



Civil Aviation Authority
of Fiji

STANDARDS DOCUMENT AIR OPERATOR'S CERTIFICATE

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Civil Aviation Authority of Fiji
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Standards Document

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AIR OPERATOR'S CERTIFICATE

SD - AOC

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Nadi International Airport
Fiji

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PREFACE

General

Fiji’s National Aviation Law consists of a three-tier regulatory system, comprising Acts, Regulations and Standards Documents; the purpose of which is to ensure, where deemed appropriate, compliance and conformance with ICAO Standards and Recommended Practices (SARPS).

The three tier regulatory system represents Fiji’s Primary Legislation System and Specific Operating Regulations to meet Critical Elements CE1 and CE2 of ICAO’s Eight Critical Element of a safety oversight system.

Standards Documents (SD) are issued by the Civil Aviation Authority of Fiji under the provision of Section 14 (3) (b) of the Civil Aviation Authority Act 1979 (CAP 174A)

Where appropriate, the SD also contains technical guidance (Critical Element CE5) on standards, practices, and procedures that are acceptable to the Authority.

Notwithstanding the above, and where specifically indicated in this Standards Document that such a provision is available, consideration may be given to other methods of compliance that may be presented to the Authority provided they have compensating factors that can demonstrate a level of safety equivalent to or better than those prescribed herein. Accordingly, the Authority will consider each case based on its own merits holistically in the context of and relevancy of the alternative methods to the individual applicant.

When new standards, practices, or procedures are determined to be acceptable, they will be added to this document.

Purpose

This Standards Document – Air Operator’s Certificate of Competency is issued by the Civil Aviation Authority of Fiji pursuant to Section 14 (3) (b) of the Civil Aviation Authority Act 1979 (CAP 174A). This Document is intended for use by CAAF, applicants for, and holders of, an Air Operator Certificate and for their staff.

Change Notice

This Standards Document has been developed pursuant to the Authority’s obligation to provide oversight on Air Operator Certificate operators and their personnel, as well as the operator’s obligation to comply with standards notified by the Authority and is the means by which such notification is given.



GEORGE TUDREU
ACTING CHIEF EXECUTIVE

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CHAPTER 1 - THE AIR OPERATOR'S CERTIFICATE

1 REQUIREMENT TO HOLD A CERTIFICATE

- 1.1 An aircraft registered in Fiji, and a foreign registered aircraft on lease, charter, cross-hire or otherwise under the operational control of an operator, may not fly for the purpose of public transport other than under and in accordance with the terms of an Air Operator's Certificate of Competency granted to the operator by the Chief Executive of the Authority.
- 1.2 The term 'public transport' is defined in the ANR and anyone in doubt as to whether particular flights may be made without the operator being the holder of a Certificate should seek legal advice. In relation to Air Operator's Certificates, 'operator' is defined as the person for the time being having operational control of the aircraft.

2 APPLICATION FOR A CERTIFICATE

- 2.1 An operator who has not previously held a Certificate, or does not currently hold one, should apply on the appropriate form, which is available from the Authority's website or headquarters.
- 2.2 The application should be accompanied, if possible, by the relevant operations and training manuals and should be submitted as far in advance as possible of the proposed date for the start of operations. The MINIMUM notice required is six weeks from the date the completed operations and training manuals are received by the Authority. The interval between application and grant of a Certificate will depend primarily upon matters within the control of the operator and no undertaking can be given that the Chief Executive will be able to reach a decision within a particular period.
- 2.3 On receipt of the application, an inspection staff member will be assigned to the applicant. The inspection staff member will be required to carry out a detailed assessment of all aspects of aircraft operation, including management structure, adequacy of ground and flying staff and arrangements for their training, premises, equipment and aircraft. A detailed assessment will also be made of the operations and training manuals. All these matters will be assessed in relation to the scale, scope and circumstances of the applicant's proposed operations. Manuals will be retained by the Authority during the currency of a Certificate (see also Section 2).
- 2.4 Where appropriate, the application will be referred to airworthiness staff for advice as to the adequacy of arrangements and facilities for aircraft maintenance. (See Section 3 of this document).
- 2.5 If the assessment procedure reveals a significant deficiency, which cannot readily be dealt with in discussion, the operator will be advised in writing of the nature of the deficiency and the action required.
- 2.6 One or more proving flights on the aircraft type for which application is made will normally be required, and will be observed by inspection staff who will specify the route(s) to be flown.
- 2.7 Before providing any air service for hire or reward, operators must ensure that they comply with the Air Transport (Licensing of Air Services) Regulations. Information on permit and licence application procedures may be obtained from the Authority.

3 FORM OF CERTIFICATE

- 3.1 Certificates are normally granted for a period of one year. The type(s) of aircraft that may be flown and the region in which operations may be conducted will be specified in the

Certificate. Included in the Certificate will be General Conditions applicable to any holder and Special Conditions relevant to and to be observed by the applicant.

- 3.2 A specimen Certificate is at Appendix A. The regions specified on page 2 of the Certificate have been found to meet most requirements, but an operator may apply for a Certificate for a region other than a 'standard' region.
- 3.3 Operators should ensure that the General and Special Conditions of their AOC are brought to the attention of their managerial and operating staff. The publication of a copy of the AOC in a relevant volume of the company operations manual will suffice in this respect.

4 APPLICATION FOR SECOND OR SUBSEQUENT CERTIFICATES

- 4.1 Holders requiring renewal of a Certificate should apply to the Authority not more than 60 working days prior to the expiry date. To ensure continuity of operations, any renewal application must be submitted at least 30 working days in advance of the expiry date.

5 VARIATION OF A CERTIFICATE

- 5.1 Application for the variation of a Certificate (e.g. inclusion of an additional aircraft type or extension of region) should be made a minimum of 30 working days before the proposed introduction of the change. If the application is for the inclusion of an additional type of aircraft, the completed training and operations manuals (or additions to existing manuals) for the type should accompany the application. Detailed information will be required on arrangements for the maintenance of the aircraft, and for any necessary training and checking of crews.
- 5.2 On receipt of an application for variation, the inspection staff member assigned to the operator will normally be directed to make a special investigation that may include the requirement to observe a proving flight without revenue passengers on board. The flight destination must be acceptable to the operator's assigned inspection staff member.

6 REFUSAL, REVOCATION ETC. OF A CERTIFICATE

- 6.1 Where an application for the grant or variation of an Air Operator's Certificate is refused, or is granted in terms other than those requested by the applicant, a notice will be served stating the reasons for the decision, and the applicant may request that the Authority review the case.
- 6.2 Where it is proposed to vary, suspend, or revoke a Certificate, other than on the application of the holder, notice of the proposal, together with the reason for it, will normally be served on the person concerned who may request that the case be reviewed by the Authority. A Certificate may be suspended without notice, where safety may be compromised, pending an inquiry into the case.
- 6.3 If an operator ceases the operation(s) for which the Certificate was issued, or if the Authority suspends or revokes the Certificate, it must be returned immediately to the Authority.

7 LEASED AIRCRAFT

- 7.1 Operations and airworthiness of foreign registered aircraft under wet or dry leasing arrangements by the holders of an AOC domiciled in Fiji are governed by ANRs 38, 59, 147 or by ANR 24A (as proposed in Batch 2).
- 7.2 All leased aircraft will be subject to an Air Navigation Regulation Directive to the extent necessary to satisfy the Authority as to the operational and airworthiness standards achieved.
- 7.3 Policy for airworthiness certification of leased aircraft is that:
- 7.3.1 In accordance with international practice, the Authority is empowered to inspect such aircraft to ascertain whether they meet ICAO airworthiness Standards.
 - 7.3.2 If the State of Registry of the leased aircraft delegates, with the agreement of the Authority, the responsibility for continuing airworthiness of the aircraft, the Authority will exercise that function in accordance with the Authority's current policy.
 - 7.3.3 Where a lease of less than one calendar year is altered to become valid for a period greater than one calendar year, the aircraft is to be brought to Authority standards as early as possible and in all cases not later than one calendar year from the commencement of the original lease.
 - 7.3.4 The Authority's usual procedures will apply.
 - 7.3.5 Operators will be responsible for the reimbursement of all costs in relation to any investigations required by the Authority with respect to an application to operate leased aircraft.

8 ROUTINE LIAISON AND INSPECTION

- 8.1 During the currency of a Certificate, the Authority will require periodic reports on the continued competence of the holder. In order to achieve this, frequent liaison and inspection visits to each operating base and to the operator's outstations will be made by the Authority's inspection staff members. Inspection staff will normally also wish to visit handling agents appointed by the operator, both in Fiji and overseas. This will be in addition to the operator's own audits and/or inspections of their agents. Inspection staff will require the operator to provide evidence of the operator's oversight of their agents and these may reports may be sufficient evidence of an agent's satisfactory performance. These checks are conducted to assess the suitability of an operator's organisation, base facilities, overall standard of operation and level of compliance with statutory and Operations Manual requirements.
- 8.2 Flight inspections will also be carried out during the currency of a Certificate. The purpose of these audits/inspections is to assess the adequacy of the procedures established by the operator and the facilities provided by him, to enable the crew to perform their duties both in the air and at aerodromes away from base; to examine the standard of flight deck management and operation by the crew; and to assess the level of compliance with statutory and Operations Manual requirements. When required by the Inspection staff, the operator will provide a seat on the flight deck from which the officer can closely monitor the operation. (See General Condition A in Appendix A). Arrangements for such inspections will normally be made at least seven days in advance but the right is reserved for inspection staff to require an appropriate seat on an aircraft without prior notice.

- 8.3 The conduct of tests by the Authority's Authorised Examiners, and of crew training generally, will also be observed by inspection staff during the currency of a Certificate. The purpose of these inspections is to ensure that training and testing is in compliance with the operators training manual and within the terms and conditions of the appointment of Authority Authorised Examiners.
- 8.4 All Inspection staff are 'authorised persons' for the purposes of the ANR, and are also authorised for the purposes specified in General Conditions A1, A2 and A3 of each Air Operators Certificate (see Appendix A). Inspection staffs carry an Authorisation Card that will be produced on request.
- 8.5 Operators are to ensure that all their operating staff are fully informed of the foregoing.
- 8.6 No fee or fare will be paid in respect of the carriage of an inspection staff member carrying out such a duty, but operators will be expected to provide a passenger ticket and a seat on the aircraft. The notice to be given requiring such a seat will normally be at least seven days, but the circumstances may warrant a shorter notice.
- 8.7 To keep the Authority informed on the adequacy of aircraft maintenance arrangements, Airworthiness inspection staff will make periodic audits of the operator's facilities and records.

CHAPTER 2 - ORGANISATION AND FACILITIES

1 MANAGEMENT AND EXECUTIVE STAFF

1.1 An effective management structure is essential and it is particularly important that the operational management should have proper status in the organisation and be in suitably experienced and competent hands. The duties and responsibilities of managers and senior executives must be clearly defined in writing, and chains of responsibility firmly established. The number and nature of the appointments will vary, of course, with the size and complexity of the Organisation. An excess of managers can lead to fragmentation of responsibility and control and to as much difficulty and inefficiency as a shortage - and a lowering of operational standards can as easily result.

1.2 The Authority requires that 'nominated persons' be appointed to fill positions that have the following responsibilities and accountabilities. Note that titles have not been used – that is the prerogative of the organisation. What is of significant importance is that a person is nominated with particular responsibilities. The Authority is prepared to accept that an operator may prefer that their organisation has some changes in the accountabilities from those listed below or that the accountabilities may be allocated to more than one person.

These post holders should be available at the Operator's nominated headquarters during normal working hours unless on normal rostered duty. Any absence longer than 7 days should be notified to the Authority, and an acting appointment made which is acceptable to the Authority.

The Authority expects that persons for nomination to these positions should have certain minimum qualifications, experience, licences, ratings or other form of evidence of competence. Appendix 1 to this section gives details of the expected minimum requirements for each nominated position. In exceptional circumstances and for a limited period of time, the Authority may exercise its discretion and consider a nominee who does not meet the requirements listed, provided that they have comparable experience and are assessed as being able to effectively perform the functions associated with the position.

In a small organisation, the Authority is prepared to accept that one person may hold more than one position but, in order to avoid any conflict of interest, the person responsible for the maintenance, airworthiness and serviceability of the operator's aircraft cannot also have responsibility for the management systems. Also, in a small organisation, a nominated position holder may not necessarily be engaged, employed or contracted full-time but must not hold any position in another aviation organisation or conduct any other aviation activity that could, in the view of the Authority, give rise to any conflict of interest

1.3 The nominated responsibilities are:

Accountable Manager. This person shall have the authority and responsibility within the applicant's organisation of ensuring that all activities authorised under the Certificate and undertaken by the organisation can be financed, properly resourced and carried out in accordance with the requirements and standards prescribed under the Air Navigation Regulations and these Standards. The person shall also ensure that the activities undertaken by the organisation are carried out in accordance with the requirements of the organisation's own documentation.

Person responsible for day-to-day flight operations. This person shall be responsible for the day-to-day conduct of the flight operations, including:-

- (a) Ensuring that all operations are conducted in accordance with the Air Navigation Regulations and associated documents;
- (b) Overseeing the arrangement and management of crew rosters;
- (c) Overseeing the exercise of the organisation's operational control of its activities;

- (d) Maintaining a record of the licences, ratings, area and route qualifications and any other operating restrictions or limitations held by or imposed on the operator's crew members;
- (e) Ensuring that flight crew comply with the Authority's Flight and Duty Time limitations as specified or referred to in the organisation's Operations Manual;
- (f) Ensuring compliance with the loading procedures specified for each aircraft type operated by their Company, and to oversee the proper completion of loading documents; and
- (g) Maintaining a complete and up to date reference library of operational documents.

Person responsible for the training, checking competency and qualifications of crew members. This person shall be responsible for:-

- (a) Preparation of training plans that will ensure that the operator has sufficient crews to carry out the activities authorised by their Air Operator Certificate;
- (b) Overseeing the arrangements made with outside organisations for the provision of training and checking activities, including the monitoring of the outside organisation's continued approval by their regulatory authority;
- (c) Ensuring that the operator is able to meet the training and checking requirements of ICAO's Annex 6 at paragraph 9.3.1 which is documented in this Standards Document at Section 2 Chapter 2;
- (d) Ensuring that all crew members have received appropriate training and are familiar with and competent in such operational aspects as Crew Resource Management (CRM), Human Factors (HF) and Threat and Error Management (TEM);
- (e) Monitoring operational standards, maintaining training records and supervising the training and checking of flight crew.
- (f) Ensuring that the competency checks required by Regulation 45 are carried out.
- (g) Familiarizing and training their crews in the acceptance and handling of dangerous goods.

Person responsible for the maintenance, airworthiness and serviceability of the operator's aircraft. This person shall have the responsibility for ensuring that all relevant maintenance is carried out at the appropriate time by an organisation or personnel with appropriate qualifications and approvals. It shall include responsibility for the accomplishment of relevant Airworthiness Directives or other similar instructions, including all matters relevant to the registration, certification and operation of any aircraft used to conduct an operation authorised by the organisation's Air Operator's Certificate. It shall also include responsibility for allocating aircraft appropriate to the planned operations, tasks or schedules. The person should have:

1. Proven competency in civil aviation;
2. Appropriate technical qualifications;
3. Appropriate managerial experience including a working knowledge of aviation safety standards and the ability to manage in such an environment;
4. A working knowledge of the Maintenance Management Exposition and the relevant Standards Documents, as appropriate:-
 - (a) Standards Document-Air Operator Certification;
 - (b) Standards Document-Airworthiness of Aircraft;
 - (c) Standards Document-Licensing of Aircraft Maintenance Engineers;
 - (d) Standards Document-Aircraft Maintenance Organisations; and
 - (e) Standards Document- Aviation Training Institutions
5. Familiarity with the Organisation's Quality System;
6. An understanding of the Organisation's contracted and sub-contracted Maintenance and Technical/Engineering Services arrangements (contract content); and
7. Appropriate technical knowledge and maintenance specifications or schedules of the type(s) operated.

Person responsible for the operator's management systems. This person shall have the

responsibility for the conduct, in relation to the flight operations and maintenance oversight responsibility of the operator, of the operator's management systems. This shall include but not necessarily be limited to quality assurance, safety management, risk management, and where required, the operator's flight data or flight operations quality assurance programme.

~~**Flight Safety Officer.** This position is a specifically titled position with responsibility for ensuring that investigations into reportable occurrences in the flight operations arena are conducted in accordance with documented company procedures, appropriately recorded in the organisation's safety management system records and that any corrective actions are followed through to satisfactory implementation. The incumbent should also be responsible for the dissemination of safety information to crew members on a regular basis as well as monitoring operations with a view to making recommendations for improvements to operational safety.~~

Focal point for industry consultation. This is not a mandatory position but if the organisation wishes to participate in the industry consultation process run by the Authority, they should nominate a focal point within their organisation for such consultation. They can, if they wish, nominate more than one focal point and make them individually responsible for specific areas of consultation. The person or persons nominated should have a technical background or experience so that they can ensure that any consultation material is directed to those in the organisation who are specialists in the matters under consultation.

- 1.4 In general, the appointment of deputies for managerial posts should be kept to a minimum and particular care should be taken in defining their functions and responsibilities. The Authority will need to be satisfied that the management organization is adequate and properly matched to the operating network and commitments.
- 1.5 Flying hours of crew members who hold administrative positions should be restricted to the extent necessary to permit them to carry out those duties effectively.
- 1.6 The positions held by key personnel will be listed in each AOC, and it is a condition of the AOC that the Authority shall be given notice of any intended change in appointments or functions. In the event of any absence from duty in excess of 7 days, whether due to sickness, leave or any other cause, the operator shall appoint a person, acceptable to the Authority and meeting the requirements for the position, to act in the position during the absence.

2 FLYING STAFF

- 2.1 It will be necessary for operators to satisfy the Authority that they have a sufficient number of flight crew for the operations to be undertaken. The adequacy of the staff will not be assessed against a set formula, as there will clearly be a wide variation in requirements according to particular circumstances. It is highly desirable, however, that all flying staff should be employed full-time. The employment of part time or 'freelance flying staff will be acceptable only in abnormal circumstances.
- 2.2 Arrangements must be made for the supervision of all flying staff by persons having the experience and qualities necessary to ensure the maintenance of high professional standards. This may necessitate additional appointments such as Flight or Fleet Captains, Check and Training Captains, Training Captains and even Training First Officers. The duties and responsibilities of these officers should be carefully defined, and their line flying commitments suitably restricted in order that they may have sufficient time for their administrative functions. The Authority will need to be satisfied that arrangements for the supervision of crew members are properly related to the size and nature of the operator's Organisation.

3 GROUND STAFF

- 3.1 The number of staff needed will depend primarily upon the nature and the scale of flight operations, and the Authority will take full account of the operator's particular circumstances. The operations and traffic departments, in particular, should be adequately staffed with trained personnel who have a complete understanding of the nature of their duties and responsibilities. Operators will be expected to provide any further training that may be necessary from time to time (e.g. when new types of aircraft are acquired) and the arrangements in this regard will be taken into account when considering an application for a variation to a Certificate. An operator may elect to contract out some or all of the services known as traffic handling, which includes such functions as passenger check-in, baggage handling, boarding and disembarkation supervision and related duties. Nevertheless the operator retains the responsibility of ensuring that these activities are conducted in a safe and effective manner.

3A FLIGHT OPERATIONS OFFICER/FLIGHT DISPATCHER

- 3A.1 Fiji does not license flight operations officer/flight dispatcher, however persons employed by an air operator in conjunction with an approved method of control and supervision and carries out the functions of flight operations officer/flight dispatcher must be qualified.

- 3A.2 In accepting proof of qualifications other than the option of holding of a flight operations officer/flight dispatcher licence, the State of the Operator, in accordance with the approved method of control and supervision of flight operations, shall require that, as a minimum, such persons meet the requirements specified in Annex 1 for the flight operations officer/flight dispatcher licence.

- 3A.3 A flight operations officer/flight dispatcher shall not be assigned to duty unless that person has:

- a) Satisfactorily completed an operator-specific training course that addresses all the specific components of its approved method of control and supervision of flight operations specified in Annex 6 Part 1 paragraph 4.2.1.3;

Note.— Guidance on the composition of such training syllabi is provided in the ICAO Training Manual (Doc 7192), Part D-3 — Flight Operations Officers/Flight Dispatchers. This training course however must be approved by the Authority and such persons conducting the course must also be qualified.

- b) made, within the preceding 12 months, at least a one-way qualification flight in the flight crew compartment of an aeroplane over any area for which that individual is authorized to exercise flight supervision. The flight should include landings at as many aerodromes as practicable;

Note.— For the purpose of the qualification flight, the flight operations officer/flight dispatcher must be able to monitor the flight crew intercommunication system and radio communications, and be able to observe the actions of the flight crew.

- c) demonstrated to the operator a knowledge of:

- 1) the contents of the operations manual described in Appendix 2 of Annex 6 Part 1;
- 2) the radio equipment in the aeroplanes used; and
- 3) the navigation equipment in the aeroplanes used;

- d) demonstrated to the operator a knowledge of the following details concerning operations for which the officer is responsible and areas in which that individual is authorized to exercise flight supervision:

- 1) the seasonal meteorological conditions and the sources of meteorological information;
- 2) the effects of meteorological conditions on radio reception in the aeroplanes used;
- 3) the peculiarities and limitations of each navigation system which is used by the operation;
and
- 4) the aeroplane loading instructions;
- e) demonstrated to the operator knowledge and skills related to human performance relevant to dispatch duties; and
- f) demonstrated to the operator the ability to perform the duties specified in Annex 6 Part 1 Chapter 4.6.

A flight operations officer/flight dispatcher assigned to duty should maintain complete familiarization with all features of the operation which are pertinent to such duties, including knowledge and skills related to human performance.

Note.— Guidance material to design training programmes to develop knowledge and skills in human performance can be found in the Human Factors Training Manual (Doc 9683)

A flight operations officer/flight dispatcher should not be assigned to duty after 12 consecutive months of absence from such duty, unless the provisions of Annex 6 Part 1 Paragraph 10.3 are met.

4 SUPPORT SERVICES

- 4.1 The nature and scale of office services required - clerical staff, typists, photocopying, duplicating and printing machinery etc. - should be related to the numbers of executive, administrative and other staff employed. It is particularly important that office services are sufficient to ensure that operational instructions and information of all kinds are produced and circulated to all concerned without delay.
- 4.2 In cases where the provision of printing facilities for manuals, manual amendments and other necessary documentation is not warranted by the size of the company, the operator must show that he has efficient alternative arrangements.

5 ACCOMMODATION

- 5.1 Office space at each operating base must be sufficient to provide a suitable working environment for the operating staff employed there. Adequate provision must be made for the traffic staff, for operational planning, for the storage and display of essential records, and for flight planning facilities for flight crews. If suitable flight planning facilities for flight crews are provided by the airport authority, the space provided by the operator can normally be reduced, but it is essential that reasonable accommodation should be made available for crews to use before and between flights.

6 OPERATIONS LIBRARY

- 6.1 At each operating base the operator should maintain an adequate library of maps, charts, flight guides, operations manuals and other documents needed for reference and planning purposes, and for carriage in flight. The library should be kept in an orderly fashion and responsibility for its maintenance clearly defined.
- 6.2 Maps, charts, and flight guides held will normally be required to cover the whole of the region for which the operator is, or wishes to be, certified.
- 6.3 Arrangements should be made for the amendment of manuals, flight guides, etc., and for bringing the amendments to the notice of flight crews and other operating staff concerned. A record should be kept of the distribution of manuals and amendments.

7 LEGISLATION AND AERONAUTICAL INFORMATION

- 7.1 All flight crews, and other operating staff who may be concerned, should have access at their normal operating base to:
- 7.1.1 The Fiji (or other local) AIP;
 - 7.1.2 The Air Navigation Regulations currently in force - amended to date;
 - 7.1.3 NOTAMs regarding facilities on at least the first route stage over which the crews may be required to operate;
 - 7.1.4 Aeronautical Information Circulars;
 - 7.1.5 Notices to AOC holders.
- 7.2 The information may be held in any suitable format – hard copy, CD or other media but the operator must ensure that a suitable means of reading electronic copy is always available.
- 7.3 Where this information is readily available to crews in an AIS unit, it may not be necessary for the operator to duplicate the service, but it is nevertheless his responsibility to ensure that the information is available.

8 AIRCRAFT LIBRARY AND NAVIGATION BAG

- 8.1 There should be an effective system to ensure that aircraft are provided with an adequate library of manuals, maps and charts, flight guides and other necessary documents, supported by an efficient amendment service. Check lists should be provided for making up the aircraft library and navigation bag, and aircraft checklist cards should include an item requiring libraries and navigation bags to be checked before departure.

9 INSTRUCTIONS TO FLYING STAFF

- 9.1 Operations manuals, and other standing instructions must be supplemented by a systematic procedure for bringing urgent or purely temporary information to the notice of crew members. This should be achieved by a numbered series of flight crew and/or cabin crew instructions or notices issued by or under the direct authority of a senior operations officer. When the issue entails amendment of a standing instruction, the amendment should be made without undue delay and periodical checklists should be issued to show which temporary instructions are current. Temporary instructions should be self-cancelling. Full use should be made of these instructions to bring significant Information Circulars, NOTAMs, etc. to the attention of crew members. Such notices/instructions to flight crew are to be considered as part of the operator's Operations Manual.

10 FLYING STAFF RECORDS

- 10.1 Records must be kept for each member of the flight crew showing the dates on which tests, ratings, medical certificates, licences, etc., are due for renewal. There must also be an effective system to guard against flight crew being rostered for duty when checks etc., are overdue, and for verifying that licences have been renewed at the appropriate time.
- 10.2 Operators are legally obliged to keep records of all training and tests and to make them available as necessary to the Authority's inspection staff. They may also be asked to make some of these records available to other operators if the flight crew member moves to another employer. Records should incorporate certifications indicating the competence of examinees to perform the duties in respect of which they have been tested. The form of record and certifications to be maintained must be agreed by the Authority.

Training records should show a trainee's progress through each phase of his training. They should include information about the results of tests, and when applicable, indicate the number of times each exercise in base and line training was covered or had to be repeated.

- 10.3 Records must be kept of the duty and rest periods of all flight crew. These records shall include the following.
- (a) For each crew member:
 - Duration of each flying duty period, and function performed during the period;
 - Duration of each duty period whether or not it includes a flying duty period;
 - Duration of each rest period prior to a flying duty or standby duty period;
 - Dates of days off;
 - Weekly totals of duty.
 - (b) For each flight crew member:
 - Daily, weekly, 28 daily, and annual (365 days) flying hours.
- 10.3.1 Flight crew records shall be preserved for at least 1 year from the date of the last relevant entry.
- 10.3.2 In addition operators shall retain all aircraft "pilot-in-command" discretion reports or extended flight duty periods and reduced rest periods for a period of at least twelve months.

