

Revision 3

### Adventure Aviation—Operator Certification

18 August 2016

#### General

Civil Aviation Authority (CAA) Advisory Circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

#### Purpose

This AC describes an acceptable means of compliance to meet the certification requirements under Civil Aviation Rule Part 115 *Adventure Aviation Certification and Operations*.

#### Related Rules

This AC relates specifically to Civil Aviation Rule Part 115. It also refers to requirements in the operating rules of Parts 12, 19, 43, 61, 91, 100, 105 and 141. It also refers to Part 1, which provides definitions and abbreviations used in the Civil Aviation Rules.

#### Change Notice

Revision 3 incorporates changes to Subparts B and C of this advisory circular - specific to SMS transition requirements; and makes editorial updates.

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## Introduction

Civil Aviation Rule Part 115 prescribes the requirements for the certification and operation of a person conducting an adventure aviation operation. Part 115 requires adventure aviation operators to be certificated in much the same way as air transport operators who use helicopters and small aeroplanes and are required to be certificated under Part 119/135. This advisory circular provides guidance for applicants requiring certification.

Appendix B to Appendix E of this advisory circular also provide for guidance material only.

*Note: Only rules requiring compliance guidance and informative/explanatory material are included in this advisory circular.*

### Related advisory circulars

These advisory circulars relating to Part 115.

AC115-2	Hot Air Balloon Operations
AC115-3	Parachute-Drop Aircraft Operations
AC115-4	Tandem Parachute Operations
AC115-5*	Glider Operations
AC115-6*	Hang Glider and Paraglider Operations
AC115-7	Special Aircraft Operations
AC115-8	Microlight Aircraft Operations
AC00-3	Internal Quality Assurance
AC100-1	Safety Management

\*At the time of publishing, this advisory circular is under development

### Definitions

Under Part 1 the term 'adventure aviation operation' is defined as follows:

**Adventure aviation operation** means the following operations for the carriage of passengers by air for hire or reward where the object of the operation is for passenger's recreational experience of participating in the flight, or engaging in the aerial operation—

- (1) an A to A flight in an aeroplane or helicopter issued with a standard category airworthiness certificate conducting formation flight, aerobatic manoeuvres, and similar non-standard flight manoeuvres, including steep climbs, steep descents, and steep turns
- (2) an A to A flight (including an interim water landing for amphibious aircraft) in an aircraft issued with an appropriate special category-primary, special category – LSA, or special category – limited airworthiness certificate including formation flight, aerobatic manoeuvres and other manoeuvres such as steep climbs, steep descents, and steep turns
- (3) an A to A flight in a Class 2 microlight aircraft
- (4) a flight in a hot air balloon

- (5) a flight in a glider
- (6) a parachute-drop aircraft operation that is not conducted under the authority of an air operator certificate issued by the Director under the Act and Part 119
- (7) a tandem parachute descent operation
- (8) a tandem hang glider or paraglider flight

### **Abbreviations**

The following abbreviations are not contained in Part 1 but for the purpose of this advisory circular—

**AAOC** means Adventure Aviation Operator Certificate.

**AAO** means Adventure Aviation Operation.

**DZSO** means Drop Zone Safety Officer

**CSO** means Chief Safety Officer

**OMS** means Organisational Management System

**SMS** means Safety Management System

## **Subpart A—General**

### **115.1 Purpose**

Adventure aviation operations (AAOs) are conducted under the authority of an adventure aviation certificate issued under Part 115.

### **115.3 Definitions**

This rule defines the terms ‘adventure aviation aerobatic operation’, ‘adventure aviation formation flight operation’, ‘ground crew member’, and ‘simulated military operation’. Refer to Part 1 for the definition of ‘adventure aviation operation’ and other terms used in Part 115 and are not defined in this rule.

### **115.5 Requirement for certificate**

A person must not perform an adventure aviation operation except under the authority of an AAOC issued by the Director.

### **115.7 Application for certificate**

When applying for an adventure aviation operator certificate (AAOC), an applicant will need to consider certain factors relating to training and competency of its personnel, and maintenance of aircraft used in its proposed operations. For instance:

- (a) the applicant may wish to conduct its training and competency checks in-house under the privileges of its AAOC; or
- (b) contract out the provisions of training and competency checks to a Part 141 organisation.

Depending on the size of the aircraft to be operated it is necessary to decide whether the aircraft will be maintained under the provisions of Part 43 or under Part 145.

The application form CAA24115/01 must be completed in full and must identify the full extent of the intended operation including any training and competency checks to be conducted under the certificate. This information will be used in determining the scope of the operation and the assessment and preparation of the operations specifications.

The application is to be supported by providing the appropriate senior persons applications (including Fit and Proper Persons forms), the Part 115 matrices as appropriate, and the exposition.

The certification process takes time to complete; therefore the CAA strongly recommends that operators submit an application is submitted at least 90 days before the intended operation. An operator who applies for an AAOC less than 90 days from the date of the intended operation may risk not having the application process completed in time.

A shorter period is an exception to the rule and should be treated as such by applicants. Operators should plan their certification programme in advance and early consultation with the CAA will ensure all issues are dealt with well before the planned start-up date.

Having said this, the time involved for certification is dependent on the quality and completeness of the application and exposition. Providing all the necessary information in the first instance will facilitate the certification process.

#### **115.9 Issue of certificate**

The Director may issue an AAOC if satisfied that the requirements referred to in the rules are met. Refer to the rule for details.

#### **115.11 Privileges of certificate holder**

An AAOC and accompanying operations specifications specify the types of AAOs that the certificate holder can perform. Refer to the rule for details.

#### **115.13 Operations specifications**

The operations specifications accompany the AAOC and provide the detail of the operations authorised by the certificate. The Director may amend the operations specifications at any time as the operator changes and develops their operation (refer to rule 115.109(e)). The operation specifications are automatically generated by the CAA database at the time of producing the certificate and are based on the data taken from the CAA 24115/01 application form. It is therefore important that the applicant ensures that the scope of the intended operation is clearly identified on this form.

The operations specifications will not list in detail the operations to be conducted, only the types of operation. The complexity of the information that must be addressed depends on the complexity of the planned operation.

More than one type of operation by the same operator may be authorised.

Where a holder of an AAOC has been granted specific exemptions against the rules, these will also be listed on the holder's operations specifications.

## **115.15 Maximum period**

### ***New applicant***

A certificate can be issued for up to five years. However, to ensure that the operator demonstrates compliance with their exposition and Part 115, the initial issue of a certificate will generally be for a shorter period – typically two years.

During this two year period, CAA will conduct surveillance activities. In the second year prior to the expiry of the certificate, CAA will carry out the renewal process commonly called “recertification” or “re-entry”. In terms of the rules, this process is known as ‘re-issue’ of the AOC (refer to rule 115.19). The operator must apply for the re-issue.

If the applicant already holds an organisation certificate under another Part (e.g. Part 119 or Part 145) then it is more likely that a certificate could be considered up to five years would be issued; provided that the certificate holder continues to comply with the certification requirements relating to that certificate. This reflects the fact that that the organisation has had an opportunity to demonstrate its capabilities in other areas of civil aviation, and that it is reasonable to conclude that it will behave similarly in exercising its privileges under the new certificate.

## **115.19 Re-issue of certificate**

Each aviation document has an expiry date. If the holder of an aviation document wishes to continue the activities of the certificate beyond the expiry date they must apply for a new certificate on CAA form 24115/01. The renewal application must be made sufficiently in advance of the expiry date to allow CAA to process the application. The CAA strongly recommends that an application is submitted at least 60 days before the certificate expires. The re-issuing of a certificate is comprehensive and treated like an initial certification.

## **Subpart B—Adventure Aviation Operator—Certification Requirements**

### **General**

This subpart covers the requirements for senior persons, the establishment of procedures, maintenance of records and the development of the exposition.

### **115.51 Personnel requirements**

The applicant’s nominated senior persons must be employed, contracted or otherwise engaged to fulfil the management functions associated with the size and scope of the operator’s business. CAA is aware that the functions required of senior nominated persons, in many cases, will not make it appropriate to employ a person on a full time basis but may require the expertise of a person on a more casual basis. This rule makes provision for engagement of personnel on an as needed basis. In the terms of this rule ‘employ’, ‘contract’ and ‘otherwise engage’ all have the meaning to commit by prior arrangement, to provide services and expertise for an agreed period.

**115.51(a)(1),(2) & (3)** The rule identifies what are considered the safety critical members of an organisation who will exercise an appropriate level of control, direction, and responsibility, to ensure the continued effectiveness of the operation. If appropriate, the applicant must have in their exposition (required by rule 115.79(a)(4)) an organisation chart showing the lines of responsibility extending from the CEO through to each location where operational staff are located. CAA recommends that an organisation chart be employed regardless of the organisation’s size.

An applicant may utilise any organisational structure as part of their overall business structure, provided the applicant can satisfy the Director as to the effectiveness of the reporting lines and control required to be exercised. If in doubt as to whether a particular organisation structure will be effective for purposes of the rule, it is strongly recommended that the applicant consult with the CAA at the earliest opportunity.

**Part 115 Appendix A** This appendix specifies the minimum experience and qualifications of persons nominated for senior positions. Within this appendix there are areas where the Director can make assessment of equivalent standards. Within the confines of this rule experience and currency requirements are relevant to an AAO operation.

### **115.51 Personnel requirements (absentee senior persons; combined positions)**

It is recommended that the applicant consider, at the time of application, how they will deal with transfer of the senior person functions to other suitable and qualified persons during periods of absence. Although the rule does not make provision for a situation where a senior person may be absent for a prolonged period of time or vacates the position, it is advisable to provide for this in advance. Consideration should also be given to a situation where a senior person has been incapacitated. This would in effect cause the position to be vacant for the period of incapacitation and would require a substitute person to meet the requirements of this Part. In the event that the responsibilities and functions are transferred to another person they would also be required to be 'fit and proper', and meet the applicable experience and qualifications set out in Part 115 Appendix A.

If the holder of an AAO does not appoint a person to act in the position of a senior person that has been left vacant, the certificate holder should notify the Director of such a situation. The operator will also need to provide details of the contingency arrangements to be implemented pending a permanent solution being achieved.

In accepting such contingency arrangements, the Director may impose limitations or conditions of a temporary nature for the period of the contingency as provided for in rule 115.109(d). The conditions or limitations imposed by the Director in all cases will be clearly stated to the operator in writing.

Separate people are recommended for each of the senior persons roles listed in the rule. However, the rule does allow the Director some discretion if the size and scope of the operator's organisation indicates that combining of some responsibilities is acceptable. If an applicant envisages that they may not need separate individuals in respect of each senior person role, the applicant should consult with the CAA during the initial meetings.

Where positions are combined the applicant will be required to provide evidence to demonstrate the person has sufficient time and resources to be reasonably expected to fulfil the responsibilities for the positions, considering the size and scope of the operator's business.

Some functions should not be combined as they conflict with responsibilities assigned to the intended positions. For example:

- The functions of chief executive and the person responsible for the organisational management system.
- The functions of the persons responsible for operations and occurrence investigation.

Where a change of senior person is proposed, rule 115.109(b) requires the prior notification of the change and acceptance by the Director.



**115.51(a)(1) Chief executive**

This person ensures that:

- (a) the aviation activities carried out by the organisation can be financed:
- (b) those activities are carried out in accordance with Part 115:
- (c) the organisation complies with the requirements of Part 115.

It is clear that this person needs to have the authority to ensure the activities of the operation can be financed. A suggested method of demonstrating this could be by presenting an annual business forecast, or have the authority to finance the operation clearly defined as part of the chief executive responsibilities, demonstrating compliance with Part 115.

The chief executive must also be assured that the operation is conducted in compliance with the exposition. Ensuring compliance with the exposition is the responsibility of the senior persons under rule 115.51(a)(2)(i) and the assurance that the chief executive requires could be shown through the organisational management system, such as by internal audits, audit reports or an inspection programme.

The chief executive will need to demonstrate during initial application and at any other time, that they have the knowledge to control the organisation.

**115.53 Personnel competency requirements**

The rule requires the applicant to establish procedures in their exposition for initial assessment and the maintenance of the competence of personnel authorised by the applicant for carrying out certain activities relating to the AAOs.

With regard to personnel who are required to “plan”, this means the high level planning of the operation and would encompass (but not be limited to) the scheduling, crewing, staffing levels and equipment requirements etc. Example—

- senior persons (CEO, operations, training, safety management etc.)

With regard to personnel who are required to “perform”, this means any person that is required to accomplish or complete any function relating to an adventure aviation operation listed in the applicant’s exposition. This could encompass management of the training programme, competency checking, organisational management system or flight following. It will also cover the flight crew competency that is specified in the operational rules. Example—

- packers
- manifesters
- catchers
- free fall camera person
- pilots
- tandem masters
- examiners.

With regard to personnel who are required to “supervise”, this means any person who is required to oversee or be in charge of any part of the AAO and includes those persons nominated as senior persons. Example—

- DZSO
- CSO
- training manager

With regard to personnel who are required to “inspect”, this means any person who is required to examine or investigate any part of the AAO and includes those persons nominated as senior persons. Example—

- senior persons (CEO, organisational management system manager etc.)
- occurrence investigator
- parachute technician/rigger

With regard to personnel who are required to “certify”, this means any person who is required to make a formal statement or attest to any function or part of the AAO including maintenance and could include those persons nominated as senior persons. Example—

- parachute technician/rigger
- tandem master
- pilot
- training manager

The applicant’s procedures can be tailored around the size of their operation. Procedures should indicate how every person with a role under 115.51 maintains their ability to safely perform the operations and may be along the lines of an annual competency check. This is not restricted to just the pilot competency requirements.

