Isle of Man
AIRCRAFT REGISTRY

Registry Publication 9

Airworthiness Management. Requirements & Information

15 July 2021

Inquiries of any Airworthiness Subject

NATRs are reminded that when making an Airworthiness Enquiry, they should only address an email to the Registry's general email address aircraft@gov.im, and they must, where known, include a specific registration that assists in a formulated response.

Please also note, it is policy that all contact relating to an Airworthiness Subject should originate from the NATR, or in circumstances when they are not available to do so, the NATR MUST be included by CC in the email itself and they should make this requirment evident to anyone acting in an AW capacity.

The email should not address any individual member of the Airworthiness Section (AWSc) directly or CC them into the email, as they may not be the allocated specialist to the enquiry and therefore this can take up resources and delay any actual response.

SUBJECT –It will provide a much greater availability of resources and ensure an enhanced delivery of response to the enquiry if the email SUBJECT could begin with the word Airworthiness – followed by the actual title of the inquiry.

When an email to aircraft@gov.im is received, it is reviewed by the Registry Services Section (RSSc) and the task will be allocated to the **next available Airworthiness specialist**, who will then respond back to the enquiry through to a completion.

At which point the task is then closed, and any new contact would follow the identified method above of only addressing it to aircraft@gov.im.

Following this stated method will always ensure the most expeditious response and conclusion to any enquiry.

CONTENTS

Table of Contents

End Contents

Chapter 1: INTRODUCTION

1.1 All references to The "Air Navigation (Isle of Man) Order":

or ANO are applicable to the current issue as published and available on our website.

1.2 An aircraft is considered to be Airworthy:

When it,

1.2.1 Continues to comply with its Type Design;

Complying to the type design is considered achieved when the aircraft configuration and the components installed are in accordance with the drawings, specifications, and other data that are part of the TC, and also includes conforming to additional factors such as STC and IOMAR approved modifications embodied on the aircraft.

1.2.2 The aircraft must be in a condition for safe operation;

1.2.3 Nil apparent defects, unless considered acceptable for continued service under the appropriate release of an IOMAR Approved MEL or individual permission.

End Chapter 1

Chapter 2: Maintenance certification

2.0 The only compliant Release to Service statement is,

"Certifies that the work specified, except as otherwise specified, was carried out in accordance with the Air Navigation (Isle of Man) Order 2015 and in respect to that work, the aircraft/aircraft component is considered ready for release to service".

The following information provides differing scope of Base / Line.

2.1 Base Maintenance & Line Maintenance

1-EASA Part 145, (Issued by EASA or its member states)

or

2-FAR Part 145,

or

3-UK CAA Part 145, (Including UK CAA EASA approvals issued before 1st January 2021)

or

4- IOMAR AMO approval holder.

The Isle of Man Aircraft Registry identifies a generic "Class Validation" status to enable all approved maintenance organisations, stated above 1-3, working within the scope of a valid approval, to certify maintenance on Isle of Man registered aircraft. Pilots or other individual authorised by an approved maintenance organisation QA department, may exercise the privileges of their authorisation.

A CRS issued by a person internally authorised by a company of the standard accepted above will be issued in accordance with the Air Navigation (Isle of Man) Order 2015 statement above and **not** under the EASA approval to the Basic regulation; or the CFR 14 Part 43, or the UK system of regulation of AMOs. The annotation of the EASA, FAA, or UK approval number is required **for tracking only** and indicates the AMO continues to hold that approval.

However, as the aircraft will be certified in accordance with IOM legislation, the IOMAR may enhance or limit the scope, as detailed within the approved exposition on a case by case basis.

Using the company authorisation number on the form, and following the company MOE procedures, but must include as a minimum, signature, name, and the individuals issued company Authorisation number & date.

"The IOMAR does not therefore issue individual AMO approval certificates for those AMOs identified in the opening section 2.1, items 1-3"

IOMAR AMO Approval –item 4 – *(there are no current holders of an IOMAR issued AMO approval)* the organisation will issue the CRS and annotate the document with their IOMAR company issued approval number, and individuals will annotate, the method of individual identification as is applicable.

2.2 Line Maintenance & Defect Rectification Only

IOMAR Validated Engineer or Authorised Individual

The certifier must sign, print their name, date and append their current validation or authorisation number (as applicable) to each certificate.

Authorised individual can include pilots who meet the required standards and submission of the required evidence of form 64b.

End Chapter 2

Chapter 3: Aircraft Maintenance Program (AMP)

3.1 Introduction

The Air Navigation (Isle of Man) Order identifies the requirement for an approved maintenance programme (AMP).

"An aircraft registered in the Isle of Man for which a certificate of airworthiness is in force must not fly unless the aircraft (including its engines), together with its equipment and radio station, is maintained in accordance with a maintenance programme approved by the Department for that aircraft".

It is required that all maintenance tasks, be identified and included within the approved AMP, covering the designations here within.

The maintenance of the aircraft including its engines, propellers and equipment (as applicable) will normally be in accordance with the Type Certificate (TC) Holders recommendations, identifying instructions for continuing airworthiness (IFCA), these are designated by the IOMAR as the Primary IFCAs.

Any other IFCA requirements of specific detail from ADs, Modifications, Repairs, IOMAR additional requirements etc. are identified as Supplementary IFCA's.

It is the responsibility of the operator (usually the NATR) to ensure that application Form 100 is completed and submitted to the IOMAR at the earliest opportunity, this will ensure an AMP is in place at the time of the CoA Initial survey.

All declared IFCAs should be reviewed on a regular basis but no later than annually to ensure continuing compliance.

Calendar based maintenance, usually begins from the issue of the first CoA, there may be occasions to consider a deferred "start date" should an aircraft be in maintenance for interior cabin installations. Manufacturers issued or published data can be used to support the application to the IOMAR for such circumstances, and permission to implement the delayed start of calendar maintenance.

3.2 IFCA (Primary) Source Information

3.2.1 Maintenance of the aircraft, engines, propellers and equipment are usually in accordance with the DAH IFCA. The AMP submission requires these Primary source documents to be identified. The revision status of the documents must not be entered as it is required that only the latest revisions will be applicable and used.

