



**CIVIL AVIATION DEPARTMENT**  
**Republic of Maldives**

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**AIR SAFETY CIRCULAR**

**ASC 21-1**

Check Flights for Continuing Airworthiness Management  
Amendment 2, 18 March 2009

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**1. REGULATORY COMPLIANCE**

Compliance with this Circular is not mandatory as this circular is produced as guidance.

**2. RELATED REGULATIONS**

This Circular relates specifically to MCAR-21 subpart H and MCAR-M.

**3. PURPOSE**

The purpose of this Air Safety Circular (ASC) is to advise owners, operators and organisations involved in the management of airworthiness of Maldivian registered aircraft of the implementation of current CAD policy for flight-testing. This ASC provides amplification, details references, and gives guidance on the safe conduct of an aircraft evaluation flight, on the occasions when one is required by MCAR-21 subpart H or MCAR-M, or when owners or operators elect to perform one as part of their continuing airworthiness programmes.

**4. GENERAL**

**4.1 Background**

4.1.1 Flight testing of aircraft is a required means of establishing compliance with certification requirements for new aircraft and changes to aircraft. Other flight testing, referred to as check flights or in-flight surveys, can be carried out periodically on in-service aircraft as one of the processes to ensure that an aircraft continues to comply with the applicable airworthiness requirements. Additionally, maintenance check flights may be carried out following a maintenance activity on an aircraft to provide reassurance of performance or establish the correct functioning of a system that cannot be fully established during ground testing.

4.1.2 Although MAR B02 & C12 make reference to the term flight testing or test flight, MCAR-M refers to “check flights” and “in-flight surveys”. However, the term “flight testing” will be used when discussing pre-certification actions; “check flight” will refer to required or elective verification activities that take place post type certification, such as for the issue of a C of A or post maintenance; “in-flight surveys” are another form of check flight.

## **4.2 Changes Resulting from the new (MCAR-21 and MCAR-M) Regulations**

4.2.1 MAR B02 (dated 11 March 1997) paragraph 5.5(3) and MAR C12 (dated 18 April 1993) paragraph 4.1(b) requires a flight test report for every C of A renewal. Furthermore, MAR C12 appendix II gives the flight test format and MAR D06 (dated 9 January 2003) appendix I gives the format of certificate of fitness for flight which is required before an airworthiness flight test is carried out. However, these regulations will be repealed in 1 January 2009 and therefore, this ASC anticipates the measures that need to be in place by that date and identifies when a flight test or check flight is necessary, according to the respective parts of the MCAR-21 and MCAR-M.

4.2.2 MCAR-21 and MCAR-M, will introduce a non-expiring certificate of airworthiness, which is underpinned by a prescriptive continuing airworthiness management system. Owners or operators of aircraft are responsible for ensuring the continuing airworthiness of their aircraft; MCAR-M M.201 refers. These responsibilities require owners or operators, or their contracted organisations under MCAR-M Subpart G, to analyse the airworthiness status of the aircraft, including reported flight defects and performance issues.

4.2.3 Owners or operators, who establish a need to carry out periodic check flights as part of their own airworthiness assurance process, or are required for commercial reasons to do so, should ensure that their check flight schedules and procedures are developed in accordance with current best practices. They may achieve this by consulting with the aircraft manufacturer or with UK CAA Aircraft Certification Department for advice on content and safety procedures. However, aircraft are no longer subject to the systematic programme of continuing airworthiness flight test (CAFT), previously carried out at the time of C of A renewal.

NOTE: Please see the section "Use of Schedules" on the Flight Testing page of the Safety Regulation page of the UK CAA website at [www.caa.co.uk](http://www.caa.co.uk) > Safety Regulation > Operations & Airworthiness > Continuing Airworthiness & Maintenance > Flight Testing.

4.2.4 The new regulations encourage CAD to develop a survey programme to monitor the airworthiness status of the fleet of aircraft on its register. This survey programme can include, as one element, in-flight surveys.