After they have been assessed as competent, operators should give the staff written authorisation to perform their duties, such as a simple authorisation certificate.

This rule provides two options and the applicant will need to make a choice as to the direction that is to be taken:

**115.53(a)** This option requires the applicant to establish procedures for the planning, performance, supervision, inspection and certification of AAOs listed in the applicant’s exposition. The procedures should also include the initial assessment and maintenance of competence of personnel for the functions specified in the paragraph. In this case the applicant will produce the programme in its entirety, and engage, contract or otherwise employ an appropriately qualified examiner to carry out the training and competency checks within the programme.

**115.53(b)** This option enables an applicant to contract with an organisation that is certificated and appropriately authorised under Part 141 or Part 149 to perform the functions of checking to assess, or training to maintain, the competency of the applicant’s personnel.

Parts 141 or 149 organisation authorisations relate to the assessment and training of flight crew and may include maintenance personnel. The assessment and continuing competency of senior

persons in their respective management responsibilities, as specified in the job descriptions, must be carried out under the Part 115 certification.

Where an organisation is not qualified to carry out the function relating to management responsibilities, then suitability qualified persons will need to be engaged for this function. This could, for example, be a consultant that is expert in this field, through peer review and assessment of past performance, briefing sessions, seminars, symposiums, or simply training courses.

**115.53(c)** This rule requires an applicant to include details of the functions being transferred to a Part 141 or Part 149 organisation in the exposition and the scope of the checking and training and the authority of that organisation in respect of those functions.

The assessment and training functions are the responsibility of the applicant. The rule enables the AAO to transfer any or all the functions to a Part 141 or Part 149 organisation.

The rule asks for details to be included in the exposition, and therefore this part of the exposition should be very clear and concise as to the functions and the scope to avoid any confusion over what the functions are and who is to carry out each function.

The applicant must then authorise the Part 141 or Part 149 organisations to carry out the tasks and submit any reports that may be specified.

*Note: The detail and authorisation required by this rule could be included in the form of a contract between the operator and contractor. See Appendix B of this advisory circular for details on contracting in general.*

### **115.55 Resource requirements**

This rule requires the AAO to provide appropriate resources in support of the proposed operation. These should include items such as office space, workshops, hangar, equipment, tooling, training aids, data and documentation.

CAA will assess whether the resources provided are appropriate for the proposed operations during the site inspection.

This consideration is not an exact science. Applicants should carefully consider the suggestions of the CAA representatives who will have examined many different operators and therefore have a good knowledge of what is required. Not every AAO will require facilities for offices, workshop, hangar, or building, but if any of these facilities are needed for the conduct of AAOs, then the applicant must provide it. Some low utilisation equipment may not be required to be held on a permanent basis provided there are arrangements for resources to be made available as and when they may be needed.

### **115.57 Proving flights or tests**

This rule permits the Director to require the applicant to conduct proving flights or tests to show the applicant can meet prescribed requirements by demonstration of the applicant's particular operation.

An existing operator who makes a significant change to the type of aircraft or kind of operation may be required to demonstrate that the relevant requirements prescribed in Part 115 can still be met.

CAA will observe a proving flight and may require the applicant to demonstrate any or all the aspects of a typical flight that is within the proposed scope of the AAO. The demonstration may start at the initial enquiry by a customer, any training given to the customer, through to the final

completion of the flight. Part of the demonstration will include use of documentation and maintenance of records.

### **115.59 Maintenance procedures**

This rule requires the applicant to establish procedures for ensuring the continuing airworthiness of every aircraft that is operated under the AAOC and equipment installed in or attached to the aircraft.

An applicant should therefore have adequate knowledge of the design status (type specification, operator options, ADs (airworthiness directives), modifications, ICAs (manufacturer's instructions for continued airworthiness), operational equipment and the required maintenance to be performed.

The exposition's procedures must detail how the applicant is going to ensure the airworthiness of their aircraft. Whilst the responsibility may not be delegated, there is scope to contract with other persons (a maintenance provider) for the provision of certain maintenance functions and services.

The procedures should provide for a maintenance management or planning system. This may take any form including computerised systems. However where computerised systems are used, provision must be made to protect the data (password protect etc.), provide back up on a daily basis, and consider contingency plans for reversion to a paper system in the event equipment failure.

In house and contracted maintenance providers will be assessed as part of the certification process. The level and depth of assessment will depend on the maintenance provider's known performance within the aviation system. The assessment will establish that the maintenance provider has the ability to support the operator's aircraft, equipment and proposed operation.

The rule uses the words *functions*, *scope* and *authority* when subcontracting. These can be read as:

**Functions:** to carry out data assessment e.g. service bulletins/letters, airworthiness directives. Carry out defect reporting; maintenance control; reliability etc.

**Scope:** details of the maintenance activity to be conducted by the maintenance provider e.g. routine maintenance / avionics/ component overhaul.

**Authority:** having transferred a function, the authority given to the other person in respect to the maintenance performed must identify what decisions that person can make on the operator's behalf. This authority is to be given in writing.

*Note: See Appendices B and C of this advisory circular for details on contracting in general and contracting maintenance activities.*

### **115.61 Maintenance programme**

An applicant for an AAOC must establish a maintenance programme for every aircraft that is operated under the AAOC, including a parachute assembly. Refer to the rule for more details. A maintenance programme is basically a document that brings together approved maintenance schedules (usually the manufacturers'), additional maintenance required by Parts 91 and 115, and the manufacturers of other installed equipment not covered by the aircraft manufacturer. It will also cover such items as finite lives and overhaul periods along with the process for induction of an aircraft into the programme.

The programme may be laid out in separate parts such as—

- (a) the general requirements that apply to all aircraft
- (b) the specific requirements for a particular aircraft type.

As a guide when developing maintenance programmes for a specific aircraft rule 115.61(b)(1) through (8) are to be covered. To assist an applicant CAA has provided a generic template maintenance programme. Use this link to download from the CAA web site.

[http://www.caa.govt.nz/GA/maint\\_prog\\_tmpl.doc](http://www.caa.govt.nz/GA/maint_prog_tmpl.doc). The applicant will need to amend the template and insert the appropriate data applicable to the aircraft type.

The following guidance will also help the maintenance programme development.

- (a) Instructions and procedures for the conduct of aircraft maintenance including required inspections and tests. This falls into two parts.
  - (i) Those inspections required by an airworthiness directive and Part 91 Subpart G. These may be covered in the general section and applicable to all aircraft types.
  - (ii) Those inspections specific to an aircraft type and listed in the aircraft manufacturer's maintenance schedule, maintenance manual and instructions for continued airworthiness.
- (b) Procedures for trend analysis if the programme utilises condition monitored maintenance. This could be included as a general requirement.
- (c) Procedures to ensure all inspections in the programme are performed. This could be included as a general maintenance planning section for all aircraft being operated.
- (d) Procedures for recording, rectification or deferral of deficiencies found during maintenance. This could be included as a general section for all aircraft. Maintenance should be viewed in its broadest terms to include pre-flight and after-flight inspections completed by the pilot.
- (e) Procedures for retention of a description of work performed including the name of the person releasing the aircraft to service. This could be included as a general section for all aircraft.
- (f) Instructions for exceeding an inspection interval and the conditions that are applied. This could be included as a general section for all aircraft.
- (g) Instructions for changing the inspection interval due to service experience. This could be included as a general section for all aircraft.

### **115.61(b)(7) Deferral of defects**

Under rule 91.503, the instruments and equipment installed in an aircraft are to be in an operable condition, however rule 91.537 provides for the development of a minimum equipment list (MEL) to allow the continued operation of an aircraft with inoperative instruments or equipment.

This rule requires an applicant to have procedures for the recording and correction of deficiencies found during maintenance. This includes deficiencies found by the pilot, in service or during the normal pre-flight and after-flight inspections.

These procedures need to be written to ensure that:

- (a) any defect is recorded and that the aircraft is inspected to approved data and released to service by a qualified person:
- (b) a placard is attached to the defective item if applicable:
- (c) the defect is identified in the technical log clearly advising the pilot of the maintenance status of the aircraft and any conditions or limitations that may apply
- (d) a statement of release to service is made in the maintenance record certifying that the aircraft has been inspected or repaired to approved data and is released to service.

**Note:** *The review of airworthiness required by rule 91.615(a)(1)(ii) requires all special category aircraft on hire or reward operations (and this includes AAO's aircraft) to have review of airworthiness.*

### **115.61(b)(8) Retention of records**

This rule relates to retention of maintenance records, reference to data, and the name of the person certifying the release to service. The rule is directly related to rules 43.69, 91.617, 91.619, 91.623, 91.621 and advisory circular AC91-6. The procedure can be broken into the following elements.

- A description of the work performed. This could be in the form of an entry in the technical log, a maintenance work sheet or a logbook entry. The detailed description of the work may be a complete description of the work or a brief description with reference to the acceptable data that was used to perform the work. This may be the instructions contained in a manufacturer's service instruction, service bulletin, maintenance manual or the instructions contained in a supplementary type certificate. This is the requirement of rule 43.69.
- Details of maintenance may be recorded in the technical log. This will usually be the case when a defect must be rectified away from the normal maintenance base. Additional work records will be used when there is too much detail to be included on the technical log or aircraft log book. In any case the defect will need to be cleared in the technical log.
- Where work records or the technical log is used to record details of the maintenance task, reference to those records must be made in the aircraft logbook. To simplify the transfer of details from the technical log to the log book CAA now provides a maintenance record form (CA400) for use with the technical log which provides a removable duplicate record.
- Retention periods for maintenance records are specified in rule 91.623 and it is the air operator's responsibility to ensure they are kept for the prescribed period. In some cases the maintenance organisations have claimed maintenance records as their own property. This is not the case and all maintenance records generated during the life of the aircraft are considered to be a part of the aircraft and are therefore the property of the person who holds the certificate of registration for the aircraft.
- Transfer of maintenance records is the responsibility of the holder of the New Zealand certificate of registration when transferring the registration to another person. This is specified in rule 91.621.

## 115.62 Drug and alcohol programme

**Note:** The Ministry of Transport will be implementing a requirement for drug and alcohol programmes for all commercial operators. For more information please check this website: <http://transport.govt.nz/ourwork/clear-heads/>

CAA has zero tolerance for impaired performance at work as a result of drug, alcohol, and/or substance use; the adventure aviation industry is expected to share that aim. Any inappropriate use of drugs, alcohol or substances will cause some degree of impairment, and no level of impairment is acceptable.

The aim of this rule is to—

- (a) minimise the risks to safety of drug and alcohol misuse; or
- (b) prevent any person whose work directly affects safety and who is adversely affected by drugs or alcohol from performing, or being available to perform, that work.

In developing a drug and alcohol programme an operator is to address the following topics.

**Policy** – the organisation is to have a written policy stating the organisation’s position regarding responsibility and commitment to safety with respect to a drug and alcohol free workplace, and the organisation’s expectations in achieving that.

**Applicability** – this is to specify which work is considered to directly affect safety and therefore subject to the rigours of the programme’s requirements for monitoring and testing. However, the operator may consider that the entire workplace should be drug and alcohol free, in line with health and safety responsibilities, and state those expectations along with the consequences.

**Roles and responsibilities** – this is to detail potential circumstances and how the organisation will respond. For example, what happens when—

- a staff member arrives for work and there is reason to believe the person may be impaired
- an off-duty staff member who feels he or she is impaired is called up for work
- a staff member is prescribed medication by his or her doctor
- a staff member tests non-negative
- a staff member tests positive
- the testing process is interfered with
- a test is refused.

**Testing** – the programme is to detail the following.

- When testing is performed. As a minimum this is to include before employment, after accidents or incidents, with reasonable cause, and on a random basis that includes the testing of each eligible staff member at least once per annum.
- Who is to perform tests and how they are to be qualified.
- What the testing process will entail.

- Follow up actions in regard to every non-negative test including mandatory reporting to the Director in accordance with S27C(2) of the Civil Aviation Act (1990).

The development of a programme will be influenced by the size and capabilities of the organisation. There are several resources that are available that will assist an operator to formulate an appropriate approach for their organisation. Guidance material is available from the CAA web site, [http://www.caa.govt.nz/HSE-CAA/drugs\\_alcohol.htm](http://www.caa.govt.nz/HSE-CAA/drugs_alcohol.htm). The guidance material covers provisions relating to the management of impairment from the use of drugs, alcohol and other substances and the development of appropriate policy and procedures.

**Rule 115.62(4)** refers to any other person whose work directly affects safety. The rule was intentionally drafted to not specify a list of work/duties because of the legislative burden involved in amending such a list. However, the criterion to be applied in determining what work directly affects safety is simple – if the work is performed incorrectly would the safety of the operation, the passengers or the staff be jeopardised. With that in mind, the following persons (in addition to those listed in the rule) who manufacture, maintain or assemble aircraft or components, pack parachutes, refuel aircraft, calculate aircraft load, or provide flight information are persons whose work directly affects safety. The variety of activities across the adventure aviation sector means these examples may not be exhaustive and the CAA expects each operator to identify the work/duties relevant to their specific operation.

### **115.63 Documentation**

The procedures required by this rule should consider all documentation required for use by the applicant. It should include all relevant technical data such as service bulletins, airworthiness directives, maintenance manuals, flight manuals and the exposition including operational manuals.

