Airbus NTM (<u>Non Destructive Testing Manual</u>) Latest Improvement and Next Challenges 63rd Annual A4A NDT Forum, San Antonio (TX)

Alfredo RODRÍGUEZ Head of Engineering NDT In-Service & Tests

Nicolas SIMONOT NDT Product Leader, Engineering Customer Support

29th September 2022





Contents

- Airbus NTM / ANDT
 - Latest CH51 improvements
 - Next challenges
- A220 ANDTP Where are we?
- Outlook into the future





A350XWB

A330/A340 and WB



A380



A320 Family





Airbus Amber

Airbus NTM - Latest CH51 Improvements





NTM 51-10-02 - Inspection to verify the removal of corrosion





Conclusions

- HFEC Impedance Plane not successful
 - Difficult to describe and quantify corrosion behaviour \rightarrow NOTE included in NTM 51-10-08 to warn inspector
- PT Inspection to be published as option





NTM 51-10-04 - Measurement of remaining structure thickness





Conclusions

- Proc.A standard UT equipment included update to be published
 - Objective is to publish IP for inspection area with/wo paint on-going
 - Challenge: inspection technique for non-NDT personnel





NTM 51-10-04 - Measurement of remaining structure thickness

Conclusions

- Proc. B
 - Thickness tool: thickness range extended from 0.6 mm to 20.0 mm (0.023 to 0.78 in)
 - Challenge: New NDT solution to speed up wing corrosion detection, sizing and reporting

AS IS

Perform thickness measurements from 0.023 to 0.78 in (0,6 to 20 mm)

Grid mapping ; 0.19*0.19 in (5*5 mm) or 0.39*0.39 in (10*10mm)

Cscans ToF and Amplitude













NTM 51-10-06 - Accidental Damage - Inspection of CFRP Structure

AS IS

Proc. A (Single Element) covering:

Monolithic TAPE up to 10 mm (0.394 in.)

Monolithic FABRIC up to 20 mm (0.787 in.)

TO BE

Proc. A (Single Element) covering:

Monolithic TAPE up to 40 mm (0.394 in.)

Monolithic FABRIC up to 20 mm (0.787 in.)

Proc. B (PAUT) to be adapted

NTM 51-10-14 - PT Inspection

AS IS

Inspection based on one Penetrant System (1C3)

General information in NTM 51-80-00

TO BE

METHOD A (1A3a): Water washable - Used on parts removed from the aircraft and processed in a test houseusingautomatedormanualpenetrantlines.METHOD C (1C3d): Solvent removable - Used on assemblies requiring localised inspection and removed fromthe aircraft, or for inspections on components/assemblies left in-situ on the aircraft. Manual processing only.METHOD D (1D3a and 1D3d): Post emulsifiable-Hydrophilic. Used on parts removed from the aircraft andprocessed in a test house using automated or manual penetrant lines

AIRBUS

NTM 51-10-11 Inspection for Cracks in Multi-layered Joint Al-Alloy Structures



- Next objective: Increase top-layer thickness
 - Different materials configuration \rightarrow AI-CFRP and Ti





Airbus Amber



AIRBUS

NTM 51-10-16 Inspection for Sub-Surface cracks in Al-Alloy Structure





– Next objective: different materials configuration \rightarrow AI-CFRP and Ti



Airbus Amber

AIRBUS

A220 ANDTP - Where are we?

10 29th September 2022 63rd Annual A4A NDT Forum, San Antonio (TX)



A220 ANDTP

AIRBUS A220World

End of 2018: Cooperation starts	Agreement on ANDTP Numbering. 51-01-xx Tasks			CH51 Working Philosophy		OBJECTIVE : Harmonize way of working and ANDTP / NTM Manual	
Analysis of ANDTP CH51			Deployment of similar way of working		NDT CalBlocks Analysis Sales by SATAIR		
Inspection tasks already revised and published:							
- ANDTP 51-01-00	51-01-01	51-01-03	51-01-04	51-01-07	51-01-08	51-01-12	
51-01-15	51-01-15	51-01-10	51-01-20	51-01-21	51-01-50	51-01-52	

What's next?

- UT CFRP CH51 Improvement LFEC Inspection Tasks





Airbus Amber

Outlook into the future - Next challenges





Next challenges

NTM51-10-01 ROTOTEST

- Several frequencies and Stacking visualization
- Rototest on steels

I2P - Interactive Inspection Procedure

Introduction of CH51 dealing with SHM technologies

NTM51-10-32 UT on metallic structure

Introduction of multiple skips inspection









AIRBUS

Thank you

© Copyright Airbus (Airbus Operations S.L. 2022) / Airbus NTM - Latest Improvements and next Challenges

This document and all information contained herein is the sole property of Airbus. No intellectual property rights are granted by the delivery of this document or the disclosure of its content. This document shall not be reproduced or disclosed to a third party without the expressed written consent of Airbus. This document and its content shall not be used for any purpose other than that for which it is supplied. Airbus, its logo and product names are registered trademarks.