3.2.2 The Information should be identified and entered on page 1 of Form 100 Section 2.

3.3 IFCA (Supplementary) Source Information

3.3.1 All other IFCA not accounted for in the primary information, must also be identified, this is classified as Supplementary IFCA. (SIFCA).

3.3.2 There is no requirement to list individual SIFCA's on Form 100. Section 3 of that form should only be annotated with the method of recording SIFCA's.

3.3.3 The Operator is required to prepare a suitable method of recording the originating Supplementary IFCA document(s) and managing the supplementary IFCAs details – Examples, propriety software such as CAMP, CAFAM, CESCOM, TECHSOFT etc. or generic computer spread sheets, hard copy document (booklet, cardex).

3.3.4 This detail should be identified and entered on page 1 of Form 100 Section 3.

3.4 SIFCA Sections

The recording method shall make provision to include the sections,

3.4.1 Airworthiness Directives (repetitive)

3.4.2 Modifications (SBs, STC etc.)

3.4.3 Repairs

3.4.4 IOMAR Additional requirements

- CVR analysis – Frequency of task set at **12 Months** – Section 3.14 provides further information;
- FDR analysis – Frequency of task set at **12 Months** – Section 3.15 provides further information.

  NOTE - the Operator must ensure that the CVR / FDR check as applicable, is completed within 12 months of the initial Certificate of Airworthiness issued by the IOMAR, and reforecast to a 12 month frequency from that date.

- **Mandatory Markings (Also covering Placards),** (includes any required by modifications, AFM, and other approved data) inspection for condition and complete accountability – Frequency of Task set at **12 Months;**
- **Aircraft Weighing** – The Aircraft should have accurate data to determine the basic Mass and corresponding Centre of Gravity (CoG). If the DAH does not identify a weigh frequency of task within its recommendations, the frequency information below is to be followed and at any subsequent period the IOMAR shall require.

  For **aircraft not exceeding 2000 kg MTOM**, no actual weigh frequency is mandated. It is required that at a **120 months frequency** from the last weigh**,** a review and evaluation task is made of all repairs and all modifications that have had no individual, or classified as negligible W & B data, to assess if any accumulative significant factor of change would be relevant, to consider if an aircraft weigh would be appropriate.

  For aircraft of 2001Kgs MTOM and above, but **not exceeding 10,000 kg** MTOM, weighing is required at a **frequency not exceeding 120 months**.

  For aircraft **exceeding 10,000 kg** MTOM, weighing is required at a **frequency not exceeding 60 months**.

3.4.5 Operational Approvals with associated IFCA (i.e. RVSM skin wave checks).

3.4.6 Operator elective maintenance tasks (Service Letters etc.).

3.4.7 DAH additional tasks (refer to section 3.10 for further details).

3.5 Safety Equipment

Should follow the manufacturer's recommendations if not included within the Primary IFCA or included in Supplementary IFCAs by modification embodiment.

3.6 Example sheets for F100 Entries for SIFCAs:

Examples of different methods of recording SIFCA details. (There are <u>many</u> more options available, the choice rests with the Operator to use one that meets their requirements – inclusion here makes no IOMAR endorsement or approval).

Airworthiness management recording media that demonstrate methods of recording the defined SIFCA:

<u>Spread Sheets</u>

AD Number	Rpt Frq	Complied with	Next Due
2016-44-11	100 hrs	187 hrs	287 hrs
2011-22-16	1 Yr	20-Sep-16	20-Sep-17

3.4.1 AD's | 3.4.2 MOD | 3.4.3 Repairs | 3.4.4 IOM NAA | 3.4.5 OP Spec | 3.4.6 Op Elect | 3.4.7 TC Holder + | 3.4.8 Safety Equipt

IOM NAA	Rpt Frq	Complied with	Next Due
CVR	12 Months	23-Apr-15	23-Apr-16
FDR	12 Months	23-Apr-15	23-Apr-16
Placards	12 Months	23-Apr-15	23-Apr-16
Weigh	5 Yrs	23-Apr-15	23-Apr-20

3.4.1 AD's | 3.4.2 MOD | 3.4.3 Repairs | 3.4.4 IOM NAA | 3.4.5 OP Spec | 3.4.6 Op Elect | 3.4.7 TC Holder + | 3.4.8 Safety Equipt

<u>Example if using Spreadsheet, for Form 100 Entry section 3</u>

3. SUPPLEMENTARY INSTRUCTIONS FOR CONTINUING AIRWORTHINESS (SIFCAs)

Identify the method and location of all SIFCAs. (RP11 Para 3 provides required subjects for consideration)

M-ZZZZ-Spreadsheet –SIFCA/1

Propriety Software – Example 1

CAFAM

EASA 2014-0254	**S/S BY EASA 2015-0069**	**M**		Job:	[VARIOUS]
N/A S/S Action: INSP **Ref** EASA 2015-0069 also refers	Group:**A**	**Hours**	**Calendar**	**Landing/Cycles**	N/A S/S
	Scheduled	N/A	N/A	N/A	
	Last done	0.0	/ /	0	
	Remaining EASA 2015-0069	N/A	/ /	N/A	-REPETITIVE-
EASA 2015-0069	**S/S BY EASA 2015-0160**	**M**		Job: 010775/LL	[VARIOUS]
N/A BY EQUIP Action: INSP	Group:**A**	**Hours**	**Calendar**	**Landing/Cycles**	Applicable to Goodrich Hoist, refer to EASA AD for Pn.
	Scheduled	N/A	N/A	N/A	
	Last done	931.5	11/06/2015	0	
	Remaining	N/A	/ /	N/A	
EASA 2015-0160	**HOIST INSPECTION**	**M**		Job:	[VARIOUS]
N.F.A. Action: INSP	Group:**A**	**Hours**	**Calendar**	**Landing/Cycles**	Applicable to Goodrich Hoist, refer to EASA AD for Pn.
	Scheduled	N/A	N/A	N/A	
	Last done	0.0	/ /	0	
	Remaining s/s by easa 2015-0226	N/A	/ /	N/A	
EASA 2015-0226R3	**HOIST INSPECTION**	**M**		Job: 010795/LL	[VARIOUS]
N/A BY EQUIP Action: INSP	Group:**A**	**Hours**	**Calendar**	**Landing/Cycles**	Applicable to Goodrich Hoist, refer to EASA AD for Pn.
	Scheduled	N/A	N/A	N/A	
	Last done	946.3	18/12/2015	0	
	Remaining	N/A	/ /	N/A	