11 FLIGHT SAFETY FUNCTION

- 11.1 Operators should establish a Flight Safety function within the company. Whether this takes the form of a single person or a committee will depend to a large degree upon the nature and scale of the operation. It should be part of the Safety and Risk Management Systems and also the Accident Prevention and Flight Safety Programme as now required by legislation.
- 11.2 It is important that operators should have systematic procedures for encouraging and processing pilot-in-commands' and other reports on matters having a potential effect on the safety of operations. These reports should be reviewed no later than the next working day after the completion of the flight.

12 OCCURRENCE REPORTS

- 12.1 The responsibility for reporting occurrences is prescribed in ANR 71 and all staff should be aware of their obligations under this legislation. The operator may, of course, also require a copy of any report submitted under ANR 71 to the Authority.
- 12.2 Responsibility for co-ordinating action on occurrence reports, mandatory or otherwise, and for initiating any necessary investigations should be assigned to a suitably qualified senior officer with clearly defined authority and status.

12.3 Where appropriate, the circumstances of an incident should be made generally known within the operator's organisation and particular care should be taken to ensure that originators of occurrence reports are informed of the outcome of any subsequent investigations.

12.4 Copies of the occurrence report form should be made available by the company and operators should consult the Authority who will advise on the required format and content. This form will, when practicable, be provided on the Authority's website.

13 COMPANY FORMS FOR USE BY FLIGHT CREW

13.1 An operator will need to provide for use by his crews various forms and records. Unless the use of the form is self-explanatory, instructions for its completion should be included in the Operations Manual.

13.2 The content and format of some documents, forms and records must be acceptable to the Authority, who can advise on any specific requirements. When this is necessary it will be mentioned in this document.

14 RETENTION OF DOCUMENTS

14.1 Operators must ensure that instructions are issued and arrangements made to preserve the documents and records listed below for the period shown:-

Aircrew Competency Check Forms	
'Pilot-in-command' Discretion Reports	6 months
'Pilot-in-command' Flight Briefs	3 months
Flight Plans/Navigation Logs	3 months
Flight Time, Duty Period, and Rest Period-Records	12 months
Fuel Logs/In Flight Records	3 months
Loadsheets	6 months
Training Records retain whilst pilot employed plus	6 months

15 DANGEROUS GOODS TRAINING

15.1 Operators are required to establish and maintain dangerous goods training programmes for all crew members and ground staff concerned. As a minimum requirement the training must cover the items shown in ICAO Technical Instructions. There are different levels of dangerous goods training and operators should consult the CAAF Air Safety Department to determine the levels of training needed for their various personnel.

16 SECURITY TRAINING

16.1 Operators shall ensure that all their flight crew and ground staff are adequately trained in aviation security matters.

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Appendix C - Aerodrome Operating Minima - aircraft above 5700 kg

Appendix D - Aerodrome Operating Minima - aircraft below 5700 kg

CHAPTER 1 - THE OPERATIONS MANUAL

1 PURPOSE AND SCOPE OF OPERATIONS MANUAL

- 1.1 The Air Navigation Regulations require, at ANR 43, that operators of public transport aircraft operating under a certificate issued under these Regulations shall produce and use an Operations Manual. The manual shall contain all such information and instructions as may be necessary to enable the operating staff to perform their duties, and the operator is required to submit a copy of the manual to the Authority and to make such amendments of or additions to the manual as the Authority may require for the purpose of ensuring the safety of the aircraft or of persons or property carried therein or the safety, efficiency or regularity of air navigation.
- 1.2 “Operations Manual” means the operations manual referred to in ANR 43.
- 1.3 It can readily be seen, therefore, that the form and scope of manuals will vary considerably with the nature and complexity of the operator's organisation and the types of aircraft in use. A "manual" may comprise a number of separate volumes, and may well include individual forms such as prepared navigational flight plans. Instructions and information to particular groups of operating staff - e.g. Traffic Manuals, Training Manuals, Cabin Staff Manuals, Crew Rostering Instructions and information and instructions on weight and balance, including that supplied to handling agents, - are all regarded as part of the Operations Manual. They must all be lodged with the Authority, together with copies of all amendments and temporary instructions. (See also paragraph 1.8 below).
- 1.4 A copy of the Operations Manual, or the portion(s) relevant to each of the operator's operating staff, shall be made available to them. The operator shall also ensure that each copy of the manual or part thereof is kept up to date.
- 1.5 A list of particular subjects, as appropriate to the operator's activities, to be covered in an Operations Manual is specified in ANR 43 and is based primarily on Fiji's obligations under the Chicago Convention and its Annexes. The purpose of this Chapter is to give an indication of the manner in which both the specific and the general requirements (para. 1.1 above) should be met. Only the operation of aircraft will be dealt with; detailed instructions on aircraft maintenance (such as those included in a Maintenance Manual or in Maintenance Schedules) are given in Section 3 and the Authority will be able to provide any further information or guidance that may be needed.
- 1.6 The Authority will regard the Operations Manual as a primary indication of the standards to be achieved by an operator. The commercial operation of aircraft must be based on clearly defined standards and procedures. The form and scope of manual will vary with the size of the undertaking, but the basic principles remain the same even though an operator may, in effect be prescribing standards and procedures for internal use. The adequacy of a manual will be assessed in large measure on this basis.
- 1.7 Great importance will be attached to the suitability of manuals for regular use by the operating staff and, in particular, by operating crews in flight. For all but the simplest of operations, the division of the manual into a number of separate volumes is likely to be essential. Manuals should be divided in such a way that essential information is immediately available on the flight deck, and extracts or "digests" of information and instructions may sometimes be necessary to supplement drill cards and check lists.

- 1.8 Each copy of a manual should normally bear a serial number and a list of holders should be maintained by the person responsible for issuing amendments. Where this system is not used an operator must have satisfactory alternative arrangements for controlling the issue and amendment of manuals. Each volume of a manual must be numbered and bear a title and index giving a clear indication of its scope. The title of the person or department responsible for the issue of the manual should also be indicated. At the front of each volume there must be an amendment page to indicate amendment number, date of incorporation and signature of initials of person amending. Amending pages should be dated. The numbering of pages, sections, paragraphs etc., shall be orderly and systematic so as to facilitate immediate identification of any part of the subject matter. The standard of printing, duplicating, binding, indexing of sections etc., must be sufficient to enable the document to be read without difficulty and to ensure that it remains intact and legible during normal use.
- 1.9 The amendment of a manual in manuscript will not be acceptable. Changes or additions, however slight they may be, should normally be incorporated by the issue of a fresh or additional page on which the amended material is clearly indicated. This means that an operator can amend the content of crew manuals provided that any such amendment does not conflict with the Aircraft Flight Manual and is acceptable to the Authority.
- 1.10 It is most important for operators to appreciate that it is their responsibility under relevant statutory provisions to provide adequate instructions and accurate information to their operating staff. Inspectors will make random sample checks of manuals, etc. lodged with the Authority and will require amendments where they appear to be necessary. The primary purpose of these checks will be to verify the adequacy of the operators systems and procedures for keeping instructions and information under review and for issuing timely amendments as necessary. There can be no question of the Authority or its Inspectors assuming responsibility for the detailed information provided in manuals. This responsibility rests with the operator who should designate a suitably qualified person to see that it is properly discharged.
- 1.11 The table that follows lists the matters that are to be addressed by operators in their Operations Manual and, in the second column, specifies where the subject is expanded upon elsewhere in this Chapter.

An operations manual, which may be issued in separate parts corresponding to specific aspects of operations, shall be organized with the following structure:

- a) General;
- b) Aircraft operating information;
- c) Areas, routes and aerodromes; and
- d) Training.

Contents

The operations manual shall contain at the least the following:

	Subject Matter	Expanded upon at
1	GENERAL	
1.1	(a) Operations administration and supervision – (i) Titles, names and responsibilities of operations personnel pertaining to the conduct of flight operations and supporting operations; (ii) Checklists of emergency and safety equipment in accordance with regulation 23 and instructions for its use	45-2
1.2	Information and policy relating to fatigue management including: i. rules pertaining to flight time, flight duty period, duty period limitations and rest requirements for flight and cabin crew members; and ii. policy and documentation pertaining to the operator's FRMS	5
1.3	A list of the navigational equipment to be carried including any requirements relating to operations where performance-based navigation is prescribed.	26
1.4	Where relevant to the operations, the long-range navigation procedures, engine failure procedure for EDTO and the nomination and utilization of diversion aerodromes.	
1.5	The circumstances in which a radio listening watch is to be maintained.	24
1.6	The method for determining minimum flight altitudes.	13
1.7	The methods for determining aerodrome operating minima.	14
1.8	Safety precautions during refuelling with passengers on board.	
1.9	Ground handling arrangements and procedures.	
1.10	Procedures for pilots-in-command observing an accident.	44
1.11	The flight crew for each type of operation including the designation of the succession of command.	2.2
1.12	Specific instructions for the computation of the quantities of fuel and oil to be carried, taking into account all circumstances of the operation including the possibility of loss of pressurization and the failure of one or more engines while en route.	7 & 8
1.13	The conditions under which oxygen shall be used and the amount of oxygen	23
1.14	Instructions for mass and balance control.	1.3
1.15	Instructions for the conduct and control of ground de-icing/anti-icing operations.	27
1.16	The specifications for the operational flight plan.	10
1.17	Standard operating procedures (SOP) for each phase of flight.	30
1.18	Instructions on the use of normal checklists and the timing of their use.	9
1.19	Departure contingency procedures.	14
1.20	Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-out.	4.4
1.21	Instructions on the use of autopilots and auto-throttles in IMC.	21
1.22	Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved	30.4.1
1.23	Departure and approach briefings.	30.4.2
1.24	Procedures for familiarization with areas, routes and aerodromes.	30.4.3
1.25	Stabilized approach procedure	30.4.4
1.26	Limitation on high rates of descent near the surface.	30.4.5
1.27	Conditions required to commence or to continue an instrument approach.	30.4.8



1.28	Instructions for the conduct of precision and non-precision instrument approach procedures.	3.3
1.29	Allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations.	3.3
1.30	Instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of the ground proximity warning system (GPWS).	30.4.9
1.31	Policy, instructions, procedures and training requirements for the avoidance of collisions and the use of the airborne collision avoidance system (ACAS).	30.4.10
1.32	Information and instructions relating to the interception of civil aircraft including: <ul style="list-style-type: none"> a) procedures, as prescribed in Annex 2, for pilots-in-command of intercepted aircraft; and b) visual signals for use by intercepting and intercepted aircraft 	30.4.11
1.33	For aeroplanes intended to be operated above 15 000 m (49 000 ft): <ul style="list-style-type: none"> a) information which will enable the pilot to determine the best course of action to take in the event of exposure to solar cosmic radiation; and b) procedures in the event that a decision to descend is taken, covering: <ol style="list-style-type: none"> 1) the necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional descent clearance; and 2) the action to be taken in the event that communication with the ATS unit cannot be established or is interrupted. 	
1.34	Details of the safety management system (SMS) provided	
1.35	Information and instructions on the carriage of dangerous goods, including action to be taken in the event of an emergency.	25
1.36	Security instructions and guidance. <ul style="list-style-type: none"> - On board each aircraft a checklist of the procedures to be followed in searching for a bomb in case of suspected sabotage - The checklist in (ii) must contain information on the least-risk bomb location specific to each aircraft type 	31
1.37	The search procedure checklist	
1.38	Instructions and training requirements for the use of head-up displays (HUD) and enhanced vision systems (EVS) equipment as applicable.	
1.39	Human factors/CRM – the operators' training programme and syllabus for the development of knowledge and skills related to human performance	29.3
1.40	Mercy flights – Operator policy on mercy flights	32
2.0	AIRCRAFT OPERATING INFORMATION	
2.1	Certification limitations and operating limitations.	
2.2	The normal, abnormal and emergency procedures to be used by the flight crew and the checklists relating thereto	9
2.3	Operating instructions and information on climb performance with all engines operating, if provided	6
2.4	Flight planning data for pre-flight and in-flight planning with different thrust/power and speed settings.	6
2.5	The maximum crosswind and tailwind components for each aeroplane type operated and the reductions to be applied to these values having regard to gusts, low visibility, runway surface conditions, crew experience, use of autopilot, abnormal or emergency circumstances, or any other relevant operational factors.	6.3.5
2.6	Instructions and data for mass and balance calculations.	1.3
2.7	Instructions for aircraft loading and securing of load.	
2.8	Aircraft systems, associated controls and instructions for their use	
2.9	The minimum equipment list and configuration deviation list for the aeroplane types operated and specific operations authorized, including any requirements relating to operations where performance-based navigation is prescribed.	16
2.10	Checklist of emergency and safety equipment and instructions for its use.	
2.11	Emergency evacuation procedures, including type-specific procedures, crew	3.2 & 15



	coordination, assignment of crew's emergency positions and the emergency duties assigned to each crew member.	
2.12	The normal, abnormal and emergency procedures to be used by the cabin crew, the checklists relating thereto and aircraft systems information as required, including a statement related to the necessary procedures for the coordination between flight and cabin crew.	
2.13	Survival and emergency equipment for different routes and the necessary procedures to verify its normal functioning before take-off, including procedures to determine the required amount of oxygen and the quantity available.	
2.14	The ground-air visual signal code for use by survivors	11.2
3.0	ROUTES AND AERODROMES	
3.1	A route guide to ensure that the flight crew will have, for each flight, information relating to communication facilities, navigation aids, aerodromes, instrument approaches, instrument arrivals and instrument departures as applicable for the operation, and such other information as the operator may deem necessary for the proper conduct of flight operations.	11
3.2	The minimum flight altitudes for each route to be flown.	13
3.3	Aerodrome operating minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes.	14
3.4	The increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities.	
3.5	Instructions for determining aerodrome operating minima for instrument approaches using HUD and EVS.	
3.6	The necessary information for compliance with all flight profiles required by regulations, including but not limited to, the determination of: a) take-off runway length requirements for dry, wet and contaminated conditions, including those dictated by system failures which affect the take-off distance; b) take-off climb limitations; c) en-route climb limitations; d) approach climb limitations and landing climb limitations; e) landing runway length requirements for dry, wet and contaminated conditions, including systems failures which affect the landing distance; and f) supplementary information, such as tire speed limitations.	
4.0	TRAINING	
4.1	Details of the flight crew training programme	29
4.2	Details of the cabin crew duties training programme	29
4.3	Details of the flight operations officer/flight dispatcher training programme when employed in conjunction with a method of flight supervision	29

2 CREW TO BE CARRIED

- 2.1 It will normally be sufficient if the minimum crew for public transport is specified for each type of aircraft. Note that the minimum crew for public transport will not necessarily be the same as the minimum crew specified in the Certificate of Airworthiness.
- 2.2 Except where the flight crew is limited to one or two pilots, brief instructions should be included as to the order and circumstances in which command is to be assumed by members of the crew.
- 2.3 Detailed instructions must be included in the manual as to the circumstances in which co-pilots may be permitted to fly the aircraft.
- 2.4 The Air Navigation Regulations specify areas of the world through which aircraft engaged on a flight for the purpose of public transport shall be equipped with navigation equipment specifically approved for the purpose by the Authority.

3 DUTIES OF CREWS AND OTHER OPERATING STAFF

- 3.1 In this context, the term "operating staff", as distinct from the aircraft crews, can be taken to mean staff having specific duties, in relation to particular flights, which fall within the general pre-flight and in-flight responsibility of the aircraft pilot-in-command. The manual must therefore define the duties and responsibilities of people employed as:
- (a) flight dispatchers/flight watch officers;
 - (b) flight planning assistants who prepare navigational flight plans and flight briefs and compute fuel requirements, RTOWs and aerodrome operating minima;
 - (c) rostering and scheduling staff; and
 - (d) traffic officers or loadmasters responsible for calculating maximum payloads and/or fuel uplifts, or for supervising the loading of aircraft and completing load/trim sheets.

It is important in this connection that other operating staff should be made fully aware of the over-riding responsibility, and therefore the ultimate authority of the aircraft pilot-in-command. Manuals must state specifically that if a pilot-in-command considers it necessary, in order to secure the safety of a particular flight, he is authorised to apply greater safety margins (e.g. aerodrome operating minima, fuel reserves and terrain clearance standards) than those prescribed by the operator for normal operations.

- 3.2 In defining the duties of members of the crew, the operator should include instructions on:-
- 3.2.1 The briefing of passengers on emergency exits and equipment (including, where appropriate, lifejacket demonstration and the use of "automatic drop-out" oxygen equipment), restrictions on the use of electronic equipment, including mobile telephones, computers (laptop and palm held) and electronic games, and the prohibition on smoking;
- 3.2.2 The responsibility, in the absence of competent ground engineering staff, for supervising refuelling and ensuring the refuelling caps, refuelling valves, freight hold doors, etc. are secure;



- 3.2.3 The responsibility, in the absence of competent traffic staff, for supervising the loading of the aircraft;
- 3.2.4 The duties of special personnel such as animal attendants;
- 3.2.5 The responsibility for the safety of passengers when they are permitted on board during fuelling operations; and
- 3.2.6 The responsibility on the ground for warning the cabin crew of any APU emergency condition which might require evacuation of the aircraft.
- 3.3 Special consideration should be given to instructions on the arrangement of flight deck duties between the members of the flight crew, and the procedures for double-checking altimeter settings and the selection and identification of radio aids. Operators are required to specify such procedures in detail, with particular reference to the division of duties during take-off and in the execution of an instrument approach procedure and overshoot in IMC, and to give them special emphasis in all training and periodical tests. The procedure for an instrument approach in IMC should relieve the pilot-in-command of as much of the workload as possible, and through a proper division of duties and monitoring functions throughout the descent, provide adequate safeguards against error or omission. The difficulty of transition from instruments in poor visibility should be taken fully into account, together with the need for a clear and systematic procedure for initiating a go around if there is any doubt about the advisability of continuing the approach by visual reference.

4 ALTIMETER SETTING PROCEDURES

- 4.1 It is standard practice to use QNH for all flight operations and this policy should be reflected in the Operations Manual instructions and procedures that should be clear, positive and consistent.
- 4.2 Instructions should cover all stages of the operation of the aircraft, both before and during flight. A company's basic policy should be accurately reflected in its checklists, and take account of the following:
 - 4.2.1 pre-flight serviceability tests;
 - 4.2.2 the settings to be made on each altimeter on the flight deck prior to take-off and at each stage of the flight;
 - 4.2.3 during the approach phase a check of airfield height is required, as well as a cross check on the various altitude callouts to be used during the approach; and
 - 4.2.4 where a Radar Altimeter (RA) is to be used on the approach, a cross check between indications from the RA and the altimeters, allowing for variations between the aerodrome elevation and the terrain being transited.
- 4.3 Additional instructions should be included on the following (where appropriate to the basic policy):-
 - 4.3.1 the procedure for indicating decision heights for landing - this might range from a figure in the navigation log to altimeter bugs and/or separate 'landing data cards';
 - 4.3.2 the manner of checking and of the use of any non-pressure altimeters;

- 4.3.3 provision of appropriate procedures if an altimeter becomes unserviceable in flight, and also the conditions to be met if this is a pre-flight allowable deficiency;
- 4.3.4 the manner of setting the altimeters when the take-off is carried out from the RH seat. Unless there are good reasons for doing otherwise, operators should not vary their normal policy.

Note: *Neither in the policy statement nor in the check-lists is it sufficient for the word 'set' to be used by itself. The setting required by the operator should be clearly stated in-respect of each altimeter concerned, including any 'standby' altimeter.*

- 4.4 The following matters should also be covered in the operations manual:-
- 4.4.1 The calls to be made by the monitoring pilots during an instrument approach, e.g. at the outer marker and at 100 feet above DH or thereabouts. In the case of Category 2 and 3 weather minima approaches, the appropriate calls and responses will need to be stated in some detail;
- 4.4.2 Correct reporting of height changes to ATC: It should be particularly noted that the report should not be made before arriving at or before leaving the particular altitude or level;
- 4.4.3 Provision for one altimeter to be set to an appropriate QNH setting when flying at or near to the Minimum Safe Altitude (particularly for un-pressurised single-crew aircraft) would be a prudent precaution;
- 4.4.4 Cross-checking of altimeters at appropriate intervals by all flight-deck crew during climb and descent;
- 4.4.5 Instructions requiring the co-pilot to advise the pilot-in-command that he is approaching the assigned altitude or level.

5 LIMITS ON FLIGHT, DUTY AND REST PERIODS

- 5.1 There are detailed statutory provisions in this connection and operators must be familiar with the relevant part of the Air Navigation Regulations, with the requirements of *Standards Document – Avoidance of Fatigue in Aircrew (SD – AFA)* and with the requirements published in this document.
- 5.2 In accordance with the statutory provisions, an operator's scheme for the prevention of fatigue of all crew must be approved by the Authority and incorporated in the operations manuals. Any amendment to the operations manual in this connection must be submitted to the Authority for approval in advance. Applications for approval of schemes and for amendments should be addressed to the Authority. Factors to be taken into account in producing the scheme and the nature of the limitations to be specified are shown in SD-AFA. It is recognised, however, that certain operations may present special features warranting some variation of the limitations detailed in SD-AFA and the Authority is prepared to consider individual cases on their merits.
- 5.3 Operators should state in their scheme the minimum times allocated to pre-flight preparation and immediate post-flight activity. The allowances for pre-flight and post-flight activity must be acceptable to the Authority.
- 5.4 If instructions, separate from the main operations manual, are issued for the guidance of rostering, planning or scheduling staff, they must be compatible with the provisions of the scheme and a copy must be lodged with the Authority.

- 5.5 Provision is made for aircraft pilots-in-command to exercise their discretion to extend the flying duty period beyond the maximum that may normally be scheduled. The extent to which a pilot-in-command is authorised by his operator's scheme, to exceed the established limits of flying duty of any crew member, must be clearly and concisely defined in the operations manual. The instructions should be such that a pilot-in-command can readily determine the limits of his power.
- 5.6 Provision is also made for a pilot-in-command to exercise his discretion to reduce rest periods. The extent to which a pilot-in-command is authorised by his operator's scheme to do this must be clearly and concisely stated in the operations manual. It must be brought to the attention of pilots-in-command that use of their discretion is limited to the reduction of 'rest periods' as defined and does not extend to periods of rest contained within a split duty.
- 5.7 The Air Navigation Regulations require operators to include in their schemes provisions to prevent fatigue of any crew members carried in addition to flight or cabin crew. Should their duties have a direct bearing on flight safety, e.g. if the operator or pilot-in-command assign duties in the interests of passenger safety, similar provisions to those applied to cabin staff must be included.
- 5.8 Operators may from time to time request variations from the requirements of their approved scheme. Such variations may be either for a 'one-off' flight or for a series of flights. Any such application must include a detailed justification for the variation and all relevant supporting documents should be attached.
- 5.9 Approved variations must be published in the company operations manual and indicate expiry dates if applicable. Those of very limited duration may be published as crew notices or in a pilot-in-command's brief.
- 5.10 Operators should note that their flight and duty time limitations for cabin attendants specified in their Operations Manual shall be applicable to all cabin attendants carried as crew members. They are not intended to apply only to those carried to meet the provisions of the Air Navigation Regulations.
- 5.11 Helicopter operators may have variations from the requirements of SD - AFA approved if the Authority is satisfied that they are suitable for the applicant's operations.
- 5.12 Instructions to crews as to their personal responsibilities for the avoidance of fatigue should include clear guidance on abstinence from alcoholic drinks or kava for a suitable period prior to flight. The minimum acceptable period is twelve hours. Crews should also be advised of the precautions to be taken if they are taking medication. Information circulars issued from time to time on the subject form a useful basis for instructions in manuals. Operators encountering any special difficulty in framing their instructions may call on the Authority for advice.
- 5.13 Operators should remind all crew members that it is their personal responsibility to make optimum use of the facilities for rest provided by the operator at outstations and to plan their rest periods so as to minimise the risk of sleep deficit and cumulative fatigue.
- 5.14 It must be further brought to their attention that, in accordance with the provisions of the Air Navigation Regulations, it is the responsibility of each crew member not to fly if he is suffering or is likely during flight to suffer from such fatigue as may endanger the safety of the aircraft or its occupants. The provisions of this regulation in the Air Navigation Regulations are not, however, intended to cover instances where normal tiredness resulting from the physical and mental effort of

a flight are likely and this should be made clear.

- 5.15 Operators should draw to the attention of flight crew that in accordance with the provisions of the Air Navigation Regulations it is the responsibility of each flight crew member to notify anyone who employs his services as a flight crew member of all flying he has undertaken within the previous 28 days.
- 5.16 Responsibility within an organisation for issuing instructions and making decisions on questions of flight duty and rest periods and for processing discretion reports should be clearly defined and assigned to a member of the executive staff. The name of the person concerned, or the title of the office that the person occupies, should be included in the operations manual.
- 5.17 Operators are required to maintain and provide readily interpreted records for each crew member. It follows that there must be suitable arrangements for collecting the information necessary to compile the records. Accurate records are essential to persons responsible for the rostering of crews. These records should meet the requirements of record keeping required by SD - AFA

6 TECHNICAL PARTICULARS OF AIRCRAFT AND AIRCRAFT PERFORMANCE

- 6.1 In meeting some of the requirement of paragraph (4)(f) of Air Navigation Regulation 43 to provide aircraft performance information, operators should take care to distinguish between specific information to be used in the course of flight operations and the more general basic information that a pilot might need to prepare for a technical type rating examination. If detailed descriptive matter is included as part of the manual it should be in a separate volume. Information on the following matters, in particular, should be provided in a form suitable for use and immediate reference in day-to-day operations:
- 6.1.1 Action to be taken in the kind of technical emergency or fault that cannot be covered by a set drill of vital actions. Information should be provided about the effect on essential systems and services of serious faults such as the loss of generated electrical power. Information to be provided will vary with the type of aircraft and, together with the emergency drills, it should be in a readily identified section of the manual (e.g. on distinctive coloured pages easily readable by day or night);
- 6.1.2 Procedure for maintenance Check A or pre-departure inspection including a check of the fuel system for water content;
- 6.1.3 Replenishment of the aircraft's fuel, oil, coolant, hydraulic fluid, de-icing fluid, water methanol and other supplies to an approved specification;
- 6.1.4 Supervising refuelling and the topping up of tyres, oleos, de-icing and hydraulic systems, including oxygen and air reservoirs. The refuelling information must include any specific precautions called for in the use of wide cut fuels;
- 6.1.5 Calculation of critical airspeeds and mach numbers, variable thrust and tail plane or trim settings;
- 6.1.6 Maker's and/or operator's limitations affecting the handling of engines and aeroplane systems;
- 6.1.7 Procedure and precautions to be observed in order to jettison fuel; and

6.1.8 Compliance with any special handling instructions.

6.2 With regard to aircraft performance, operators should normally provide pilots-in-command with information and simplified data from which they can readily determine without reference to a flight manual or performance schedule the maximum weight at which they may take-off or land on a particular flight.