## **5 Check Flights for Continuing Airworthiness Management**

### **5.1 Background**

5.1.1 The ICAO Airworthiness Manual, Volume 1, advises that the purpose of airworthiness check flights is to ensure that the aircraft's flight characteristics and its functioning in flight do not differ significantly from the normal characteristics for the type and to check the flight performance against the appropriate sections of the flight manual. It also states that these flights should be conducted in accordance with schedules that are approved by the State's competent authority.

5.1.2 The principles and safety considerations that follow are applicable for both required and elective check flights for continuing airworthiness management. These check flights do not include maintenance check flights for specific items.

### **5.2 Check Flight Schedules**

5.2.1 Check flights flown in accordance with appropriate schedules will establish that:

a) the handling characteristics are satisfactory and typical of the type;

b) the climb performance equals or exceeds the scheduled data;

**NOTE:** Data is necessary in order to assess any future deterioration of performance in service.

c) the aircraft and its equipment function satisfactorily and the aircraft continues to comply with its type design standard.

5.2.2 To be appropriate, the schedules require the pilot to carry out:

a) Handling tests, including the effectiveness of primary controls and trimmers, with specific direction (see Note) to evaluate the characteristics during the following phases of flight:

- i) Take-off;
- ii) Climb;
- iii) Cruise;
- iv) Flight at maximum speed;
- v) Flight at minimum speed;
- vi) Descent;
- vii) Landing; and
- viii) Hover manoeuvres for helicopters.

**NOTE:** If not directed to evaluate characteristics, many pilots would compensate and adapt to deficient characteristics.

b) Performance tests:

- i) Simple, free air pressure rate-of-climb measurements under known and predicted configurations and conditions; and
- ii) Measurement of low speed warnings and, if applicable, stall speeds.

c) Tests to check functioning of the aircraft equipment in flight and safe, recoverable functioning of back-up systems, e.g. emergency gear lowering, use of alternate braking systems. Note that controls, systems and equipment which are used regularly may be considered, for the purpose of the schedule, to have been checked on the basis of normal usage.

5.2.3 As per UK CAA Airworthiness Notice 48, Check Flight Schedules which meet the above criteria will be created and maintained by UK CAA (in conjunction with the aircraft manufacturer) where required for check flights. UK CAA Check Flight Schedules are acceptable to the CAD. Should an operator wish to develop an alternative schedule for required check flights, this may be done provided that it incorporates all elements of the UK CAA schedule and, in particular, the Check Flight Certificate.

Examples may be found in the UK CAA guidance material for the conduct of check flights, namely the UK CAA Check Flight Handbook. Any alternative schedule, when used for required check flights, should have been reviewed and accepted by the CAD; in seeking any such agreement, the operator should include details of arrangements for periodic review of his schedules.

5.2.4 Schedules are available for most aircraft types (and variants thereof) above 5700 kg from UK CAA. However, for certain categories of aeroplanes below 5700 kg, the CAA has produced generic schedules, which can be used for a range of aeroplane types. These can be obtained from UK CAA Aircraft Certification Department or from the Flight Testing page of the UK CAA website.

### 5.3 Check Flight Results

After each check flight, the pilot who conducted the flight should complete the post flight certificate, which lists all the defects found during the flight, as detailed in the Check Flight Handbook. This, together with the completed Schedule, comprises the Check Flight Report.

### 5.4 Pilots Conducting Check Flights

5.4.1 To ensure that appropriate levels of safety are maintained, check flights should be conducted by pilots who have satisfactory experience with the appropriate check flight schedule, and have received adequate familiarisation of check flight techniques and safety precautions. For both required and elective check flights, it is necessary that the pilot concerned fully understands the significance and intent of the tests, as well as the techniques used to minimise the risk associated with some tests. For required check flights, CAD must be consulted in advance regarding the eligibility of pilots intending to conduct such flights.

5.4.2 Pilot acceptance criteria and procedures for conducting check flights should be included in the continuing airworthiness management exposition in accordance with MCAR-M.704 where applicable. Though it is not feasible to lay down absolute experience and ability requirements for pilots, guidelines are provided in the UK CAA Check Flight Handbook.