Example if using propriety software, for Form 100 Entry section 3

3. SUPPLEMENTARY INSTRUCTIONS FOR CONTINUING AIRWORTHINESS (SIFCAs)

Identify the method and location of all SIFCAs. (RP11 Para 3 provides required subjects for consideration)

SIFCA/CAFAM/M-ZZZZ

Propriety Software – Example 2

CESCOM

Item Code	Description			Part Number	C/W Time 1	Adj.	TBO 1	TSO 1 (ENG) DUE 1	Remains
Position	Drawing # / Task #	City	Mod Lvl	Part Serial No	C/W Time 2	+ or -	TBO 2	TSO 2 (ENG) DUE 2	Remains
05-USER-18	PERFORM CPCP-PROGRAM (IN CONJUNCTION WITH DOC. 26) I.A.W. AMP CHECKLIST								
					MTH 07-Nov-2016		6	31-May-2017	6 m 22 d

Example if using propriety software, for Form 100 Entry section 3

3. SUPPLEMENTARY INSTRUCTIONS FOR CONTINUING AIRWORTHINESS (SIFCAs)

Identify the method and location of all SIFCAs. (RP11 Para 3 provides required subjects for consideration)

CESCOM-M-ZZZZ- SIFCA

3.7 Maintenance Programme Variations

3.7.0 Introduction

The IOMAR has noted several CoA findings being raised on this subject, the following information should be used in association with the content of 3.7.1 onwards, to illustrate the correct use and requirements for Operators (NATRs), to accomplish when needing to utilise variations.

An Aircraft must remain compliant to its AMP; however, there may be occasions where this is not directly possible for unexpected reasons.

In this scenario an aircraft CoA will become invalid at that point unless alternative actions are made to remain compliant.

This is known in the IOMAR as **AMP Variation** -

The primary source data for variations must be to use the Design Approval Holder (DAH) source hrs/cycles/months that they publish, including if specifically stated, reference to CMR tasks as approved source data.

However,

If the DAH has not published any variation information, the IOMAR has provisioned, within this Registry Publication 9 (RP9), tolerances that can be used.

IN either case, DAH or IOMAR variation figures, the following MUST be followed by the Operator (NATR).

LOGBOOK

RP 9, 3.7.7: Every Variation shall be entered in the appropriate Log Book(s), identifying the aircraft is operating with a Variation applied and to which task(s) it applies. It is not required to identify the period of extension as this may change.

The Operator (NATR) will be expected to demonstrate this entry in the relevant aircraft log book(s).

Example

If using:

- DAH Data, the log book entry will reference - *"Variation applied IAW AMM-TLMC etc./Chapter ## Section ##"*
- IOMAR RP9 data, the log book entry will reference - *"Variation applied IAW RP9 Chapter 3.7"*

Exceeding the prior accepted variation tolerances

This scenario would require you contact the IOMAR AWSc.

It is likely the Operator will be required to obtain an NTO (or alternative) from the DAH in support of the *additional factor* required.

The NTO will support the application to the AWSc on form 67a;

If accepted, an IOMAR variation certificate will be issued to the Operator, the certificate number would be used as the source reference enabling the entries in the log book:

- IOMAR issued Variation certificate, the log book entry would reference - *"Variation applied IAW Certificate No. ####/# VAR"*

RE-FORECASTING

*RP 9, 3.7.8: **In all cases,** any variation factor utilised must be deducted from the re-forecast "next due" to restore the continuity of the program.*

This is an IOMAR mandatory requirement and overrides any instruction within the DAH approved data with regards to re-forecasting of tasks after a variation tolerance has been applied.

Example

This illustrates how the flexibility of the variation can be considered when it is needed, but the use of it does have criteria attached to its application.

AMP reference	Task	INTERVAL	**Due At**	**Tolerance Applied**	**Last Done**	**Next Due**
CMR 21-31-01	Cabin Pressurisation Control – System Check	500 FH	1500 FH	+ 50 FH	1550 FH	2000 FH

Variation Tolerance

3.7.1 Variations should not be used routinely to extend maintenance periods in lieu of adequate pre-planning. Abuse of the variation permission may result in the withdrawal of this facility.

3.7.2 The IOMAR enabled variation factors as detailed below, are provided for use where the DAH does not issue any approved data.

3.7.3 Where a DAH identifies variations within the source data identified on page 1 of the Form 100, the DAH tolerances take precedent over any factor enabled within this document.

3.7.4 Any variation required which will exceed the tolerance published in the DAH source data or the IOMAR Variation data as applicable, will require IOMAR involvement to issue appropriate documentation.

3.7.5 Fatigue Lives, Mandatory Life Limitations and Certification Maintenance Requirements (including engines). All fatigue lives, mandatory life limits and Certification Maintenance Requirements published by the DAH are acceptable, however, if no DAH data exists, no variation will be permitted without the express permission of the IOMAR.

3.7.6 AMP tasks that require components to be maintained to approved data in CMM format, and are required to have workshop maintenance task and subsequent approved release paperwork (EASA Form 1 / 8130-3 etc.) cannot be varied under this programme unless the equipment manufacturer enables it in its source data.

3.7.7 Every Variation shall be entered in the appropriate Log Book(s), identifying the aircraft is operating with a Variation applied and to which task (s) it applies (It is not required to identify the period of extension as this may change). There is no requirement to contact the IOMAR.

3.7.8 In all cases any variation factor utilised must be deducted from the reforecast "next due" to restore the continuity of the program.