The procedure should describe how the individual documents are entered into the system, reviewed, authorised and where they replace other documents, how that obsolete documentation is purged. Some form of marking of the documents should be employed to show it has been through the control process.

Documents may be kept in hard copy or electronic form.

*Note: Refer to Appendix D of this advisory circular for information regarding electronic records and documentation considerations.*

### **115.65 Records personnel**

The procedures required by this rule should consider all personnel records required for use by the applicant. These will include all persons required to hold a licence or rating, a delegation from the Director, or exercising an authorisation granted by the certificate holder, which may include the nominated senior persons. The record must contain the information required by the rule and be retained for the specified period identified in the rule. Documents may be kept in hard copy or electronic form.

*Note: Refer to Appendix D of this advisory circular for information regarding electronic records and documentation considerations.*

### **115.67 Records resources**

An applicant must establish procedures for ensuring that all details of tests, checks, and calibration of resources etc. required by the rule are accurately tracked and recorded. Typical equipment requiring these tests could include scales used for weighing passengers, refuelling equipment, meteorological equipment, strops and lifting equipment. It should not cover



maintenance tooling as that is addressed by Part 43 or Part 145 unless the applicant is conducting their own maintenance and combining the operator's and maintainer's expositions.

This particular rule is not intended to include any of those items that are already covered by the equipment requirements of Part 91 Subpart F and maintained by the approved aircraft maintenance programme.

### **115.69 Flight authorisation and control**

An applicant is to develop a procedure to authorise each or a series of AAO flights. Some suggestions of how this might work are as follows.

- For unscheduled operations a daily flight schedule and duty roster could suffice, or an operator may authorise a person to fly and determine which flights take place on an individual basis.
- In some situations a letter of authorisation given to a flight crew member detailing the type of operation and operational conditions for each task permitted for that crew member would be more appropriate.

The holder of the AAOC is at all times responsible for the operations that take place. The applicant for the AAOC should consider the risk of any type of blanket authorisation system. In any case it must be clear that the nominated senior person (ref. rule 115.51(b)(1)(i)) has authorised all aspects of the flight or series of flights.

### **115.71 Flight following service**

This rule requires an applicant to establish procedures for ensuring that every flight is monitored by some form of flight following service so that appropriate emergency activation action is taken if an aircraft is overdue. The rule specifies the matters that the procedures must address.

This flight following and alerting service is normally provided by a Part 172 certificated organisation as most flights are required to submit a flight plan to an ATS unit. However, an applicant operating under Part 115 conducting non-stop flights departing from and returning to the same aerodrome can arrange their own flight following service.

Flight following is intended to enable a company's operational base to know that a flight is proceeding safely and to provide an emergency activation service if contact is lost. Processes here should be linked to the operator's emergency situation action plan required by rule 115.209.

The operator must establish a flight following system and procedures to ensure that each flight is monitored and notification of overdue or missing aircraft is made to an acceptable organisation (see next section).

The operator should include a procedure in their exposition to cover situations when communications are unexpectedly not available. This procedure should require the flight authorising person to consider the operating area, tasks to be completed, and any alternative means of ensuring that the aircraft continues to operate safely.

The communications system should be switched on so that two-way communications are constantly available. When flying in an area with no radio coverage, a 15-minute window for re-establishing communications is acceptable. Regardless of the fact that a flight following system is used, operators should keep a listening watch on the local flight information service frequency while airborne.

## **115.71 Flight following system**

**115.71(b)(3) Communications:** A cell phone is an acceptable means of communication if VHF or HF radio communication with the company's flight following provider or operations base is not available, provided cell phone coverage is reliable in the operating area at the operating altitude.

There are now a number of electronic tracking systems available and these may be employed as part of the flight following processes.

**115.71(b)(5)(ii) Acceptable organisation:** This may be an ATS organisation, New Zealand police, search and rescue centre or any other organisation that has been set up to provide this type of service.

The person responsible for following the flight should—

- (a) be trained and the training shown on a training record; and
- (b) have the information required by rule 115.71(b)(1) immediately available; and
- (c) have the procedure to be followed for a missing or overdue aircraft immediately available.

*Note: The procedure for missing or overdue aircraft should provide for logging the time and details of action taken so that the incident is fully recorded and traceable.*

- (d) confirm any cell phone number used and that the cell phone is switched on.

## **115.73 Establishment of procedures**

This rule requires an applicant to establish procedures for ensuring compliance with applicable requirements in Part 115 and any other applicable Part. The applicant will need to think about how an operation will be carried out and document the basic procedure in the exposition for their employees to follow. They should remember that their personnel will utilise the exposition and operations procedures in complying with a rule.

The requirements for procedures are spread amongst many parts and while operators should examine them all, they should develop procedures only for those requirements relevant to their operation and the rules that specifically require a procedure.

Those rules that are not applicable to the operation should be shown in the compliance matrix as N/A so that the CAA assessor can establish that the operator has at least considered them.

An operator using a combination of large, medium, or small aircraft should write one set of procedures that encompasses all their operations in accordance with the larger aircraft. For example, if large aircraft (>5700kg) requirements are met then generally all requirements will be met, and only the differences between the rules need to be checked. The exception would be if a fixed wing operator also operates helicopters – then it is likely that there will be types of operation that are peculiar to helicopters that need to be included in the exposition.

CAA has developed rule matrices to identify adventure aviation organisation certification requirements. These matrices can be downloaded from the [CAA web site](#).

CAA rule matrix covers the requirements of—

- (a) Part 12 regarding accidents, incidents, and statistics
- (b) Part 43 regarding maintenance requirements
- (c) Part 61 regarding pilot licensing
- (d) Part 91 regarding general operating and flight rules
- (e) Part 115 regarding certification
- (f) Part 141 regarding training organisations

Some rules contain prohibitions, mandatory requirements, matters that an operator must “ensure”, and areas where a procedure is required to be established.

Where a mandatory requirement or a prohibition is stated and the rule is clear, the operator is not required to reproduce the rule or any part of that rule in the exposition.

The operator is required to have in place training and competency testing programmes that should give the operator assurance that personnel have the knowledge of the rules and the ability to operate within the scope of these rules. The training and competency testing programmes could be utilised to satisfy the operator that the operation is conducted within the scope of the rules.

A procedure may be needed where the applicant is required to ensure compliance with a rule. Alternatively the training and competency testing programmes, supported by the organisational management system of internal audits may be sufficient in themselves to ensure compliance with a rule.

Certificate holders must demonstrate compliance with many different rules and requirements. Full utilisation of the training and competency testing programmes can help with this (see Subpart E of Part 115).

Where an operator intends to ensure elements of the rules are complied with through the training and competency checking programmes these items should be included in the training syllabus and in a question bank for competency checking. When a large number of items have been transferred, the checking items should be grouped into manageable parts and used on a rotational basis.

### ***Developing procedures***

A procedure may take many forms and be as complex or brief as need be. The operator may use any form that is suitable for the purpose and these may:

- take the form described below; or
- be in the form of a flow chart; or
- be contained on a checklist; or
- be contained in a form to be completed; or
- be in the form of audio or visual media (video etc.).

The level of training, experience or qualifications held by the individuals may also have a bearing on depth and extent of any procedure. In order for it to be effective the procedure should describe *who, what, when, where, why* and *how*, as appropriate, to the task or action to be carried out. One method of presenting the components of a procedure can be described as follows—

**Who**

- (1) Who the procedure is designed for?
- (2) Who will action the procedure?
- (3) Who is responsible to see that the procedure is done – an individual, an organisation?

**What**

- (1) What the procedure is about?
- (2) What the procedure is trying to accomplish?
- (3) What the person performing the procedure should do?

**When**

When the procedure is to be accomplished?

**Where**

Where the procedure will be accomplished?

**Why**

Why the procedure is required?

**How**

- (1) How the procedure will be accomplished – identified manual, operator's programme, other document?
- (2) How the person determines what procedure will be used and how they will know and be able to demonstrate if it has been accomplished, and achieved the intended result?

Another method of establishing a procedure may take the following form that generally follows an ISO standard format. This may be varied as appropriate as not all the elements are required for each procedure.

**Policy:** This part would contain the written company policy in regard to the subject area. This could become repetitive and in some cases a general policy statement of the chief executive may have covered this.

**Purpose:** This will state the purpose for the procedure or process.

**Scope:** This should cover the extent or limits of the procedure or process.

**Responsibility:** This should identify the person responsible for carrying out the procedure or process, normally by position title.

**References:** This will make reference to any other documents or reference material that is required for the performance of the procedure or process and should include any exemptions.

**Records:** This will identify any record or forms that are to be completed. For example flight and duty records, load sheets or technical log etc.

**Process or procedure:** This is the explanation or instructions to carry out the task that satisfies the purpose for the process or procedure.

Procedures may be ordered in this manner or in any other way that achieves the desired outcome for the operator. They may be very simple or quite complex and this will depend on the outcome that is to be achieved. They could be in the form of a written description, flow diagram or completion of a checklist. In the case of a flow diagram or checklist the instructions for use could be very simple.

In some cases it may be more appropriate to include some items such as rules 115.203, 115.205 or 115.215. These rules do not require a procedure to be developed, but they do require each person performing an air operation to ensure the rules are complied with.

The procedures should have sufficient information to satisfy regulatory compliance. This may mean that other related rule references and prohibitions are included in the primary procedure.

This should have the effect of consolidating procedures into areas relating to operational functions, and overcoming the need to produce a procedure for each and every rule.

### **115.75 Reporting of accidents and incidents**

This rule requires an applicant to establish procedures necessary for the notification, investigation, and reporting of all occurrences under Part 12.

### **115.77 Organisational management system**

Regardless of size, the applicant must have a system of some sort to ensure that the organisation operates effectively. For the smaller organisations this system may already exist within their common business practices.

The rule requires that all organisations conducting adventure aviation operations provide a system of organisational management for ensuring compliance with and adequacy of the procedures required by Part 115. Until every operator has transitioned over to SMS in accordance with rule 115.151, the requirements of an OMS in accordance with 115.153 still need to be met. The contents of this guidance material section have now being transferred to section providing guidance material on rule 115.153.

### **115.79 Adventure aviation operator exposition**

#### ***General requirements***

Applicants should consider the exposition as a general description of how their operation works; a tool of management for the operation; and a means of instructing staff in how they are to perform their tasks.

The purpose of an exposition is to express the chief executive's requirements for the conduct of the organisation and state how the organisation will meet the regulatory requirements. It sets out the procedures, means and methods of a certificated organisation. The benefits of the exposition are considerable and important to the safe operation of commercial aviation.

The exposition is the means by which an organisation defines its operation, and shows both its employees and the CAA how it will conduct its day-to-day business and ensure compliance with the rules

### ***Multiple certifications***

When an organisation seeks certification under more than one rule part and all those parts require expositions (e.g. Parts 115, 141, and 145) it may be possible for some sections of the exposition to be common to each certificate. For instance, if the same management set-up is used for each certificate, the management section of the exposition could be common. Equally all of the organisational management system/quality assurance procedures for one or more certificate could be placed in one manual.

An exposition should commence with the corporate commitment by the chief executive. The remaining parts of the exposition may be produced as any number of separate procedures, sections or as one simple document depending on the extent of the proposed operations.

Depending on an organisation's structure and size, the parts of the exposition could be arranged as:

- (1) management policy
- (2) operations
- (3) training
- (4) maintenance procedures
- (5) organisational management system
- (6) contractual arrangements
- (7) emergency situation action plan.

Separate manuals should be cross-referenced to the management part of the exposition.

While CAA does not wish to tell an operator how to structure a manual suite, experience has shown that having an upper level management manual, generally a management policy manual, makes for a more user friendly exposition. All of the other associated manuals link to this upper level manual, which would have all the organisational information such as:

- (1) corporate statement
- (2) description of manual hierarchy
- (3) identification of required senior personnel
- (4) organisation chart
- (5) duties and responsibilities of senior personnel
- (6) exposition amendment processes
- (7) scope of operation
- (8) organisational management system.

There should be no confusion between the contents of the expositions for Part 115 and any other part, especially Part 145. Where an operator has these two certificates, the maintenance requirements should stand alone within the Part 115 exposition and not be addressed in the Part 145 exposition.

Senior persons should hold copies of those parts of an exposition that affect their areas of responsibility, and staff must be familiar with those parts of an exposition that affect their area of employment.

Whatever exposition format is chosen, it must clearly show how each element of the applicable rule is satisfied. To reduce the cost of CAA assessment and to ensure that all required rules are addressed, a completed CAA rule compliance matrix should accompany the exposition. This matrix is available from the CAA or from the CAA web site, [www.caa.govt.nz](http://www.caa.govt.nz), under “Forms”. Any difficulty in establishing compliance will require more CAA investigation time, and this can only result in additional cost to the applicant.

**115.79(a)(1)** CEO statement. The statement by a chief executive is accepted by the Director as a corporate commitment by the organisation. It should clearly define the goals and objectives of the organisation in respect of the safety standards prescribed by Part 115. It may also contain the organisation’s goals and objectives in respect of its commercial activities. The exposition is intended to be a tool of management and is the means by which the organisation’s operation is presented to its staff, its customers, and the CAA.

**115.79(a)(2) & (3)** Senior persons. The titles and names of the senior persons within the organisation must be listed in the exposition. Their duties and responsibilities, and the areas in which they are directly responsible for liaison with the Director are to be clearly defined.