The maximum weight referred to is that resulting from the statutory weight and performance requirements, or limitations such as zero fuel weight contained in the flight manual. In many cases (on regular or scheduled operations) it would only be necessary to indicate that there was no restriction under the performance requirements; in others it might be necessary to indicate which of the requirements was critical and to provide a tabular or other clear presentation of limiting weights in varying conditions of wind and/or temperature.

There may also be instances in which it would be both practicable and desirable for the operator to indicate any special flight procedures - such as minimum height for setting course in IMC or emergency turn after take-off in the event of engine failure - essential to secure compliance with the performance requirements.

Note: *In the case of emergency turns after take-off the operator must have checked that there is adequate terrain clearance with one engine inoperative and also that the designated procedures are acceptable to the local Air Traffic Control.*

6.3 Information should also be given on the following conditions:

6.3.1 Operation on runways affected by ice, with particular reference to techniques and the additional distance required for take-off and landing and to cross wind limitations;

6.3.2 Take-off and landing on runway affected by snow, slush or water;

6.3.3 Allowances to be made for the affect of varying surface conditions where grass, crushed coral, laterite or other strips are used;

6.3.4 Allowance to be made for the effect of unserviceable devices such as flaps, anti skid, reversers, air brakes, etc.;

6.3.5 Crosswind limits for take-off and landing. It is not sufficient to repeat a statement in a flight manual that a particular crosswind component has been found to be acceptable; operators' limitations should be stated in unequivocal terms. In gusty conditions the limit shall apply to the mean of the reported steady wind and reported gusts. Limits in excess of any figure mentioned in the flight manual will not be acceptable. Lower limits must be stated for use on a contaminated runway and for landing with control, steering, or retarding systems not fully serviceable, or following a power unit failure;

6.3.6 Minimum strip width to be available after the clearance of snow, together with maximum height of associated snow banks (see para.18 below);

6.3.7 For relatively light aircraft, maximum permissible wind velocities for taxiing, take-off and landing;

6.3.8 Drift down procedures to be followed on specific routes, after failure of an engine, if the aircraft's stabilising height is likely to be critical in terms of safety height (see para. 19 below);



- 6.3.9 Special handling techniques and/or routing procedures resulting from noise abatement procedures related to particular airfields and runways; and
- 6.3.10 Where applicable assessment of conditions under which ferry flights with one engine inoperative can be undertaken, who in the organisation can approve such operations, the training, checking and currency of pilots for operating such flights, and instructions on the procedures to be followed on such flights.

Note: *In respect of any operating conditions for which no relevant data are provided in the flight manual, performance schedule or information circulars issued by the Authority, it is most important that the operator seeks information and approval of the data to be used from the Authority.*

- 6.4 A statement should be included in the manual to the effect that simulated instrument flight, and the simulation of emergency situations that might affect the flight characteristics of the aircraft, are prohibited on flights carrying passengers or cargo.

7 FUEL FORMULA AND MANAGEMENT - AEROPLANES

- 7.1 The following points should be taken into account in the preparation of instructions on minimum quantities of usable fuel and oil to be carried:

- 7.1.1 Except as provided for in 7.1.7, an aeroplane shall at the pre-flight stage be planned to arrive overhead a destination aerodrome with sufficient fuel to:

7.1.1.1 make an approach to land; and

7.1.1.2 carry out a missed approach; and

7.1.1.3 fly to an alternate aerodrome; and

7.1.1.4 (i) in the case of propeller driven aircraft, hold for 45 minutes at the alternate aerodrome, and carry out an approach and landing;

(ii) in the case of turbo-jet aircraft, hold for 30 minutes at 1500 ft above the alternate aerodrome under standard temperature conditions, and carry out an approach and landing.

- 7.1.2 A reasonable percentage of the fuel to destination and thence to the alternate, should be provided for contingencies such as errors in forecast winds and temperatures, navigation errors, and ATC restrictions on altitude and route.

This allowance need not be specified as a separate item if adequate allowances are included in tabulated fuel figures. If this procedure is followed, a statement indicating the percentage allowance in the tabulated figures should be made in the operations manual. This allowance should be a minimum of 5 per cent;

- 7.1.3 Operators may permit flights to depart with less than the full contingency requirement of paragraph 7.1.2 provided that:-

- 7.1.3.1 The reduction is not greater than the contingency requirement from departure to a suitable En Route Alternate (ERA), and shall not reduce the total contingency fuel below the minimum requirement stated by the operator; and

7.1.3.2 Clear replanning instructions are given in the manual which ensure that a technical stop be made at the ERA unless the fuel available from the ERA, or from the diversion point to the ERA, is sufficient to meet the full requirements of paragraphs 7.1.1 and 7.1.2 or unless otherwise permitted under the provisions of paragraph 7.2; and

7.1.3.3 The weather conditions forecast for the selected ERA will permit a technical stop to be made there, if required.

Where this practice is permitted by an operator, the manual should also contain specific instructions on the special inflight fuel checks required, the recording of replanning calculations and the action to be taken at any stage in the flight should the fuel available be short of that required to reach the intended destination with the specified reserves. In no case should the reduction of contingency fuel prejudice the fundamental requirement that sufficient fuel be on board the aircraft at take-off to allow arrival at the ERA with all the reserves, specified at paragraphs 7.1.1 and 7.1.2 for flight to another aerodrome, remaining intact. The operator should weigh the probability and increased costs of a technical stop against the savings on the occasions that the flight reaches the desired destination using this procedure, but without a need for refuelling;

7.1.4 Sufficient fuel must be carried to permit in the event of loss of pressurisation or the failure of one power unit at any point on the planned route:-

7.1.4.1 The flight to be continued to a suitable aerodrome for landing; and

7.1.4.2 To hold at 1500 ft over that aerodrome for 30 minutes; and

7.1.4.3 To carry out an approach and landing.

7.1.5 Analysis of the fuel records maintained for individual aircraft in a fleet may show that, due to airframe, engine or fuel instrumentation aberrations, the performance of a particular aircraft is inferior to that predicated in the manufacturer's fuel-flow tables. A performance deterioration allowance is in such a case required to be calculated and applied as a percentage addition to the total calculated minimum fuel uplift excluding take-off fuel. This performance deterioration allowance when present is to be applied to each aircraft operation and may never be a negative value.

7.1.6 Instructions on alternate fuel requirements should provide for a diversion from Decision Height or Minimum Descent Height above the intended destination using a realistic altitude to a suitable alternate aerodrome. Departure from this principle will be acceptable only in exceptional circumstances, and subject to the provision of special instructions in the manual on fuel checks, on calculation of the Point of No Return (PNR) and on minimum acceptable weather conditions at the intended destination.

7.1.7 When no suitable alternate aerodrome is available, because the aerodrome of intended landing is geographically isolated, items (b), (c) and (d) in paragraph 7.1.1 above may be replaced by a holding reserve related to statistical data on local weather conditions, the minimum acceptable will be two hours fuel at normal cruise consumption. These destination aerodromes should be listed as such in the operations manual;

7.1.8 Adequate but not excessive allowances should be specified for taxiing and for other contingencies such as power checks;

- 7.1.9 It may not be necessary to specify separate allowances for take-off and climb if the overall assumptions (such as average consumptions in gph) are adequate;
- 7.1.10 Allowances should be made where necessary for the operation of de-icing systems, auxiliary power units and heaters;
- 7.1.11 There should be instructions and guidance, on the effect on fuel consumption of engine or systems failure. This might be a significant factor on long ocean or desert crossings, or where no suitable ERAs exist;
- 7.1.12 An extra fuel allowance should be considered when the operation involves a congested air traffic area, or when there is a need to climb to or descend from the en route safety altitude whilst in the vicinity of the departure or arrival aerodrome;
- 7.1.13 Flight planning tables giving total sector fuel for varying aircraft weights, winds, temperatures and flight levels are acceptable; and
- 7.1.14 Requirements should be specified for oil or other consumables as well as fuel where this is necessary.
- 7.2 Instructions may be included in the manual to allow crews to continue a flight to a destination when full diversion and holding fuel will no longer be available. Safeguarding conditions associated with these instructions should include:
- 7.2.1 such a decision to continue should only be made when one hour or less from the destination aerodrome; and
- 7.2.2 the usable fuel remaining must be sufficient to fly to the destination aerodrome, hold for one hour at that aerodrome in the conditions of paragraph 7.1.1.4, make an approach to land, and include a contingency allowance; and
- 7.2.3 the actual and forecast meteorological conditions at the destination will permit a visual approach to landing (see Note) with a visibility in excess of 8 km until one hour after ETA. Account of any significant crosswind on the runway must also be considered;
- 7.2.4 there are no known or probable ATC delays for the period from ETA to ETA plus one hour; and
- 7.2.5 there are at least two independent runways suitable for landing. i.e. two suitable runways that do not intersect or where there is sufficient runway before or beyond the intersection to meet the landing distance required.
- Note:** *In the context of subpara 7.2.3 an 'approach to landing' means that portion of the flight during which the aircraft is descending below a height of 1000 ft above the DH of the relevant minimum for landing.*
- 7.3 Manuals should include suitable instructions on the monitoring of fuel used and fuel remaining. The operator should retain the records required by those instructions for at least three months from the date of the flight. For flights of between one and two hours duration, at least one calculation of the fuel state should be made.
- 7.4 Manuals should contain instructions regarding the proportion of fuel reserves to be available for holding at the alternate.



- 7.5 On multi-crew aircraft the instructions for fuel balancing must cover the following points:-
- 7.5.1 When an abnormal fuel feed procedure is used to balance fuel, the pilot-in-command must be informed and at least two flight crew members must monitor the operation;
- 7.5.2 When balancing fuel in aircraft with more than two engines, one engine, where practical should remain on direct feed from tank to engine. Preference should be given to an engine with an operative electrical generator and, where applicable, a hydraulic pump or other source of service supply (bleed air, pneumatics, etc.).

8 FUEL FORMULA AND MANAGEMENT – HELICOPTERS

- 8.1 In general the points set out in paragraph 7 should be applied to helicopter operations. However, the special capabilities of the helicopter to land safely away from aerodromes have to be taken into account in some cases.
- 8.2 The fuel requirements for flight in IMC, or offshore, or over hostile terrain, i.e. where forced landings are not possible or which present a consequential survival problem, should be based on those set out for aeroplanes in paragraph 7. The following points should also be observed:-
- 8.2.1 The alternate landing site should always meet the single-engine landing requirements of the helicopter;
- 8.2.2 On flights offshore or over hostile terrain which are conducted under VMC, the holding fuel may be reduced to 30 minutes.
- 8.2.3 Flights initiated on a VMC fuel formula should not enter IMC unless all the fuel requirements for IMC flight to destination and alternate, with holding and contingency reserves, are available at the time flight in IMC is commenced.
- 8.3 Fuel requirements for flights in VMC over hospitable terrain should allow the helicopter to arrive at destination with sufficient fuel reserves to allow for air traffic delays, site reconnaissance, etc. This allowance should be sufficient to allow the helicopter to hold for 20 minutes. In addition a contingency reserve of not less than 5 per cent of the route fuel should be carried.
- 8.4 A minimum in-flight indicated fuel state should be set down for each type of helicopter. This is particularly important when specialised activities, such as aerial crane work, are conducted. Operators should discuss fuel requirements for this type of operation with their assigned Inspector.

9 CHECK LISTS

- 9.1 The drills and checks to be followed including those for emergency and abnormal conditions should be listed in full in the operations manual in the form of an expanded checklist.
- 9.2 In addition to the above, abbreviated working checklists should be provided in the flight deck for the use of the flight deck crew.
- 9.3 In aircraft operated by two pilots, working checklists should be stowed or placed so that they are readily available for use by either pilot. If this is not possible separate

checklists or drill cards should be provided for each pilot.

- 9.4 If the flight crew includes third pilot a separate checklist should be provided for his or her use.
- 9.5 In 'single pilot' aircraft, checklists should be supplemented by the placarding of vital actions for final approach and landing.
- 9.6 For convenience in handling, the checklist for normal operations should be separate from the abnormal and emergency checklist. The colour of the emergency and abnormal checklists should be sufficiently distinctive to avoid them being mistaken for other volumes.
- They must be stowed in the flight deck separate from other documents in such a manner as to be immediately available for use.
- 9.7 On multi-crew aircraft, the operations manual must contain clear instructions that checklists are always to be used and when they are to be used. Memorised drills must be carried out strictly in accordance with the checklist and must be verified as soon as possible after action by reference to the checklist - this should be clearly stated in the manual.
- 9.8 On 'single pilot' aircraft the operator may, at his discretion, allow in-flight drills to be carried out from memory. When this is allowed, the operator must, nevertheless ensure that the aircraft is provided with a checklist which is readily available to the pilot and must indicate clearly in the manual when the various checks must be carried out.
- 9.9 All checklists or drill cards must be of a quality sufficient to withstand heavy wear and to remain in a legible condition.
- 9.10 On multi-crew aircraft drills should be so constructed that the handling pilot, as far as possible, has only to control the aircraft's flight path and crosscheck the correct selection of a lever/switch before it is used. The use of responses such as SET or AS REQUIRED should be avoided and are better replaced by a specific indication of what is required.
- 9.11 Where emergency and abnormal drills do not include all the necessary vital actions to re-land, a clear instruction referring the crew back to the normal checklist should be made.
- 9.12 Each page of the checklist must be dated and the amendment state of the checklist ascertained by means of a simple amendment record. This record should be located at some suitable place in the checklist.
- 9.13 The following items where appropriate should be included in the normal checklist:
- 9.13.1 Crew seat belts and harness
- (a) pre take-off fastened
 - (b) pre landing fastened.
- 9.13.2 Crew seat and flying controls locked/unlocked
- 9.13.3 Cabin prepared check prior to
- (a) take-off
 - (b) landing

- 9.13.4 Reference speeds noted and/or bugs set and crosschecked.
- 9.13.5 Decision height or Minimum Descent Height noted or bug set and crosschecked.
- 9.13.6 Instruments check and cross-check:
- (a) pre take-off
 - (b) before approach commences
- 9.13.7 Altimeters check and crosscheck and required settings at each stage of flight (QNH or 1013.2).
- 9.13.8 Cabin staff to seats public address call or chime signal
- (a) before take-off
 - (b) before landing
- 9.13.9 Radio aids
- (a) set
 - (b) identified (by more than one crew member on multi crew operations).
- 9.13.10 MSA check prior to descent.
- 9.13.11 RTOW and MTWA performance information checked
- (a) immediately before take-off for:
 - (i) a change of runway
 - (ii) an intersection take-off
 - (iii) a reduced runway length
 - (b) before landing (normally before commencing descent).
- 9.13.12 Flying controls, full and free movement.
- 9.13.13 Check of MZFW where V_{mo} needs to be defined.
- 9.13.14 Crew Briefing - there should be items in the checklists requiring the pilot-in-command to brief the flight deck crew on the following matters:
- 9.13.14.1 Prior to take-off :
 - (a) the actions to be taken in the event of an emergency arising during or immediately after take-off;
 - (b) any special requirements for take-off in cross winds and on wet or otherwise contaminated runways;
 - (c) noise abatement procedures;
 - (d) selection of radio aids.
 - 9.13.14.2 Prior to landing:
 - (a) selection of radio aids;

- (b) missed approach procedures;
- (c) any special handling or systems requirements for landing;
- (d) selected alternate for diversion.

- 9.13.14.3 It is not suggested that the above briefing items should be included in check lists in detail; if suitable instructions are provided elsewhere the word 'briefing' will be sufficient at the appropriate points in the checklist.
- 9.14 Abnormal operations checklists should include such drills as abnormal operations of the:
- (a) hydraulic system(s);
 - (b) fuel system;
 - (c) bleed air and air-conditioning systems;
 - (d) electrical system(s);
 - (e) alternate means of extension of the landing gear or flaps.
- 9.15 Examples of emergency drills to be covered in checklists are as follows:
(Note actions required to be carried out from memory are annotated 'M').
- (a) engine failure on take-off:
 - (i) abandoned or rejected take-off at or before V_1 drill **(M)**;
 - (ii) after V_1 (instruction must be given that drills are not to be performed before reaching a minimum safe altitude);
 - (iii) engine fire/failure after V_1 drills, could include after take-off checks;
 - (b) engine shut down;
 - (c) engine fires **(M)**;
 - (d) propeller malfunctions **(M)**;
 - (e) fuel filter de-icing;
 - (f) re-lighting of turbine engines and re-light envelope graph:
 - (i) instant re-light **(M)**;
 - (ii) normal re-light;
 - (g) re-starting reciprocating engines and re-start envelope graph;
 - (h) bus bar and other serious electrical failures **(M)**;
 - (j) to include use of oxygen mask and microphone **(M)**;
 - (k) malfunction of power control systems;
 - (l) cockpit, cabin and hold fires;
 - (m) smoke removal:
 - (i) to include maximum permissible IAS for flight with direct vision or any other window open;
 - (n) undercarriage fires;
 - (o) landing:
 - (i) with gear asymmetry;
 - (ii) with gear up;
 - (iii) ditching;
 - (p) evacuation drills;
 - q) pilot cockpit pre-evacuation drills **(M)** following:

- (i) crash landing;
- (ii) ditching;
- (iii) abandoned take-off to be followed by evacuation;

(r) imminent departure from the manoeuvring area **(M)**

9.16 For cabin crew, details of their ditching, crash landing and emergency evacuation drills should be readily available in flight. This can be achieved either by issue to each member of the cabin crew of a copy of their emergency drills - which they should be required to carry with them - or by stowing the drill cards at appropriate positions in the cabin.

9.17 An abbreviated version of the normal checklist may be produced for use by training captains whilst on training operations in the circuit or local training area, including instrument approaches at the training aerodrome. This should retain the sequences of the normal checklist.

9.18 The checklists and drill cards provided by an operator for use by his crews must correctly reflect the requirements, instructions, drills and procedures in the flight manual.

10 NAVIGATION FLIGHT PLANS

10.1 Operators should supply for the use of crews either navigation flight plan forms or prepared navigation flight plans.

10.2 Where prepared navigation flight plans are provided, special care must be taken to ensure that the information presented on them is up-to-date. The responsibility for this amendment service should be clearly defined.

10.3 For sectors of 100 nm or less a standard re-usable navigation flight plan is acceptable.

10.4 Operators must ensure the forms are properly completed for each flight and, except for the case in 10.3 above, retained for a period of at least 6 months.

10.5 The navigation flight plan should normally make provision for entering, or should contain, the items listed below. However, computerised flight plans may include only a selection of these items. The contents in this case must be acceptable to the Authority.

- (a) name of flight crew;
- (b) aircraft type;
- (c) aircraft registration;
- (d) date of flight and flight number;
- (e) space for the recording of initial positions inserted into automated navigation systems (alternatively they may be recorded in f (iii) below as Waypoint Number);
- (f) columns permitting entries of each;
 - (i) reporting point;
 - (ii) turning point;
 - (iii) waypoint number;
- (g) coding and frequencies of radio aids;
- (h) magnetic tracks;
- (i) distances;
- (j) still air flight times between points;

- (k) corrected flight times between points;
- (l) ETA for each point;
- (m) revised ETA for each point;
- (n) ATA for each point;
- (o) minimum safe altitude for each stage;
- (p) flight level/altitude flown;
- (q) fuel calculation (pre flight);
- (r) fuel consumption/remaining, in flight record (HOWGOZIT Score);

- (s) met records;
 - (i) information from broadcasts;
 - (ii) altimeter settings departure/en-route/ destination;

- (t) space for ATC clearances;

- (u) correction factor for fuel and time, to be applied for;
 - (i) flight at a flight level different from that planned;
 - (ii) take-off at weights other than that assumed on the prepared PLOG; and

- (v) space for noting ATC frequencies and SSR codes.

Note: A separate form may be required for recording GPS positions and other parameters.

11 ROUTE GUIDE

- 11.1 The route guide provided in accordance with the provisions of the Air Navigation Regulations should be a volume or series of volumes separate from the rest of the operations manual. Aerad, Jeppesen or similar publications will normally meet the requirement provided that crews are given adequate advice on the route to be followed. An operator providing his own guide should ensure that it meets the needs of crews in every respect. If flights are to be made only on airways or ADRs it will be sufficient to include instructions to that effect; otherwise routes regularly flown should be specified in detail, normally on prepared navigation flight plans. For other flights, routes should be specified in a pilot-in-command's flight brief, a copy being retained at base. Operators may be required to lodge copies of Aerad, Jeppesen or other flight guides with the Authority.
- 11.2 Particular care should be taken to ensure that adequate information is provided on search and rescue facilities (including the ground-air visual signal code for use by survivors), procedures (in accordance with Annex 12) to be followed if an accident is observed, obstructions in the approach pattern, radio failure procedures, prohibited and danger areas, and standard TMA routings. Only recognised instrument approach or let down procedures in general use should normally be included in the flight guide. Exceptionally, a special procedure devised by the operator may be considered acceptable provided it is based upon an aid within 5 nm of the airfield, or on GPS or on the use of a self-contained navigation or flight management system, and has been approved by or is acceptable to the Authority.
- 11.3 The cancellation of IFR flight plans at night or in congested terminal areas is prohibited, and instructions to this effect must be included in the manual. Detailed instructions should be included in the manual setting out the minimum conditions that must be satisfied before cancellation of an IFR flight plan during daytime.
- 11.4 In some circumstances an abbreviated approach to land procedure may be adopted; the conditions under which this procedure may be followed should be detailed in the manual.
- 11.5 In order to facilitate effective monitoring of an instrument approach by members

of the flight crew, operators of multi-crew aircraft should provide at least two copies of the relevant Instrument Approach charts so that a copy is available for use by each pilot.

- 11.6 Any operator wishing to use an electronic flight bag should raise the matter with the Authority for determination of acceptable criteria and standards.

12 METEOROLOGICAL REPORTS FROM AIRCRAFT

- 12.1 Instructions on meteorological reports from aircraft in flight should be based on the information and guidance in the Fiji AIP or equivalent document and/or on any special requirements of foreign authorities. Instructions on the reporting of hazardous conditions in flight should also be included.

13 MINIMUM SAFE ALTITUDES

- 13.1 The minimum safe altitude must be prescribed by the operator for each sector of each route to be flown - including routes to "alternate" aerodromes. For this purpose "sector" means the intended track from one reporting or turning point to the next, until the aircraft starts the instrument approach procedure (or joins the traffic pattern) at the aerodrome to be used for landing. Except as provided in paragraph 13.2 below, these figures must be specified by the operator prior to flight - in the appropriate volume of the manual, in a prepared navigational flight plan, or in the pilot-in-command's flight brief.

- 13.2 To meet the needs of the pilot-in-command when he is obliged to depart from the planned or normal route, operators must include in the manual a formula from which the minimum safe altitude can readily be calculated. The formula should be adequate to secure at least the normal terrain clearance standards observed by the operator, but should be expressed as simply as possible.

- 13.3 In specifying minimum safe altitudes, operators must take account of any local regulations.

- 13.4 The criteria upon which minimum altitudes are based will necessarily be determined to some extent by the track guidance facilities available to the pilot-in-command, and by the extent to which pilots-in-command and operators are able in particular circumstances to accept the directions of radar controllers. The MINIMUM acceptable standards will normally be as follows (but see also para. 13.5 below).

- 13.4.1 For general application: 1,500 feet above the highest terrain or obstacle within 20nm of the intended track, with additional provision where necessary for terrain or obstacles within 10 degrees of intended track from the last known position;

- 13.4.2 For flight in controlled airspace where the track is well defined by two separate aids: 1,500 feet above the highest terrain or obstacle within 10nm of the-intended track;

- 13.4.3 For radar controlled flight within 25nm of the aerodrome of departure or intended landing; 1,000 feet above the highest terrain or obstacle within 5nm of the intended track. Pilots-in-command should be instructed to monitor all radar instructions by reference to other aids and be reminded that radar control does not relieve them of their responsibility to ensure adequate terrain clearance;

- 13.4.4 If the specified minimum altitude for a sector is related only to terrain or obstacles within less than 20nm of the intended track, attention must be drawn to the fact in manuals and prepared navigational flight plans supplied to crews;

13.4.5 If an operator wishes to use the minimum-safe altitudes provided in a recognised Flight Guide, he must first check that the basis of the publisher's calculations will give at least an equal standard to that required by this paragraph. If necessary, corrections should be made and promulgated in the manual so that the required standard is achieved.

13.5 For flights within 20nm of terrain having a maximum elevation exceeding 2,000 feet, operations manuals should provide for minimum altitudes to be increased by at least the following amounts according to the wind speed at flight level:

Elevation of terrain	Wind speed in knots			
	0 - 30	31 - 50	51 - 70	Over 70
2000 – 8000 feet	500 feet	1000 feet	1500 feet	2000 feet
Above 8000 feet	1000 feet	1500 feet	2000 feet	2500 feet

13.6 Manuals should also include a reference to the effect of mountain waves and instruct pilots-in-command to take suitable precautions when such conditions are reported or forecast.

13.7 Minimum altitude should be related where necessary to the ability of the aircraft to comply with the Weight and Performance Regulations. (See also para. 19 of this Chapter).

14 AERODROME OPERATING MINIMA

14.1 Specific minima should normally be listed in the manual for take-off, landing and visual manoeuvring at every aerodrome of intended departure or landing and every alternate aerodrome. This, of course, immediately gives rise to the question of what is meant by "normally" and "intended". If the operator can reasonably foresee that an aerodrome is likely to be used with some degree of frequency or regularity, the minima for that aerodrome should be listed in the manual. For a short-notice charter, or one that appears to be a 'one-off', the minima should be specified in a pilot-in-command's brief for the flight(s).

On the one hand, it is undesirable to clutter the manual with specific minima for aerodromes that might conceivably be used at some indeterminate time if a customer happens to want it, this would entail a lot of unnecessary work on minima that would very probably become out-of-date.

On the other hand, it is altogether undesirable and unacceptable that a flight, or series of flights, should be commenced unless the relevant minima have been specified in advance, either in the manual or in a pilot-in-command's flight brief. Where the latter is used the operator must retain a copy on the ground for at least three months.

14.2 Operators should specify minima for each type of aircraft included on their Certificate (or application) for each runway and approach aid at each aerodrome used by an aircraft type. For aeroplanes with a MTWA exceeding 5700 kg, the Air Safety Department normally determines appropriate minima by the method described in Appendix C. For lighter aeroplanes the method described in Appendix D is used. Operators who prefer to use different methods should ensure that they produce minima that are not significantly lower than those that would be derived from the Appendices and any relevant State Minima published by a Foreign State or Authority.