- 3.7.8.1 Items controlled by Flying Hours:

	Period Involved	**Maximum Variation of the Prescribed Period**
(i)	5000 flying hours or less	10%
(ii)	More than 5000 flying hours	500 flying hours

3.7.8.2 Items controlled by Calendar Time:

	Period Involved	Maximum Variation of the Prescribed Period
(i)	1 year or less	10% or 1 month, whichever is the lesser
(ii)	More than 12 months but not exceeding 36 months	2 months
(iii)	More than 36 months	3 months

3.7.8.3 Items controlled by Landings/Cycles:

	Period Involved	Maximum Variation of the Prescribed Period
(i)	500 landings/cycles or less	10% or 25 landings/cycles, whichever is the lesser
(ii)	More than 500 landings/cycles	10% or 50 landings/cycles, whichever is the lesser

3.8 Changes to Approved AMP

Where there is a change to the maintenance programme Primary IFCA source documents, for example, move to a LUMP from the existing recommendations, a new Form 100 (initial) must be completed and submitted to the Aircraft Registry. A new AMP number will be given to the approval.

Where there has been a change to supplementary IFCA source documents, registration mark or Operator details, a Form 101 must be completed and submitted to the Aircraft Registry. The programme will retain its' original core number with the next sequential revision number applied.

3.9 Inspection Standards

The maintenance and inspection standards applicable to individual tasks must meet the requirements of the Design Approval Holder's (DAH) identified standards and practices.

In the absence of specific DAH data, the standards published by the Issuing state of the individual's licence, or as contained within the approved MRO exposition (or equivalent), should be followed.

3.10 Systems and structural integrity programs

Operators shall ensure that consideration is given to issued data and recommended system or structural integrity programmes published by the Aircraft, Engine and Propeller DAH for inclusion as part of this Maintenance Programme. These programmes may include Supplementary Structural Inspection, Repair Assessment, Corrosion Prevention and Control, Ageing Structures and Systems, Fuel Tank Safety etc. Where considered relevant the details should be entered in the section mentioned in 3.4.7.

3.11 Pre-flight Inspections

Unless identified within the Primary and Supplementary IFCAs the IOMAR does not consider Pre-Flight inspections to be an AMP task for tracking and monitoring for compliance purposes.

3.12 Human Factors

Human Factors Principles should be taken in to account for all AMP management and maintenance actions.

Attention should be paid to maintenance task break down and where applicable, safety critical tasks, should be identified and managed appropriately.

This includes (these examples are not exhaustive, and other principles and factors will be applicable to individual operators).

3.12.1 Planning, consideration in preparing maintenance check requirements, completed specifically by Validated Engineers / Authorised Persons, or by AMOs, that includes the scheduling tasks in a manner that avoids possible conflict of maintenance activities, that could lead to duplication of error.

3.12.2 CMR Tasks: clear visibility of such tasks preventing any unauthorised variation.

3.12.3 Confirmation Reporting: Tasks associated with closed loop reporting such as SB embodiment, SSID, are identified in the AMP recording media and monitored.

3.12.4 Safety Critical Tasks Ensuring tasks that are critical in nature are planned and allocated in a segregated manner that prevents the possibility of multiple error.

3.12.5 Persons working on aircraft should discuss any human factors principles and human performance issues that may affect their ability to carry out the task, including tasks of a safety critical status as below:

a) Engines, engine mounts and controls (including electronic & fuel controls).

b) Propellers.

c) Flight controls and flight control systems (including electronic controls).

d) Aircraft and engine fuel systems.

e) Oil uplifts on more than one engine oil system.

3.12.6 Fatigue factors, work pattern duration, night working, delays etc.

3.12.7 Environmental conditions, external working climatic conditions etc.

3.13 Cockpit Voice Recorder (CVR) – Flight Data Recorder (FDR)

Compliance to the approved AMP is to have the actual **analysis** carried out (and any defects have been raised accordingly).

As there is an increasing level of methods on how the analysis is made possible, the thought of "download" is only one method of facilitation towards the analysis being possible, and not the actual compliance demonstration needed.

Should the analysis not be carried out by the repetitive 12 month frequency date of requirement, the NATR would need to enable the RP9 variation action for the task, and make a log book entry in accordance with 3.7 Maintenance Programme Variations 3.7.7.

3.13.1 It is the aircraft owner's responsibility to ensure that applicable maintenance recommendations and requirements specified by the DAH (TC/STC) to ensure the continued serviceability of the CVR/FDR system are followed.

3.13.2 However, Safety Investigation Authorities (SIA) have identified that on occasion CVR & FDR data being analysed has not recorded as expected & fails to provide enough clarity or is totally unusable to serve the needs during an investigation.

3.13.3 Unserviceability's, due to a malfunction of the dedicated equipment, may remain hidden for a certain amount of time, (dormant failure) as it may be impossible to determine the full system functionality on board the aircraft, examples such as CVR microphone pickups and associated parts, may actually be unable to provide sufficient audio input quality to make the actual recordings robust, FDR input systems may have defective channel inputs such as broken wires, defective targets etc.

3.13.4 SIAs recommend that States of Register (SoR) should consider enhancing AMPs to encompass specific tests and checks to ensure not only the serviceability of the CVR unit itself (usually by a BITE function), but also to include the performance of the audio pickup equipment that feeds audio data to the unit for recording.

3.13.5 The IOMAR therefore has accepted this recommendation (as have other SoR) to include a national maintenance requirement for all operators, to carry out a system analysis of the actual CVR

Audio quality of data being recorded, and for FDR to ensure a full channel serviceability test is carried out on a repetitive 12 Calendar months from the date of last testing.

3.13.6 The operator will need to arrange for a recording(s) from the CVR and FDR to be evaluated for acceptable performance at the time frames identified in section 3.4 for inclusion in the SIFCA under IOMAR Requirements.

(Note: It is possible that a removal of the CVR or FDR unit for Bench Check will be required to assess the system, please note the aircraft should not operate without discussing the options with the IOMAR.)

3.14 CVR

Where no approved data exists (AMM etc.) for accomplishing the maintenance task, the following information is therefore provided as guidance for the IOMAR specific AMP requirement of section 3.4, where appropriate.

To assess the serviceability of the CVR system the following checks and functional tests are provided:

For each audio channel ensure that the quality of recording has not deteriorated below an optimal audible level.

3.14.1 Confirm the proper recording on each voice channel of all the required audio inputs, details (3.14.1.1) to (3.14.1.8).

3.14.1.1 voice communications transmitted from or received by the aircraft communications equipment.

3.14.1.2 conversation on the flight deck.

3.14.1.3 voice communications on the flight deck, using the aircraft's interphone system.