**115.79(a)(4)** Organisational chart. If appropriate there must be an organisation chart showing the reporting lines of the organisation. The chart is to show the lines of responsibility from the nominated senior persons to the chief executive where appropriate. The exposition is to show the staffing arrangements at each place where the organisation intends to carry out air operations.

**115.79(a)(5)** Details of the principal place of operation. The organisation is required to give details of the principal place of operation. This place/location is generally at the “address for service” (ref.s8 of the Act) and is the administrative and operations centre for the organisation. There should be a description of the physical attributes of the facility. In some cases the physical place where actual operations take place may be separate, in this case this location should be identified as well. This rule also requires details of the main maintenance base.

Where an organisation has another base of operation which consists of facilities such as buildings, communication equipment, aircraft and pilots or a combination thereof, CAA expects to see details of the base included in the exposition. Additionally, procedures will need to be documented regarding transfer of details such as flight and duty times, incident reporting, planning, flight following, maintenance control, flight details etc. These bases need to be included in the audit plan of the OMS.

**115.79(a)(6)** Detailed procedures. The rule does not directly identify specific procedures so it is up to the applicant to review the rule and cover all rule requirements that require a procedure and that are relevant to the operator’s organisation and proposed operations. The procedures should accurately describe the organisation’s practices related to its operations.

Examples of these are—

- planning for flight
- regulating and recording of flight and duty times
- passenger training and briefing
- flight following
- emergency situation action plans
- flight and ground crew training

- recording and control of defects.

Refer to the guidance for rule 115.73 regarding the development of procedures.

As there is a wide range of adventure aviation activities, it is left to each applicant to specify the details of the procedures relating to activities carried out by the applicant. All applicants should address the requirements to the extent that they apply to the particular scope and intended activity.

**115.79(a)(7)** Maintenance requirements. The procedures required by this rule are addressed in the guidance for rules 115.59 and 115.61, and should be referred to.

Rule 115.79(a)(7)(iii) requires the applicant to record the details of every maintenance organisation that performs maintenance on any of the applicant's aircraft (this includes parachutes and paragliders). It is suggested an appendix be used for this purpose as it will simplify amendment if any changes take place.

**115.79(a)(8), (9), (10)** Other requirements. Procedures and programmes required elsewhere in Part 115 and generally more organisationally focused include—

- Drug and alcohol programme. Refer to the guidance for rule 115.62.
- Flight and duty time scheme. Refer to the guidance for rule 115.405.
- Passenger training and briefing. Refer to the guidance for rule 115.205.
- Emergency situation plan. Refer to the guidance for rule 115.209.
- Flight and ground crew training programme. Refer to the guidance for rule 115.303.
- Crew member and ground crew competency assessment programme. Refer to the guidance for rule 115.405.

**115.79(a)(11)** Exposition amendment. This procedure needs to give consideration to the different processes required when dealing with the changes required by rule 115.109. That require prior acceptance before incorporation and the routine changes that take place on a day-to-day basis, that do not require prior acceptance by the Director. Use the guidance for rule 115.73 to develop the procedure.

## Subpart C—Operating Limitations and Requirements

### 115.101 Continued compliance

This rule requires a holder of an AOC to comply with the operations specifications required by rule 115.13. The rule also requires the certificate holder to continue to comply with the applicable standards and requirements specified in the rule, comply with every procedure and programme detailed in the holder's exposition and hold at each location specified in the holder's exposition a current copy of the holder's operations specifications. Refer to the rule for full details.

### 115.103 Flight crew qualifications

A holder of an AOC must not authorise any person to act as a flight crew member unless that person holds the appropriate licence, rating or certificate required by Part 115. Flight crew member in this case includes a tandem master. A person who does not hold the appropriate pilot licence, certificate or rating must not serve as a flight crew member.



**115.105 Business or trading name**

**115.105(a)** A holder of AAOC must conduct its AAOs using the trading name or business name that appears on the holder's AAOC.

**115.105(b)** An operator must provide some method of clearly indicating to the passenger, prior to partaking of the operation, the business or trading name of the certificate holder. This is relatively simple for aircraft operations as a sign can be placed on the fuselage adjacent to the entry point to the aircraft. For hang glider/paraglider and tandem parachute operations some other method will need to be employed.

Where an organisation has another base of operation as described in paragraph providing guidance material on rule 115.79(a)(5) above then the requirements of rule 115.105(b) are to be met at that base as well.

**115.105(c)** This rule requires advertising to clearly display the business or trading name that appears on the operator's AAOC.

**115.107 Limitations of an adventure aviation operator certificate holder**

A holder of an AAOC must not conduct an air transport operation or a commercial transport operation under the AAOC.

**115.109 Changes to a certificate holder's organisation**

**115.109(a) & (b)** A holder of an AAOC must comply with the requirements relating to amendment of its exposition as specified in the rule. Refer to rule for details.

**115.109(c)** This rule empowers the Director to place conditions on the AAOC. An example might be where a new type of operation is proposed and proving flights are required prior to the carriage of passengers.

**115.111 Changes to a maintenance programme**

A holder of an AAOC must, if requested by the Director, amend the maintenance programme required by rule 115.61 if amendment is necessary regarding the continuing airworthiness requirements.

**115.151 Transition for adventure aviation operator certificate holders and applicants**

This rule explains the transition from OMS to an SMS system and identifies times lines for achieving a compliant SMS system.

It allows an existing AAOC holder to continue using an OMS without complying with the new 115.77 providing a plan is submitted by 30 July 2018 showing how they intend to implement SMS by 1 February 2021.

For a new applicant there are two choices; the AAOC application may incorporate an SMS fully compliant with 115.77 or they may choose to use the transition provisions to apply using an OMS. In this case a transition plan to show how they intend to implement SMS by 1 February 2021 must also be included.

**115.153 Transitional organisational management system for adventure aviation operator certificate holders and applicants**

Because 115.77 has changed to reference Part 100 this transition rule is necessary to permit OMS to remain a valid system while transitioning to SMS

The following guidance text was contained in the section providing guidance material on rule 115.77 and it continues to be current during the transition period. The provisions for an OMS are now found in rule 115.153 and the references below have been changed to reflect that.

Applicants should not be concerned with over-complicating the system or introducing features that are not relevant to their operation. The organisational management system should not stand aside from the operations, but should form part of the operator's standard business practices.

### ***Small organisation***

The small organisation, defined as an organisation operating 3 or less aircraft from 2 or less bases, requires a management system, but is not required to include the organisational management system elements required by rule 115.153(c). A small organisation can voluntarily adopt some elements of rule 115.153(c), but will not be required to comply with any or all elements of that rule unless it evolves to a larger organisation.

### ***Larger organisation***

The larger organisation, that is an organisation operating more than 3 aircraft and/or is operating from more than 2 bases, must have a documented system of management that includes the elements of rule 115.153(c) and have policies and procedures to ensure the required operation remains effective and safe.

### ***Small to large***

If a company changes in size from a smaller to a larger operation, then it must embrace the full organisational management system.

An operator that is not required to have a full organisational management system under rule 115.153(c) that extends the scope of its operation to the extent that it now requires a management system is to—

- (1) amend their exposition to include an organisational management system specified in rule 115.153(c); and
- (2) ensure that the system is acceptable to the Director before commencing the increased level of AAO's.

For further guidance in establishing the procedures and policies required by rule 115.153(c) refer to AC00-1.

**115.153(c)(4) & (5)** introduce the elements of hazard identification and risk assessment. The applicant is to assess the types of operation it intends to conduct for hazards and the level of risk to participants and put in place measures that eliminate or mitigate the hazard/risk the participants. Guidance for the development of hazard and risk assessment procedures can be found in AS/NZS ISO 31000:2009 which is available from New Zealand Standards Association. When identifying hazards and managing risk the organisation also needs to address the requirements of the Health and Safety in Employment Act and ensure that "all practical steps" are taken to eliminate, isolate, or minimise risk (in that order). Applicants are referred to the "A Guide to the Health and Safety Employment Act" publication which can be found online at <http://www.osh.govt.nz/order/catalogue/808.shtml>.

## Subpart D—Flight Operations

### 115.201 Restriction or suspension of operations

**115.201(a)(2) & (3) Area of operation.** In order to append the circle of operation or the geographical location of the area of operation on the operations specification, the holder of AAOC must supply drawings or maps that clearly show the intended area of operation. This might be a simple circle or it may involve an area defined by specific geographic points. Part 115 application form (CAA 24115/01) has provision for recording areas of operation.

**115.201(b) Congested areas.** Unless specified in the holder's operations specifications, the holder of AAOC must not conduct operations over a congested area of a city, town, or settlement, or open – air assembly of people. The applicant must show in the application how it intends to operate without imposing a risk to the town, city or populous area. This risk assessment should be undertaken using the risk assessment principals and guidelines found in AS/NZS ISO 31000:2009.

**115.201(c) Hazardous conditions.** The AAOC holder must remove known hazards or suspend operations until the hazard can be removed. The person/s authorised to restrict or suspend operations under this rule should have the capability included in their duties and responsibilities or job description. Logically the persons responsible for flight and descent operations and the organisational management system should be involved in this decision making process. All staff should be aware of who holds this authorisation.

### 115.203 Passenger safety

**115.203(1) Drugs and alcohol.** This rule requires any person performing AAOs to ensure that any passenger who appears to be in a drug or alcohol influenced state or exhibits unacceptable behaviour characteristics is not permitted to be carried on the AAO. Guidance instructions should be provided in the AAO's operating procedures for ground and flight crew to deal with this situation.

**115.203(2) Disabled passengers.** Part 1 defines a disabled passenger as *any passenger whose physical, medical, or mental condition requires individual attention not normally extended to passengers during an air transport operation.*

Where practical, disabled passengers should not be allocated, or occupy seats or positions, where their presence could:

- (1) impede the crew in their duties; or
- (2) obstruct access to emergency equipment; or
- (3) impede emergency evacuation.

Guidance instructions should be provided in the AAO's operating procedures for ground and flight crew on how best to deal with and evacuate disabled passengers in an emergency as well as consideration of that passenger's special requirements.

### 115.205 Passenger training and briefing

This rule requires, in addition to rule 91.211, briefing or additional training in safety and emergency procedures for an AAO. This should be included in the training and passenger briefing sections of the exposition. These items may be categorised as follows—

- (a) General—
  - (i) how to enter and exit the aircraft safely without assistance; and

- (ii) use of harnesses; and
- (iii) avoidance of tail rotand and up-hill slopes; and
- (iv) use and location of first aid kit and fire extinguisher; and
- (v) control of loose items; and
- (vi) opening and closing doands; and
- (vii) emergency procedures including the emergency locatand beacon; and
- (viii) communication, between members of the crew, including utilising the aircraft intercom systems if available.

(b) Additional training:

- (i) centre of gravity considerations; and
- (ii) landing phase of flight; and
- (iii) any other additional considerations in relation to the kind of operation being conducted.

These are only a sample of some activities where the passenger may require extra briefing or training.

### **115.207 Emergency equipment requirements**

This rule is self-explanatory but the operator should consider the following.

The holder of AAOC should have information on the survival equipment carried on board each of its aircraft available for immediate communication to rescue coordination centres. The information should form a part of the flight following service required by rule 115.71.

Detailed requirements for emergency and survival equipment are contained in rule 91.523. All this information could also form part of the emergency situation action plan required by rule 115.209.

The information should be easily accessible to the provider of the flight following system who should not be expected to search to find it in the operator's exposition.

### **115.209 Emergency situation action plans**

This rule requires the AAOC holder to provide action plans for handling emergency situations that management, ground staff, or flight crew become aware of. This rule requires plans to be developed for both in-air and on-ground emergencies, and to include provision for passing information to and from the pilot-in-command.

To comply with this rule, an operator needs to complete a risk management assessment of their particular operation. The risks may include—

- pilot fails to make contact at a pre-arranged time (flight following system)
- pilot declares an in-flight emergency
- management or ground staff become aware of a situation in-flight of which the pilot needs to be advised

- accident or incident on take-off or landing
- emergency on the ground (fire, refuelling spill etc.)
- flight crew or passenger develops a medical condition.

The plan should contain sufficient information to ensure the appropriately trained staff (ref: rule 115.53) know what to do, who to contact, and what details need to be recorded. A record of training and competency checks should be included in the records required by rule 115.65.

An emergency situation action plan could be contained within an exposition or in a separate manual for convenience. If it is to be a separate manual, then it should be referenced in operator's hierarchy of manuals that form the complete exposition.

The plans should be subject to periodic review to ensure their continued relevance.

To satisfy the requirement for training and competency checking the operator may choose to run a desk top emergency situation scenario that addresses all elements of an emergency situation action plan.

#### **115.211 Operational safety check**

The AOC holder must ensure that each flight crew member (including tandem master) has an operational safety checklist available for use prior to and during each flight.

The AOC holder has the option of designing the checklists to suit the type of operation. These checks could be, but are not limited to, pre-flight, pre-take-off, pre-landing, and emergency checks. Acceptable forms of checklists would be the aircraft flight manual, mnemonic pattern, flip cards. Where the checklist pertains to the operation of the aircraft the applicable information must be taken from the aircraft manufacturer's flight manual or operating instructions.

Checks which may normally be committed to memory should be documented and included into the training and competency assessment programmes.

The exposition should make it clear what checks are to be used, and any variation that the operator will allow.

