AIRCRAFT CONTINUING AIRWORTHINESS MANAGEMENT

A PRACTICAL GUIDE FOR CONTINUING AIRWORTHINESS ENGINEERS

DANIEL OLUFISAN

BSc(Hons), MSc(Eng), IEng, MRAeS

A PUBLICATION OF WING ENGINEERING LIMITED

COPYRIGHT © 2012 - 2023

WING ENGINEERING LIMITED

ALL RIGHTS RESERVED

No part of this publication may be reproduced in any form or by any means, or stored in a database or

retrieval system, or distributed in any form or by any means, or rented or hired, without the prior written

permission of the publisher, Wing Engineering Limited. Permission requests should be made in writing

to the publications manager and sent to: publications@wingengineering.co.uk.

ISBN: 978-1-7398606-1-5

COVER PAGE PHOTO: Frank Peters | Shutterstock.com

All books published by Wing Engineering Limited are available at discounted rates when purchased in

bulk for use within teaching and training programmes or promotional purposes. For enquiries, please

contact the publications manager using the above-referenced email address. You should also contact

the publications manager if you have any questions regarding this book, or if you would like to provide

the author with some feedback. To view the full list of books published by Wing Engineering Limited,

please visit: www.wingengineering.co.uk/publications.

The information contained in this book is intended for teaching and training purposes only. It has been

published with the understanding that Wing Engineering Limited and its authors are supplying infor-

mation but are not attempting to render any professional services via this medium. If such services are

required, please contact Wing Engineering Limited to discuss your specific requirements with one of

its airworthiness consultants using the contact details on its website: www.wingengineering.co.uk. Nei-

ther Wing Engineering Limited nor its authors shall accept any liabilities arising from the use of this

book.

TABLE OF CONTENTS

PREFACE

ACKNOWLEDGEMENTS

1.0 AIRWORTHINESS FUNDAMENTALS

- 1.1 Introduction
- 1.2 Airworthiness Definition
- 1.3 Initial Airworthiness
- 1.4 Continuing Airworthiness
- 1.5 Airworthiness Regulation
- 1.6 Summary

2.0 CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

- 2.1 Introduction
- 2.2 Organisation Requirements
- 2.3 Organisation Structure
- 2.4 Organisation Exposition
- 2.5 Summary

3.0 AIRCRAFT MAINTENANCE PROGRAMME

- 3.1 Introduction
- 3.2 Maintenance Review Board (MRB) Process
- 3.3 Maintenance Programme Compilation Considerations
- 3.4 Maintenance Programme Document
- 3.5 Summary

4.0 AIRCRAFT RELIABILITY PROGRAMME

- 4.1 Introduction
- 4.2 Reliability Monitoring Process
- 4.3 Reliability Programme Management
- 4.4 Reliability Programme Review
- 4.5 Reliability Programme Issues

- 4.6 Reliability Programme Document
- 4.7 Summary

5.0 AIRCRAFT TECHNICAL RECORDS MANAGEMENT

- 5.1 Introduction
- 5.2 Basics of Airworthiness Records
- 5.3 Initial Airworthiness Records
- 5.4 Continuing Airworthiness Records
- 5.5 Records Management
- 5.6 Summary

6.0 AIRCRAFT MAINTENANCE PLANNING

- 6.1 Introduction
- 6.2 Scheduled Maintenance Requirements
- 6.3 Unscheduled Maintenance Requirements
- 6.4 Maintenance Forecasting
- 6.5 Maintenance Cost Estimation
- 6.6 Maintenance Tasking
- 6.7 Summary

7.0 COMPLIANCE MONITORING SYSTEM (CMS)

- 7.1 Introduction
- 7.2 Compliance Policy
- 7.3 Compliance Audit & Feedback
- 7.4 Compliance Assurance
- 7.5 Compliance Promotion
- 7.6 Summary

8.0 SAFETY MANAGEMENT SYSTEM (SMS)

- 8.1 Introduction
- 8.2 Safety Policy
- 8.3 Safety Risk Management
- 8.4 Safety Assurance
- 8.5 Safety Promotion
- 8.6 Summary

APPENDICES

APPENDIX A: GLOSSARY

APPENDIX B: ILLUSTRATIVE LAYOUT OF A CAME

APPENDIX C: ATA STANDARD NUMBERING SYSTEM

APPENDIX D: MSG-3 ANALYSIS

APPENDIX E: MAINTENANCE REVIEW BOARD REPORT PRO FORMA

APPENDIX F: POLICY & PROCEDURES HANDBOOK PRO FORMA

APPENDIX G: MAINTENANCE PLANNING DOCUMENT PRO FORMA

APPENDIX H: AIRCRAFT MAINTENANCE PROGRAMME TEMPLATE

APPENDIX I: AIRCRAFT RELIABILITY PROGRAMME TEMPLATE

APPENDIX J: AVAILABILITY & MAINTAINABILITY

APPENDIX K: STATISTICAL RELIABILITY EVALUATION TECHNIQUES

APPENDIX L: ADDITIONAL CMS GUIDELINES

APPENDIX M: ADDITIONAL SMS GUIDELINES

APPENDIX N: AIRWORTHINESS REVIEW

APPENDIX O: PERMIT TO FLY

APPENDIX P: BIBLIOGRAPHY

INDEX

ABOUT THE AUTHOR

PREFACE

This technical publication provides a dedicated and definitive guide to aircraft continuing airworthiness management for engineers working within the airworthiness facet of the aerospace and aviation industry, with a focus on aircraft used for Commercial Air Transport (CAT) operations. In particular, it is aimed at engineers with little or no experience on the subject matter, who have been recently employed by, or interested in pursuing a career within, an aircraft Continuing Airworthiness Management Organisation (CAMO) or equivalent. It is also a useful resource for intermediate and experienced professionals, who have never had any formal training on the subject matter.

It has been designed to equip users with the fundamental knowledge and skills necessary to effectively and efficiently implement and manage continuing airworthiness processes in accordance with pertinent regulatory requirements and industry standards. It includes illustrations, worked examples, templates, and guidelines, where appropriate, to facilitate practical understanding.

Because it is based on contemporary methods and techniques for professional practice, this book is also highly recommended as an invaluable resource for use in both undergraduate and postgraduate programmes in Aerospace/Aeronautical/Aircraft Engineering and related disciplines.