3.14.1.4 voice or audio signals identifying navigation aids introduced into the aircraft audio system.

3.14.1.5 audio signals from alerting or warning devices on the flight deck, both fully integrated with the aircraft audio system and non-integrated

3.14.1.6 general flight deck sounds, monitor the cockpit area microphone (CAM) to ensure that it satisfactorily picks up all cockpit sounds

3.14.1.7 voice communications using the passenger address system.

3.14.1.8 ensure that the 'Hot Mic' or 'live boom microphone' facility is operational for each boom microphone station that the aircraft is equipped with.

3.15 FDR

The FDR readout from a representative flight must be evaluated annually to ensure that the FDR system is functioning correctly. This will require access to the Data Frame Layout Document (DFL) for the FDR system and Conversion Data (to enable translation of FDR data to engineering units).

The DFL and Conversion Data should be supplied to the appropriate readout facility to enable them to confirm the correct operation of the system.

End Chapter 3

Chapter 4: Airworthiness Directives

4.1 Introduction

For the purposes of the Air Navigation (Isle of Man) Order, the statement:

'made mandatory by the Department' includes Airworthiness Directives (ADs), for the Aircraft,

Engine, Propeller or Component.

An Airworthiness Directive (AD) is a document issued by the State of Type Certification that, the applicable TCDS for the aircraft, engine, propeller (or State of Manufacture, in the case of equipment) conforms to;

As identified above, the IOMAR mandates the issued AD, that includes actions to be performed on an aircraft, its engines or equipment to restore an acceptable level of safety, when evidence shows that the level of safety of the aircraft, its engines or equipment may be compromised;

An AD contains at least the following information;

- the date the AD comes into force;
- the compliance time for the required actions;
- the identification of aircraft, engine or equipment affected by the AD;
- the identification of the unsafe condition;
- a description of the required actions.
- The Department may vary the requirements of AD's published by the State of Type Certification,
- and issue its own IOMAR AD, defined as an Additional Airworthiness Directives (AAD). In this case
- the AAD will take precedence over the original AD;
- With the exception of AADs, the Isle of Man Aircraft Registry will not notify operators of Airworthiness Directives;
- Aircraft operators, usually tasked to the NATR, **MUST** subscribe for electronic notification of Airworthiness Directives & EADs, with the respective state of Certification standards applicable for the aircraft, its engines and propellers, and have access to the relevant AD's to assess when published, for applicability to their specific aircraft to be complied to as required.
- The operator or their nominated representatives are strongly advised to register with the respective State issuing the AD, for automated notification of AD publication;
- An aircraft shall not be flown unless each applicable Airworthiness Directive; compliance can be demonstrated by:
  - the specific AD compliance criteria,

or

  - Alternative Method of Compliance (AMOC).

  AMOC - Where identified that an issued AD, is applicable to the specific IOMAR aircraft, a possibility can exist of an alternative method of compliance, with the following considerations.

An alternate method of compliance is accepted by The Department if;
A service bulletin previously accomplished provides full AD compliance. The Operator must be able to demonstrate full compliance of the AD, by comparison to the SB where necessary. (On occasion an SB certification does not enable a full compliance for an AD, for example the SB may not identify an AFM or MEL change but the mandated AD would make such an additional change, in this case the SB only provides partial compliance.)

The NAA that issued the AD and subsequently accepts a proposed alternative method, either generically or specifically, for the aircraft serial number, and provides documentation accordingly identifying acceptance of the alternative.

4.2 Which ADs?

Aircraft registered in The Isle of Man, are only accepted when conforming to one of the accepted State of Certification standards, FAA, EASA (member states) or TCCA.

The aircraft conformity TC is declared by the Operator at initial application, and MUST be to one of the specifications above, and the aircraft is expected to be compliant during the Certificate of Airworthiness initial survey.

The TC status, and associated TCDS requirements will be retained for the whole of the period that the aircraft remains registered with the Isle of Man Aircraft Registry.

The State of Certification (TCDS) from the 3 possible States identified above therefore identifies the applicable mandated Airworthiness Directives (ADs) to be followed.

Examples only –

4.2.1 Context as applicable to all aircraft:

a) Gulfstream Aerospace Corporation - GVI – Exporting State of Registry is a member state of EASA, the aircraft would therefore be expected to be compliant at that time to an EASA TCDS - EASA.IM.A.169, and would be surveyed by an appointed IOMAR Airworthiness Surveyor, sampling the Aircraft EASA published ADs.

b) Gulfstream Aerospace Corporation - GVI - Exporting State of Registry is FAA, the aircraft would therefore be expected to be compliant at that time to an FAA TCDS - T00015AT, and would be surveyed by an appointed IOMAR Airworthiness Surveyor, sampling the aircraft FAA published ADs.

c) Gulfstream Aerospace Corporation - GVI - Exporting State of Registry is TCCA, the aircraft would therefore be expected to be compliant at that time to an TCCA TCDS – A-226, and would be surveyed by an appointed IOMAR Airworthiness Surveyor, sampling the Aircraft TCCA published ADs.

d) Gulfstream Aerospace Corporation - GVI - Exporting State of Registry is not directly from one of the G03 above. This will require additional work to confirm the NAA standard (most usually the original SoD) the aircraft would therefore be expected to be compliant at that time to the relevant TCDS and associated NAA issued ADs. Further clarity can be reached with Registry Services Section at the initial contact period.

4.2.2 Context as applicable for Engines/Propellers

a) The Type Certificate standard of the Engine and Propeller (if applicable) of aircraft joining the IOMAR will be determined from the Aircraft's TCDS. Where the TCDS number of the Engine/Propeller is not stated on the Aircraft TCDS, the default will be the State of Design of the Engine/Propeller, if multiple TCDS numbers are stated, the engine specific log book documents must be reviewed to ascertain the TCDS information.

b) Gulfstream Aerospace Corporation - GVI – the aircraft TCDS - FAA TCDS - T00015AT, clearly states Engines – BR700-725A1-12 (Engine Type Certificate No E.00057EN), therefore AD compliance would be for those issued by FAA and would be surveyed by an appointed IOMAR Airworthiness Surveyor, sampling the Aircraft FAA published ADs.

c) Gulfstream Aerospace Corporation - GVI – the aircraft TCDS – TCCA-TCDS – A-226, clearly states the specific TCDS to be against the FAA aircraft TCDS , so Engines – BR700-725A1-12 (Engine Type Certificate No E.00057EN), therefore AD compliance would be for those issued by FAA and would be surveyed by an appointed IOMAR Airworthiness Surveyor, sampling the Aircraft FAA published ADs.