#### **115.213 Flight preparation and flight planning**

The AOC holder must ensure that for each AAO, appropriate information is available to the pilot-in-command to use reliable information to plan the flight.

This rule encompasses rule 91.217 all of which must be considered during the planning of a flight. These are—

- (a) meteorological information and conditions; and
- (b) fuel requirements; and
- (c) alternative aerodrome/landing sites if the flight cannot be completed; and
- (d) any known or likely traffic delays or limitations that have been notified by ATS; and
- (e) the status of communication facilities intended to be used; and
- (f) current condition of the aerodrome and/or landing site; and
- (g) aircraft performance for the aerodromes or landing sites (take off/landing distances); and

- (h) in the case of aircraft powered by 2 or more engines —
  - (i) engine inoperative procedures; and
  - (ii) one engine inoperative performance data; and
- (i) weight and balance; and
- (j) fatigue of flight crew; and
- (k) flight following system.

### **115.215 Manipulation of controls**

An AAOC holder must ensure that a person does not manipulate the flight controls of an aircraft performing an AAO unless the person is one specified in the rule.

*Note: Rules 115.613, 115.667 and 115.759 have specific exemptions to this prohibition for certain AAOs and should be read and addressed separately.*

### **115.217 Flights over water**

Balloon and amphibious aircraft operators should be aware of the rules 115.217(b)(2) and (c) which require some considerable thought to be put into the flight planning.

The maintenance of safety equipment required to be carried by this rule is to be included, where appropriate, in the approved maintenance programme.

### **115.219 Use of aerodromes, landing areas and launch sites**

This rule requires an AAOC holder to ensure that any AAO is made to and from an aerodrome, landing area or launch site that meets the standard specified in this rule and rule 91.127 for heliports.

The operator is to develop a procedure to assess aerodromes, landing areas and launch sites to ensure that the landing area, including the approach and take-off areas are suitable for the type and characteristics of the aircraft used, having regard to the performance data for the aircraft. A record should be retained of any assessment undertaken.

The information derived from the aerodrome, landing area or launch site assessment is to form part of the register required by rule 115.219(c). Where the aerodrome or landing places are published in the current AIPNZ, this would be the reference information used in the assessment. The results of the performance data assessment should be included in the flight planning process.

*Note: Operators should be aware that under some circumstances, Part 93 Special Aerodrome Traffic Rules and Noise Abatement Procedures, or other local bylaws, may apply and impose conditions or limitations on the use of aerodromes.*

The terms “runway” and the “runway strip width” are defined in Part 1.

### **115.223 Aircraft load limitations**

An AAOC holder must ensure that the specified limitations relating to the weight and balance of an aircraft, the maximum allowable weights, and the aircraft’s centre of gravity are complied with. In respect of a special operation under Subpart O, the holder must determine the actual total weight of every passenger and crew member. (See rule 115.223(b)). While this specific reference would infer the individual weight requirement is only applicable to Subpart O operations, rule 115.455(b)(11) requires the actual weight of each passenger to be included in the required daily flight record.

Logic would dictate that for the pilot to establish the true centre of gravity and weight he/she needs to know all the actual weights. This is especially true for parachute operations when most aircraft are not configured as the manufacturer had intended and the inflight movement of the load may take the aircraft outside the design limits.

**115.223(c)** The pilot-in-command must assess and ensure, using the data required by rule 115.455(b), that the aircraft centre of gravity and weight are within the limitations specified in the flight manual or operating manual for both the ascent and descent phase of the flight.

### **115.225 Responsibility for airworthiness**

The holder of an AAOC is responsible for—

- (a) the airworthiness of the entire aircraft, including any equipment installed in or attached to the aircraft, and
- (b) ensuring that the aircraft is maintained in accordance with the maintenance programme.

This means that the holder of the AAOC is responsible for determining what maintenance is required, when it has to be performed, by whom, and to what standard, in order to ensure the continued airworthiness of the aircraft being operated. The holder of an AAOC should therefore have adequate knowledge of the design status (type certification basis, customer options, ADs, modifications, operational equipment) and the maintenance requirements peculiar to each aircraft being operated.

The holder of an AAOC should establish adequate co-ordination between flight operations and the maintenance provider, to ensure that both receive all information on the condition of the aircraft to enable both to perform their tasks.

This does not mean the holder of the AAOC must perform the maintenance. The holder of the AAOC carries the responsibility for ensuring the airworthy condition of the aircraft it operates, and thus should be satisfied before the intended flight that all required maintenance has been properly carried out and recorded.

When a holder of the AAOC does not carry out the maintenance, then a clear work order must be given to the contracted maintenance provider. The fact that holder of the AAOC has contracted its maintenance out should not prevent procedures being established to check any aspect of the contracted work. Such procedures ensure that the holder of the AAOC's responsibility for the airworthiness of the aircraft is met.

### **115.227 Fuel**

This rule requires a fuel policy to be included in the AAOC holder's exposition. The policy needs to take into account the relevant operating conditions for all flights. The variety and nature of AAO's requires a broad and simple approach to fuel planning and in-flight re-planning. Where applicable, consideration should be given to; and

- (a) normal aircraft fuel consumption – derived from the aircraft flight manual or other manufacturer's data and corrected for the actual conditions of the flight
- (b) unusable fuel
- (c) expected meteorological conditions
- (d) anticipated weights

- (e) ATS requirements and restrictions
- (f) the geographic location of the aerodrome, reserves, alternates and other relevant data
- (g) contingencies - at the planning stage, not all factors that could have an influence on the fuel consumption for the flight can be foreseen. Therefore, contingency fuel is carried to compensate for items such as; and
  - (i) deviations of an individual aircraft from the expected fuel consumption data
  - (ii) deviations from forecast meteorological conditions
  - (iii) deviations from planned flight and or cruising levels/altitudes
- (h) having considered all of the fuel contingencies for the particular operation, then this data should be included into the flight planning procedures required by rule 115.213.

The minimum fuel requirements for flight planning are contained in rule 91.305 for VFR operations. If a helicopter is operated on an adventure aviation operation, the option of carrying less than a 20 minute fuel reserve is not permitted. This fuel policy does not apply to a hang glider, paraglider, glider or tandem parachute descent operation.

### **115.231 Impairment of persons affecting flight safety**

Whereas rule 115.62 requires a programme to monitor and manage the risks associated with persons who may be impaired, this rule places an obligation on the AAOC holder to prevent an operation going ahead if the operator has reason to believe that any person specified or referred to in the rule is impaired. The persons mentioned in the rule are any crew member, a tandem master, a ground crew member or any other person whose work directly affects the safety of an AAO.

## **Subpart E—Training**

### **115.301 Training – general**

**115.301(a)(1) Training programme.** The holder of an AAOC must establish a training programme that will ensure a crew member and ground crew members are trained and competent to perform their assigned duties.

The programme should include all the elements contained in this subpart. It is also an opportunity to include many other rule requirements where the operator is required to ensure or make flight crew aware of prohibitions and mandatory requirements that may be contained in other subparts.

Each holder of an AAOC whose area of operation includes mountainous terrain should establish in the exposition a CAA accepted mountain training programme to ensure that each of its crew members are trained and competent as a prerequisite requirement before they operate into such areas.

Additional guidance material for establishing in house training courses and assessments can be found in AC141-1.

**115.301(a)(2) Crew and ground crew training.** The holder of an AAOC must ensure that each crew member or ground crew member is trained in accordance with the programme that is



contained in the exposition. Some method of programming and scheduling flight crew within the programme will be required.

If operating in a mountainous environment the minimum flight time required to demonstrate ground course syllabus items are as follows. Initial training, a minimum of 10 hours flying; or sufficient further hours as required for the pilot to be fully conversant in the appropriate mountainous environment flown by the operator.

These 10 hours are to include flying in variable weather conditions so that the pilot can experience and be shown the variance between clear skies, and marginal weather conditions on typical operating routes in the region including escape and alternative routes. The completion of the above hours would desirably be over a period of time, to encounter the variable conditions required. The operator is required to make all reasonable attempts to include experience of typical weather conditions, and the pilot should demonstrate to the operator a satisfactory standard and knowledge on the route being operated before that pilot is cleared to fly on line. This clearance is to be then signed off in the pilots training file by the instructor.

**115.301(a)(3) Control of training programme.** This rule makes the holder of the AAOC responsible for controlling the training programme required by rule 115.301(a)(1). This will entail the AAOC holder specifying the training and ensuring that it is carried out in accordance with the AAOC holder's requirements. It should not be left up to the training provider to decide what is required and when without any input from the AAOC holder.

**115.301(b) Conduct in house or contract.** This rule allows the AAOC holder to carry out one of the following actions.

- (a) Conduct the training within the scope of the Part 115 organisation. Training procedures that cover the training to be done (initial, transition, recurrent, type rating) will be required as well as some means of recording it.
- (b) Contract the training to an organisation certificated under Part 141 or the holder of a Part 149 certificate where the Part 141 or Part 149 certificate authorises the holder to conduct that training. As noted above the training organisation should have procedures for the conduct of the training they are contracted to do.

For an AAOC holder to conduct their own training they must employ, contract or otherwise engage appropriately qualified instructors as described in rule 115.311.

### **115.303 Flight crew and ground crew training programme**

This rule combines all the elements of this subpart into a flight crew and ground crew training programme that is unique to the particular operation. Whatever the operation type the programme must contain the following elements; and

- initial training
- transition training
- recurrent training

This is a mandatory requirement for the AAOC holder, and should be used to combine the requirements from throughout the rules as much as practicable.

The flight crew training portion of the programme must be conducted by a flight crew member who meets the requirements of rule 115.311.

### **115.305 Initial training for crew members and ground crew**

The AAOC holder must ensure that before serving as a crew member or ground crew member on an aircraft used under the AAOC, each crew member and each ground crew member completes the initial training segment as specified in the rule. This should have the effect of preparing a crew member to successfully complete a competency check prior to commencing operations with the AAOC holder.

**115.305(1) & (2) Structure and syllabus.** This rule requires that the initial training is structured in a logical manner that progresses the crew member or ground crew member through the programme. The rule clearly identifies the elements that must be included in the syllabus for initial training.

The responsibility is on the AAOC holder to develop a syllabus that includes training in all the listed elements of rule 115.305(2) that are applicable to the intended adventure aviation operation. This not only includes training on the aircraft type, model and variant, any special equipment fitted the routes and aerodromes etc., but also the AAOC holder's policies, procedures and standards.

### **115.307 Transition training for crew members and ground crew members**

This rule requires the AAOC holder to assess the need for, and provide, transitional training to flight crew and ground crew where the crew member is changing from one aircraft type or variant to another, or new procedures or new equipment are introduced. The procedure required for this should provide for an assessment of the degree of training required, dependant on the changes being made, and then providing for that training.

When considering the requirements of this rule the definition of a *variant* as defined in Part 1 should be used, and this may require consultation with CAA. Otherwise the extent of the training that is required for the introduction of new aircraft, equipment or procedures should be determined by the degree of change being introduced with particular emphasis being placed on the safety and emergency equipment and procedures.

Where flying operations expand into a region of more challenging terrain the training programme should reflect this.

### **115.309 Recurrent training for crew members and ground crew members**

The AAOC holder must ensure that all crew members and ground crew members continue to remain current and proficient for each aircraft and type of operation being performed. The intention is not that of remedial training. Remedial training would normally be given at the time the skill deficiency is found during competency testing.

The recurrent training would normally review operational procedures and be supplemented with information generated from such things as incidents, accidents, areas of weakness identified during routine competency checks, random quality checks or any other indicator that could identify a training need.

When a pilot is required to fly more than one type of aircraft on adventure aviation operations the AAOC holder should schedule recurrent training (in normal and emergency procedures) in the types that have not been checked on the flight crew competency check. This enables the operator to satisfy the requirement to ensure that crew members are proficient in each aircraft.

**115.311 Flight crew member instructor qualifications**

The AAOC holder must ensure that any person acting as a flight instructor in the flight crew training programme—

- (a) has satisfactorily completed the training required by the AAOC holder's training programme to be able to act as pilot-in-command in the operation
- (b) is appropriately qualified as an instructor meeting one of the requirements of rule 115.311(2)
- (c) has completed the initial and recurrent training requirements applicable to the instruction to be carried out.

**115.313 Training records**

The AAOC holder must ensure that accurate records of training for each crew member and ground crew member are maintained. This may be provided in a set of procedures that encompass the maintenance and retention of records that are required to be generated by an adventure aviation operator generally or specifically for this Part. Refer rule 115.65.

**Subpart F—Crew Member and Ground Crew Competency Requirements****115.351 Operational competency assessment programme**

The AAOC holder must establish and implement an operational competency assessment programme for the specified purpose in the rule. While competency assessment is not training it is logical that competency assessments are linked in with the training programme required by Subpart E (rule 115.301).

**115.353 Flight crew competency checks**

The holder of an AAOC must ensure that flight crew members specified in the rule have passed the competency check as specified. Refer to the rule for details.

**115.355 Crew member and ground crew member competency checks**

An AAOC holder must not use a crew member or ground crew member unless within the preceding 12 months the AAOC holder has determined as specified, that the person has adequate knowledge and is competent in the matters specified. For instance, in areas of passenger management, crew member and ground crew member assignments. Refer to rule for more details. The rule also prohibits a person to serve as a crew member or ground crew member unless prescribed requirements are met.

Rules 115.355(1) – (8) highlight those areas that the competency assessment must cover.