## 6 Implementation

### 6.1 Certificate of Airworthiness issue – New aircraft

6.1.1 As part of a production assurance programme, the manufacturer is required to determine conformity for each individual aircraft prior to the issue of the statement of conformity (EASA Form 52/ FAA Form 8130-9)/Export C of A. No check flight is required by the CAD for C of A issue.

6.1.2 An exception to this is where the ‘new’ aircraft is disassembled for shipping to Maldives. On arrival in Maldives and following reassembly, a check flight will be required. When the aircraft has been modified, e.g. by fitment of a performance STC, since original manufacture, a check flight may be required.

6.2 Reserved

### 6.3 Certificate of Airworthiness issue – Used aircraft imported into Maldives

6.3.1 For a C of A to be issued to a used imported aircraft into Maldives, it is necessary to determine that the individual aircraft conforms to its type certification standard and is airworthy. In order to establish this, MCAR-21 requires a check flight to be conducted in accordance with MCAR-M prior to C of A issue. MCAR-M.904 and AMC M.904 refers.

#### 6.3.2 Application

On receipt of an application for the issue of a C of A, the applicant will be notified by letter of the need for a check flight and he will be asked to contact the CAD, to agree the particular check flight requirements for his aircraft. The C of A will not be issued until the check flight has been completed and the results satisfactorily dealt with (see paragraph 5.3).

**NOTE:** A number of owner or operators lease out aircraft at seasonal periods to reduce capacity. In these cases when the aircraft return to Maldivian register within 12 months and the owner or

operator has arrangements in place to monitor the continuing airworthiness arrangements with the lessee a check flight will not normally be required on return.

#### **6.4 Certificate of Airworthiness issue – Export C of A from Maldives**

MCAR-21 and MCAR-M do not make provisions for the issue of an Export C of A. CAD will continue to accept applications for the issue of an Export C of A for aircraft to be exported. For the present, for aircraft with a valid C of A, an airworthiness review will be carried out and no check flight will be required unless specified by the importing State. For aircraft without a valid C of A, the procedures specified in paragraph 6.5 below, apply in addition to the foregoing.

#### **6.5 Revalidating a Certificate of Airworthiness**

6.5.1 A Certificate of Airworthiness will become invalid if an aircraft has not been maintained in an airworthy condition. Aircraft that have been in storage, or out of service, for a prolonged period of time will have not been subject to the periodic continuing airworthiness requirements and will need their airworthiness status to be re-established prior to entry into service. Where necessary, return to service check flights should form part of the Airworthiness Review Certificate (ARC) recommendation procedures to provide an additional assurance of serviceability. Continuing airworthiness management organisations should include procedures for this in their exposition.

6.5.2 Prior to 1 January 2010, during the transition period to full implementation of MCAR-21 subpart H and I, if a C of A for an individual aircraft had expired for a period longer than one year, then the renewal of the C of A was considered as a subsequent issue with CAD involvement. As the aircraft had not been subject to continuing airworthiness controls and processes during this period, a check flight would be required to demonstrate conformity.

#### **6.6 Maintenance Check Flights**

6.6.1 MCAR-M.301 (8) identify maintenance check flights as part of the continuing airworthiness tasks necessary to ensure the serviceability of operational and emergency equipment. For some maintenance tasks, the manufacturer prescribes in the aircraft's Maintenance Manual the need for check flights to be carried out. For other tasks involving, for example, work carried out on a system or component the correct functioning of which is affected by flight dynamics, air loads, airflows, or low temperatures and pressures, the certifying engineer will need to determine if a maintenance check flight is required to verify its operation.

6.7 The suitability of pilots conducting maintenance check flights and appropriate safety precautions must be addressed.

### **7. CANCELLATION**

With effect from 18 March 2009, ASC 21-1, Amendment 1, dated 03 March 2009 will be cancelled and should be destroyed.

This Circular becomes effective on 18 March 2009.



**For the Civil Aviation Department**  
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