It can be seen from the above that the NATR must make a review of the Aircraft TCDS and have access to a list of the equipment fitted to the aircraft to enable them to determine which ADs are applicable. If an ECoA (or valid EASA ARC) is being received from one of the Go3 States this is an acceptable demonstration that all requirements would be to that TC standard (e.g Modifications). However, if an ECoA is being received from a Non Go3, it may be required to have the TC State of issue confirm it would be acceptable to meet that Specific Register.

4.3 Records

Aircraft, engine and propeller log books required by Article 29 should be updated to record Airworthiness Directive compliance, including the means of compliance where options exist. Entries relating to any phased termination permitted by Directives should be clearly recorded to ensure adequate control. Entries should additionally be made for generally applicable Directives non-applicable to particular aircraft, engine, propellers, equipment, including the reason for non-applicability.

4.4 Compliance period - Calendar Dates

There can be some confusion as to the terminology used within AD's, and recommendations of the AMP, this entry is provided to ensure a correct understanding, of the requirements under the IOMAR when specific wording is used on the above mentioned data.

(e.g., "within six months after the effective date of this AD", or Frequency of 12 Months)

- Calendar times may be used to express compliance times when a direct relationship between calendar time and airworthiness (including corrosion) can be established; a product's utilisation rate varies greatly throughout the fleet; or logistical support considerations (parts availability, repair facility availability) dictate that compliance be accomplished on an attrition basis with a calendar deadline established to minimise impact on operators (that is, avoid unnecessary grounding of products).
- Where compliance times are specified as a period of time after the effective date, the time is measured from the effective date. For example, if the compliance time is "*within 12 months after the effective date*" and the effective date is 15 January 2008, the deadline for compliance is 15 January 2009. Where compliance times are specified as a number of calendar months after the effective date, the time is measured from the end of the month during which the AD becomes effective. For example, if the compliance time is "*within 12 calendar months after the effective date*" and the effective date is 15 January 2008, the deadline for compliance is 31

January 2009. However, usage of expression of "calendar months" is rare and is usually now avoided and used only in a substantiated cases, or historical issued ADs

4.5 Isle of Man Issued Additional Airworthiness Directives

None issued at this time

4.6 Certification by Authorised person (Pilot)

A recent survey identified that an NATR had applied for a Pilot Authorisation, to enable a Pilot to carry out a maintenance task in compliance for an AD.

In this case, the Authorisation was issued for a specific AD, but this does remain valid for any subsequent revision of the same AD, so long as the actual part of the task does not change in content under that revision.

This is identified within the text of the Authorisation certificate in the *example* below.

Note:

ii) This authorisation will apply to any future revisions of EASA AD 2018-#### where there is no change to the inspection criteria.

This reference does not make any allowance if the AD is actually superseded and a new AD is issued under a different number.

Therefore should the Authorised pilot wish to be able to continue to issue a CRS for the new AD, the NATR must make a new application using a form 64b.

End Chapter 4

Chapter 5: Engineer Validation

The IOMAR-ANO identifies who may issue a certificate of release to service, this includes the holder of an AMEL rendered valid under the ANO.

AMEL Validations are issued without any restriction to a particular aircraft type/class or registration. The holder of the validation must:

- not exceed the privileges of the host licence;
- observe all limitations, conditions or restrictions specified on the licence; and
- comply with all licence conditions and requirements specified by the State of licence issuance.

If you hold a current AMEL Validation that was issued by the IOMAR with restriction to a particular aircraft type/class, you may apply to convert this to an unrestricted validation by applying to make a variation to your certificate. Such applications will be processed by the IOMAR subject to other task loading.

End Chapter 5

Chapter 6: Maintenance Check Flight (MCF) Or Permit To Fly (PtF)

6.1 Introduction

It is not possible for an EASA/National Aviation Authority or any other organisation to issue a permit to fly or equivalent, on an Isle of Man registered aircraft. If there is an open maintenance entry which invalidates the CoA, and a check/positioning flight is required to complete a maintenance task/modification or as a result of damage, then an IOMAR issued Maintenance Check Flight Certificate will be required to be completed by the Operator (NATR), or a Permit to Fly will be required to be issued by the IOMAR AWSc.

> **Note: A MCF & PtF is a National Standard Document and any flight under a MCF or PtF must only be operated with the acceptance of the NAA for the airspace that the flight(s) will occur.**

6.2 General information

Article 17 (Validity of Certificates of Airworthiness) of the ANO describes that a Certificate of Airworthiness issued in respect of an aircraft registered in the Isle of Man shall cease to be in force if;

6.2.1 the aircraft or a part of it or such of its equipment as is necessary for its airworthiness has been overhauled, repaired, replaced, modified or maintained;

6.2.2 maintenance or an inspection of the aircraft or of equipment necessary for its airworthiness is required by a maintenance program approved by the Department for the aircraft under article 22;

6.2.3 maintenance of the aircraft or of equipment necessary for its airworthiness has been made mandatory by a directive issued by the Department;

6.2.4 an inspection for the purpose of ascertaining whether the aircraft remains airworthy has been made mandatory by a directive issued by the Department; or

6.2.5 any modification of the aircraft or of any equipment is necessary for its airworthiness has been made mandatory by a directive issued by the Department for the purpose of ensuring that the aircraft remains airworthy.

6.3 Operators responsibilities

It is therefore evident that an alternative whilst a CoA is not in force is required, these are identified as either a Maintenance Check Flight (MCF) or Permit to Fly (PtF) and it is the responsibility of the operator (NATR) of an aircraft registered in the Isle of Man, to determine, using the definitions below, the need to complete a MCF document or submit an application for the issue of a PtF.

Definition guidance:

Maintenance Check Flight –

A flight required when the Approved Maintenance Program or Aircraft Maintenance Manual identifies a specific task or associated task, where adequate functioning of an aircraft system cannot be fully tested on the ground.