**115.355(8) First aid competency.** This rule requires first aid competency to NZQA Standard 424 or equivalent acceptable to the Director. For operations under Part 115 Subparts I, J, K, L, O and P the St John's First Aid Level 2 qualification is considered acceptable to the Director.

**115.357 Flight examiner qualifications**

A holder of an AAOC must ensure that each person performing the functions of a flight examiner in an operational competency assessment programme meet the requirements specified in the rule.

The rule requires operational competency assessments to be carried out by an appropriate flight examiner. An appropriate flight examiner is as follows.

- (a) For a parachute ascent operation; and

A Part 61 general aviation or airline flight examiner whose flight examiner rating is endorsed for Part 115 operations limited to or including parachute ascent operations. The Part 141 organisation, the flight examiner is employed by or contracted to must have Part 115 assessments included on their certificate operations specification.

- (b) For a parachute descent operation; and

A holder of a Part 149 Parachute Examiner rating.

- (c) For a microlight or light sport aircraft operation; and

A Part 61 general aviation or airline flight examiner whose flight examiner rating is endorsed for 115 operations limited to or including microlight or light sport aircraft operations. The Part 141 organisation, the flight examiner is employed by or contracted to must have Part 115 assessments included on their certificate operations specification.

- (d) For a balloon operation; and

Until a Part 61 Balloon Examiner rating becomes available, an Aviation Services Ltd flight examiner operating under an exemption that permits the assessment to be carried out.

- (e) For a hang gliding or paragliding operation; and

A holder of an examiner rating issued by a Part 149 organisation with the scope of hang gliding and paragliding on their certificate.

- (f) For a glider operation; and

An Aviation Services Ltd flight examiner as in rule 115.357 (4) except that the examiners rating shall be endorsed with the scope of Part 115 glider pilot on-going competency assessments.

- (g) For a special aircraft operation (Warbirds); and

A Part 61 general aviation or airline flight examiner whose flight examiner rating is endorsed for Part 115 operations, and is operating under the authority of a Part 141 organisation with the scope of Part 115 on-going competency assessments, or a person authorised by a Part 149 certificate holder whose certificate has the scope of aviation event authorisation and the issue of personnel authorisations.

### **115.359 Completion of crew member test or flight check before required date**

If a crew member completes a test or flight check within 60 days before the date on which it was due the crew member is deemed to have completed it on the original date. There is no latitude for completing the test later than the due date. If a crew competency check cannot be completed by the due date all AAO's must cease until it is completed. The new date then becomes the date from which the next check is scheduled.

### **115.361 Competency and testing records**

A holder of an AOC must maintain accurate records of all competency assessments and testing of its crew members and ground crew members.

## Subpart G—Fatigue of Flight Crew

### 115.401 Operator responsibilities – flight and duty scheme

An AAOC holder must ensure that an AAO is not performed unless a flight-and-duty scheme for the management of fatigue in flight crew has been established. The flight and duty scheme must be acceptable to the Director and take into account the factors specified in the rule. The rule specifies restrictions regarding the use of a person as a flight crew member in specified circumstances, and requires accurate record keeping of flight and duty time. Refer to rule for more details.

#### General background guidance

Fatigue has been defined as weariness from exertion. It can result in a degradation of human performance capability, alertness and mood.

Studies have shown that continued wakefulness after 16 hours has resulted in lower levels of alertness, vigilance, sustained attention to tasks and reaction times of between 12 and 15 percent.

Fatigue is an operational concern because it can reduce the performance capacity of flight crew. Performance degradation can be gradual and insidious, and effectively reduces the physical and mental resources that an individual has available to meet their job requirements.

During the onset of fatigue, the person experiencing this condition is the least capable of making any assessment of their performance.

Fatigue is most likely to increase when a person is subject to unusual or high workload situations, or when an individual must respond under time pressure – this can lead to errors. There are many recognised factors that can contribute to fatigue-related performance degradation; and

- The duration of a duty period, and the pattern of workload.
- Trying to work after inadequate sleep. Both the duration and quality of prior sleep are important.
- Trying to work against the circadian biological clock, which effectively programmes people to sleep at night and be awake during the day.

#### The cumulative effects of extended duty periods

##### *Purpose*

The purpose of this information is to assist AAOC holder to develop their own scheme for the management of fatigue. It is not the purpose of this information to attempt to set any limitations in flight, duty or rest periods for an AAOC holder.

AAOC holders are encouraged to develop their own unique scheme to suit their particular operational requirements. The factors that must be considered, where they are applicable, are contained in rule 115.401(b). Factors that are to be considered are not limited to those in the rule.

An AAOC holder should, in submitting a flight-and-duty scheme for consideration, document how the factors contained in rule 115.401(b) have been addressed in relation to the operation.

The information below is provided to assist in the assessment and establishment of the scheme.

## Definitions

*When developing a flight and duty scheme the definitions contained in Part 1 should be used. However where Part 1 does not specify a definition then the ordinary meaning of the terms would apply. For the purposes of this advisory circular, the following terms are defined.*

**Adequate rest facilities** means a single-occupancy bedroom that is subject to a minimal level of noise, is well ventilated and has facilities to control the levels of temperature and light, or where such a bedroom is not available, an accommodation that is suitable for the site and season, is subject to a minimal level of noise, and provides adequate protection from the elements.

**Disrupted schedule** means a schedule that, by reason of circumstance outside the control of the AOC holder, is prevented from being completed within its scheduled time; and

### ***Duty & duty period***

**Duty** means any task (including positioning) that a crew member is required to carry out associated with the business of the AOC holder.

**Duty period** means any continuous period during which a crew member is required to carry out any task associated with the business of an operator. It includes any flight duty period, positioning, ground training, ground duties and standby.

Where a flight crew member is required by an AOC holder to be on duty or available for duty for two or more periods separated by an interval of less than 10 hours, the periods are to be deemed continuous, starting when the first of the periods begins and finishing when the last period ends.

**External operation** means an operation, excluding an operation to the Chatham Islands, the greater part of which is carried out outside the territorial waters of New Zealand.

**Flight duty time** means the period of time that starts when a flight crew member reports for a flight, or reports as a flight crew member on standby, and includes the time required to complete any duties assigned by the air operator. For a flight engineer it includes the time required to complete aircraft maintenance duties prior to or after a flight.

**Positioning** means the practice of transferring flight crews from place to place as passengers in surface or air transport at the behest of an air operator.

**Recovery period** means a period free of duty following a duty cycle of length greater than 48 hours during which the crew member may recover from the cumulative effects of fatigue.

**Rest period** means any period of time on the ground during which a flight crew member is relieved of all duties by the operator, where the rest is not interrupted by the operator. It should not include travel time to or from the rest facility, meals or time for personal hygiene.

**Standby period** means the period of time during which a flight crew member is required to hold themselves available for active duty.

**Split duty** means a flight duty period, which consists of 2 duties separated by a break on the ground during which the crew member is relieved of all duty.

**Split-duty time** means a split-duty period during a day where the flight crew member has; and

- (a) advanced notice of the split-duty time
- (b) the crew member receives adequate rest in suitable accommodation.

**Tour of duty** means the period of time commencing at the start of duties at home base prior to flight/s and ending at home base on completion of the duties.

When a flight crew member is based temporarily at a place other than his home base, that place, for the period of the detachment, will be regarded as his home base.

**Total hours of duty** means the sum of the duty periods within any particular period that a flight crew member is at the disposal of an operator.

**Unforeseen operational circumstances** means an event that is beyond the control of the operator, such as un-forecast weather, equipment malfunctions, or air traffic control delays.

#### **Fatigue management schemes**

Fatigue management schemes should aim to take a broader approach to the consideration of fatigue as an operational factor, addressing all possible causes of fatigue. Implicit in this approach is the recognition that factors outside the workplace can make an important contribution to fatigue, and that fatigue management is a shared responsibility of air operators and individual flight crew.

A scheme for the management of fatigue should be based on policies and systems. These include, but are not limited to the following matters—

- (a) identification and assignment of responsibilities
- (b) on-going education of management and staff
- (c) a fatigue and incident/accident reporting and investigation system
- (d) workload monitoring
- (e) identification and management of fatigued personnel
- (f) system review.

#### **Items for consideration in the development of a fatigue management scheme**

An AAOC holder submitting their own flight-and-duty scheme for acceptance must address the elements contained in rule 115.401(b). In addressing the rule and developing a scheme for the management of fatigue, an operator should ensure that at least the factors below are addressed—

- (a) the scheme should identify all the factors influencing fatigue and apply appropriate weightings to these
- (b) the organisation's management, in conjunction with the flight crew, have developed the scheme
- (c) the flight crew or the flight crew representatives have been consulted on all aspects of the scheme and the scheme should contain a formal method of getting feedback from flight crew.

As a part of an operational management system, the scheme should include a monitoring system with a provision for regular reviews of the scheme by management and flight crew. This review should provide the assurance that the scheme is effective and is achieving the desired outcomes.

**Monitoring of workload of flight crew while on duty**

The method by which an AAOC holder chooses to monitor the workload of flight crew should be defined in a policy. The policy should identify trigger levels that indicate the need to reassess the current situation and to make any necessary adjustments. Management and staff should consider these at regular review meetings. The following indicators should be considered—

- (a) geography – terrain
- (b) the type of operation
- (c) meteorological conditions – wind, visibility and low cloud, significant hazardous phenomena, special phenomena
- (d) type and density of traffic – type of air traffic, density of air traffic, aircraft activity forecasts, peak IFR movements
- (e) air traffic services – provision of air traffic control services, provision of flight information services, provision of alerting services, proximity of controlled airspace
- (f) circuit patterns – aerodrome circuit selection, non-standard circuit patterns, noise abatement procedures
- (g) other aerodromes – aerodromes in the vicinity of the aerodrome
- (h) special aircraft operations – non-scheduled larger aircraft, special events, non-radio equipped aircraft, sport/recreation aircraft, military aircraft.

To meet the flight-and-duty scheme requirements for AAOs, an AAOC holder has 2 options; and

- (a) develop a flight-and-duty scheme under rule 115.401(b); or
- (b) use the flight-and-duty scheme contained in AC119-2 which is acceptable to the Director for purposes of this rule.

Advisory circular AC119-2 is a scheme based on the old CASO 3 and has been proven historically to be sound. If adopted, it must be applied in its entirety to AAOs conducted under Part 115.

Any scheme presented for acceptance must contain fixed limits in regard to flight, duty and rest periods. These limits are to be defined and monitored by the AAOC holder. In developing these limitations, an AAOC holder should show that they have addressed the following items—

- (a) adventure aviation operations
- (b) casual or free-lance flight crew
- (c) single pilot crew
- (d) 2 -pilot crews
- (e) flight duty time
- (f) standby periods
- (g) rest periods
- (h) rest facilities



- (i) disrupted schedules due to unforeseen operational circumstances
- (j) any other employment crew may have.

The working documents used in the development of a scheme could be presented in the form of a matrix showing the elements that have been addressed and the weightings that have been applied to each element. Consideration must take into account all the elements that may affect fatigue in relation to the scope of the intended operations.

**115.401(b)(1)** Rest periods prior to flight. It is recommended that the rest period prior to commencing a duty is a minimum of 12 hours. This break should provide adequate opportunity for sleep to minimise the effects of fatigue prior to commencing a duty cycle.

The recovery value of rest periods depends on how much sleep a person is able to obtain. This, in turn, depends on how much of the rest period coincides with the time of day when the brain and the body are primed for sleep by the circadian biological clock.

**115.401(b)(2)** Mixed duties. The intention of this rule is to give consideration to the mixture of duties likely to be undertaken during any duty period and apply a weighting to the likely stress levels. For example a combination of high-concentration aerobic operations and relatively lower level sightseeing operations being conducted during the same duty period may require a reduction in the duty period or an increase in rest to maintain an adequate level of alertness throughout the period.

**115.401(b)(3)** Standby periods. This rule requires any period of reserve or standby away from the place of work or duty to be considered as a form of duty, and some weighting in relation to fatigue should be made. Consideration should also be made for the time of day of commencement and cessation of standby in relation to duty.

**115.401(b)(4)** Flight duty period. This rule requires the AOC holder to take into account the overall effects of fatigue over one duty period. This is from the time that a person is required by an operator to present themselves for duty to the time that an operator no longer requires that person for duty. For example this would normally effect operations where flight crew work to a roster of a month on and a month off, or any similar arrangement. This may have the effect of extending rest periods.

**115.401(b)(5)** Type of operation. This rule requires the AOC holder to take into account the stress and associated fatigue that will affect flight crew when undertaking various types of operation. Consideration should also be given where flight crew are required to perform more than one type of operation within the same flight-and-duty period. The workload of the various types of operation should be analysed and a fatigue weighting applied. Some examples are as follows—

- A to A scenic operation from paved runways, low traffic density and good weather patterns, that is the primary operation of an operator would have a medium to low fatigue weighting.
- High altitude tandem operation would have a high fatigue level and a higher fatigue weighting.
- Aerobic or formation operation would require a high level of concentration and therefore high stress levels and a higher weighting in regard to fatigue.

**115.401(b)(6)** Cumulative duty time. This rule requires the AOC holder to consider the effects of duty over periods of time. This includes the normal working day and the overall period encompassed by the scheme. For example this could include the duty day including any rest and

meal breaks, and the annual duty cycle including public holidays, weekends and annual leave allotments. The weightings against fatigue could be negative in relation to a daily period and positive over the annual period where public holidays, weekends and leave are taken into account. Overall there should be a balance.

