located form the butt-end relative to the probe X-axis.

Designation	Tip ∅ 'D', mm	Length, mm	Centre frequency	Connector	Material	Defects under paint coating	Surface defects	Protective housing
SS1.5M05DA0	5	35	1,5 MHz	Lemo 04	Fe/NFe	up to 0.3 mm	-	-
SS650K06DA0	6	35	650 kHz		Fe/NFe	up to 0.5 mm	-	-
SS400K07DA0	7	35	400 kHz		Fe/NFe	up to 0.5 mm	-	-
SS400K08DA0	8	35	400 kHz		Fe/NFe	up 0.5 mm	-	-
SS340K09DA0	9	35	340 kHz		Fe/NFe	up to 1 mm	-	+
SS170K13DA0	13	35	170 kHz		Fe/NFe	up to 7 mm	+	+
SS50K15DA0	15	50	50 kHz		Fe/NFe	up to 9 mm	+	-
SS25K33DA0	33	50	25 kHz		Fe/NFe	up to 12 mm	+	-

3. ROTATING EDDY-CURRENT PROBES

3.1. Manual Bolt hole probes with a split tip (coils are positioned at right angles to the probe's shaft length; single unshielded/ shielded)

Designation	Tip ⌀'D', mm	Working length (WL), mm	Length, mm	Frequency	Connector	Material
ROM3,1-3,6x85/105SS	3,1-3,6	35/51	85/105	200 kHz/500 kHz/2 MHz	Microdot	Fe/NFe

3.2. Dynamic Rotating Probe with Split Tip (coils are positioned at right angles to the probe's shaft length; differential unshielded / shieled)

Designation	Tip ◯'D', mm	Working length (WL), mm	Length, mm	Frequency	Connector	Material
RO3,1-3,6x85 SD	3,1-3,6	45	85	200 kHz-3 MHz	4-pin Fischer connector (to Hocking, GE, Rohmann and Forester drive units)	Fe/NFe

3.3. Dynamic Rotating Probe with Flexible Tip (coils are positioned at right angles to the probe's shaft length; differential unshielded/shielded)

Designation	Tip ◯'D', mm	Working length (WL), mm	Length, mm	Frequency	Connector	Material
RO3,1-3,6x85 FD	3,1	45	85	200 kHz-3 MHz	4-pin Fischer connector (to Hocking, GE, Rohmann and Forester drive units)	Fe/NFe

3.4. Dynamic Rotating Rigid Probe (with stainless steel housing) for bolt holes testing (coils are positioned at right angles to the probe's shaft length, differential unshielded / shielded)

Designation	Tip ◯'D', mm	Working length (WL), mm	Length, mm	Frequency	Connector	Material
RO3.1x85 RD	3,1-3,6	45	85	200 kHz-3 MHz (to Hocking, GE, Rohmann	4-pin Fischer connector and Forester drive units)	Fe/NFe..

3.5. Dynamic Rotating Countersink Probe (100º Angle of Chamfer, Differential Unshielded/Shielded)

Designation	Guide hole diameter "D", mm/inch	Countersink angle, degr.	Length, mm	Frequency	Connector	Material
RCP-100º- 3.17	3,17	45	85	200 kHz-3 MHz	4-pin Fischer connector (to Hocking, GE, Rohmann and Forester drive units)	Fe/NFe

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