Examples:

Aircraft Maintenance Manual

Rotorcraft – Track Rod Change, flight Requirement for track and vibration check for allowable levels.

Fixed Wing – Leading Edge fitment, flight requirement stated as part of task to confirm it is within operational parameters.

Approved Maintenance Program

AMP scheduled Task – RAT / ADG deployment,

Permit to Fly – Normally a flight required when rectification cannot be achieved at the aircraft current location and it requires to be flown to a place of maintenance; or when an unapproved mod requires a flight to form part of the modification approval process.

Examples:

Damage to the aircraft experienced on the ground, (will normally require an NTO support from the DAH)

Unapproved STC requires flight action to collect data towards overall submission for STC approval.

In both documents,

- the same actions of notifying the NAA that the flight(s) whilst unairworthy will take place
- Any limitations are advised within the MCF document or the PtF Certificate

  Note: The Aircraft Registry can apply additional limitations to a PtF certificate and these will be discussed with the NATR when applicable.

6.4 PtF Procedure

Prior to submitting any application for a PtF, the NATR of the aircraft is advised to contact the IOMAR Airworthiness Section to discuss the circumstances which have invalidated their CoA, and agree on a course of action.

Should it be determined that a PtF will be required the NATR should follow the guidance provided by the IOMAR and submit the application Form 42-*Application for a Permit to Fly* to the Isle of Man Aircraft Registry, accompanied by any supporting data requested at the time of the initial contact.

Following the receipt and a review of the Form 42, resulting in an acceptable application, the Aircraft Registry will issue a PtF. It is the Operators responsibility to ensure permission has been obtained from the NAA where the flight is to take place prior to any dispatch.

A PtF will be issued for a maximum time frame of 14 days, and this should be considered when making the application.

The Aircraft Registry reserves the right to survey the aircraft prior to the issue of a PtF.

6.5 MCF Procedure

The Form 36 Maintenance Check Flight Document is a self-administered document which identifies that the aircraft is in an unairworthy condition for reasons that a CRS cannot be issued for completion of a maintenance programme task. The document must be fully completed by the NATR (or person acting with authority of the Operator) prior to any flight for the specific task of identifying serviceability towards a CRS being issued.

The completed MCF document MUST be held with the "open entry" (TLP, Task Card or Defect card). The NATR must provide this completed document to the person, or AMO that will be carrying out the CRS after completion of the flight.

End Chapter 6

Chapter 7: Light Aircraft Owner Maintenance

The Air Navigation (Isle of Man) Order states that:

"A certificate of release to service is not required to be in force for a private aircraft to which article 24 applies that has a maximum total mass authorised of not more than 2730kg if it flies in the circumstances specified in paragraph (2)."

Paragraph 2:

(2) Those circumstances are:

(a) the only repairs or replacements for which a certificate of release to service is not in force are of such a description as may be prescribed;

(b) such repairs or replacements have been carried out personally by the holder of a pilot's licence granted or rendered valid under this Order who is the owner or operator of the aircraft;

(c) the person carrying out the repairs or replacements, keeps in the aircraft log book, for the aircraft under article 29, a record that identifies the repairs or replacements and signs and dates the entries;

and,

(d) any equipment or parts used in carrying out the repairs or replacements are of a type approved by the Department, either generally or in relation to a class of aircraft or the particular aircraft.

7.1 ANO (Interpretation) describes "replacement"

"Replacement" in respect of a part of an aircraft or its equipment:

(a) Includes the removal and replacement of the part whether or not by the same part, and whether or not any work is done on it; but

(b) does not include the removal and replacement of a part that is designed to be removable solely for the purpose of enabling another part to be inspected, repaired, removed or replaced or cargo to be loaded;

7.2 The IOMAR expects that anybody carrying out such pilot maintenance does so only if they are confident that they have the necessary knowledge, skill, tools and facilities to complete the task to a satisfactory standard.

Safety and airworthiness is the prime concern and abuse of these privileges may lead to their limitation.

If you encounter any technical difficulty or you have trouble in understanding the requirements of pilot maintenance then please seek advice from the IOMAR, or an individual validated Engineer. Ref to Paragraph 2 (a)

7.3 In respect of Article 25 (2) (a) the only repairs or replacements permitted by the owner operator of a private aircraft are as follows;

- Replacement of defective safety wiring or split pins excluding those in engine, transmission, flight control and rotor systems;
- Making simple fabric patches not requiring rib stitching or the removal of structural parts or control surfaces;
- Repairing decorative upholstery and decorative furnishings of the cabin or cockpit;
- Making small simple repairs to fairings, non-structural cover plates, cowlings and small patches and reinforcements not changing the contour so as to interfere with proper air flow;
- Replacing side windows where that work does not interfere with the structure or any operating system such as controls, electrical equipment etc.;
- Replacement of safety belts or safety harness;
- Replacing seats or seat parts with replacement parts approved for the aircraft, not involving disassembly of any primary structure or operating system;
- Replacing bulbs, reflectors, and lenses of position and landing lights;
- Replacing wheels and skis where no weight and balance computation is involved;
- Replacing any cowling not requiring removal of the propeller or disconnection of flight controls;
- Replacing or cleaning spark plugs and setting of spark plug clearance;
- Replacing any hose connection except hydraulic connections;
- Replacing prefabricated fuel lines;
- Replacing self-contained, front instrument panel-mounted navigation and communication devices that employ tray-mounted connectors that connect the unit when the unit is installed into the instrument panel, (excluding automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)). The approved unit must be designed to be readily and repeatedly removed and replaced, not require specialist test equipment and pertinent instructions must be provided. Prior to the unit's intended use, an operational check must be performed;
- Replacement of wings and tail surfaces and controls, the attachment of which are designed for assembly immediately before each flight and dismantled after each flight;
- Replacement of main rotor blades that are designed for removal where specialist tools are not required;
- Replacement of batteries (Including maintenance of lead acid batteries);
- Lubrication of aircraft;
- Changing of engine oil (To include Removal, replacement, cleaning of oil filter).

End Chapter 7

Chapter 8: Painting Of Aircraft

8.1 Introduction

The task of painting aircraft can include associated tasks, not just the application of paint itself.