**115.401(b)(7)** Cumulative flight time. This rule requires the AOC holder to consider the effects of flight periods over time which could include many factors. This includes the normal working day and the overall period encompassed by the scheme. The weightings against fatigue could vary in relation to a large number of flights over daily period, morning and afternoon operations with a large rest period during the middle of the day and/or a combination of mixed types of operations. The scheme should also consider the effects of fatigue over the annual cycle of the scheme. A workload assessment should be carried in relation to the support provided to flight crew in carrying out their duties and the complexity of the flights within the scope of the operation.

**115.401(b)(8)** Discretionary increases in flight time limitations or flight duty limitations or both. This rule requires the AOC holder to provide for discretionary increases in flight and duty times within the scheme to provide for contingencies that arise from time to time due to unforeseen operational circumstances. Increases in flight and duty times should be assessed as having a negative effect on fatigue and provisions should be made to increase rest periods, provide meal breaks or any other strategy that will provide for fatigue recovery. The operator should have a procedure for approving discretionary increases in either flight or duty time limits. The procedure would cover the nature of the task, the weather, the pilot's experience, any limits to the increase, workload over the last 24 hours, acceptance by the pilot, and authorisation by the operations manager after consideration of all the factors.

**115.401(b)(9)** Circadian rhythm. It must be recognised that people do not function, physically or psychologically, at a steady, unchanging level across the 24-hour day. All of the organs of the body cycle through daily peaks and troughs of efficiency known as circadian rhythms, which are coordinated by a biological clock in the brain. The biological clock keeps the body "in step" with the day/night cycle by being sensitive to light and darkness, to work/rest patterns, and to the patterns of activity of other people. The clock is genetically based, and effectively programmes the body for sleep at night and for wakefulness during the day. It does not usually adapt much to night operations because it is constantly being drawn back to its preferred orientation by the unchanged day/night cycle and the activities of the rest of active society during the day.

Two aspects of circadian rhythms are directly relevant to fatigue management and safety in air operations.

- (a) There are circadian rhythms in alertness and performance capacity, which can affect how a person responds to job demands.

Alertness reaches its daily low-point in the early hours of the morning (about 3am to 5am) when the physiological drive for sleep is greatest. There is a second drop in alertness, and increase in sleepiness, in mid-afternoon, corresponding to the naptime in siesta cultures. The urge to fall asleep at these times is stronger when prior sleep has not been adequate.

Both physical and mental performance capacity reaches a daily low-point at a similar time in the early morning (about 3am to 5am). People working under time pressure, or with high workload, are most likely to make errors at this time. Particularly for tasks that require vigilance, there is also a secondary slump in performance capacity in the mid-afternoon. The time of day of best performance depends on the nature of the task. For example, people usually perform best around noon on tasks that require complex mental

processing. On the other hand, they generally perform best in the early evening on tasks requiring physical coordination and vigilance.

In practical terms, the circadian rhythms in performance capacity mean that people cannot be expected to function equally well at all times of the day.

- (b) There are also circadian rhythms in the ability to sleep. In other words, people simply cannot sleep “at will”. As already mentioned, the physiological drive for sleep is strongest in the early hours of the morning (about 3am to 5am). The physiological drive for waking up is strongest about 6 hours later.

*In practical terms, the circadian rhythms in sleep propensity mean that it is possible to obtain more sleep in a night- time rest period than in a daytime rest period of the same length. Thus night work is associated with maximum sleep loss and with working around the daily low-point in performance capacity.*

**115.401(b)(10)** Days off. This rule requires the AAOC holder to consider the number of days off within the overall scheme. The number of days off including leave entitlements have a bearing on the cumulative effects of fatigue as has already been stated and should be assessed as an integral part of the scheme.

**115.401(b)(11)** Record keeping. This rule requires the AAOC holder to take into account and clearly establish any record keeping activities the operator requires of the flight crew that are to be considered as a duty under the overall scheme. This will also extend to the records, forms and results of the review meetings generated during monitoring of the scheme.

**115.401(c)(1)** This rule places a responsibility onto the AAOC holder performing an adventure aviation operation to not cause or permit any person to fly in an aircraft as a flight crew member or tandem master if the operator knows or has reason to believe that person is suffering from or is likely to suffer from fatigue. A scheme in itself is not sufficient to satisfy this rule as the effects of fatigue are variable between individuals, and the operator will have to monitor the individual fatigue performance and provide within the scheme a method of feedback from staff and make adjustments to the scheme as appropriate.

**115.401(c)(2) & (3)** This rule requires the operator to keep accurate records in relation to adventure aviation flight and duty times including any other hire or reward flight and ground duties. This could be covered within the administrative procedures for all types of record and retained for the period specified.

### **115.403 Flight crew member responsibilities – flight and duty time**

**115.403(a)** This rule prohibits a person to act as a flight crew member when fatigued or likely to become fatigued to a point, which may endanger the aircraft or its occupants.

**115.403(b)** This rule prohibits a person to act as a flight crew member of an AAO unless the person ensures that the limitations prescribed in the scheme relating to the person are not exceeded.

This in effect requires the crew member to have access to the progressive totals and limitations of the scheme. The crew member must have the ability to project the flight-and-duty time for the intended flight or series of flights during planning for flights. The limitations may be exceeded under the conditions specified in the Civil Aviation Act Section 13A and appropriate reporting made.

Crew members working on a freelance basis will need to maintain an individual record of their flying and duty hours so that it can be presented to an operator before undertaking a flying duty.

## Subpart H—Manuals, Logs, and Records

### 115.451 Operating information

The AAOC holder must ensure that the parts of the exposition relevant to the duties of each crew member are current and accessible to the crew member and ground crew. The currency of any part of the exposition should be covered in the general amendment process. The operator would normally make all or only the relevant parts available to crew through the distribution list. Where the AAOC holder has multiple bases then appropriate sections of the expositions will be held at those bases.

### 115.453 Documents to be carried

The AAOC holder must ensure that the documents that are listed are carried where appropriate on each individual flight in addition to those documents required by rule 91.111. These requirements could be addressed in the operational functional area of flight preparation. For example in some areas where operations are conducted there may be no NOTAMs or AIS information.

### 115.455 Daily flight record

The AAOC holder must keep accurate daily flight records for each day an operation is conducted for every aircraft and the records must contain the information stated in the rule. This is in addition to that required of a technical log required by rule 91.619 however, provided suitable explanatory procedures are included in the exposition, the detail required by these two rules could be combined on one document if desired.

It should be noted that items specified in paragraphs (11) to (15) of the rule have to be gathered in such a way that the daily flight record details for every flight may be constructed. The placing of this information in the daily flight record rather than a passenger manifest gives the operator more flexibility as to its completion. The operator must have systems in place however to ensure that the weight and balance information is available to the pilot prior to the flight.

### 115.457 Retention period

The AAOC holder must ensure records are retained for specified periods. This is one of many rules that require records to be compiled and retained for various periods and it is an opportunity to bring together all the records for retention within one central record system. Reference should also be made to rule 115.67.

For convenience, a summary of record keeping requirements for a Part 115 operation over all rule parts is as follows.

- **Rule 115.65** – Personnel records for anyone who is required to hold a licence, rating, certificate, delegation or operator authorisation. Keep until 72 months after the person ceases to be employed.
- **Rule 115.67** – Resource records of the testing, checking and safety calibration of safety critical resources (scales, lifting equipment, fuel pumps, filters). Keep for two years from the date the details are recorded.
- **Rule 115.71** – Flight following and flight plan information. Keep for 12 months after the date of the flight.
- **Rule 115.313** – Training, checking and qualification records. Keep for 12 months after the crew member has left the certificate holders employment.

- Copy of charter, cross-hire or lease agreement. Keep for a year after the date of the last flight under the agreement.
- **Rule 115.361** – Crew member competency checks and flight reviews. Keep for 12 months from the date of that check flight.
- **Rule 115.455** – Daily flight record. Keep for 12 months after the date of the flight.
- **Rule 115.457** – Flight & duty records. Keep for 12 months after the entry was made.

## Appendix A—Qualifications and Competencies of Senior Persons

Hot Air Balloon Operation		
Senior person responsible for adventure aviation operations	Document required	CPL (B)
	PIC experience required	3 years PIC experience with Part 115 certificate holder or equivalent commercial hot air balloon operations; and 200 hours PIC experience on hot air balloons; and Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	CPL (B)
	Currency	Meets currency requirements to act as PIC in one of the operator's hot air balloons; and 200 hours experience in hot air balloon operations.
	Managerial experience required	3 years experience with Part 115 certificate holder or equivalent commercial hot air balloon operations; and 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	Certificate of training acceptable to the Director that provides evidence of competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of hot air balloon maintenance to ensure that all hot balloons operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Parachute-Drop Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL
	PIC experience required	150 hours experience as PIC on the category of aircraft to be operated by the certificate holder; and 750 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	"A" or "B" category instructor rating
	Currency	Holds a current "A" or "B" category instructor rating; and Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 500 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as a qualified instructor; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	LAME or able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and Sufficient knowledge of aircraft maintenance to ensure that all parachute-drop aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or 2 years experience with organisational management systems in the aviation industry.

<b>Tandem Parachute Descent Operation</b>		
Senior person responsible for adventure aviation operations	Document required	Commercial tandem master rating issued by a parachute organisation that has certificated under Part 149.
	Tandem master experience required	Commercial tandem master having completed 1000 tandem descents; and 3 years experience as a tandem master; or 3 years experience that is relevant to the position and is acceptable to the Director.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	Holds and instructor rating issued by a parachute organisation that has been certificated under Part 149.
	Currency	Meets currency requirements to act as a parachute organisation instructor.
	Managerial experience required	3 years experience in a parachutist check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of tandem parachute maintenance to ensure that all tandem parachutes operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.



<b>Glider and Glider Tow Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (G)
	PIC experience required	3 years experience as PIC on the category of aircraft to be operated by the certificate holder; and 150 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	CPL (G) or an "A" or "B" glider instructor rating issued by a gliding organisation that has been certificated under Part 149.
	Currency	Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 150 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as an "A" or "B" category glider instructor for a gliding organisation certificated under Part 149.
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of glider and glider tow aircraft maintenance to ensure that all gliders and glider tow aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Hang Glider/Paraglider and Hang Glider Tow Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	NZHGPA PP2 certificate or Tandem Professional Certificate
	PIC experience required	3 years experience as PIC on the category of aircraft to be operated by the certificate holder; and 200 hours TT as PIC; and Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	HGPG instructor rating, NZHGPA PP2, or Tandem Professional Certificate
	Currency	Meets currency requirements to act as PIC in one of the operator's aircraft or a similar type; and 200 hours experience in HGPG operations.
	Managerial experience required	2 years experience as a qualified instructor for a HGPG organisation certificated under Part 149; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of hang glider/paraglider and hang glider tow aircraft maintenance to ensure that all hang gliders/paragliders and hang glider tow aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	2 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Special Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (A) or CPL (H)
	PIC experience required	150 hours experience as PIC on the category of aircraft to be operated by the certificate holder; and 750 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	CPL
	Currency	Holds a current "A" or "B" category instructor rating; and Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 500 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as a qualified instructor; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	LAME or able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and Sufficient knowledge of aircraft maintenance to ensure that all aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or 2 years experience with organisational management systems in the aviation industry.

<b>Microlight Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (M)
	PIC experience required	150 hours experience as PIC on the category of aircraft to be operated by the certificate holder; and 500 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	Microlight instructor certificate issued by a microlight organisation that has been certificated under Part 149.
	Currency	Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 500 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as a qualified instructor for a microlight organisation that has been certificated under Part 149; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	LAME or able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and Sufficient knowledge of microlight aircraft maintenance to ensure that all microlight aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or 2 years experience with organisational management systems in the aviation industry.

<b>Tandem Parachute Descent Operation</b>		
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of tandem parachute maintenance to ensure that all tandem parachutes operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Glider and Glider Tow Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (G)
	PIC experience required	3 years experience as PIC on the category of aircraft to be operated by the certificate holder; and 150 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	CPL (G) or an "A" or "B" glider instructor rating issued by a gliding organisation that has been certificated under Part 149.
	Currency	Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 150 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as an "A" or "B" category glider instructor for a gliding organisation certificated under Part 149.
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of glider and glider tow aircraft maintenance to ensure that all gliders and glider tow aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for quality assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Hang Glider/Paraglider and Hang Glider Tow Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	NZHGPA PP2 certificate or Tandem Professional Certificate
	PIC experience required	3 years experience as PIC on the category of aircraft to be operated by the certificate holder; and 200 hours TT as PIC; and Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	HGPG instructor rating, NZHGPA PP2, or Tandem Professional Certificate
	Currency	Meets currency requirements to act as PIC in one of the operator's aircraft or a similar type; and 200 hours experience in HGPG operations.
	Managerial experience required	2 years experience as a qualified instructor for a HGPG organisation certificated under Part 149; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	Able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of hang glider/paraglider and hang glider tow aircraft maintenance to ensure that all hang gliders/paragliders and hang glider tow aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	2 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.

<b>Special Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (A) or CPL (H)
	PIC experience required	150 hours experience as PIC on the category of aircraft to be operated by the certificate holder; and 750 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	CPL
	Currency	Holds a current "A" or "B" category instructor rating; and Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 500 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as a qualified instructor; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	LAME or able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and  Sufficient knowledge of aircraft maintenance to ensure that all aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or  2 years experience with organisational management systems in the aviation industry.