- 14.3 It is most important for operators to appreciate that it is their responsibility under the relevant statutory provisions to establish and specify appropriate minima. As with most other aspects of flight operations, Flight Standards Inspectors will make random checks and call for amendments to particular minima where they appear to be necessary. The primary purpose of these sample checks is to verify as far as possible the adequacy of the operator's systems and procedures for establishing minima and amending them as necessary to take account of changes in navigational facilities and procedures, and of the experience of individual pilots or groups of pilots. There can be no question of the Authority or its Inspectors assuming responsibility for the adequacy of each minimum specified, and every instruction issued. This responsibility rests, and must continue to rest, with the operator who should designate a suitably qualified person to keep the instructions under review and amend them as necessary.
- 14.4 Operators intending to operate to Category II or Category III minima are advised to consult the Authority at an early stage in the planning of such operations.
- 14.5 Minima and associated instructions should be tabulated or otherwise presented in a manner that will facilitate immediate reference on the flight deck.
- 14.6 Runways (or landing strips) and approach aids which are not to be used (e.g. because the runway is too short) should be clearly indicated either in the aerodrome operating minima tables or by a general instruction prohibiting the use of runways and aids which are not included in the tables.
- 14.7 For the guidance of pilots-in-command who may be obliged in exceptional circumstances to land at aerodromes for which values have not been specified, operators should include in the manual data and instructions by means of which minima appropriate to the circumstances can readily be calculated.

The data and instructions should be adequate to secure at least the normal operating standards observed by the operator and should be expressed as simply as possible.

Note particularly that in these circumstances it may not be practicable for the pilot-in-command to give the same detailed consideration to all the relevant factors which the operator is able to give when pre-calculating minima for inclusion in the manual or flight brief. It would therefore be expected that minima calculated in this way would usually be higher than those that have been pre-calculated. The guidance given should be sufficient to enable the pilot-in-command to determine all the values that would normally have been specified by the operator including, in particular, the minima appropriate to visual manoeuvring for landing.

- 14.8 Operators should make it clear in their instructions that a pilot-in-command is authorised to exercise discretion and apply minima higher than those prescribed by the operator, if in his opinion it is necessary to do so in order to secure the safety of his aircraft. This may be necessary where there is a degradation of approach or aerodrome facilities. Examples would be any degree of unserviceability of High Intensity Approach Lighting or an approach to a displaced threshold.
- 14.9 *Selection of Alternate Aerodromes*
- 14.9.1 The alternates designated by the operator for each intended destination should normally be specified in the appropriate section of the manual, or in the pilot-in-command' flight brief, and instructions should be included on the factors to be

taken into account by pilot-in-commands in the selection of alternates for particular flights.

- 14.9.2 Guidance should be included in the manual on the selection of 'return' alternates for take-off when the weather conditions are below landing minima at the departure aerodrome. Take-off in such conditions should normally be prohibited unless a suitable return alternate is available within a specified time or distance, which should not be greater than the appropriate values in the following table. For advice on limits for aeroplanes not included in the table the operator should consult the Flight Operations Inspector with whom he normally deals.

Aircraft	Specified time or distance (at one engine out speed)
4 turbine engines	120 minutes or 500 nm - see note
4 piston engines	90 minutes or 400 nm - see note
3 turbine engines	90 minutes or 400 nm
3 piston engines	60 minutes
2 turbine engines	60 minutes
2 piston engines	30 minutes
NOTE – WHICHEVER IS THE LESSER	

14.10 *Take-off Minima*

- 14.10.1 To comply with the relevant legislation, minimum conditions for take-off must be specified in terms of runway visual range (RVR) and cloud ceiling, and full account should be taken of such features as runway width, take-off and emergency distances available, the nature and position of runway lighting and/or marking and the directional controllability of the aircraft particularly in the case of engine failure.
- 14.10.2 Special rules applicable to certain types of aircraft are discussed in paragraph 14.15.
- 14.10.3 Where multiple RVRs are available the RVR for all zones must be above company minima before take-off.

14.11 *Landing Minima*

14.11.1 Decision height

- (a) A decision height (as defined in the Air Navigation Regulations) should be specified for each runway or landing strip and approach aid to be used. In determining the appropriate height, operators should take account of the obstacle clearance or other limitations notified by the appropriate Authority; any errors present in the altimeter system installed; the go around handling characteristics and performance of the aeroplane, including in particular the amount of sink following the initiation of the missed approach procedure; the nature of the approach and runway lighting and the time required for a transition from instrument to visual flight; and the extent to which it may be practicable for the pilot to assess and correct between decision height and threshold, any displacement from the optimum approach path. The methods of calculation described in appendices C and D take account of these factors.
- (b) In the case of aeroplanes with large glide path aerial to wheel heights the decision height calculated in accordance with Appendix C may have to be increased in the case of some ILS approaches to allow for glide slope installations which provide nominal wheel height clearances at the runway threshold of less than 25 ft.

14.11.2 Runway visual range

The term runway visual range and minimum values must be specified by the operator. For aerodromes where RVR is not measured and reported to pilots, operators should additionally specify the minimum reported visibility below which an approach to landing is not to be commenced or continued. The recommended relationship between RVR and meteorological visibility is shown in Table 3 of Appendices C and D.

14.11.3 Operators will be expected to specify increments to be applied to specified values of decision height and RVR by pilot-in-commands with only limited experience on the type of aeroplane and by all pilot-in-commands in the event of any unserviceability of instrumentation system that significantly affects the performance and/or handling of the aeroplane.

14.11.4 Where multiple RVRs are available operators must specifically prohibit an approach being made if the touchdown zone RVR is below company minima regardless of the values of the mid-point and stop-end RVRs. Pilots-in-command should be instructed that when the touch-down zone RVR is above company minima that the midpoint and stop-end RVRs must be taken into consideration when assessing the safety of the complete landing and roll-out manoeuvre.

14.12 *Minima for Visual Manoeuvring for Landing*

14.12.1 Minima for visual manoeuvring for landing (circling minima) should be established by the operator for each aerodrome to be used. These minima would apply, for example, where a pilot used a radio aid to position himself in sight of the aerodrome and then made a partial circuit (or other significant manoeuvre) to line-up for the approach and landing.

14.12.2 The minimum height for circling should be determined by reference to the relevant chart or AIP and account must be taken of obstacles and terrain within a selected radius of the centre of the aerodrome.

14.12.3 At some aerodromes, it will be necessary to restrict circling to a particular segment of the circuit - e.g. north of the extended centreline only - because of major obstacles or high ground in the vicinity. Any such restriction should be clearly indicated in the lists of operating minima.

14.13 *Specification of Visual Reference*

14.13.1 Clear instructions should be given on the minimum visual reference to be required at decision height and thereafter retained. The visual reference segment should contain sufficient physical features to ensure that the aircraft's position relative to the desired flight path can be positively and immediately identified. It should include an element for lateral control, e.g. a cross bar of the Calvert approach lighting system, or barrettes on approach lighting systems where there are no cross bars available.

14.13.2 For approaches using full ILS or PAR the specified visual reference should contain at least six consecutive lights, which may be approach lights or runway lights, or a combination of both.

14.13.3 For approaches using aids other than full ILS or PAR when approach lighting is not available, the specified visual reference should include the aiming point, i.e. the desired point of touchdown on the runway of intended landing. If approach

lights are available it is not essential that the aiming point should be in view at decision height, but the segment of lighting specified should contain at least seven consecutive lights, which may be approach lights or runway lights, or a combination of both.

14.13.4 Operators wishing to specify visual reference in diagrammatic form may do so, provided that their specifications meet the above criteria.

14.13.5 For a visual circuit of the aerodrome based on visual manoeuvring minima a pilot should have continuous sight of ground features which will enable him to establish the position of the aeroplane in relation to the aerodrome and subsequently to remain within the notified visual manoeuvring area.

14.14 *Minima for Visual Approaches*

To cover the possibility of shallow fog reducing visual reference during the final stages of a visual approach operators are required to specify minimum RVR values for all visual approaches. These minima will vary according to aircraft type, approach lighting, day or night operation etc., and the appropriate values may be taken from the lowest decision height in Table 2 of Appendices C or D as appropriate. Under no circumstances will minima below 600 metres be acceptable. When RVR is not available factored meteorological visibility must be used.

14.15 *Special Rules for Certain Aircraft*

14.15.1 Certain groups of aeroplanes are subject to special statutory provisions in respect of aerodrome operating minima. These limitations should be taken into account in establishing minima, which should be marked where necessary for operations by day only. If the operator's limitations are based on a special reduced take-off weight, this should be indicated clearly in the listed minima.

14.16 *Aerodromes without Approach Aids*

14.16.1 For some public transport aeroplanes carrying passengers, flights to aerodromes without a radio or radar approach aid are prohibited. This should be brought specially to the attention of crews in operations manuals. In exceptional circumstances flights to such aerodromes may be permitted if suitable aerodrome operating minima, together with associated operating procedures, are agreed with the inspector assigned to the operator.

14.17 *State and Special Minima at Foreign Aerodromes*

14.17.1 In a number of foreign countries mandatory operating minima are specified by the national authorities and must normally be observed by operators.

14.17.2 It is the responsibility of the operator to make a fresh application for special minima following significant changes in aerodrome facilities or other factors.

15 EMERGENCY EVACUATION PROCEDURES

15.1 The manual should specify the procedures to be followed by the crew for the rapid evacuation of the aircraft, and the care of passengers, in the event of a forced landing, ditching or other emergency. Much of the material will necessarily be descriptive, but it is essential that the basic drills to be followed by the various crew members should be summarised and tabulated. Particular attention should be paid to the following:

- 15.1.1 The correct setting for pressurisation controls - e.g. spill valves, safety valves, discharge valves - prior to ditching;
 - 15.1.2 Arrangements for the use of emergency escape chutes/slide rafts;
 - 15.1.3 The method of fitting life jackets to small children;
 - 15.1.4 The briefing of passengers and warning of impact;
 - 15.1.5 The seating of crew members adjacent to emergency exits; and
 - 15.1.6 Procedures for initiating and maintaining the rapid egress of passengers in an emergency evacuation, crowd control and the movement of passengers away from the vicinity of the aircraft after evacuation.
- 15.2 Clear instructions should be given in the manual (supplemented by simple diagrams) on the location and, where it is not self evident, the method of use of each item of emergency and survival equipment such as escape chutes and ropes, exits, fire extinguishers, oxygen and smoke masks, megaphones, emergency lights, torches, first aid kits, dinghies, life jackets, survival packs, emergency radio beacons and flotation cots. It is especially important that differences between individual aircraft of the same type are clearly shown.
- 15.3 Special considerations should be given to the problems posed by the carriage of invalid or incapacitated passengers and, in particular, of the need to carry additional cabin staff. The pilot-in-command should be made aware of the presence of severely handicapped persons on board, and of the precautions taken to minimise the effect of their carriage on the conduct of an emergency evacuation of the aircraft.
- 15.4 In order to check the effectiveness of emergency evacuation procedures, operators may be required to arrange a demonstration emergency evacuation.
- 15.5 Operators should ensure that there are satisfactory arrangements for cabin staff to be warned immediately of any emergency that might require the rapid evacuation of the passengers from the aircraft.

16 ALLOWABLE DEFICIENCIES & MINIMUM EQUIPMENT LISTS

- 16.1 Instructions and guidance to pilots-in-command on the operation of aircraft with defects unrectified should be submitted to the Authority for comment.
- 16.2 Where the carriage of unserviceable equipment results in a deviation from the normal drills satisfactory alternative drills must be included in the manual. It is especially important in the case of thrust reverses being allowable deficiencies that the operator not only publishes alternative drills but checks with the Authority on the validity of relevant performance data.
- 16.3 The pre-amble to any such Allowable Deficiency List or MEL must remind the pilot-in-command of his ultimate responsibility in satisfying himself that the aircraft is in every way fit for the intended flight and that he may apply a higher minimum standard if in his opinion it is necessary to do so in order to ensure the safe operation of the aircraft.

17 MANDATORY OCCURRENCE REPORTING

- 17.1 Operators domiciled in Fiji and pilots-in-command of aircraft controlled by those operators (whether or not the aircraft is registered in Fiji) having a maximum total weight authorised of more than 2300 kg are amongst those required by the Air

Navigation Regulations to report potentially dangerous occurrences. Types of occurrence that must be reported are prescribed in Air Navigation Regulation 71 and other material provided by the Authority.

17.2 Operations manuals should specify persons responsible for raising occurrence reports and include such instructions as will enable them to comply with the statutory requirements.

17.3 Operators of aircraft that do not fall within the MOR scheme should include instructions in the manuals on the procedure for the reporting of incidents (Section 1, Chapter 2, Para 12).

18 MINIMUM STRIP WIDTHS REQUIRED AFTER THE CLEARANCE OF SNOW AND SLUSH AND ASSOCIATED SNOW BANKS

18.1 Operations manuals must contain, if applicable to the area of operation, the minimum width of cleared runway required for each aircraft type and the maximum snow bank profile acceptable at various distances from the cleared runway edge.

18.2 The ultimate responsibility for deciding whether the strip width in a particular case is sufficient must rest with the pilot-in-command and operators must in their operations manual acknowledge the right of the pilot-in-command to increase the strip width required if, in his opinion, weather conditions and the state of the runway surface or other related factors warrant this section.

19 EN-ROUTE PERFORMANCE DRIFT DOWN

19.1 It is implicit in the Regulations that operators should be aware of the routes on which the en-route performance of their aircraft, following an engine failure, may be critical. Operators should include instructions covering such routes in their operations manuals that will, by providing planned guidance, reduce the risks associated with indecision or error under these circumstances.

19.2 An operator may of course elect to reduce the aircraft's weight at take-off in order to ensure that its performance following engine failure will enable it to clear all obstacles on its route by the statutory margin. This course of action may incur commercial penalties.

19.3 An alternative method, which may reduce the commercial penalty, requires the calculation by the operator of a critical point on the route, at which after engine failure, the aircraft can either carry on along the planned route, turn back, or turn onto another track and be able to clear all obstructions by the required vertical margin. If the simple case is taken of a route with one critical obstacle it would mean that loss of an engine beyond the critical point must result in the aircraft continuing on the planned route, while a similar loss before the critical point means the aircraft must turn back or take an alternative route. In the case of a number of obstacles en-route, a number of critical points and associated escape routes may be necessary.

19.4 The extent to which such instructions will provide against the risks arising from indecision and navigational errors is determined to a great extent by the crew's ability to ascertain accurately whether the aircraft has reached the critical point. It follows that, unless the aircraft's position can be fixed by the use of GPS or a similar continuous navigational procedure, the necessary accuracy can best be obtained if the critical points are defined by radio fixes, wherever possible.

- 19.5 The drift down should be plotted from the last fix prior to the critical obstacle. However, calculation of drift-downs from this point may in some cases be unduly restrictive, especially on those routes where facilities are few and far between. In such cases operators should satisfy themselves that the procedures laid down are safe and that a reasonable allowance has been made for navigation errors and indecision.
- 19.6 Any alternative route planned should be provided with adequate fixing facilities to enable the aircraft to be navigated accurately.
- 19.7 The operator's instructions should reflect consideration not only of the availability of the fixing aids and the possible limitation of navigation accuracy but also the application of appropriate meteorological conditions. At least the wind component and temperature used in the calculation of the critical point must be published, since in the event of forecast conditions being more adverse than those used at the planning stage the captain will be required to amend the drift-down procedure.

20 NOISE ABATEMENT PROCEDURES

- 20.1 Noise abatement regulations frequently require special handling techniques and routings after take-off. The flight manuals of the more recently certificated aeroplanes contain performance data related to noise abatement procedures. Details of the procedures for each aerodrome or runway used by the operator, for which noise abatement procedures exist, should be provided in the operations manual. In some cases these procedures may be more restrictive in terms of take-off weight than the ANR allows. Instructions to ignore noise abatement procedures in emergency situations should also be included.
- 20.2 Where, in exceptional circumstances, it may be appropriate in the course of noise abatement procedures to start a turn at less than 500 ft AGL, pilots should be given suitable instructions about restricting the angle of bank. Pilots should also be instructed not to reduce thrust below 500 ft AGL or to an extent that would result in a gross gradient of climb of less than 4 percent.

21 USE OF AUTO-THROTTLE IN MANUALLY CONTROLLED FLIGHT

- 21.1 It is necessary that pilots be aware of the risk of developing high rates of descent when using auto-throttle during manual flying. Operators should take account of this problem in formulating their conversion and refresher training programmes for auto-throttle fitted aircraft.

22 PILOTS-IN-COMMAND FLIGHT BRIEF

- 22.1 For flights on routes not normally flown, pilots-in-command should be provided with a detailed brief, a copy of which should be retained by the operator for at least six months. The brief should include guidance on the schedule to be maintained and on all operational aspects of the voyage not fully covered in the operations manual, such as details of the routes to be flown, aircraft performance data and specific weather minima for all aerodromes (including alternates) likely to be used and details of the navigational and terrain clearance procedures to be used.

23 USE OF OXYGEN AND PROVISION OF EQUIPMENT

- 23.1 Sufficient information should be included to enable the pilot-in-command to verify that adequate oxygen and associated equipment is carried to meet the statutory requirements and to guide the crew on its use.

- 23.2 If oxygen is not carried instructions should be included on the restriction of operating altitudes.

24 RADIO WATCH

- 24.1 A simple instruction requiring a continuous watch on the appropriate frequency should normally suffice. However, where it is desirable that a watch be maintained on more than one frequency, for instance the current ATC frequency, the emergency frequency 121.5 MHz and a company frequency, then some detail as to how this can best be accomplished should be provided.

There may need to be further advice or instruction as to communication system watch keeping or monitoring when the primary means of communication is by data link or other non-voice type system.

25 DANGEROUS GOODS

- 25.1 The operations manual should indicate whether or not a general permission for the carriage of dangerous goods is held and what conditions apply to that permission. Operators who do carry dangerous goods should also include in their operations manual information regarding the means of identifying dangerous goods, their manner of loading, the responsibilities of crew members concerning such goods and the action(s) to be taken in the event of an emergency involving dangerous goods. The conditions for the carriage of dangerous goods are covered in Section 2 Chapter 3.

- 25.2 Operators who do not seek permission to carry dangerous goods must prohibit their carriage by an entry in the operations manual, and give guidance to staff and agents concerning which goods may not be carried. Those staff who may have to identify and refuse dangerous goods must be given formal initial and recurrent dangerous goods training.

26 NAVIGATION

- 26.1 The operations manual should indicate what systems of navigation are acceptable and give basic details of how to use each system of navigation. Particular attention should be given to the equipment and personnel training required for operations in airspace where a particular Minimum Navigation Performance Specification (MNPS) or Required Navigation Performance (RNP) is applicable.

Operators should also establish and use procedures to ensure the ongoing competency of crews utilising any particular equipment or navigation capability.

27 DE-ICING AND ANTI-ICING OPERATIONS

- 27.1 When an operator conducts operations that are or may be subject to icing conditions whilst on the ground, then the operations manual shall contain full details and instructions of the procedures necessary to ensure the removal of any ice or other contaminant from the aircraft before a take-off is undertaken. This information shall include details of de-icing and anti-icing materials and fluids, hold-over periods, inspection and re-inspection or confirmation requirements and any other elements necessary to ensure the safety of the aeroplane and its occupants. Operators may find material from the following FAA Advisory Circulars of relevance:

AC 135-16 Ground De-icing & Anti-icing Training & Checking;
AC 120-60 Ground De-icing and Anti-Icing Program; and

AC 20-117 Hazards Following Ground De-icing and Ground Operations in Conditions Conducive to Aircraft Icing.

They can be downloaded from the FAA website at <http://www2.faa.gov/regulations/Guidance.cfm>

28 ACCIDENT PREVENTION AND FLIGHT SAFETY PROGRAMME

- 28.1 The operator shall establish an accident prevention and flight safety programme, acceptable to the Authority, and shall give details and specifications of the programme in the operations manual. The information in the manual shall include:
- 28.1.1 the Company Safety Policy, including the detailing the priorities for safety, regularity, efficiency, passenger comfort and other such matters for consideration during any decision making; and
 - 28.1.2 the responsibilities of personnel, particularly in relation to carrying out their day to day functions and in the event of abnormal operations and/or emergency situations.
- 28.2 The manual should also clearly establish open lines of communication, from the bottom up as well as from the top down, particularly regarding matters affecting the safety of persons or property. The manual should establish a clear picture of the operation and relationship of organisational programmes such as:
- 28.2.1 the quality assurance system and programme;
 - 28.2.2 the safety management system and programme; and
 - 28.2.3 any other programmes and/or systems that can impinge on or affect the operation of the organisation's aircraft and those who fly in them.

29 TRAINING MANUAL

- 29.1 In most but the smallest operations, it is usual and most practicable to have one or more separate volume of the Operations Manual relating to training and usually called the company Training Manual. The Training Manual may well be divided into further volumes for flight crew, cabin staff and other operational staff. It should be noted that reference here is only to operational staff. Maintenance staff are separately covered by the documentation specific to maintenance and airworthiness activities.
- 29.2 The Training Manual should normally cover, in substantial detail, all training for company personnel, particularly those involved in any way in the operation of the company's aircraft. This should include flight crew, cabin staff and dispatch, rostering and operations staff. It should address their training from initial induction (although some non-operational aspects of induction training may be common to all staff and be covered in administration manuals) to throughout their employment in an operational capacity.
- 29.3 The Training Manual should also include details of the operator's training programme in Human Factors and a syllabus for the development of knowledge and skills related to Human Performance.

30 STANDARD OPERATING PROCEDURES

- 30.1 The operator should use the Operations Manual to specify and document Standard Operating Procedures (SOPs) for all stages and phases of the operation of the organisation's aircraft. SOPs are vital to the safety of the aircraft and its occupants. Failure to use and deficiencies in SOPs have long been determined to be contributing or primary causal factors in aviation accidents.
- 30.2 Further, it has been clearly established that airlines perform with higher levels of safety when they both establish and adhere to adequate SOPs. The implementation of an effective SOP requires that:
- 30.2.1 the procedure is appropriate for the situation;
- 30.2.2 the procedure is practical in its use;
- 30.2.3 crew members understand the reasons for the procedure;
- 30.2.4 Pilot Flying (PF), Pilot Not Flying (PNF) or Pilot Monitoring (PM) (preferred) duties are clearly identified and delineated;
- 30.2.5 Effective training is given and validated; and
- 30.2.6 The need for the procedure is endorsed and reinforced at all levels – by supervisory, instructional, check and management personnel.
- 30.3 If there is healthy communication, both up and down, between all operational staff, then it is likely that the SOPs will be accepted, implemented and effective. This form of safety culture has, time and again, been shown to be the foundation of established international best practice.
- 30.4 Other matters that should be covered in SOPs include, but are not limited to,:
- 30.4.1 Instructions on the acceptance of ATC clearances, particularly where terrain clearance may be involved. Additionally, it should be made clear that on any occasion where there may be a need for amplification or clarification, it should be sought without delay;
- 30.4.2 The occasions and need for briefings, particularly when there may be the possibility of misunderstanding;
- 30.4.3 Familiarisation with routes to be flown, and with aerodromes to and from which operations are to be conducted, including diversions to alternates;
- 30.4.4 Both the concept and the practice of carrying out a stabilised approach. Whilst a stabilised approach is particularly important for large transport category aircraft, it is nevertheless a practice that should exist for the smallest operator and the smallest aircraft. A stabilised approach is the foundation stone from which a safe landing can be achieved and is as important for VFR operations as it is for instrument approaches. In the VFR case, it is probably acceptable to be stabilised no lower than 500 feet height above touchdown (HAT) whereas for the IFR case the HAT should be 1000 feet. The operator should specify, for their aircraft and operations, the criteria for an approach to be considered stabilised. These criteria should consider, but not necessarily be limited to:

- (i) the aircraft being on the correct track;
- (ii) the aircraft is in the intended landing configuration, or, if approved in the Flight Manual, with only one configuration change remaining;
- (iii) the pilot flying is required to make no more than normal bracketing corrections to maintain the desired track and profile to achieve a landing within the desired touchdown zone;
- (iv) the aircraft speed is within the acceptable range specified in the approved aircraft operating manual; and
- (v) the power setting being used is appropriate for the selected landing configuration and is within that specified in the approved aircraft operating manual.

30.4.5 Operators should consider the option of having the pilot monitoring (PM) call approaching the height by which the approach should be stabilized (1000' HAT in IFR or 500' HAT VFR) and either confirm that the approach is stable or call the parameter(s) outside the acceptable criteria. It may also be appropriate for a go-around call to be given if the approach is not stabilised. If the operator requires this, then, when the Captain is PF, it will seem less like a criticism of the Captain and an acceptable comment as part of a standard procedure.

30.4.6 The operator should also emphasise the need for a go-around if the approach is not stabilised and emphasise that failure to conduct a go-around will be considered a more serious failing than conducting a go-around.

30.4.7 Limitations on high rates of descent, particularly near the earth's surface;

30.4.8 The conditions required to commence or to continue an instrument approach in accordance with regulation 37;

30.4.9 Instructions and training requirements for the avoidance of controlled flight into terrain (CFIT) and policy and practice in the use of Ground Proximity Warning Systems (GPWS);

30.4.10 Procedures for the operation and use of Airborne Collision Avoidance Systems (ACAS) or Traffic alerting and Collision Avoidance Systems (TCAS); and

30.4.11 Information and instructions relating to the interception of civil aircraft, including procedures to be followed and visual signals for use by intercepting and intercepted aircraft.

Note: FAA Advisory Circular AC120-71A Standard Operating Procedures for Flight Deck Crew Members has further information SOPs and, at its appendix 2, on Stabilized Approaches.



31 SECURITY

- 31.1 The operator should use the manual to convey to all operational staff the instructions and guidance necessary to deal effectively with the security measures in place to protect their aircraft and occupants.
- 31.2 The operator should produce a checklist for carriage on each of the organisation's aircraft that details the procedure to be followed in searching for a bomb in case of a suspected sabotage attempt. The checklist should contain information as to the least risk location for a bomb or explosive device for that aircraft type.
- 31.3 The operator shall, in the manual and where appropriate, refer their staff to other material or publications on security where such information will assist them in dealing with the matter.