These can, for example, include

- Control surface balance
- Structural inspections (including NDT)
- Panel removal / Refit
- Functions / Operational checks
- Mandatory placards re-application.

Therefore it is evident that a measure of appropriate management has to be exercised by the Operator when considering painting of aircraft, as existing paint removal and application of new paint may not be part of DAH instructions.

8.2 Information

Manufacturer's Instructions MUST be followed, when available or where no such issued instructions exist, an assessment by the Operator (NATR) must be made for impact on airworthiness.

Where specific instructions are provided in approved documentation, for changes to an aircraft surface finish these would be considered maintenance tasks and therefore the task will require a CRS to be made stating the "in accordance with" (IAW) reference.

The Operator (NATR) must always be satisfied of the standard of work being carried out, and therefore should ensure that the actual allocated task of painting is under the direct supervision of an appropriate IOMAR Validated Engineer, IOMAR Authorised person, or AMO, and provide them with the specific work requirement to issue a CRS when the task is complete.

8.3 Potential damage/errors (Examples only, not exhaustive)

- Preparation for painting:
  Masking and Recording – Pitot/Static, bearings, transparencies.

- Removal of Paint:
  Incorrect tools, chemicals, over aggressive/abrasive practices, Degraded Integrity:
  Scratched/ Scored Metal, reduced fastener material (Rivet heads), Transparency (Crazing, hardening, scratching), Water ingress due pressure washing.

- Post Paint:
  Insufficient blank / masking removal, missing placards, control surface balancing, weigh consideration.

End Chapter 8

Chapter 9: Operating An 'M' Registered Aircraft With A Defect Or Incomplete Maintenance

9.1 Introduction (previously IN 012)

We have recently received several occurrence reports where Operators have failed to review or manage incomplete maintenance tasks or defects at the end of a maintenance input; the aircraft being released to service without the defect being deferred in accordance with approved data.

We have also noticed an increase with Operators operating Isle of Man Registered aircraft with a known defect outside of the Type Certificate (TC) Holder's source data, based only on a No Technical Objection (NTO) issued by the DAH, and not holding an Isle of Man Aircraft Registry Issued certificate.

In both examples the above actions cancelled the validity of the Certificate of Airworthiness (CoA) and as a result the aircraft was operated in an unairworthy condition; and may have invalidated the aircraft insurance.

9.2 Minimum equipment requirements

The latest issue of Air Navigation (Isle of Man) Order defines the legislation applicable to minimum equipment requirements on Isle of Man registered aircraft.

"An aircraft must not commence a private flight if any of the equipment that must by or under this Order be carried in the circumstances of the intended flight is not carried or is not in a fit condition for use unless the aircraft does so under and in accordance with the terms of a permission granted under paragraph (2) to the operator".

9.3 Instruction for operating the aircraft with a known defect

The Air Navigation (Isle of Man) Order, allows defects to be deferred in accordance with an Isle of Man approved Minimum Equipment List (MEL). If a defect is outside of the DAH published source data, including the MEL, then a permission certificate will be required from the Isle of Man Aircraft Registry (IOMAR). An NTO issued by the DAH alone does NOT constitute permission to operate the aircraft and is only a supporting document to the issue of a permission certificate by the office of the IOMAR.

9.4 Instruction for incomplete maintenance task following maintenance input

The Operator (NATR) must ensure they are notified of any maintenance tasks which may not be accomplished or defects that have not been rectified; who will ensure the necessary permission or deferment is in place prior to the aircraft being operated. It is not acceptable for the oversight to be discovered once the maintenance organisation provides the completed work pack at a later date. NATR's would be advised to make this clear to the AMO.

Upon the issue of an IOMAR permission certificate or deferment the C of A will be restored and the aircraft can continue to operate in accordance with the conditions of the relevant permission or MEL.

End Chapter 9

Chapter 10: Robbery: (Parts Removed As Serviceable From M-Aircraft)

A clear robbery process should be raised by the aircraft operator or one they are satisfied to accept if prepared by another party (AMO etc.) but it will not require approval by the IOMAR, to include as a minimum requirement of the following.

The donor and recipient aircraft must be M- registered.

Serviceable aircraft components/parts removed from an aircraft, irrespective of whether the aircraft holds a valid CoA or not, with the following criteria:

There are 2 aspects of consideration.

- Physical – removal and fitment.
- Records – documentation requirements and transfer.

(1)

(a) The part must only be removed by an acceptable holder of an Engineers licence validated by the IOMAR, or Authorised person (IOMAR or AMO) using approved maintenance data.

(b) Normal engineer practice of inspection must be carried out, to include satisfactory condition, no damage, corrosion or where relevant, leaks, and specific manufacturer instructions.

(c) Standard maintenance practices should be exercised before fitment of the component to the recipient aircraft following the relevant source data.

(2)

(a) The component/part can only be considered eligible if the component/part was serviceable at the time of last flight.

(b) A maintenance history record to include AMP; flight hours/cycles/landings (for serial number components/life limited parts); AD compliance and continuing airworthiness requirements.

(c) A modification status review should be undertaken of the recipient aircraft and component/part to ensure eligibility for fitment.

(d) The entry in the receiving aircraft records should identify the donor aircraft registration and aircraft serial number for complete traceability. Copies of all relevant maintenance documentation including the original ARC (Form 1, 8130-3 etc.) should be transferred to the recipient aircraft records.

Note:

Robbery is only acceptable in the exercise to restore serviceability of another aircraft, it is not acceptable to extend this to enable storage and part availability.

This would satisfy the ANO requirement when fitting a part or component, of the following,

Contents of a certificate of release to service

Article 26.—(1) If an aircraft or a part of the aircraft or its equipment has been overhauled, repaired, replaced, modified or maintained, a certificate of release to service issued under this Order must—

(c) certify that the specified work has been completed with material of a type approved by the Department, either generally or in relation to a class of aircraft or the particular aircraft;

In précis,
as the donor aircraft already is compliant, the parts being removed "serviceable" with the required ICA history would be a direct demonstration of airworthiness requirements, thus enabling installation of the component to another aircraft that the operator has registered with the IOMAR.

End Chapter 10