<b>Microlight Aircraft Operation</b>		
Senior person responsible for adventure aviation operations	Document required	CPL (M)
	PIC experience required	150 hours experience as PIC on the category of aircraft to be operated by the certificate holder; and 500 hours TT PIC; or Experience acceptable to the Director in the type of adventure aviation operation to be performed.
	Managerial experience required	3 years experience in an operational control position that is acceptable to the Director.
Senior person responsible for crew training and competency assessment	Document required	Microlight instructor certificate issued by a microlight organisation that has been certificated under Part 149.
	Currency	Meets currency requirement to act as PIC in at least one type of the certificate holder's aircraft, with 500 hours experience in that category of aircraft.
	Managerial experience required	2 years experience as a qualified instructor for a microlight organisation that has been certificated under Part 149; or 2 years experience in a pilot check and training role that is acceptable to the Director.
Senior person responsible for the control and direction of maintenance	Document required	LAME or able to successfully complete a test or examination administered by the Director to determine the applicant's competency to perform maintenance planning and maintenance control functions.
	Vocational experience required	Demonstrable knowledge and understanding of the certificate holder's exposition and maintenance programme requirements, and Sufficient knowledge of microlight aircraft maintenance to ensure that all microlight aircraft operated under the certificate holder's authority are maintained in an airworthy condition, and that all maintenance activities required by the certificate holder's maintenance programme are satisfactorily accomplished.
	Aviation experience required	3 years of relevant experience that is acceptable to the Director.
Senior person responsible for the organisational management system	Document required	Certificate of training for Quality Assurance that is acceptable to the Director.
	Vocational experience required	Demonstrable knowledge and awareness of general quality assurance/quality management systems and 3 years of experience in an operational role in the aviation industry; or 2 years experience with organisational management systems in the aviation industry.

## Appendix B—Contracting (General)

### Introduction

This section details the considerations for any adventure aviation operator when contracting activities to contractors who may, or may not, be certificated by the CAA.

This contracted work is considered to be an extension of the work carried out by the certificated adventure aviation operator and under the control of its operational procedures and operational management systems.

The responsibility for providing the necessary documentation and liaison rests with the adventure aviation operator.

### General conditions

When activities are contracted, the contractor's facilities, personnel, and procedures related to the contracted activity should comply with Part 115 or other rule requirements for the duration of that activity.

As the rule does not specify that a CAA certificate is required, an operator may contract activities to a non-certificated organisation provided there is provision in the operator's exposition for contracting. The operator should have their own expertise to decide whether the contractor meets the necessary standards and that any activity is carried out in accordance with the operator's instructions.

An operator may find it necessary to include several specialist contractors in their exposition to enable the training and maintenance activities supporting their operation. The operator should provide the Director with evidence that it has the expertise and procedures to control the contractors.

The operator is responsible for all activities carried out by their contractors. Where an operator fails to control a contractor it may put at risk part or all of its own Part 115 certification.

The extent of the contracting is only limited by the expertise and procedures of the Part 115 operator. Acceptance of the contract is shown by the Director accepting the exposition containing a specific section on the control of contractors and a list of those contractors.

### Procedures

When creating procedures for the control of contractors the following information should be considered.

- A pre-assessment procedure where the certificated organisation visits a prospective contractor before any activity is placed with the contractor. The visit will determine whether those parts of the contractor's expertise or services that it wishes to use meet the requirements of the AAOC holder.
- If the sub-contractor does not meet the requirements, a procedure may be needed to ensure the upgrade of the relevant parts of the contractor's expertise or services to meet Part 115
- An assessment of the extent to which the AAOC holder will use the contractor's expertise or services
- Procedures for the control of contractors, to record visits to contractors, to have a corrective action follow-up plan, and to show when contractors are being used

- Procedures for the audit of the contractors by the AOC holder's organisational management system personnel.

## Appendix C—Contracting Maintenance

### Introduction

This section details the procedures to be followed when an adventure aviation operator wants to arrange with a maintenance organisation, for the maintenance organisation to carry out some or all of the operator's maintenance tasks. This information will also be of use to maintenance organisations certificated under Part 145 and wishing to carry out contracted maintenance tasks for adventure aviation operators.

### Responsibilities

The aircraft operator is responsible for all aspects of the aircraft maintenance. This includes responsibility for the following.

- Properly planning all necessary maintenance
- Providing adequate documentation, such as operator's maintenance manuals, aircraft maintenance, repair, and parts manuals, maintenance programmes and associated recording documents necessary to ensure that the planned maintenance can be properly carried out and recorded
- Providing aircraft reliability programmes, and control of the development of maintenance programmes
- Airworthiness occurrence control including reporting and control of defects
- Complying with all applicable airworthiness directives
- Assessing, and actioning as appropriate, all manufacturers' service bulletins or other service recommendations
- Providing adequate and trained technical staff so that the maintenance can be properly carried out
- Providing adequate accommodation, equipment, tools, calibration and facilities so that the planned maintenance can be properly carried out
- Providing, accepting, and storing aircraft spares
- Making the aircraft available to the persons who are to perform the maintenance whenever maintenance is due, and giving adequate technical direction for all work to be carried out
- Carrying out necessary servicing of aircraft and aircraft components
- Completing all required flight records and logbooks, and actioning any required entries
- Maintaining all aircraft documents such as aircraft flight manuals and associated minimum equipment lists to their correct status.

**Note:** The operator may choose to contract other persons or organisations to carry out any or all of the above tasks. However, contracted arrangements for accomplishing these tasks do not absolve the operator from the final responsibility for ensuring the safe operation and continuing airworthiness of their aircraft.

### General conditions

When establishing a contract between an adventure aviation operator and a maintenance organisation to carry out any of the above listed tasks, the following general conditions should be considered by the adventure aviation operator.

- Arrangements that satisfy the CAA that the maintenance organisations are able to meet the maintenance requirements of the rules
- A formal agreement established between the two parties defining which functions are to be contracted. This agreement should form a part of the exposition of each party as appropriate
- Nomination of a senior person from within the operator's company to liaise with the contracting organisation on contract matters
- An arrangement in which more than one maintenance organisation is nominated by an operator in respect of a particular aircraft type, will not normally be acceptable to the Director, other than for tasks carried out at bases other than the maintenance base
- In its assessment of the arrangements made by the operator for the contract of any of the listed tasks, CAA may need to examine all technical agreements between the parties. The contract should form a part of the exposition of each organisation
- Any proposal to significantly change the contract or technical agreements requires the prior acceptance of the CAA and should be notified as soon as practicable.

*Note: This could be, for example, an intention to change to another maintenance organisation, or a significant organisational, procedural or technical change to an agreement. Delayed notification may result in the changes not being processed in time for the intended date of change.*

### **Detailed content of the maintenance agreement**

*Note: Written agreements should clearly define what action is allowed by the maintenance organisation without prior consultation, and what tasks require operator agreement.*

*Note: Whenever an aircraft is presented for scheduled or unscheduled maintenance, it is essential that a precise indication is given of the inspections required. All known defects must be documented, together with any additional work required – after consultation with the maintenance organisation as necessary.*

The formal written agreement should consider the following items, as appropriate for the particular arrangement.

- Organisational structure – the general divisions of responsibility between the two parties for the overall support of the aircraft, compliance with statutory regulations and other relevant requirements
- Coordination between the 2 parties – contact points for the interchange of airworthiness matters
- Responsibilities for any secondary authorisations and sub-contracted tasks such as non-destructive testing, aircraft weighing or painting
- Provision of adequate numbers of suitably trained and qualified engineering personnel
- Planning of maintenance manpower allocation and control
- Procedures for developing and carrying out reviews and amendments to the maintenance schedule. Arrangements for authorising schedule variations
- Preparation of documentation needed to implement schedule requirements
- Procedures for the assessment and incorporation of service bulletins, modifications and manufacturers technical programmes
- Management and operation of reliability programmes
- Provision of covered accommodation for aircraft undergoing maintenance
- Provision of tools and equipment for scheduled and unscheduled tasks

- Component and material control – the provision of spares, their source, acceptance and storage. Particular attention must be paid to the provision of replacement parts and components, for defect rectification, and of spares pooling arrangements
- Control, distribution and amendment of technical manuals, publications and drawings
- Compilation and control of technical records, compliance with airworthiness directives, component life control, and completion of logbooks
- Defect control and management – control of deferred and repetitive defects
- Arrangements for line station support and the rectification of defects away from base
- Provision of management and technical engineering instructions
- Airworthiness occurrence control and reporting
- Responsibilities for quality assurance, definition of the quality assurance programme
- Responsibilities of both parties for effective follow-up of QA reports
- Operator's name and adventure aviation operator certificate number. Name and CAA certificate number, if any, of the contracting organisation
- Title and reference number of the exposition or engineering manual in which the contracting arrangements are described.

## Appendix D—Electronic Records and Documentation

### General information

Documentation and records are required to be kept in an easily accessible form so that operations and other requirements can be assessed later if required. These documents also form an important part of the reference material for other operations tasks, staff training, and continued adventure aviation operator responsibilities.

Records can be kept electronically but systems should ensure information security, integrity, and retrieval. A system of backing up electronic data is considered vital. Procedures for electronic record and document keeping should consider the following.

- Prevention of data loss in the event of power interruptions
- Software control, including amendments and prevention of corruption
- Prevention of unauthorised access
- Audit trail facilities
- Archiving of data in a similar manner to hardcopies, and for a similar period
- Backup of critical information, preferably once a day, with storage for that backup information
- Data verification, on entry and retrieval
- Publication provisions
- Staff training
- Amendment of stored data
- Problem report register including the problem details and solutions.

**Note:** For ease of access records may also be microfilmed, magnetically stored or burnt to CD or similar media but the original documents should be retained in a secure environment.

## Appendix E—Maintenance Programme

### Example programme

This maintenance programme sample layout combines the tabular format and a written format to describe the inspections required. The programme itself is relatively straightforward and common of smaller operators. The programme includes the descriptions of inspections, periods of inspections, and references to manufacturers' maintenance manuals including inspection schedules and other maintenance standards.

### The maintenance programme as required by Part 115

Part 115 requires a maintenance programme for every aircraft and parachute assembly in use by the certificate holder (can include a hang glider and paraglider).

The maintenance programme must include the following—

- the equipment type
- the serial number
- registration mark (or other identifiable scheme).

The programme has to describe the instructions and procedures for the performance of maintenance required to maintain airworthiness, including; and

- A schedule, usually provided by the manufacturer, detailing the maintenance required in relation to—
  - time in service
  - cycles
  - calendar time
  - number of system operations
  - any combination of above indicators.

*Note: The items from the manufacturers schedule can be included by reference. They do not need to be re-written into the programme.*

- Inspections and tests
- Areas to be inspected
- Required parts
- Correct performance of maintenance
- Correct parts and materials used.

The following procedures are required to be part of the programme; and

- Induction of the 'aircraft' onto the programme
- A procedure to ensure that every inspection required is carried out
- Recording of defects and a sample of the recording of the defects
- A procedure is required to show the correction of the defects found and the deferral of any defects if this is appropriate
- The records required by rule 91.623



- In the case of a hang glider or paraglider; and
  - A description of the work performed or relevant acceptable data.
  - The name of the person certifying the work performed if the person is contracted-in.

The maintenance programme developed must be of an equivalent to the requirements of Part 91 Subpart G.

The maintenance programme developed must meet the requirements of rule 115.61.

The maintenance programme developed must meet the requirements of the equipment manufacturer's maintenance schedule.

### Sample of a 'required inspections' chart(s) that can be developed

Item	Period	Standard
Radio stations and navigation equipment tests and inspections required by rule 91.605(e)(1)	24 months	Part 43 Appendix B
Altimeter and altitude reporting equipment tests and inspections required by rule 91.605(e)(2)	24 months	Part 43 Appendix D
	Following any opening and closing of the static pressure system, except for the use of system drain and alternate static pressure valves, or where self-sealing disconnect coupling is provided.	
	Following installation of or maintenance on, the automatic pressure altitude reporting system where data correspondence error could be introduced.	
SSR transponder tests and inspections required by rule 91.605(e)(3)	24 months	Part 43 Appendix E
ELT tests and inspections I.A.W rule 91.605(e)(4)(i)	12 months / 100hrs whichever soonest.	Part 43 Appendix F
ELT tests and inspections I.A.W rule 91.605(e)(4)(ii)	24 Monthly	Manufacturer's Instructions
Compass calibration	24 months	CAA advisory circular

Item	Period	Standard
required by rule 91.605(e)(5)	Following any out-of-phase event that may affect the calibration of the compass.	AC43-7
First aid kit	12 months	Check contents for serviceability, replace time expired items
Fire extinguisher	12 months	Manufacturer's requirements
Re-establish empty weight and centre of gravity	Changes have been made to the aircraft that could affect the empty weight and centre of gravity	Manufacturer's instructions
	If any reason to suspect that info in the a/c flight manual is no longer accurate	
Weigh aircraft	120 months	Manufacturer's instructions
Review of airworthiness	365 days	Part 43 Subpart D

Check title	Content	Period
50 hour	All 50 hour check items from manufacturers schedule	50 flight hours or 12 months whichever occurs first
100 hour	All 50 & 100 hour check items from manufacturers schedule	100 flight hours or 12 months whichever occurs first
200 hour	All 50,100 & 200 hour check items from manufacturers schedule	200 flight hours or 12 months whichever occurs first
Review of airworthiness	CAA Form 24066/06	365 days + 36 day latitude per rule 91.615.