32 MERCY FLIGHTS

- 32.1 If the company has made a policy decision that it is prepared to undertake Mercy Flights, then the manual should specify full details for such operations. The information should include, but not necessarily be limited to:
 - 32.1.1 who can authorise a mercy flight by the organisation's aircraft;
 - 32.1.2 criteria to be taken into account when considering a request for a mercy flight;
 - 32.1.3 the minimum level of experience (time in command, time on type, other relevant factors in the circumstances) for an employee to act as a crew member on a mercy flight; and
 - 32.1.4 any other matters that the organisation considers relevant to ensuring a satisfactory outcome in the situation, even if the original intent is not achieved.

CHAPTER 2 - FLIGHT CREW TRAINING AND CHECKING

1 GENERAL REQUIREMENTS FOR TRAINING AND CHECKING

The general requirements for training and checking are specified in Annex 6 at paragraph 9.3.1, which states:

“9.3.1 An operator shall establish and maintain a ground and flight training programme, approved by the State of the Operator, which ensures that all flight crew members are adequately trained to perform their assigned duties. The training programme shall:

- a) include ground and flight training facilities and properly qualified instructors as determined by the State of the Operator;*
- b) consist of ground and flight training in the type(s) of aeroplane on which the flight crew member serves;*
- c) include proper flight crew coordination and training in all types of emergency and abnormal situations or procedures caused by power plant, airframe or systems malfunctions, fire or other abnormalities;*
- d) include training in knowledge and skills related to visual and instrument flight procedures for the intended area of operation, human performance including threat and error management and in the transport of dangerous goods;*
- e) ensure that all flight crew members know the functions for which they are responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures; and*
- f) be given on a recurrent basis, as determined by the State of the Operator, and shall include an assessment of competence.”*

The ICAO requirements relating to the training and periodical testing of crew members are brought down in general terms in the ANRs. These requirements shall be expanded upon by an operator in the organisation’s exposition to the extent acceptable to the Authority that will ensure that the ICAO requirements are met.

In this regard, operators should particularly note the wording of the ICAO requirement in regard to *training in duties and functions*, the *inclusion of proper flight crew coordination and training* in all types of emergency and abnormal situations or procedures caused by power plant, airframe or systems malfunctions, fire or other abnormalities, that all *flight crew members know the functions for which they are responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures* and that *the training programme shall include an assessment of competence*.

The primary purpose of this chapter is to indicate the nature of the arrangements considered necessary to secure an adequate standard of compliance with the statutory provisions.

2 SUPERVISION OF TRAINING AND CHECKING

A suitably qualified person should be designated to take general charge of all arrangements for training and testing. His authority and responsibilities should be clearly defined.

3 APPOINTMENT OF CHECK/TRAINING STAFF

3.1 Training should be given by suitably qualified persons within the operators organisation, exceptionally an operator may obtain outside assistance.

3.2 It is important that examiners and instructors are experienced and qualified for their work

and operators are to ensure that they are trained in teaching and examining techniques. The required qualifications for the nomination of training personnel must be contained in the operator's training manual.

- 3.3 Tests for purposes other than those outlined in paragraph 4.1 may be conducted by personnel appointed by the operator and approved by the Authority. Details of such appointments should be sent to the Authority not later than 14 days before the appointment becomes effective.
- 3.4 Operators may need to use the services of manufacturers pilots or those from foreign operators for flight training, checking and route supervision/training. As a general rule a Fiji licence, or a temporary validation of a foreign licence, will have to be obtained. The Authority will specify the requirements in individual cases. When manufacturers or other operator's pilots are used to give training they must be properly licensed and approved to conduct line training, IRRs and competency checks. To supervise route flying such pilots are required to hold full company command qualification for public transport flights and to meet all the competency check requirements. Training staff from other operators or from manufacturers must be made familiar with the contents of the operations manual and the training manual of the operator to which they are temporarily attached.

Operators must obtain certified copies of duty and rest period records for the 28 days prior to the crew members being rostered; appropriate Flight/Duty Records must be maintained for the period that the crews are utilised on public transport flights.

4 APPOINTMENT OF CAAF AUTHORISED EXAMINERS

- 4.1 In Fiji flight tests for Commercial Pilots Licence (CPL), Airline Transport Pilots Licence (ATPL) Aircraft Type Rating, Initial Instrument Rating, Foreign Licence Conversion Checks shall only be conducted by suitably Type Rated Flight Operations Inspectors (FOIs) or in certain cases where there is no suitably Type Rated FOIs then by examiners authorised by the Authority.
- 4.2 Authorised examiners, although employed by the operator, will conduct such tests on behalf of the Authority.
- 4.3 An Aircraft Type Rating Examiner (Pilots) must be qualified under the provisions of the ANR to act as pilot-in-command of the aircraft type, and his ability to perform the functions of a pilot-in-command while occupying the co-pilots seat must be checked by the Authority and recorded.
- 4.4 Type Rating (Base) renewal checks, Line checks, and Instrument Rating renewal checks(as required by ANR45) with be conducted by Approved Check Captains.
- 4.5 Applications for appointment as an Approved Check Captain must be sponsored by the operator and submitted to the Authority for consideration. The Authority will advise on the qualifications and experience required, and will require the applicant for approval to undergo training and flight tests prior to conducting checks on behalf of the Authority. Any such application must contain the following particulars:
- (a) Full name;
 - (b) Licence Type No. and Expiry Date;
 - (c) Aircraft Types endorsed in the licence;
 - (d) Date of last Aircraft Rating, Certificate of Test, for the aircraft type to which the application is related; and whether annotated "Command" or "Co-pilot"
 - (e) Date of last Instrument rating - Certificate of Test, and the type of aircraft on which the test was taken;
 - (f) Date of last medical;
 - (g) Total Command hours on all types;
 - (h) Total Command hours in the last 12 months on the type to which the application

- relates;
- (i) If application relates to a turbo-jet aircraft the total Command hours on turbo-jet aircraft (all types);
 - (j) If the application relates to a turbo-prop aircraft the total Command hours on turbo-prop aircraft (all types);
 - (k) Whether, or not, the person proposed has undertaken and passed an approved 'Instructional Technique' course.
 - (l) Whether or not the person holds, or has held, Check Captain Approval from any other civil aviation authority. If yes, full details should be supplied and supported by documentary evidence; and
 - (m) Any other information thought relevant to the application.

5 SUPERVISION OF EXAMINERS

The conduct of tests by CAAF of Approved Check Captains, and of crew training generally, will be audited by CAAF Inspectors during the currency of an Air Operators Certificate. The purpose of these inspections is to ensure that training and testing is in compliance with the operators training manual and within the terms and conditions of the appointment of CAAF Approved Check Captains.

6 USE AND APPROVAL OF FLIGHT SIMULATORS AND TRAINERS

6.1 Provision is made in the ANR for use of apparatus such as flight simulators, flight trainers and fuselage 'mock-ups' for certain periodical tests and conversion training. These devices should be individually approved by the Authority and may be used only under the supervision of a person approved for the purpose.

6.2 All training staff should be instructed that simulators which are used in flight training and checking must be treated with no less respect concerning flight safety than would be appropriate in an aircraft during actual flight. The practising of procedures or continuing manoeuvres which would be unacceptable in flight operations are also unacceptable in the simulator. Therefore, during simulator operations close adherence to established operating procedures and practices and crew co-ordination procedures (e.g., altitude, airspeed, and flight path deviation callouts and pilot incapacitation procedures, etc.) should be strongly emphasised.

7 SYLLABUSES FOR TRAINING AND CHECKS

The training and periodical tests of all crew members are required to be conducted in accordance with a syllabus agreed with the Authority. Proposed changes in a syllabus or any significant departure from an agreed training programme must be agreed by the Authority before implementation.

8 RECORDS OF TRAINING AND CHECKS

8.1 Operators are legally obliged to keep records of all training and checks and to make them available if necessary to other operators. Records should incorporate certificates indicating the competence of Check Captains to perform the duties in respect of which they have been tested. The form of record and certificates to be maintained must be agreed by the Authority.

8.2 Training records should show a trainee's progress through each phase of his training. They should include information about the results of tests, and when applicable, indicate the number of times each exercise was covered.

9 MULTI TYPE OPERATION

As a general rule pilots should be limited to operating one aircraft type or, where there are significant differences between variants of a type, to one variant. The Authority is

prepared to consider exemptions from this rule for aircraft that are relatively simple to operate and for pilots employed as instructors or examiners.

10 PROBLEMS OF SMALL OPERATORS

The arrangements discussed in the foregoing paragraphs may not be practicable in the case of a very small organisation operating one or two aircraft and employing, say, three or four crews. Special arrangements in such cases may be agreed with the Authority. A problem may arise in connection with the periodical testing of the examiner himself. In the larger firms, employing several pilot examiners, one can test the other and there is no real difficulty, but where the total complement of captains warrants only one examiner, arrangements should be made for his periodical tests to be conducted by an independent examiner outside the operator's organisation. In cases of serious difficulty in this connection, the Authority may be able to arrange for assistance.

11 'FREELANCE' CREW MEMBERS

The employment of freelance crews is generally undesirable but where, exceptionally, an operator employs them he may accept base and line competency checks carried out by another operator only if they were administered on an aircraft identical in every respect to his own, and the "freelance" crew holds a licence issued by the same Authority as his own. The original or certified true copies of the appropriate tests should be obtained and endorsed by the operator to the effect that he accepts them as meeting his own standard and that he is satisfied as to the competency of the crew member. Additionally the operator must satisfy himself that the flight crew member is fully conversant with the company operations manual and flight procedures. In the case of pilots-in-command route competency must also be established and certified. In all cases flight and cabin crew must be tested as to their knowledge of emergency/survival drills and equipment. Operators must obtain certified copies of duty and rest period records for the period 28 days prior to the freelance crew member being rostered; and appropriate Flight Duty Period records must be maintained for the period that such crews are in his employ.

12 SECURITY TRAINING

Operators should ensure that all flight deck and cabin crew are adequately trained in aviation security measures. Including liaison between the flight deck crew and cabin crew on the procedure use for the entry of cabin crew into a secure flight deck. "Hijack" training, Bomb search, Self defence, and dealing with disruptive and unruly passengers.

13 RETRAINING AND RE-TESTING

Operators must ensure that training staff are adequately instructed on the action to be taken when unsatisfactory performance by any crew member, either during training or during line operations, leads to re-testing or further training. For example; following an unsatisfactory base check, a pilot should not be submitted to a series of re-tests in the item(s) concerned until he attains a satisfactory standard. Where the failure indicates a fundamental weakness in ability or technique, consideration should be given to further training or practice. Similarly, if a pilot is found to be unsatisfactory during the course of line operations, the pilot-in-command should report the circumstances without delay and the pilot withdrawn from further duty until re-training and/or rechecking has been carried out. A record should be maintained of the action taken.

14 SIMULATION OF INSTRUMENT FLIGHT CONDITIONS

The method of simulating instrument flight conditions in an aircraft in flight requires formal approval from the Authority. To gain this approval the screens, or other devices used, will need to meet the requirements of both the Flight Operations and the Airworthiness sections.



15 VARIANTS OF THE SAME AIRCRAFT TYPE

A company may operate aircraft of the same type but which may differ in engines, systems, equipment, flight deck lay-out and so on. In such circumstances the operator must conduct a 'differences course' for his crews to ensure they are adequately trained on each variant. The syllabuses of such courses must be agreed by the Authority.

16 DANGEROUS GOODS TRAINING

Operators must establish and maintain dangerous goods training programmes for flight deck and cabin crews. See Section 1, Chapter 2, Para 15.

Paragraph 17 Reserved

18 THE TRAINING MANUAL

- 18.1 The ANR requires operators of public transport aircraft registered in the Fiji to provide a training manual. The manual shall contain all such information and instructions as may be necessary to enable any person appointed by the operator to give or to supervise the training, experience, practice and periodical tests required under the ANR. The operator is required to submit a copy of the manual to the Authority and to make such amendments of or additions to the manual as the Authority may require for the purpose of ensuring the safety of the aircraft or of persons or property carried therein or the safety, efficiency or regularity of air navigation. The manual will be regarded by the Authority as a primary indication of the standards of training and testing likely to be achieved. It should give formal expression to the operator's training policy and requirements, together with adequate guidance to instructors and examiners.
- 18.2 Note particularly that the manual should be addressed primarily to training staff - each of whom should normally have a personal copy. It should not be used as a form of text book to convey information and guidance to other flying staff. The form that the manual takes will vary considerably according to the size and complexity of the operator's organisation and the aircraft he uses, and its adequacy will be assessed solely on the basis of its suitability for the operator's particular needs and circumstances.
- 18.3 Each copy of a manual should normally bear a serial number and a list of holders should be maintained by the person responsible for issuing amendments. Where this system is not used an operator must have satisfactory alternative arrangements for controlling the issue and amendment of manuals. Each volume of a manual must be numbered and bear a title and index giving a clear indication of its scope. The title of the person responsible for the issue of the manual should also be indicated. At the front of each volume there must be an amendment page to indicate amendment number, date of incorporation, signature or initials of person amending. Amendment pages should be dated. The numbering of pages, sections, paragraphs etc., must be orderly and systematic so as to facilitate immediate identification of any part of the subject matter. The standard of printing, duplicating, binding, indexing of sections etc., must be sufficient to enable the document to be read without difficulty and to ensure that it remains intact and legible during normal use. The amendment of a manual in manuscript will not be acceptable. Changes or additions, however slight they may be, should normally be incorporated by the issue of a fresh or additional page on which the amended material is clearly indicated. Operators should ensure that there are satisfactory arrangements for controlling the issue and amendment of manuals and that responsibilities in this regard are clearly defined.
- 18.4 The following matters in particular should be covered in the training manual
- 18.4.1 The requirements regarding the experience, qualifications and training required prior to appointment as a member of the training staff;
- 18.4.2 A comprehensive statement of the duties and responsibilities of all training staff;
- 18.4.3 The procedure for administering and recording the periodical tests of all flying staff;
- 18.4.4 Instructions covering re-testing and re-training after an unsatisfactory performance;
- 18.4.5 Clear instructions on who is in command in the event of an emergency occurring when the training captain is not in a pilot's seat;
- 18.4.6 Minimum standards of experience and of initial and periodic training to be met by all flying staff for each type of aircraft used by the operator;
- 18.4.7 Limitations on the extent to which pilots may be employed on more than one type or variant;

- 18.4.8 A list of the required competency tests and their frequency;
- 18.4.9 The use of simulators and other training devices;
- 18.4.10 Methods of simulating instrument flight conditions;
- 18.4.11 The minimum time and/or sectors necessary to meet flight training requirements. It should be made clear that training staff should give additional time/sectors in appropriate cases;
- 18.4.12 The operators policy with regard to the crewing together of crew members under training;
- 18.4.13 Limitations on training and testing in the course of public transport flights;
- 18.4.14 Methods of simulating engine failure;
- 18.4.15 Minimum Safe Height for engine shut-down;
- 18.4.16 Aborted take-off during training flights; normally only one abort at a speed (max) 5% below V1
- 18.4.17 Minimum qualifications for all crew prior to conversion onto a new type;
- 18.4.18 Procedures for touch-and-go or stop-and-go landings, including flap settings, minimum runway lengths, auto brakes, speed brakes, brake cooling requirements and pilot handling techniques;
- 18.4.19 Instructions covering re-qualification after loss of recency;
- 18.4.20 The requirements regarding training of pilots who may be required when operating as relief crew to occupy other than their normal crew position at the controls;
- 18.4.21 Where a Captain is rostered to sit in the right hand seat and operate as a co-pilot, the requirements regarding the training and checking of the captain prior to and during the period he is operating in an unfamiliar role on an aircraft operating for the purposes of public transport.
- 18.4.22 If it is company policy that both pilots may carry out either the handling or non-handling duties, the extent to which both pilots-in-command and co-pilots should be checked in both roles;
- 18.4.23 Detailed syllabuses and specimen record forms for all training and testing;
- 18.4.24 Special equipment training, eg. IRS/INS, FMS, RNAV, GPS etc.;
- 18.4.25 A syllabus covering the training requirements for promotion of co-pilot to pilot-in-command;
- 18.4.26 Cabin crew training and checking.



18.5 For the purpose of the remainder of this Chapter it will be assumed that readers are aware of the provisions of the ANR in respect of training manuals and their contents.

19 INSTRUCTOR PILOT HANDBOOK

19.1 An Instructor Pilot Handbook should be produced for each aircraft type for use by instructing staff and training captains. It should be designed to assist in the planning of training exercises and to act as a guide in the air. Sufficient information needs to be given to enable an instructor to carry out his task effectively and this will include briefing details, and the conditions, procedures and limits appropriate to each exercise. Use should be made of pictorial diagrams to describe the various flight patterns to be flown. The contents must not be at variance with similar information given elsewhere in the operations manual. The manual should be of a size and binding that is easily manageable on the flight deck. Ideally the binding should allow the handbook to be opened back to back to enable it to be held in one hand.

Paragraphs 20 - 21 Reserved

22 PERIODIC EMERGENCY PROCEDURES/SURVIVAL TEST - ALL CREW MEMBERS

- 22.1 The test and practice required under the ANR to be completed by 'The Crew' can conveniently be described as the annual 'emergency/survival test', and must be taken by cabin crew as well as the flight crew. The maximum period of validity of this test is thirteen months. The Regulations draws a clear distinction between a test of knowledge of the location and use of emergency and life saving equipment carried, and practice in carrying out duties in emergency; operators should apply a similar distinction in their records. These requirements for testing and practice apply equally to executive and training staff who fly as operating crew or cabin crew and to all cabin crew carried on board whether or not they are in excess of the legally required cabin crew complement.
- 22.2 The test should be of sufficient scope to verify the examinee's knowledge of the location, and use of each item of emergency/survival equipment, including first aid kits (and all drugs contained therein) carried in the aircraft and his/her knowledge of the appropriate drills and procedures. Cabin crew should show a satisfactory and up-to-date knowledge of first aid and in addition a reasonable amount of time should be allotted annually to first aid refresher training. In general a qualified instructor should be available for the purpose of both training and testing cabin crew in first aid.
- 22.3 Operators should make provision for crew members to discuss incidents/emergencies which have been experienced during the previous year. This training is particularly important when cabin crew operate on more than one aircraft type.
- 22.4 To demonstrate their proficiency in carrying out emergency duties, crews should actually practice insofar as it is practicable and realistic to do so the movements and operations assigned to them in an evacuation and other emergency drills. The donning of life jackets and oxygen masks, the positioning of emergency equipment, and specific touch drills acceptable to the Authority (more information in paragraph 22.4A below) for opening emergency exits, should be included on each occasion, and all flying staff must be given the opportunity actually to use the escape chutes, emergency exits and fire extinguishers when they undergo initial type training and at reasonable intervals thereafter. The actual interval will vary in relation to the complexity for which the crew member is required to maintain competency. For example, cabin crew members who operate only one type of aircraft with only two types of exit may be required to demonstrate competency less frequently than a crew member who maintains competency on several aircraft types with several different types of exits. Operators should seek guidance from Authority staff on this aspect during the development of their particular manual for their particular situation. A similar situation would exist for pilots required to maintain competency on more than one type of aircraft.
- 22.4A Touch drills referred to in 22.4 will only be considered acceptable to and approved by the Authority in extenuating circumstances. Criteria for consideration should include but not necessarily be limited to
- The practicality of using the actual aircraft or simulating apparatus;
 - The realism of using simulating apparatus;- different apparatuses may be used to simulate the necessary actions required, the forces involved, the weight of the actual equipment and similar desirable responses;
 - The possibility of risk to the person operating the equipment in the training environment;
 - Where in an emergency the crew member will not actually be called upon to operate the emergency exit;
 - The use of videos or other visual means of how to achieve the desired outcome, both in training and in reality; and
 - Any other conditions considered relevant by the Authority.
- The Authority has the final responsibility for determining the acceptability of any proposal for achieving the desired objective.

- 22.5 Inspectors will observe the tests and practice in progress.
- 22.6 Operators with a large flying staff may find it convenient to use a fuselage 'mock-up' for the annual practice of emergency duties. Any such 'mock-up' must be approved by the Authority and controlled by persons approved by him.
- 22.7 Where such a mock-up is available practice in the carrying out of emergency evacuation drills in a smoke filled environment should be given including the use in such an environment of smoke masks/goggles/hoods of a type provided on the operators aircraft.

23 PERIODIC COMPETENCY TESTS - PILOTS

23.1 General nature of requirements

23.1.1 The effect of the statutory requirements is to require operators to subject their pilots to the following periodic flying tests:-

23.1.1.1 A test of competence to perform the duties of the 'crew station' (e.g. pilot-in-command, co-pilot or In flight cruise relief pilot) in the course of normal operations, including use of the instruments and equipment provided. Maximum period of validity for this test (discussed below as the LINE CHECK) is thirteen months and it must be carried out in flight;

23.1.1.2 A test of competence to perform the duties of the crew station in instrument flight conditions while executing emergency manoeuvres and procedures, including use of the instruments and equipment provided. Maximum period of a validity for this test (discussed below as the BASE CHECK) is normally six months. It may be conducted in flight in actual or simulated instrument flight conditions or in a flight simulator approved for the purpose. In certain cases, two test in 13 months separated by not less than four months may meet the requirements.

23.1.1.3 A test of proficiency in using instrument flying procedures. Maximum period of validity for this test (discussed below as the INSTRUMENT RATING RENEWAL) shall be 13 months. It may be conducted in flight in actual or simulated instrument flight conditions or in a flight simulator approved by the Authority for the purpose.

23.2 LINE Check - pilots-in-command and co-pilots (Fixed Wing)

23.2.1 The requirement is for a test of ability to satisfactorily complete a line operation from start to finish, including pre-flight and post-flight procedures and use of the equipment provided. A take-off, circuit and landing will not suffice. The line check is considered an important factor in the development, refinement and maintenance of high operating standards, and can provide the operator with a valuable indication of the efficacy of his training methods. The route chosen should present the pilot with the type of operation he normally undertakes.

23.2.2 The examiner should occupy a jump seat in order that he may assess the pilot-in-command's 'management' of the operation generally and his ability to take correct command decisions.

23.2.3 If it is company policy that both pilots may carry out either handling or non-handling duties, both pilots-in-command and co-pilots should be checked in both roles.

23.2.4 Pilots-in-command who also operate as co-pilots must be given the line check in both left and right hand seats.

23.2.5 Line checks may only be performed on co-pilots by Approved Check Captains.

23.2.6 Engine-out exercises, go around practice, simulated IF and any abnormal manoeuvres are forbidden when passengers are carried on public transport flights.

23.2.7 Records of the Line Check must indicate its scope. The same form of test and certificate may serve for both pilot-in-commands and co-pilots, although emphasis on certain items may be different.

23.3 LINE Check - Helicopter Pilots

23.3.1 In the case of helicopter pilots, the foregoing provisions will generally apply. Contract work will however often require specialist techniques, and when this type of operation is classified as public transport, operators should ensure that the check is sufficiently comprehensive to establish competence. When this is impracticable, special check flights should be flown, possibly as an extension to the Base Check. Examples of these are:

- (i) confined area and sloping or rough ground manoeuvres;
- (ii) limited power exercises (when these are not flown as Base Check items in their own right);
- (iii) water operations, including winching;
- (iv) underslung loads;
- (v) power line 'stringing'.

23.4 BASE Checks

23.4.1 General Considerations

23.4.1.1 Passengers shall not be carried during base checks. The checks are to be carried out on training or positioning flights or in a Flight Simulator approved by the Authority.

23.4.1.2 Operators should give consideration to carrying out alternate base checks at night.

23.4.1.3 Engines in flight should not normally be shut down, only throttled back to simulate a feathered engine.

23.4.1.4 Where both examiner and equipment are approved for the purpose, checks may be conducted in a flight simulator.

23.4.1.5 All exercises carried out must be recorded in the training documentation.

23.4.1.6 Reserved

23.4.2 Pilots-in-command BASE Check (fixed wing)

23.4.2.1 The base check provides an opportunity for the practice of emergency drills and procedures which rarely arise in normal operations, and can generally be regarded as continuation training. The statutory requirement, however, is that pilots shall be tested and their continued competence must be verified and certified. Pilots who operate in both seats shall be tested as to their skill and competence while operating in the right and left hand seats

23.4.2.2 The check may be divided into four main areas as follows

- (1) Emergency manoeuvres in instrument flight conditions, including:-
 - (a) take-off with engine failure between VI and V2, or as soon as safety considerations permit. When the check is completed in an aircraft, instrument flight conditions should be simulated as soon as possible after becoming airborne;
 - (b) instrument approach to MDA or decision altitude with one engine inoperative;

- (c) Conduct a Missed Approach on instruments from MDA or decision altitude with one or more engines inoperative;
 - (d) landing with one or more engines inoperative;
 - (e) where appropriate to a particular aircraft type, take-off, cruise, approach and landing with flying control systems, instrument systems, and/or flight director malfunctioning; and
 - (f) where the emergency drills require action by the non-handling pilot, knowledge of these drills must be covered.
- (2) Emergency procedures including, as appropriate
- (a) Engine fire;
 - (b) Propeller or engine over speed;
 - (c) Fuselage fire (pilot operated system of control); brake fire, wheel well fire;
 - (d) Engine failure before VI;
 - (e) Emergency operation of undercarriage and flaps;
 - (f) Pressurisation failure;
 - (g) Fuel jettison;
 - (h) Engine re-lights;
 - (i) Hydraulic failure;
 - (j) Electrical failure;
 - (k) Malfunction of engine or engine control;
 - (l) Coping with pilot incapacitation in flight - this check to be conducted annually;
 - (m) Action to be taken in the event of a GPWS/EGPWS hard warning.
 - (n) Action to be taken in the event of a TCAS/ACAS alert or warning

Some of these items will need to be covered by 'touch drills' and if the check is conducted in an aircraft (rather than in a simulator) they are normally best attended to on the ground.

- (3) Pilots-in-command who may be required to act as co-pilots should be checked in the co-pilot's seat every 6 months. Provided such a pilot-in-command has completed a full left hand seat base check, and it is still valid, the right hand seat base check may be abbreviated to a minimum of:
- (a) an engine failure on take-off;
 - (b) an asymmetric 'go around' from decision altitude; and
 - (c) an asymmetric landing.
 - (d) Pilot Incapacitation exercise
 - (e) Decompression and emergency descent.
 - (f) Emergency evacuation
 - (g) Emergency support procedures (PM)
- (4) A supplementary questionnaire on technical matters and operating procedures which, although not falling within the category of emergencies, are matters on which pilots should be tested at regular intervals. Typical items to be covered include:
- (a) recognition and diagnosis of aircraft system faults for which there are no set drills;
 - (b) radio failure procedures;
 - (c) use of operations manuals including flight guides;
 - (d) familiarity with latest amendments to operations manuals, and latest issues of information circulars, and instructions to aircraft crews;
 - (e) loading instructions;
 - (f) knowledge of internal and external check lists;

- (g) aircraft equipment such as FMS, navigation systems, flight directors, weather radar, etc.;
- (h) additional precautions for winter operations, anti icing procedures and operations from contaminated runways;
- (i) noise abatement procedures; and
- (j) engine failure during stages of flight other than on take-off, especially critical stages such as during noise abatement, during an SID, flight over high ground, or during the approach.

On most of the larger modern aircraft the list of items that might usefully be discussed is likely to be extensive and examiners may prefer to deal with only a selection of items on a particular base check. In this event the aim should be to cover the complete list in the course of two or three successive checks and records should be maintained accordingly. Some items may equally well be covered in the course of the line check.

Advantage should also be taken of the opportunity to give pilots experience in the simulator of such rare occurrences as wind shear, flapless landing, dead stick landings etc.

23.4.3 Co-pilots BASE Check (fixed wing)

23.4.3.1 Although there will be some difference in emphasis, the syllabus of the check should generally follow the pattern of that for pilots-in-command. It is especially important that co-pilots should be checked in their own particular duties in the co-pilot's seat, including flying the aircraft for take-off and landing and in coping with the incapacitation in flight of another member of the flight crew.

23.4.3.2 As a general rule, operating procedures that require pilot-in-command and co-pilot to exchange seats are not considered satisfactory. Co-pilots should, of course, be given regular handling practice; they should be able to cope with engine failure on take-off and to make a satisfactory instrument approach and go around from decision height; they should be able to make consistently good landings in all but the most difficult conditions, and unless the circumstances are exceptional they should do so in the co-pilot's seat. They will often be lacking in experience and judgement and pilots-in-command will have this in mind in giving them handling practice. The experience, judgement and 'command ability' required of a pilot-in-command is acquired gradually, over a long period, but there is no valid reason why co-pilots generally should not rapidly acquire a handling skill comparable in average flying conditions with that of a captain. The training of co-pilots and their base checks should be arranged and conducted accordingly.

23.4.3.3 Pilots-in-command who may be required to act as co-pilots should be checked in the co-pilot's seat. Provided such a pilot-in-command has completed a full left hand seat base check, and it is still valid, the right hand seat base check may be abbreviated to a minimum of:

- (a) an engine failure on take-off;
- (b) an asymmetric 'go around' from decision height; and
- (c) an asymmetric landing.
- (d) Pilot incapacitation exercise.
- (e) Emergency descent
- (f) Emergency evacuation
- (g) In emergencies- Pilot Monitoring duties

23.4.3.4 Reserved.

23.4.3.5 The checks should include a comprehensive test in the use of radio and navigational equipment that the co-pilot may be required to use.

23.4.4 BASE Checks (Helicopter Pilots)

- 23.4.4.1 The base check for helicopter pilots should be based, as far as it is practicable to do so, on those for aeroplane pilots.
- 23.4.4.2 Contract work will often require specialist techniques and operators should ensure that checks are sufficiently comprehensive to establish competence, or that special checks are administered to cover particular circumstances
- 23.4.4.3 When the operator requires his pilots to engage in IFR flights, the content of the base check closely follows the items listed in paragraph 23.4.2.2. Practice engine failure on take-off will be associated with Decision Point rather than VI/V2 and the manoeuvres should include operation with automatic fuel control malfunction and recovery from unusual attitudes. Emergency procedures should include any items peculiar to the helicopter, such as tail rotor failure, and where appropriate, should be covered only in a simulator or by discussion on the ground.
- 23.4.4.4 Helicopter pilots not required to engage in flights under IFR may be tested under visual conditions. In this case the emergency manoeuvres should include the applicable items of paragraphs 23.4.2.2 and 23.4.4.3 together with the following:
- (a) For single engine helicopters – Autorotative approach to a designated area, with powered recovery to forward or hover flight;
 - (b) Rapid deceleration ('Quick Stop').
- 23.4.4.5 When an approved simulator is used for base checks, it may become practicable to conduct some manoeuvres which would be impossible, or present an unacceptable training safety risk, if practised in the aircraft. These would include double engine failure in large helicopters or tail rotor failures.
- 23.5 Instrument Rating Renewal (IRR)
- 23.5.1 Only pilots holding current approval from the Authority may conduct IRR tests.
- 23.5.2 The IRR test must be completed at intervals of not more than thirteen months and should normally be carried out on the aircraft type or an Approved simulator on which the examinee is employed.
- 23.5.3 An operator may wish to combine the company Base Check with the IRR. A combined test form may be used provided it has been approved by the Authority.
- 23.5.4 An IRR test may be undertaken on a flight simulator holding approval for that purpose or in simulated IF conditions in an aircraft in flight. Only the en-route section of the IRR test may be carried out in the course of passenger carrying public transport flights - as no screens are required for this part of the test.
- 23.6 Aircraft Rating Renewals – *Pilots-in-Command & Co-pilots*
- 23.6.1 The holder of a professional pilots licence flying for the purposes of public transport must hold a valid Aircraft Rating for the type on which the flight takes place. The period of validity is normally six months. Aircraft Rating Renewal Flight tests are normally combined with the company Base Check and the usual requirement is that company Base Check Captains are required to hold CAAF approvals to conduct tests for the purpose of the renewal of aircraft ratings.
- 23.6.2 A combined test form may be used provided it has been approved by the Authority.
- 23.7 Aircraft Pilots-in-Command : Route Competence
- 23.7.1 It is a statutory requirement that a pilot-in-command shall demonstrate to the satisfaction

of the operator that he has adequate knowledge of the route to be flown on each flight and of the aerodromes (including alternates), facilities and procedures to be used. Certification (by the operator) of route competence is an annual requirement unless the pilot-in-command, after the initial certification, has flown over the route in the preceding 13 months.

- 23.7.2 The ideal arrangement for meeting this requirement would be for each pilot-in-command to be covered by a certificate of his competence in relation to each individual route and aerodrome, and operators involved mainly in scheduled services may find it convenient to adopt this procedure. For many operators this may entail very serious problems of administration and record keeping, and the Authority is normally prepared to agree to certification of pilots-in-command route competence in relation to specified areas of operation or groups of routes.
- 23.7.3 If the alternative procedure is used there may be a risk that a pilot-in-command, on the basis of his general experience, could be certified as competent to operate without restriction to an aerodrome which presents special problems and clearly requires route experience or special briefing however great the pilot-in-command's general experience may be. Therefore, the certificate issued by the operator should indicate positively the aerodromes to which the pilot-in-command is permitted to operate.
- 23.7.4 To avoid reproducing a long list of aerodromes in each pilot-in-command's route competence certificate, operators may find it convenient to maintain as part of the operations manual a list of "straightforward" aerodromes to which any experienced pilot-in-command could operate without restriction. For certification purposes, reference to the list would suffice. No aerodrome should be classified as unrestricted unless it is also included in the operator's flight guide and has an established terminal or instrument approach procedure.
- 23.7.5 Any aerodrome not included in the operator's unrestricted list, to which a pilot-in-command is considered competent to operate should be named in the certificate which should include a brief but clear indication of the manner in which competence has been established. To ensure consistency in certification, operators adopting the area method should also indicate in the manual the general nature of the special requirements to be met before a pilot-in-command can be considered competent at a "restricted" aerodrome.
- 23.7.6 If the "straightforward" aerodromes are called "Category A1", it is suggested that other aerodromes can conveniently be categorised B, C, etc., depending on the extent of the restriction. It is not practicable in this document to specify in a manner appropriate to all circumstances the detailed requirements to be met before a pilot-in-command can be considered competent to operate to an aerodrome in a "restricted" category. The various combinations of relevant factors are so numerous that nothing written here - and, indeed, no list of special requirements compiled by an operator - can ever be altogether relevant to each particular case. Ultimately, the decision must rest on the good judgement and integrity of the operator and the measure of responsibility with which he approaches the problem.
- 23.7.7 The following are among the factors that operators may wish to take into account in deciding whether a pilot-in-command can be considered competent for a particular flight:
- (a) The imposition of special weather minima (if operations are also confined to daylight) could in some circumstances render prior experience of the aerodrome unnecessary - and enable the pilot-in-command to get aerodrome experience in the course of normal operations;
 - (b) There are aerodromes at which a combination of special weather minima, prohibition of night landings and special pre-flight briefing on local conditions could be considered adequate for a first visit;
 - (c) In general, a pilot-in-command should not be considered competent to operate to an aerodrome at which nearby mountainous terrain makes the installation of an instrument approach aid impracticable, unless he has within the preceding twelve

- months flown there under supervision or as a co-pilot;
- (d) Competence to operate into a complex terminal area such as Los Angeles could sometimes, with suitable general experience, be established in a suitably equipped flight trainer.
 - (e) In certain circumstances it may be permissible for an operator to base his decision that a pilot-in-command is competent for a particular flight on the fact that he will have a co-pilot with suitable general experience and recent experience of the particular route and aerodrome.
 - (f) It may be possible to use films to familiarise pilots with aerodrome approaches.

23.7.8 If the operator relies in any particular instance on the briefing of a pilot-in-command, it must be given by a person who is qualified to operate on the route in question. For aerodromes/routes which are relatively uncomplicated a form of 'self briefing' may be acceptable.

23.7.9 All certificates raised in respect of a pilot-in-command's route (or area) and aerodrome competence must be signed on the operator's behalf by a qualified official of appropriate status.

23.7.10 In a small undertaking the Chief Pilot or other person in charge should know in detail the experience and general competence of each of his pilots and can be expected to arrange for special route familiarisation and to raise additional certificates where necessary. For larger organisations a system of control that does not depend upon personal knowledge will be necessary in order to prevent a pilot being rostered for a flight not covered by his certificate.



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RESERVED

25 RECENT TYPE EXPERIENCE - PILOT-IN-COMMAND AND CO-PILOT

25.1 A pilot may not fly as pilot-in-command or co-pilot unless he has in the preceding three months carried out at least three take-offs and landings in an aircraft of the type to be used.

25.2 Manual landings are necessary to meet these requirements.

26 TYPE CONVERSION - FLIGHT DECK CREW

26.1 Minimum Experience Requirements

The minimum standards of qualification and experience required of flight deck crews before being considered for conversion should be specified in the training manual.

26.2 Syllabuses

26.2.1 Type conversion training should be conducted in accordance with detailed syllabuses included in the training manual. When considering programmes and syllabuses for types of aircraft newly acquired, operators should consult the Authority at the outset. Inspectors will advise on the nature and scope of the training to be given, and early consultation will help to prevent difficulties and inconvenience to the operator.

26.2.2 Operators should note that amendments or additions to the training manual relating to training experience, practice and periodical tests on a newly acquired aircraft type must be submitted to the Authority for approval before the aircraft may fly for the purpose of public transport.

26.3 Ground Training and Tests

26.3.1 Great importance is attached to technical (as distinct from flying) training, and unless the circumstances are exceptional there must be a properly organised programme of ground instruction by competent tutors with adequate facilities, including any necessary mechanical and visual aids. The time allowed for ground training should be devoted exclusively to that purpose and trainees should not be taken away from their studies for normal flying duties. Airworthiness advisors and inspectors will wish to examine premises and equipment to be used for ground training, and sometimes may be present while tuition and lectures are in progress.

26.3.2 Courses of ground instruction for all flying staff should incorporate written progress tests at the end of each distinct phase. Pilots, for example, should be examined on such matters as engines, airframe, flight director system, radio and electrics, performance and flight planning, as each phase of ground training is completed.

26.3.3 For all flying staff the ground course must include comprehensive instruction on the location and use of all emergency equipment carried in the aircraft, and practice in the procedures for emergency evacuation. The test discussed in Para. 22 above should be given before any flying training is started and it must be passed before the trainee is assigned to any form of flight duty (whether under supervision or not) in the course of commercial operations.

26.4 Flying Training on a New Type (All Pilots)

26.4.1 For all pilots taking a Type Rating conversion course, the flying training must be sufficiently comprehensive to familiarise them thoroughly with all aspects of normal operation of the aircraft, including use of all flight deck equipment and with all emergency drills, procedures, handling techniques and limitations. It is important that pilots are not taken away from flying training for other flying duties.

- 26.4.2 Adequate training and practice in the actual flying of the aircraft must be given to co-pilots as well as pilots-in-command and, without prejudice to any of the requirements of the appropriate type rating test, the "flight handling" sections of the syllabus for pilots-in-command and co-pilots alike should include the following items where they are appropriate to the aircraft type:
- (a) Approach to stalls and recovery action, including where appropriate the operation of stall warning devices and demonstration of stick pusher;
 - (b) Handling of aircraft at minimum control speed with one engine inoperative, with and without undercarriage and flaps;
 - (c) Emergency descent procedure;
 - (d) Engine failure before VI. (May be carried out in approved flight simulator);
 - (e) Visual circuits and landings by day and by night, including approaches without Visual Angle of Approach Indicators and correction of displacement in azimuth and elevation on final approach;
 - (f) Visual go-around from not more than 200 ft;
 - (g) Take-off with engine failure between VI and V2, or as soon as safety considerations permit;
 - (h) Full manual ILS procedure, including holding pattern, followed by go-around from decision height - all to be conducted in actual or simulated IF conditions with one engine inoperative;
 - (i) Correction, on final approach in actual or simulated IF conditions, of displacement from both the glide slope and the ILS localiser;
 - (j) Landing with one or more engines inoperative;
 - (k) Landing, followed by Ground Emergency
 - (i) Recognition of incapacitation of a crew member and operation of the aircraft as single pilot
 - (m) Operation of the Flight Management System (if fitted) including Vnav and Lnav
 - (n) Recognition of failures of the CRT screens and knowledge of appropriate switching procedures
 - (o) Auto coupled Approach/Auto land training including autopilot disconnects at critical stages of the approach/landing.
 - (p) Knowledge of human factors and Crew Recourse Management procedures

Each exercise should be practised until a satisfactory standard is achieved and items (e) - (k) must in any event be performed at least twice. Records kept by the operator should show the number of times each exercise was covered. Particular emphasis should be placed upon the practice of correct crew procedures for take-off, approach, landing and 'go-around'.

26.5 Additional Flying Training Requirements for Pilots-in-command

26.5.1 Without prejudice to any of the requirements of a particular type rating test, the conversion training of pilots-in-command must include the following items insofar as they may be appropriate to the aircraft type:

- (a) Landing with asymmetrical engine/s simulated inoperative;
- (b) Landing without flap or slat, or with restricted flap;
- (c) Landing with flying control system malfunction;
- (d) Instrument approach and go around with flight director malfunction;
- (e) Landing at night with engine/s inoperative;
- (f) Crosswind take-off and landing.

Pilots-in-command should be given practice in the stopping and starting of engines in flight and in all emergency drills that might fall to them while the co-pilot is handling the aircraft.

- 26.6 Additional Flying Training Requirements for Co-pilots
- 26.6.1 It is essential that co-pilots (in addition to the handling practice already referred to) should be given adequate training in the execution of all emergency drills that might fall to them while the pilot-in-command is flying the aircraft. Unless this is done in a flight simulator approved for the purpose it will be necessary for co-pilots to perform all drills (e.g. engine fire and relight) in flight while the training captain is flying the aircraft. Co-pilots should also be given adequate practice, during conversion training, in the operation of all radio equipment and aircraft systems normally managed by the co-pilot while the pilot-in-command is handling the aircraft.
- 26.7 Tests after Flying Training
- 26.7.1 Before being assigned to line duty (whether under supervision or not) pilots-in-command, co-pilots, and In Flight Cruise Relief pilots must be certified as competent, by the operator in accordance with the requirements of the ANR. Testing in these functions and duties MAY NOT be completed in the course of normal operations. All conversion flying training must therefore be followed by a Type Rating Check (conducted by an Authority FOI) a Base Check and an Initial Line Check (conducted by a operator's Approved Check Captain) before a crewmember is assigned to line duty.
- 26.7.2 Unless the aircraft, its handling characteristics and its flight instruments are closely similar to those of a type on which the pilot is already experienced, his conversion training should also be followed by an Instrument Rating Renewal test on the new type. This will normally be expected to be part of a conversion programme, regardless of the expiry date of an existing instrument rating.
- 26.7.3 Before being assigned to line duty as pilot-in-command, co-pilot, a crew member must have taken a Line Check on the new type. It is essential, that pilots should demonstrate proficiency in the flight planning procedures for the new type, ability to operate in accordance with a normal IFR air traffic clearance while performing normal functions on the flight deck, and proficiency in the use of all the radio. and radar aids installed. All flight deck crew members must demonstrate their proficiency in operating the aircraft systems normally under their control.
- 26.8 Flights under Supervision – (Line Training)
- 26.8.1 The conversion syllabus must provide for all flight deck crew members, after completion of flying training and initial tests, to operate a minimum number of sectors and/or flying hours under supervision. The minimum figures should be agreed with Authority.
- 26.8.2 The "under supervision" period SHOULD NOT be used for the completion of the basic conversion syllabus. Its purpose is twofold. Firstly, it will enable the newly converted crew member to settle down to his duties on the new type in the company of a suitably experienced crew member specially designated for the purpose, and to turn to him for advice if necessary. Secondly, it will enable the training staff to assess and verify the adequacy of the conversion training, and to ensure that proper operating standards are achieved at the outset, in the course of normal and varied operations.
- 26.8.3 "Under Supervision" means
- (a) for a pilot-in-command:
- flying only with a suitably qualified Training Captain, specially designated for the purpose, who should occupy the seat and perform the duties of the co-pilot. (Some operators may wish the newly converted pilot-in-command to operate a few sectors in the co-pilot's seat and this is acceptable if the supervising captain is in the left hand seat);

(b) for a co-pilot:
flying in the right hand seat only with a suitably qualified Training Captain specially designated for the purpose, in the left hand seat;

(c) for pilots-in-command and co-pilots after a suitable number of sectors operated in accordance with (a) and (b) above :

flying in their respective seats with a suitably qualified pilot-in-command, specially designated for the purpose, in the 'jump' seat. It is important to note in this context that, during take-off and landing on flights for the public transport of passengers, the pilot designated as pilot-in-command must occupy one of the pilots' seats and there must be two qualified pilots on the flight deck for all training conducted on aircraft operating for the purposes of public transport.

NOTE : The minimum number of sectors operated in accordance with (a) and (b) above must be agreed by the Authority.

26.8.4 On completion of the sectors under supervision the pilot must successfully complete a line check.

26.8.5 In aircraft on public transport flights it will be necessary while a captain or co-pilot is flying the sectors under supervision, to carry a fully qualified co-pilot in addition. It must be clearly understood, that, to meet the statutory requirements relating to ANR 36(2) and ANR45, there must be 2 pilots (Captain and First Officer) who have completed all the checks required by ANR45 on all aircraft operating for the purposes of public transport

26.8.6 Following a successful completion of a Type Rating check for an In Flight Cruise Relief Pilot (S/O) he must also then be given training to complete an Instrument Rating Check, a Base Check and a Line Check prior to him/her operating as a Cruise Relief Pilot in an aircraft operated for the purposes of Public Transport.

26.9 **RESERVED**

27 AUTO-COUPLED APPROACH/LANDING - TRAINING REQUIREMENTS

27.1 This paragraph is concerned with the requirements of crew training and testing on auto-coupled approach, auto-flare and auto-land.

27.2 Since equipment is likely to vary considerably between companies and fleets these requirements are generalised and may be adapted by operators, in consultation with the Authority, to suit their need.

27.3 AUTO-COUPLED APPROACH training should include

27.3.1 Ground training :-

- (a) technical details of equipment (including PVD, HUD, CWS and mode indicators where fitted);
- (b) limitations;
- (c) standard procedures;
- (d) checks and drills;
- (e) partial or full failures of flight control system recognition and action required;
- (f) allocation of duties;
- (g) serviceability checks required on systems before and during flight;
- (h) auto-throttle - details and operation where applicable;
- (i) unusual approach procedures, e.g. close-in coupling, back beam, all-angle capture, and glide path capture from above;
- (j) use of visual clues at reduced RVR;
- (k) runway lighting systems to be encountered.

27.3.2 Flight training - to be completed in the aircraft, or a flight simulator approved for the purpose.

- (a) normal use of auto-coupling;
- (b) checks and drills;
- (c) unusual approach procedures - close-in coupling ILS back-beam, all angle capture etc.;
- (d) partial or full failures including auto-pilot disconnects;
- (e) PVD and HUD, (where applicable) use of equipment identification of failures and remedial action;
- (f) auto-coupled approach with and without Flight Director;
- (g) auto-coupled approach with and without auto-throttle (where applicable);
- (h) auto-coupled approach, and go around from minimum permitted height;
- (i) auto-coupled approach, one engine out and go around from minimum permitted height;
- (j) auto-coupled approach, and landing;
- (k) auto-coupled approach, one engine out and landing (when permitted operationally);
- (l) auto overshoot where fitted;
- (m) use of auto-throttle in manually controlled flight both in level and approach phases (see also Para. 26.4).

27.3.3 Where the above exercises are carried out on an approved simulator the training syllabus for all pilots should also include normal ILS auto-coupled approaches in the aircraft.

27.4 AUTO-LAND training requirements

Part of the training required for auto-land has been covered in the syllabus for auto-coupled approach and this must be completed before progressing to the following additional items dealing with auto-land stages of the flight:

27.4.1 Ground training

- (a) technical details of auto-throttle, and auto-land systems including runway ALIGN, kick-off drift, auto-roll-out and automatic go around facilities where applicable;
- (b) standard procedures;
- (c) checks and drills;
- (d) allocation of duties;
- (e) full and partial system failures; remedial action to be taken, including reversion to manual landing.

27.4.2 Flight training - may be carried out in the aircraft or on a simulator approved -for the purpose. The training should include:

- (a) standard procedures;
- (b) checks and drills;
- (c) full and partial system failures;
- (d) auto-pilot disconnects at decision height followed by manual landing;
- (e) auto-land; auto-pilot disconnect no roll-out guidance;
- (f) auto-land with roll-out guidance;
- (g) auto go around where applicable.

27.5 Operations below Category I

Operators intending to operate to Category II or Category III minima should consult the Authority as to the ground and flight training requirements and are advised to do so at an early stage in the planning of such operations.

28 COMMAND TRAINING

It is essential that promotion to pilot-in-command should be preceded by a planned 'conversion' course, including upgrading of the type rating to a Command Type Rating. An adequate number of sectors must be flown in the left-hand seat as pilot-in-command under supervision, including sectors at night. There should, of course, be a full pilot-in-command's base and line check immediately before appointment.

29 TRAINING ON SPECIAL EQUIPMENT

Formal training must be given to flying staff as necessary on items of special equipment such as storm warning radar. Flight Director systems, auto-pilots, RNAV, Doppler, Inertial Navigation Systems and GPS etc. Records of all such training must be maintained.

30 CABIN CREW TRAINING

30.1 Induction Training

30.1.1 Trainee cabin crew must be given a properly organised course of instruction on the duties of cabin crew in normal, abnormal and emergency situations.

30.1.2 It is particularly important that cabin crew be given theoretical and practical training involving fire and smoke in the passenger cabin.

30.1.3 Syllabuses for cabin crew training courses must be agreed by the Authority.

30.1.4 The ground course must include comprehensive instruction on the location and use of all emergency equipment carried on the aircraft and in the procedures for emergency evacuation and loss of pressurisation. The syllabus should normally include the following subjects as appropriate to the type of aircraft:

- (a) crew responsibilities;
- (b) basic aircraft technical knowledge;
- (c) doors and other exits;
- (d) location and use of all emergency and survival equipment;
- (e) location and use of all normal equipment in aircraft cabin and galleys;
- (f) pressurisation and oxygen;
- (g) preparation for and execution of all types of emergency landing;
- (h) public address announcements of all kinds including use of megaphones when carried;
- (i) use of specialised equipment when carried, such as tropical and arctic survival equipment;
- (j) responsibility of cabin crew in dealing with emergencies involving fire and smoke;
- (k) the importance of ensuring that passengers are aware of and obey no smoking signs. Emphasis should be placed on periodic checking of areas not normally scrutinised e.g. toilet areas;
- (l) An appreciation of the chemistry of fire as a preliminary to consideration of the choice of extinguishing agents for particular fire situations, the techniques of application of extinguishing agents, and the consequences of misapplication;
- (m) Discussion of the operational practices of ground-based emergency services at aerodromes and how these can be co-ordinated with the evacuation of the aircraft where an emergency landing takes place on an airfield;
- (n) Crowd control techniques including the use of the communications equipment provided;
- (o) Company procedures for aircraft security and bomb searches, action to be taken in the event of 'hi-jacking'; and procedures for Cabin Crew to gain entry to a secure flight deck.

- (p) Where the flight deck crew consists of only two pilots how they should help in the event of pilot incapacitation. Including:
 - (i) Familiarity with and proper use of the pilot's check list;
 - (ii) Fastening and unfastening pilot's seat harness and locking and unlocking the inertia reel; and
 - (iii) Using pilot's sliding seat mechanism, training to be given whilst the seat is occupied with someone simulating physical collapse. Emphasis should be placed on locking the pilot in his seat rather than on removing him.
- (q) First Aid. Instruction on this subject should be given by an instructor holding formal qualifications for the purpose.
- (r) Instruction on aero-medical topics such as:
 - (i) guidance on the avoidance of food poisoning, with emphasis on the choice of a pre-flight meal, and the requirement to serve different dishes, both main and subsidiary, to the pilot-in-command and co-pilot;
 - (ii) the possible dangers associated with the contamination of the skin or eyes by kerosene and other aviation fuels and the immediate treatment; and
 - (iii) the recognition and treatment of hypoxia;
 - (iv) tropical hygiene.
- (s) Cabin crew must be instructed to ensure that passenger hand baggage is securely stowed in approved locations so as not to constitute a hazard or obstruction in the event of an emergency evacuation, and to insist that large items which cannot satisfactorily be stowed in the cabin should be carried in the hold.

30.1.5 Practical training programmes should ensure that:

- (a) Cabin crew are trained to recognise and act promptly in situations requiring an emergency evacuation;
- (b) Cabin crew are trained to carry out established emergency evacuation procedures on their own initiative in the event that the flight crew are incapacitated or otherwise prevented from participating;
- (c) Cabin crew are trained to recognise when exits are blocked or evacuation equipment is inoperative and to act promptly in preventing the use of those exits;
- (d) during ditching and evacuation drills, each trainee opens at least one over wing emergency exit; opens each different type of door; removes and positions for use at least one escape rope; attaches evacuation slide fittings in their proper places; evacuates the aircraft by means of at least one evacuation slide; locates and operates the megaphone and removes liferafts from stowage and places in the launching area. Additionally, the trainee, must demonstrate the ability to locate and remove from stowage the aircraft hand held fire extinguishers and locate each first aid kit and remove from stowage at least one first aid kit.
- (e) each trainee observes an operational demonstration of the escape rope being used as a means of emergency evacuation; the inflation or release, as applicable, of an evacuation slide; the inflation of the liferaft; the survival equipment contained in the liferaft; the contents of the first aid kits; and administering of crew and passenger oxygen by supplemental means and portable equipment with the inclusion of mouth-to-mouth resuscitation techniques;
- (f) the trainee attends demonstrations of the type of fire extinguishers carried on company aircraft on various types of fire including simulated gallery fires, electrical fires and cabin furnishing fires. The demonstration should also show the effect of misapplication of agents;
- (g) the trainee handles and uses each type of fire extinguisher carried on the aircraft;
- (h) the trainee experiences a smoke-filled environment and the use of the portable breathing apparatus carried in the aircraft;
- (i) the trainee observes the inflation of a flotation cot;
- (j) the trainee boards a dinghy or slide raft from the water;
- (k) the trainee practices the donning of life-jackets and oxygen masks;
- (l) trainees are familiar with the use of the aircraft PA and Inter Phone system.

30.1.6 All ground training should be followed by appropriate tests and the cabin crew member's competence established in accordance with the requirements of the ANR.

- 30.1.7 Induction training syllabuses must provide for cabin crew members, after completion of ground training and tests, to operate a minimum number of sectors as supernumerary crew or "under supervision". The minimum number must be agreed by the Authority. Passengers may not be able to distinguish between such trainees and fully trained cabin crew and in an emergency will expect help and guidance from anyone wearing a crew uniform. Operators must therefore ensure before assignment as supernumerary crew that trainees are adequately briefed and tested in their assigned duties in both normal and emergency conditions.
- 30.2 Conversion Training
- 30.2.1 Cabin crew converting onto a new aircraft type must be given a properly organised course of instruction in their duties in normal, abnormal and emergency situations. Syllabuses for cabin crew conversion courses must be agreed by the Authority.
- 30.2.2 Conversion training syllabuses must provide for cabin crew members, after completion of ground training and tests, to operate a minimum number of sectors "under supervision" or as supernumerary. The minimum number must be agreed by the Authority.
- 30.2.3 The ground course should include at least items (a) to (i) and (p) in paragraph 30.1.4 above and items (d), (e), (f), (g), (h), (i), (l) in paragraph 30.1.5 above.
- 30.2.4 All conversion training should be followed by appropriate tests and the crew members competence established in accordance with the requirements of the ANR.
- 30.3 Periodic Training and Testing See paragraph 22.
- 30.4 Recent Type Experience - Cabin Crew
- 30.4.1 A person may not fly as a cabin staff member unless they have within the preceding 90 days acted as a cabin staff member on the type of aircraft to be used on the flight.
- 30.4.2 Cabin crew that lack the recent type experience required by 30.4.1 above may be re-validated on type either by operating one flight on that type as supernumerary cabin staff or by ground refresher training or both. The extent of the ground refresher training must be agreed by the Authority.

Chapter 3 - Aircraft Loading

1 AIRCRAFT LOADING INSTRUCTIONS

- 1.1 Loading instructions are to be regarded as part of the operations manual. It should be noted, however, that operators are free to make their loading instructions in a separate volume if they wish, or to include them in a traffic manual.
- 1.2 Loading instructions should provide to traffic staff, handling agents, cabin and flight crews complete and detailed guidance on all aspects of the loading, weight and balance of aircraft, including in particular instructions on:
- 1.2.1 Controlling and promulgating the basic or APS weights and indices;
 - 1.2.2 Regulating the carriage and stowage of baggage and freight in passenger compartments, including particular instructions concerning the amount of hand baggage allowed and how it is to be stowed. It is essential that emergency exits, gangways and dinghy launching stations, are kept clear during take-off and landing. (Operators should also take steps to ensure that their traffic staff and agents comply with these instructions.);
 - 1.2.3 Carriage of explosive, inflammable, radio-active and other dangerous cargo;
 - 1.2.4 Limitations on floor loading, use of weight spreading devices and positioning and securing of ballast;
 - 1.2.5 Checking that items of freight or baggage required to be in particular compartments or holds are properly stowed. The person responsible for the trim of the aircraft must give written instructions to the person responsible for the actual loading;
 - 1.2.6 Advising the pilot-in-command and cabin staff of essential seating restrictions;
 - 1.2.7 The effect on RTOW of such factors as the maximum zero fuel weight, landing weight restrictions at planned destination, take-off and climb performance requirements at the departure aerodrome, and en route performance requirements;
 - 1.2.8 Relevant C of A or flight manual limitations;
 - 1.2.9 Fuel loading limitations;
 - 1.2.10 Where appropriate, any special loading limitations for ferrying aircraft with one engine inoperative, C of A tests etc;
 - 1.2.11 Where applicable, the use of the standard weights specified in Regulation 41 of the ANR, or any notional weights given in exemptions granted by the Chief Executive to the operator.
- 1.3 Freight loading instructions should include the following additional details, and operators may find it useful in this connection to consult British Civil Airworthiness Requirements:
- 1.3.1 Diagrams of cabin bays and cargoholds, with dimensions, to facilitate the preplanning of cargo distribution;
 - 1.3.2 Particulars of the strength and useable directions of all lashing points and/or rings provided, and details of the spacing between lashing points;
 - 1.3.3 Information on the types and working strengths of lashings provided, and directions for stowage when not in use;

- 1.3.4 Instructions concerning special cases such as the loading of stretchers, carriage of livestock, etc.; and
- 1.3.5 Where appropriate, instructions on the handling, loading and securing of palletised or container loads.
- 1.4 The practice of letting a load/trim sheet serve as loading instructions is not acceptable and the use of a trim slide rule does not dispense with the requirement to complete a load sheet.
- 1.5 It is a statutory requirement that the position of the laden centre of gravity should be given on the load sheet. For this purpose, a trim sheet may be regarded as part of the load sheet even though it may be a separate document. It is essential that the complete document includes particulars of the manner in which the load is distributed, and special attention should be paid to the wording of the loading certificate. The mandatory requirement may be met by establishing that the C of G lies within the permissible limits and it may not be essential to determine its precise position unless it needs to be known in connection with aircraft handling or other factors. The load sheet should bear the reference of the APS form used and, if average weights have been used, an endorsement to that effect.
- 1.6 Where a 'loading plan' method is used operators should show in their loading instructions the basic assumptions upon which the plan is formulated and should specify C of G limits more stringent than those permissible under the C of A. They should also confirm in the loading instructions that loading in accordance with the 'plan' will ensure that the laden C of G always falls within the limits. If this is done, a simple statement on the load sheet that the laden C of G is between X and Y (i.e. the operator's more stringent limits) can be accepted.
- 1.7 Traffic staff and handling agents (including agents at overseas aerodromes) should be provided with:
- 1.7.1 Loading instructions;
- 1.7.2 Current APS forms for all types, marks and variants of aircraft being used;
- 1.7.3 Details of the RTOW and fuel load for each flight.
- 1.8 Where traffic staff and handling agents are responsible for calculating the RTOW, operators should ensure that they have sufficient knowledge to do so and are provided with all relevant information.

2 LOADSHEETS

- 2.1 The loadsheet, together with the APS form, should account for all items of the laden weight. Although they may not always be specified individually, the following are examples of items to be covered:
- 2.1.1 Fuel, water, methanol, oil, hydraulic fluid, drinking water, toilet water, de-icing fluid;
- 2.1.2 Passenger seats, children's cots, cabin floor covering and removable bulkheads;
- 2.1.3 Galley equipment including urns, hot cups, etc.;
- 2.1.4 Food and beverages to be consumed in flight;
- 2.1.5 Bar stocks including the weight of the box or other container;
- 2.1.6 Navigation bag or aircraft library, and navigational equipment;
- 2.1.7 Passengers' hold baggage;



- 2.1.8 Passengers' cabin baggage, unless this is accounted for elsewhere;
- 2.1.9 Flight spares and tools, spare hydraulic or de-icing fluid, etc.;
- 2.1.10 Freight;
- 2.1.11 Crew baggage;
- 2.1.12 Dinghies, lifebelts (including demonstration lifebelts), flotation cots, survival packs, blankets, pillows and similar equipment;
- 2.1.13 Weight spreaders, lashing, ballast etc.;
- 2.1.14 All items of removable equipment and removable radios carried on the particular flight;
- 2.1.15 Food and necessary equipment when livestock is carried.
- 2.2 Loadsheets are required to be annotated to show whether actual, standard, or approved notional weights of passengers and their baggage have been used.
- 2.3 Every loadsheet, be it manually prepared or computer derived, must contain a 'loading certificate' as required by Regulation 14 of the ANR.

3 CARRIAGE OF MUNITIONS OF WAR

- 3.1 The carriage of munitions of war in Fiji registered aircraft, wherever they may be, is prohibited by the ANR, and this prohibition should be repeated in the loading instructions contained in the operations manual.
- 3.2 Munitions of War are defined as weapons and ammunition designed for use in warfare or against the person, including parts designed for such weapons and ammunition.
- 3.3 An application for an exemption from the ANR to enable munitions of war to be carried should be made to the Air Safety Department. This should be made in writing, or by telex/fax at least 10 working days before it is required, stating precisely what munitions are involved, the manufacturer, the import/export licence number (where applicable), the names and addresses of both consignor and consignee, the destination, the airports of departure and arrival and the date of the flight.
- 3.4 Where munitions of war are also dangerous goods (e.g. ammunition) a permission to carry dangerous goods will also be required.
- 3.5 For further advice on the carriage of munitions of war operators should consult the Air Safety Department.

4 VEHICLE FERRY OPERATIONS

- 4.1 Vehicle ferry services present special problems in connection with aircraft loading, and operators will be required to provide a special traffic manual for such operations.
- 4.2 It will be necessary to maintain an up-to-date list of the kerb weights and the dimensions of all known models of vehicles likely to be carried. Copies of the list should be available in the traffic and reservations departments. 'Kerb weight' should be interpreted to mean the dry weight of a vehicle plus the weight of all lubricants and coolant and a fuel tank $\frac{3}{4}$ full.
- 4.3 The manual should include explicit directions on:
- 4.4 Arrangements for determining and checking the weight of baggage, etc., in vehicles if approved notional weights are not used;
- 4.5 Checking the contents of vehicle fuel tanks;



- 4.6 Lashing of vehicles;
- 4.7 Arrangements for notifying staff responsible for preparing load sheets of the exact model and/or weight of vehicles to be loaded;
- 4.8 Procedure to be adopted when a vehicle to be carried does not appear in the operators list of kerb weights.

5 CARRIAGE OF DANGEROUS GOODS

- 5.1 ANR 29 sets out the conditions under which dangerous goods may be carried in an aircraft.
- 5.2 Although there are some definitions in the ANR, dangerous goods are regarded as goods which present any kind of hazard to an aircraft and/or its occupants or to any other person who might come into contact with them. They include explosives, compressed gases, flammables, oxidisers, poisons, irritants, disease-producing micro-organisms (infectious substances), radioactive materials and corrosives. Substances that are likely to damage aircraft structures or which have inherent characteristics making them unsuitable for air carriage are also included. For example, magnetised materials are classified as dangerous goods because of their potential effect on aircraft instruments.
- 5.3 The classification of dangerous goods is given in the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI). Although the TI contains an extensive list of dangerous goods, and the conditions under which they may be carried, the list is by no means comprehensive. Other goods not listed by name but meeting the criteria for the various classes of dangerous goods in the TI must also be regarded as dangerous. TI also specify the manner in which dangerous goods must be prepared for carriage by air. Acceptance procedures for cargo must enable staff to correctly identify those goods which meet the criteria for classification as dangerous goods.
- 5.4 A written permission is required for the carriage of dangerous goods in Fiji registered aircraft, wherever they may be. Aeronautical Information Circulars are issued from time to time providing information on the procedures to be followed to obtain permission for the carriage of dangerous goods in aircraft.
- 5.5 A written permission may be issued for either:
 - (a) the general carriage of dangerous goods; or
 - (b) a flight or series of flights for particular consignments.

All permissions will contain conditions which must be fully observed.

- 5.6 A permission for the general carriage of dangerous goods will require that all such goods are carried in compliance with the Technical Instructions. Operators should pay particular attention to their responsibilities detailed in the Technical Instructions and should ensure that they are properly discharged.
- 5.7 A specific permission for the carriage of a particular consignment may be issued where a general permission is not needed (i.e. the operator does not normally carry dangerous goods) or, in exceptional circumstances, where the consignment does not fulfil the requirements of the TI. A specific permission will be valid only for the flight or series of flights to which it refers.
- 5.8 The loading instructions contained in the operations manual should indicate whether a general permission for the carriage of dangerous goods is held and whether dangerous goods may be accepted. Where such a permission is held, adequate information should be provided in the operations manual to enable flight crews and other employees to carry



out their responsibilities with regard to the transport of dangerous goods. Additional information, as specified in TI, should also be included.

- 5.9 Operators requiring further advice on the carriage of dangerous goods should consult the Air Safety Department.

6 CARRIAGE OF LIVE ANIMALS

- 6.1 Operators will comply with the standards and practices specified in the current IATA Live Animals Regulations, which give guidance on an extensive range of subjects including the labelling and marking of live animal containers, animal health and hygiene, feeding, loading and sedation. They also give comprehensive details of many types of containers, together with a list of the animals for which they may be used.
- 6.2 The attention of operators is also drawn to the mandatory requirements of ANR 76.
- 6.3 It will normally be acceptable for the weight of a consignment of live animals to be derived from the difference between the laden and unladen weight of the vehicle in which it is delivered to the aircraft, based on the evidence of a weigh-bridge certificate. The average weight per animal can then be calculated for trim purposes, and must be indicated on the load sheet.
- 6.4 The Chief Executive is prepared to consider the use of a notional weight for horses for the purpose of completing load sheets. Operators wishing to use notional weights should apply to the Air Safety Department for exemption from the ANR. When notional weights are used the load sheet must be annotated accordingly.
- 6.5 Loading instructions should include details of the weight, dimensions, construction, method of attachment and required restraints for horse boxes or animal pens used. Guidance should be given on:
- (a) the checks to be carried out before loading horse boxes or animal pens, e.g. on general condition and serviceability of fitting and lashing points;
 - (b) quantities of food and water to be carried based on the length of the flight and the number of animals carried;
 - (c) number and type of food and water containers required;
 - (d) method of stowage of loose equipment such as food and water containers and horse accoutrements; and
 - (e) the method of loading horse boxes into aircraft and of tethering the horses inside them.
- 6.6 When horses or other large or potentially dangerous animals are to be carried, operators should ensure that the sedative drugs and ammunition for the captive bolt humane killer are appropriate and that at least one groom or attendant has been trained in their use.
- 6.7 Operations manuals should contain **precise** instructions for checking an aircraft after an animal flight for damage to structure, fittings, wiring etc., and for any adverse effects resulting from high humidity and urination.
- 6.8 The minimum number of attendants to be carried in particular circumstances should be determined by the operator, in consultation with the consignor, and specified in the operator's instructions to aircraft pilot-in-commands and to the staff responsible for loading arrangements.
- 6.9 Where attendants are carried it is essential that they should be able to communicate readily with the pilot-in-command during the flight and that they are briefed before the flight on procedures to be followed in case of emergency.
- 6.10 Should grooms need to stand with their horse for take-off and landing, the operator will need to seek exemption from the statutory requirement for passengers to be secured in their seats. Applications should be made to the Air Safety Department.



- 6.11 Operators should specify the minimum number of accompanying grooms for particular loading configurations. One groom for each horse loaded 'line ahead' and one groom for every two horses loaded side by side will normally be acceptable.

7 HELICOPTER LOADING

Helicopter operators are to provide loading instructions suited to the special capabilities, limitations and type of operations of helicopters. In preparing these instructions operators should remember that in many cases they will have to be read and implemented by personnel with little or no aviation experience, such as oil rig crews, logging crews and contractors' staff. They should therefore be clear and concise and avoid the use of aviation jargon wherever possible.

APPENDIX 1 – Specimen AOC

AIR OPERATOR CERTIFICATE		
	STATE OF THE OPERATOR	
	ISSUING AUTHORITY	
AOC #: Expiry Date:	<p style="text-align: center;">OPERATOR NAME</p> <p>Db a trading name: Operator address: Telephone: Fax: Email:</p>	<p style="text-align: center;">OPERATIONAL POINTS OF CONTACT</p> <p>Contact details, at which operational management can be contacted without undue delay, are listed in _____</p>
<p>This certificate certifies that _____ is authorized to perform commercial air operations, as defined in the attached operations specifications, in accordance with the operations manual and the _____</p>		
Date of issue:	<p>Name and signature: Title:</p>	



OPERATIONS SPECIFICATIONS (subject to the approved conditions in the operations manual)			
ISSUING AUTHORITY CONTACT DETAILS			
Telephone: _____ Fax: _____ Email: _____			
AOC #: _____ Operator name: _____ Date: _____ Signature: _____ Dba trading name: _____			
Aircraft model: _____			
Types of operation: Commercial air transportation <input type="checkbox"/> Passengers <input type="checkbox"/> Cargo <input type="checkbox"/> Other _____			
Area(s) of operation			
Special limitations			
SPECIAL AUTHORIZATIONS	YES	NO	SPECIFIC APPROVALS
Dangerous Goods	<input type="checkbox"/>	<input type="checkbox"/>	REMARKS



Low visibility operations				
Approach and landing	<input type="checkbox"/>	<input type="checkbox"/>	Cat _____ RVR: _____m DH:	
Take-off	<input type="checkbox"/>	<input type="checkbox"/>	RVR _____m	
RVSM <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>		
ETOPS <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>	Maximum diversion time _____ minutes	
Navigation specifications for PBN operations	<input type="checkbox"/>	<input type="checkbox"/>		
Continuing airworthiness	<input type="checkbox"/>	<input type="checkbox"/>		
Other	<input type="checkbox"/>	<input type="checkbox"/>		



SECTION 3
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CHAPTER 1 - MAINTENANCE SUPPORT ARRANGEMENTS

1 GENERAL

- 1.1 It is the responsibility of the Operator to satisfy the Civil Aviation Authority of Fiji Air Safety Department, that his maintenance support arrangements are to a satisfactory standard. The Operator may have his own maintenance organisation or may contract-out his maintenance to another organisation acceptable to the CAAF.
- 1.2 The Operator remains responsible for the safe operations of his aircraft when accomplishment of maintenance is contracted out and must therefore be satisfied with the standards of airworthiness achieved by the contractor. The Operator must monitor the contractor's response to the provisions of the maintenance agreement, employing such technical resources as are necessary to achieve this task.
- 1.3 Maintenance support arrangements will normally be based on an organisation approved by the CAAF for the maintenance or overhaul of the type of aircraft concerned.
 - 1.3.1 The support arrangements for aircraft used for commercial air transport must be based on an organisation approved by the CAAF in accordance with FJAR 145. Where organisations hold an appropriate JAR 145 approval issued by another state they may be accepted by CAAF.
 - 1.3.2 The maintenance support arrangements for balloon operators must be under the control of organisations approved by the CAAF for the purpose.
 - 1.3.3 The maintenance support arrangements for microlight/ultralight aircraft must be under the control of organisations, appropriately approved by the CAAF for the purpose. Ref. AIC. 7/94.
- 1.4 In considering the maintenance of aircraft, for the purpose of this document, maintenance is taken to include the overall control of Airworthiness and the accomplishment of scheduled and unscheduled servicing and inspection tasks.
 - 1.4.1 An organisation may be acceptable to the CAAF for maintenance support without all of the necessary facilities to accomplish certain maintenance tasks provided contracted arrangements exist with a facility acceptable to the CAAF.
- 1.5 All maintenance support organisations must have management systems to ensure effective support of the Operator's fleet of aircraft for which they have responsibility, over the whole of the routes operated. Quality Control and Assurance must be exercised as necessary to achieve satisfactory standards of continuing Airworthiness.

2 CERTIFYING PERSONNEL - AUTHORISATION

- 2.1 Authorisations to sign Certificates of Release to Service and Certificates of Maintenance for all aircraft types operated for Commercial Air Transport shall be issued in accordance with these requirements by the holder of FJAR-145 approval issued by the CAAF.
 - (a) Personal Authorisation Certificates shall be signed only by persons nominated in the company exposition, in accordance with any company procedures approved by the CAAF, and will be issued only to personnel who comply with the appropriate requirements prescribed in the following paragraphs. Such authorisations should state the aircraft type(s) and systems for which the authorisation is valid and the extent of certification authority granted.
 - (b) Each Personal Authorisation Certificate shall be identified by the approval reference of the organisation, a reference number or designator for the individual, and by a statement/code uniquely related to the task.



- (c) Where a system of coding is used to indicate the extent or type of certification authority, such coding system will not be changed except by agreement with the CAAF.
- (d) For each Personal Authorisation Certificate issued, a related record (see JAR 145.35(a)) will be maintained which contains details of the supporting training successfully completed, and the examination and assessments conducted to determine the scope of the authorisation.
- (e) A record of any temporary Personal Authorisation Certificates issued will be maintained containing details of the person(s) authorised, the reason for issue, and the person who authorised the issue (but see (a)).
- (f) Inspection stamps are issued to each person issued with a Personal Authorisation Certificate for their individual use, and a record of the stamps issued will be maintained. The format of the stamps shall be described in the Maintenance Organisation Exposition (MOE). Any alternative method which proposes the use of electronic "swipe" cards or the use of hand written personal identification numbers for documents which incorporate carbon copies, such as the Technical Log, shall be agreed in writing with the CAAF.
- (g) Records must not be destroyed or dispersed without the written agreement of the CAAF.

2.2 Persons authorised to issue Certificates Of Release to Service

Authorisations to issue Certificates of Release to Service shall be granted only to persons who comply with (a), (b) and (c), and either (d) or (e) as appropriate.

- (a) Be age 21 or over.
- (b) Have completed a course of training approved by the CAAF relevant to the scope of the authorisation with satisfactory examination results.
- (c) Have been trained and have passed an examination on relevant company procedures.
- (d) In respect of aeroplanes, be the holder of a current Fiji Aircraft Maintenance Engineer's Licence Without Type Rating valid in the appropriate Categories and Sub-divisions.
- (e) In respect of rotorcraft, be the holder of a current Fiji Aircraft Maintenance Engineer's Licence Without Type Rating valid in the appropriate Categories and Sub-divisions.

NOTE: "Appropriate Category" means the Category of Licence defined in BCAR Section L which would, were the certification of the work not covered by the authorisation, be mandatory when account is taken of both CAA UK Airworthiness Notices No. 3 and 10.

Holder of a Fiji Aircraft Maintenance Engineer's Licence endorsed with a Type Rating will be deemed to have satisfied the requirements of paragraphs (b) and (d) or (e) as appropriate for that type.

2.3 Limited Authorisations

2.3.1 Where a person:-

- (a) Holds at least an authorisation in one complete Category on the aircraft type concerned;
or
- (b) Holds a valid Flight Engineer's Licence for the type of aircraft concerned, and exercises the privilege of certification only when performing the duties of a Flight Engineer.



- (c) Holds a valid Commercial Pilot's Licence for the type of aircraft concerned, and exercises the privilege of certification only when performing the duties of a flight crew member, whilst operating away from a supported maintenance location and subject to the need for such authorisation being agreed by the CAAF.

The CAAF may approve training and examination standards different from those of 2.2(b) and (c) in respect of work beyond the scope of the authorisation or licence held, and may permit the issue of limited authorisations to persons who do not entirely comply with 2.2(d) or (e). The extent of such authorisations shall be defined within the limits of tasks specifically endorsed on the authorisation. The conditions and scope of such authorisations shall be agreed by the CAAF with the approved organisation.

2.3.2 Where a person does not satisfy the requirements of paragraph 2.2(d) or (e) the CAAF may approve training and examination standards different from those of 2.2(b) and (c) to permit the holder to act as a Line Maintenance Certifying Mechanic and to certify minor scheduled line maintenance and defect rectification, within the limits of tasks specifically endorsed on the authorisation.

The certification privileges are restricted to work that the authorisation holder has personally performed. The conditions and scope of such authorisations shall be agreed by the CAAF with the approved organization.

2.4 Provision For Staff Outside Fiji

2.4.1 The CAAF may in certain circumstances approve the issue of an authorisation to persons holding a qualification considered by the CAAF to be equivalent to the requirement established in 2.2(d) or (e). The CAAF will consider exercising this provision on the written application of a FJAR-145 organisation, or submission of an appropriate procedure for approval, provided that :-

- (a) The nominated person is employed by the FJAR-145 organization outside Fiji and is engaged solely for the support of the FJAR-145 organisation; and
- (b) The training requirements of 2.2(b) and (c) are complied with; and
- (c) The basic qualifications considered to be equivalent established in 2.2(d) or (e) are acceptable to the Authority. (See Note).

NOTE: There may be a need for the CAAF to investigate the national qualification system concerned, the minimum acceptable standard being equivalent to ICAO Annex 1 Type II. Where the acceptability of the local standard is not considered equivalent, compliance with 2.2(d) or (e) may be required.

2.4.2 The CAAF may also in certain circumstances approve a procedure of the organisation, which allows the authorisation of individuals outside of FJAR 145 organisations, to issue Certificates of Release to Service. The need is likely to arise solely from the rectification of defects carried out at locations not normally supported by the FJAR-145 approved organisation or an organisation sub-contracted to provide line maintenance support. Such authorisation may be issued by the FJAR-145 organisation to a nominated individual subject to the following:-

- (a) The requirements for the certification arises solely from the rectification of unscheduled defects at a place where the FJAR-145 organisation concerned does not have representation or a sub-contracted arrangement for line maintenance support.
- (b) The individual to be authorised is employed by an organisation approved under the appropriate national aviation regulations for the maintenance of that aircraft type in that country and who holds an authorisation, or equivalent, issued by that organization for the purposes of the certification of defect rectification.



(c) The authorising signatory establishes, in accordance with a procedure approved by the CAAF, the experience and competence of the individual proposed for authorisation and the validity of regency of the authorisation held. Records of such investigation shall be kept to support the authorisation granted.

(d) The authorisation granted shall specify the extent of certification privileges and be given a unique reference. Such authorisation shall be granted for the particular occasion only.

2.5 Persons Authorised To Issue Certificates of Maintenance

2.5.1 Authorisations to issue Certificates of Maintenance shall be granted only to persons who comply with (a) to (d).

- (a) Be the holder of a current Fiji Aircraft Maintenance Engineer's Licence Without Type Rating valid in at least two categories in the appropriate sub-divisions (other than Category "X" Compasses).

NOTE:

- (i) In respect of authorisation for rotorcraft certifications. Categories "A" and "C" may be considered as separate categories.
 - (ii) "Appropriate Sub-Division" means the category of licence defined in BCAR Section L which would, were the certification of the work not covered by the Authorisation, be mandatory when account is taken of both Airworthiness Notices No. 3 and 10.
-
- (b) Have at least eight years experience of aircraft maintenance, which includes at least two years recent experience involving the certification of maintenance.
 - (c) Hold a position within the Approved Organization compatible with the responsibilities involved.
 - (d) Have successfully completed at least familiarisation training on the aircraft type for which the Authorisation is to be granted, have been trained in the procedures of the organisation, and have achieved the agreed standard in an examination set by the organisation in conformity with Supplement No.1 to this Notice and based upon (i) to (vii).
 - (i) The concept of approval in accordance with FJAR-145 and other requirements prescribed by the CAAF.
 - (ii) The status of the Certificate of Maintenance and the responsibilities of a signatory of the certificate.
 - (iii) The form and implementation of the Approved Maintenance Schedule for the type of aircraft concerned.
 - (iv) The details of the systems and procedures contained in the Exposition and the associated documents, together with the requirements of the organisation for their implementation.
 - (v) The maintenance support systems which are related to continuing airworthiness, e.g. reliability programmes, defect control, production control, development engineering, training, certification authority and modification control.
 - (vi) The form and use of the aircraft Technical Log, deferred defect log, fuel and instrument log, and the minimum equipment list.
 - (vii) The form and implementation of mandatory inspections/modifications as required for the type of aircraft concerned.

2.6 Validity of Authorisations

2.6.1 Authorisations granted in accordance with paragraph 2, except as provided for under paragraph 2.4, shall only be used, subject to their conditions of validity, whilst the holder is in the employ of the Approved Organisation which issued them and the holders licence, if any,



remains valid. The Approved Organisation shall provide authorised persons with a copy of all Personal Authorisation Certificates issued to them whilst in its employ.

- 2.6.2 The authorisation holder may, upon leaving the employ of the organisation who issued the authorisation request verification from the CAAF, of the authorisation held.
- 2.6.3 The CAAF, upon request will, when satisfied, signify the scope and validity of the authorisation held by signing the document.



3 SCHEDULED MAINTENANCE INSPECTIONS

- 3.1 The CAAF approval of aircraft maintenance or overhaul organisations normally refers to one address shown on the Approval Certificate as the address where work will be undertaken within the terms of the approval. This location is usually the main base of the organisation. Additional subsidiary bases may exist, where suitable facilities and a supporting maintenance control organisation are provided, which may be added to the CAAF approval after investigation. Scheduled Maintenance Inspections (SMI) are normally accomplished at such approved locations.
- 3.2 The Approval Certificate in which the CAAF approval is defined also permits maintenance tasks to be accomplished at other locations as shown in the company's Exposition. This is intended to take account of minor locations which may be classed as either a base, or a line maintenance station at which Scheduled Maintenance Inspections take place.
- 3.3 Supporting maintenance organisations must ensure that expositions, or a related document such as a line maintenance manual, include details of the facilities, procedures, organisation and scope of work to be accomplished at each location where Scheduled Maintenance Inspections take place.

4 STAFF NUMBERS

- 4.1 The organisation providing maintenance support must satisfy the CAAF that it has a sufficient number of staff, including qualified maintenance personnel, to meet the demands which will be placed upon it. Support appropriate to the route pattern, transit frequency and maintenance requirements of the Operator must be provided at main bases and route stations.
- 4.2 The CAAF will require assurance that shift duty periods are adequately staffed and will effectively enable scheduled and unscheduled tasks to be performed. Particular attention should be paid to ensuring that adequate staff are available to perform tasks of Airworthiness significance in proper manner. Company policies in respect of maintenance personnel duty periods should be made known to the CAAF.
- 4.3 The licensed and authorised personnel employed by the maintenance support organisation must be appropriately qualified to perform the tasks required, including the issue of Certificates of Maintenance and of Certificates of Release to Service for scheduled maintenance inspections and the rectification of defects.

5 TRAINING

- 5.1 Maintenance organisations must have a programme of training to ensure that:
 - (a) All maintenance personnel are adequately trained to perform the duties required of them;
 - (b) Personnel required to issue Certificates of Maintenance and Certificate of Release to Service receive familiarisation training on the aircraft type and instruction in the correct operation of the Operator's Airworthiness control procedures to enable them to perform these tasks on the type of aircraft for which support is being provided.

NOTE: Requirements for the training of persons engaged in the maintenance of aircraft in accordance with the requirements of FJAR 145 are published in those chapters.

- (c) Persons contracted to perform line maintenance tasks through maintenance agreements or Secondary Authorisations are trained in any significant differences which exist between the Operator's aircraft and that which they are normally employed to maintain together with any relevant company procedures they are required to observe;



- (d) Personnel engaged in maintenance-related tasks receive refresher training at regular intervals covering any changes to the aircraft and its maintenance, taking into account the results of in-service experience gained by the Operator and that published by the aircraft, engine and equipment manufactures. Attention should also be paid to changes in company procedures, the ANR and the CAAF requirements.

- 5.2 Records should be maintained of all training undertaken by personnel including any results of assessments or examinations.

- 5.3 Training must include formal instruction and practical experience.

- 5.4 Management, Quality Assurance and other relevant personnel should be trained in the techniques of maintenance management and the achievement of airworthiness appropriate to the posts held.

- 5.5 The number of maintenance personnel, including management, supervisors, quality audit staff and mechanics to be trained before the introduction into service of a new type of aircraft should be agreed with the CAAF. Numbers should take into account the complexity of the aircraft and its systems, the fleet size, the anticipated pattern of aircraft utilisation and the organisation's previous experience of similar aircraft.

CHAPTER 2 - CONTRACTING-OUT MAINTENANCE

1 GENERAL

- 1.1 The management and accomplishment of engineering support may be achieved by the Operator using his own or an associated maintenance organization. Alternatively all or part of the arrangements may be contracted to a separate organization.
- 1.1.1 Contracted arrangements for engineering support and maintenance do not absolve the Operator from the overall responsibility for ensuring the safe operation and continuing Airworthiness of the aircraft.
- 1.2 Where the Operator does not maintain the aircraft he operates using only his resources, full details of the division of responsibilities between the Operator and the contracted maintenance organization must be included in an agreement between the two parties. Matters to be addressed in such an agreement are contained at Appendix A.
- 1.3 Where an Operator contracts-out part or all of the maintenance to a separate organization, he must nominate a person for engineering liaison purposes. This person will be responsible to the Operator for planning the timely presentation of the aircraft to the engineering support organization for all contracted maintenance; for liaison on all matters relating to the maintenance contract or agreement and for Airworthiness matters affecting the safe operation of the aircraft. Where the Operator has several types of aircraft a different person may be nominated for each fleet.
- 1.3.1 The Operator's representative(s) should visit the contracted maintenance organisation at the inception of the agreement, and periodically thereafter, to ensure that the standards agreed are being maintained. Reports of all such visits should be kept and made available to the CAAF on request.
- 1.4 An arrangement whereby more than one maintenance organization is contracted by an Operator in respect of the airworthiness control of a particular aircraft type will not normally be acceptable to the CAAF, other than for maintenance support at route stations or where a distinct division of aircraft is established e.g. different maintenance schedules apply.
- 1.5 An Operator may only arrange separately for the maintenance, overhaul and repair of engines or other components with the knowledge and agreement of his principal maintenance contractor.
- 1.5.1 In order to be able to discharge his responsibilities for continued airworthiness and to issue Certificate of Maintenance the contractor must satisfy himself on a continuing basis that the requirements of the approved maintenance schedule are being complied with, including condition monitoring and reliability reporting, and be made aware of any significant performance trends.
- 1.5.2 Responsibilities for the assessment and incorporation of manufacturer's Service Information and for compliance with mandatory requirements must be clear defined in the agreement.
- 1.6 In its assessment of the overall engineering support arrangements provided by the Operator, the CAAF will require to examine and may require to hold copies of all agreements, including side letters and addenda, between the parties concerned.
- 1.7 Any proposal to change the maintenance arrangements, e.g. a change to another maintenance organisation or significant organisational, procedural or technical change to a maintenance agreement, must be notified to the CAAF at least 28 days prior to the proposed date of implementation.



1.8 Arrangements other than in accordance with this chapter will need to be specifically agreed with the CAAF.

2 CONTRACTING-OUT FULL SUPPORT

2.1 The operator may contract full maintenance support to an organisation approved by the CAAF for the maintenance or overhaul of the type(s) of aircraft concerned.

2.2 The Operator must ensure that the maintenance organisation competently discharges its responsibilities under the agreement, to his satisfaction, and is responsible for satisfying the CAAF that the organisation meets the requirement, insofar as they relate to the contracted work.

2.3 Written agreements should clearly define what responsibility for action is allowed to the maintenance organisation without prior consultation, and what tasks require agreement by the Operator.

2.4 Whenever an aircraft is presented for scheduled or unscheduled maintenance it is essential that a precise indication is given of the inspections required, all defects known to exist on the aircraft plus any additional work required to be carried out (after consultation with the maintenance organisation as necessary).

NOTE: Operators must appreciate that a maintenance organisation cannot carry out work or certify inspections without their instructions or agreement and it follows that they should be quite specific when making known their work requirements to the organisation of their choice. Difficulties regularly occur because there is a misunderstanding between customer and maintenance organisation as to the former requirements.

2.4.1 Although the provisions of the approved maintenance schedule allow maintenance checks to be carried out and certified in various ways the CAAF requires, for AOC support purposes, that one organisation is nominated by the Operator to perform the tasks of overall airworthiness control. It is expected that this organisation will be the Operator's principal maintenance contractor.

2.4.2 In exercising its responsibilities for the overall management and control of maintenance the contracted maintenance organisation must be satisfied with the completion and certification of all tasks performed by the Operator during the maintenance or by other organisations/engineers.

3 CONTRACTING-OUT LINE MAINTENANCE SUPPORT

3.1 Line Maintenance is defined as those maintenance activities required to prepare an aircraft for flight including:

Pre-flight inspections and servicing,
Daily inspections,
Minor scheduled maintenance not requiring input to main base
Defect rectification.

3.2 A written agreement should exist between the Operators or his principal contracted maintenance organisation and the organisation contracted for the performance of line maintenance, detailing the tasks to be performed on behalf of the Operator. The arrangements must be defined in company instructions so that responsibilities procedures and communication paths are made clear to all concerned.



- 3.3 The authorisation of maintenance personnel employed by the line maintenance contractor must conform to any requirements and limitations imposed by the conditions of the CAAF Approval held by the Operator or his principal maintenance contractor as appropriate.
- 3.4 It is the responsibility of the Operator or his principal maintenance contractor to ensure that the continuing performance of the line maintenance contractor is such as to ensure safe operation of the Operator's aircraft.

4 CONTRACTING-OUT GROUND HANDLING

- 4.1 Operators may enter into ground handling agreements with other operator's organisations for the provisions of services associated with aircraft arrival, turn around and dispatch. In these cases a written agreement should detailing the tasks to be performed on behalf of the Operator.
- 4.2 Where appropriate the IATA Standard Ground Handling Agreement AHM 810 provides an acceptable basis for an agreement; however, it is essential that maintenance or flight crew personnel responsible for accepting the aircraft for flight are made aware of any matter which is not included in the agreement at that station.
- 4.3 It is the responsibility of the Operator or his principal maintenance contractor to ensure that the continuing performance of the ground handling contractor is such as to ensure safe operation of the Operator's aircraft, and that necessary training has been performed.

5 CONTRACTING-OUT TO FOREIGN MAINTENANCE ORGANISATIONS

- 5.1 Maintenance support may only be contracted to a foreign organisation if it is appropriately approved by the CAAF and the requirements of this document will apply. The CAAF will not normally accept the contracting-out of full support to a foreign maintenance organisation unless that organisation holds JAR 145 Approval for the particular aircraft.
- 5.2 If the organisation does not hold CAAF approval the following conditions will apply.
 - 5.2.1 The national airworthiness standard under which the maintenance organisation has been approved will have to be known by the CAAF to be comparable with the CAAF standards.
 - 5.2.2 The arrangements must provide for the CAAF to be allowed to inspect, upon notification, the facilities at any of the nominated locations.
 - 5.2.3 Details of the proposed maintenance arrangements must be acceptable to the CAAF.
 - 5.2.4 A formal maintenance agreement in accordance with this Chapter must be established, appropriate to the tasks being undertaken. Such an agreement should aim to ensure an airworthiness standard comparable with the CAAF requirements, paying particular attention to the following:
 - (a) That the method of certifying individual maintenance tasks and the responsibilities of nominated signatories ensure that the authority given to the signatories and the nature of the work they certify provide equivalence to CAAF certification. The signatories must be persons employed by the foreign maintenance organisation.
 - (b) That all works is completed and certified in accordance with the maintenance organisation or Operator's approved technical procedures.
 - (c) That the work undertaken is within the scope of the approval of the organisation granted by the responsible authority.

- (d) That all applicable the CAAF Operator/maintenance organisations' procedures or requirements are covered e.g. duplicate inspections, fuel flow tests, flight tests, compass swings etc.
- (e) That necessary maintenance manuals or equivalent technical literature are provided and worked to, except for authorised deviations.
- (f) That all replacement parts for the specific aircraft are appropriately certified and are to a satisfactory standard, in particular replacement for any system or component which may have been the subject of special conditions or additional requirements prior to certification in Fiji.

- NOTES:**
- 1 These provisions do not obviate the need for a Certificate of Maintenance and a Certificate of Release to Service on completion of Scheduled maintenance inspections, issued in accordance with the provisions of the Air Navigation Regulation.
 - 2 The CAAF will assess the qualification standards achieved by the contracted organisation when granting personnel authorisations.

6 CONTRACTING-OUT ENGINE MAINTENANCE

- 6.1 When an Operator chooses to contract-out maintenance of engines independently from the overall arrangements existing for maintenance support of the aircraft, it is essential that the primary maintenance contractor:
- (a) Is fully in agreement with the proposed arrangements; and,
 - (b) is kept continuously aware of engine condition monitoring and any adverse trends in reliability or performance which arise, if he is not directly a party to such monitoring;
 - (c) is made aware of the status of engines fitted to aircraft in respect of modifications, service bulletins and airworthiness directives;
 - (d) liaisons with the engine maintenance contractor in respect of the requirements of the approved maintenance schedule for the aircraft so that the engine maintenance reflects the needs of the aircraft for airworthiness.
- 6.2 At all times the liaison between the aircraft and engine maintenance organisations must be such as to enable the appropriately authorised person to carry out the required Certificate of maintenance and safely discharge his statutory responsibility when doing so.

7 APPENDIX A - MAINTENANCE AGREEMENT

- 7.1 Where an Operator chooses to contract maintenance to another organisation, a written contract must be drawn up indicating the divisions of responsibility between the two parties for the overall support of the aircraft and for compliance with statutory regulations and other relevant requirements.
- 7.2 The purpose of the contract is to demonstrate a firm commitment by the two parties to the maintenance support of the aircraft in the operation for which application has been made for an Air Operator's Certificate.
- 7.3 It is strongly recommended that the parts of the agreement dealing with maintenance are subdivided into those tasks to be accomplished by the contractor and those tasks which, will remain the responsibility of the Operator. This is particularly necessary where, for example, the Operator retains responsibility for line maintenance or spares provision.

7.4 MAINTENANCE CONTRACTS

The following paragraphs are not intended to provide a standard maintenance contract but to provide a list of the main points that should be addressed, when applicable, in maintenance contract between an Operator and a FJAR 145 approved/accepted Organisation. As only the technical parts of the maintenance contracts have to be acceptable to the CAAF, the following paragraphs only address technical matters and excludes matters such as costs, delay, warranty, etc..

When maintenance is contracted to more than one FJAR 145 approved/accepted organisation (for example aircraft base maintenance to X, engine maintenance to Y and line maintenance to Z1, Z2 & Z3), attention should be paid to the consistency of the different maintenance contracts.

A maintenance contract is not normally intended to provide appropriate detailed work instruction to the personnel (and is not normally distributed as such). Accordingly there must be established organisational responsibility, procedures and routines in the Operator and FJAR 145 Organisations to take care of these functions in a satisfactory way such that any person involved is informed about his responsibility and the procedures which apply. These procedures and routines can be included/append to the operator's MME and maintenance organisation's MOE or consist in separate procedures. In other words procedures and routines should reflect the condition of the contract.

7.5 AIRCRAFT MAINTENANCE

This paragraph applies to a maintenance contract that includes base maintenance and, possibly, line maintenance. Para 7 addresses the issue of maintenance contracts restricted to only line maintenance, aircraft maintenance also include the maintenance of the engines and APU while they are installed on the aircraft.

7.5.1 Scope of Work

The type of aircraft and engines subject to the maintenance contract must be specified. It should preferably include the aircraft's registration numbers.

The type of maintenance to be performed by the FJAR 145 approved/accepted Organisation should be specified unambiguously.

7.5.2 Locations identified for the performance of maintenance/Certificates held. The place(s) where base and line maintenance will be performed should be specified. The certificate held by the maintenance organisation at the place(s) where the maintenance will be performed should be referred to in the contract. If necessary the contract may address the possibility of performing maintenance at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance.

7.5.3 Sub-contracting

The maintenance contract should specify under which conditions the FJAR 145 approved/accepted Organisation may subcontract tasks to a third party. In addition the Operator may require the FJAR 145 approved/accepted Organisation to request the Operator's approval before subcontracting to a third party. Access should be given to the operator to any information (especially the quality monitoring information) about the FJAR 145 approved/accepted Organisation's subcontractors involved in the contract. It should however be noted that under Operator's responsibility both the operator and the CAAF are entitled to be fully informed about subcontracting, although the CAAF will normally only be concerned with aircraft, engine and APU subcontracting.



7.5.4 Maintenance Programme

The maintenance programme under which the maintenance has to be performed has to be specified. The operator must have that maintenance programme approved by the CAAF. When the maintenance programme is used by several Operators, it is important to remember that it is the responsibility of each operator to have that maintenance programme approval under its own name by the CAAF.

7.5.5 Quality Monitoring

The terms of the contract should include a provision allowing the Operator to perform a quality surveillance (including audits) upon the FJAR 145 approved/accepted organisation. When the FJAR 145 approved/accepted organisation is performing functions not covered by JAR 145 such as airworthiness directives incorporation, planning and follow-up planning of maintenance tasks, etc..., such functions must be under the control of the operators quality system. The maintenance contract should specify how the results of the quality surveillance is taken into account by the FJAR 145 approved/accepted organisation (see also Para 7.5.25 Meetings). The maintenance contract should also specify that the quality monitoring function of the contracted accepted organisation should be extended to cover the specific maintenance functions the organisation performs.

7.5.6 Airworthiness Data

The airworthiness data used for the purpose of this contract as well as that required by the CAAF must be specified. This may include, but may not be limited to:

- Maintenance Programme,
- AD's,
- major repair/modification data,
- aircraft Maintenance Manual,
- aircraft pilot-in-command,
- Wiring diagram,
- Trouble shooting manual,
- Minimum Equipment List (normally on board the aircraft),
- Operations Manual,
- Flight Manual

7.5.7 Incoming Conditions

The contract should specify in which condition you must send the aircraft to the FJAR 145 approved/accepted Organisation. For checks of significant i.e. "C" Checks and above, it may be beneficial that a workscope planning meeting be organised so that the tasks to be performed may be commonly agreed (see also Para 7.5.25 "Meetings").

7.5.8 Airworthiness Directives

It is very important that the contract specify which country's Airworthiness Directive (AD), have to be applied (normally: those approved by the country of registration of the aircraft) and who supplies the Airworthiness Directive. The Operator may however agree to apply instructions more restrictive than those AD's.

This may be the case when an aircraft owner wishes to ease the leasing of the aircraft in different possible countries and then wishes to have his aircraft in compliance with different countries AD's at the same time.

The application of an AD may be divided into the following phases:

1. applicability;
2. mean of compliance;
3. planning;



4. incorporation;
5. follow-up.

It is not intended that the Operator in order to exercise its maintenance responsibility, performs itself the items 1,2,3 & 5; however, those items shall remain under its responsibility.

7.5.9 When the FJAR 145 approved/accepted Organisation only performs the incorporation of the AD (item 4 above) the contract should specify what information the operator is responsible to provide to the FJAR 145 approved/accepted organisation, such as the due date of the AD, the selected means of compliance, etc... In addition the type of information the Operator will need in return to complete the control should be specified.

7.5.10 When the FJAR 145 approved/accepted Organisation also performs actions among items 1,2,3 & 5 above.

- The contract will have to specify what information the FJAR 145 approved/accepted Organisation need in order to initiate those action and what is the decision process when various options are selected (e.g. date and means of compliance).

- The maintenance contract should allow the Operator to have access to all the necessary information from the FJAR 145 approved/accepted Organisation so that the Operator may exercise its airworthiness responsibility. The information provided by the FJAR 145 approved/accepted Organisation should allow the operator to control the performance of items 1 to 5 (as applicable) by the FJAR 145 approved/accepted Organisation and, when necessary, to override a decision of the FJAR 145 approved/accepted Organisation if it appears necessary to the continuous airworthiness of the aircraft.

7.5.11 Service Bulletin/Modifications

Normally, the decision to embody Service Bulletins (SB's) or modification belongs to the Operator. However, the Operator may delegate that decision provided that the conditions of delegation are clearly established (e.g. the modification does not affect the interchangeably and the reliability (which should be demonstrated), the modification does not affect the maintenance or operational procedures etc.).

Such delegation may be useful in the case of a FJAR 145 approved/accepted Organisation that maintains to a common standard a fleet of aircraft that belong to different Operators.

The Operator will have to demonstrate that it has a thorough control of that procedure.

The contract should specify, where applicable, who is updating the SB and modification status and what type of information has to be exchanged for that purpose (see also Para 7.5.24 "Exchange of Information")

7.5.12 Hours & Cycles Control

Hours and cycles control is the responsibility of the Operator but, there may be cases where the FJAR 145 approved/accepted Organisation, performs that control, especially when it carries out planning functions. In the latter case, the FJAR 145 approved/accepted Organisation must be in receipt of the current flight hours and cycles on a regular basis so that it may update the records (see Para 7.2.24 "Exchange of Information").



7.5.13 Component Control/Removal Forecast

According to the contract, maintenance tasks may include component removal/installation planning and performance. The contract should then specify who carries out the component control and what type of information has to be exchanged for that purpose (see "Exchange of Information").

7.5.14 Life Limited Part

Life Limited Parts control is the responsibility of the Operator.

7.5.14.1 Should the Life Limited Parts control be performed by Operator the FJAR 145 approved/accepted Organisation will have to provide the Operator with all the necessary information about the LLP removal/installation so that the Operator may update its records (see also Para 7.5.24 "Exchange of Information").

7.5.14.2 It may also be agreed between the Operator and the FJAR 145 Approved/Accepted Maintenance Organisation that the Life Limited Parts control is carried out by the FJAR 145 approved/accepted Organisation. This will have to be specified in the contract. The FJAR 145 approved/accepted Organisation will need to be in receipt of current hours/cycles of the aircraft, as well as any other information necessary to perform the control. The Operator should be in receipt of the Life Limited Parts status in order to exercise his airworthiness responsibility (see also "Exchange of Information").
The contract may contain additional requirements about the origin of parts
(see Para 7.5.15 "Supply of Parts").

7.5.15 Supply of Parts

The contract should specify whether a particular type of material or component comes from the operator's or the FJAR 145 approved/accepted Organisation's store, which type of component is pooled etc... Attention should be paid on the fact that it is the FJAR 145 approved/accepted Organisation's competence and responsibility to be in any case satisfied that the component in question meets the approved data/standard and to ensure that the aircraft component is in a satisfactory condition for fitment. In other words, there is definitely no way for a FJAR 145 Maintenance Organization to accept whatever he receives from the operator without verification.

7.5.16 Scheduled Maintenance

The maintenance contract shall specify who is planning maintenance checks in accordance with the approved aircraft maintenance programme.

7.5.16.1 When the Operator is planning the maintenance checks, the support documentation to be given to the FJAR 145 approved/accepted Organisation should be specified. This may include, but may not be limited to:

- applicable work package, including job cards;
- scheduled component removal list;
- modification to be incorporated;
- etc .

When the FJAR 145 approved/accepted Organisation determines, for any reason, to defer a maintenance task, it has to be formally agreed by the Operator. If the deferment goes beyond an approved limit, refer to "Deviation from the Maintenance Schedule". This should be addressed, where applicable, in the maintenance contract.



7.5.17 Unscheduled Maintenance/Defect Rectification

The contract should specify to which level the FJAR 145 approved/accepted Organisation may rectify a defect without reference to the Operator. As a minimum the approval and incorporation of major repairs should be addressed. The deferment of any defect rectification shall be submitted to the operator and, if applicable to the CAAF.

7.5.18 Deferred Tasks

See paragraphs 7.16 and 7.17 and JAR 145 leaflet 12 JAR 145 “Release to Service after incomplete maintenance”. In addition, the use of the operators MEL and the relation with the Operator in case of a defect that cannot be rectified at the line station should be addressed.

7.5.19 Deviation from the Maintenance Schedule

Deviations have to be requested by the Operator to the CAAF in accordance with a procedure acceptable to CAAF. The contract should specify the support the FJAR 145 approved/accepted Organisation may provide to the operator in order to substantiate the deviation request.

7.5.20 Test Flight

If any test flight is required, it shall be performed in accordance with the Operator's Maintenance Management Exposition.

7.5.21 Release to Service Documentation

The release to service has to be performed by the FJAR 145 approved/accepted Organisation in accordance with its MOE procedures. The contract should, however, specify which support forms have to be used (Operators technical log, FJAR 145 approved/accepted Organisation's maintenance visit file, etc..) and the documentation the FJAR 145 approved/accepted Organisation should provide to the Operator upon delivery of the aircraft. This may include but may not be limited to:

- Certificate of Release to Service - Mandatory
- Flight test report,
- List of modifications embodied,
- List of repairs,
- List of AD's incorporated,
- Maintenance visit report,
- etc.

7.5.22 Maintenance Recording

The Operator may contract the FJAR 145 approved/accepted Organisation to retain some of the maintenance records. It should be ensured that every requirement is fulfilled by either the Operator or the FJAR 145 approved/accepted Organisation. In such a case, free and quick access to the above mentioned records should be given by the FJAR 145 approved/accepted Organisation to the Operator and the CAAF.

7.5.23 Reliability Report

Where necessary, responsibility for the production of data for the Reliability Report should be defined into the contract.

7.5.24 Exchange of Information

Each time exchange of information between the Operator and the FJAR 145 approved/accepted Organisation is necessary, the contract should specify what



information should be provided and when (i.e. on what occasion or at what frequency), how, by whom and to whom it has to be transmitted.

7.5.25 Meetings

In order that the CAAF may be satisfied that a good communication system exists between the Operator and the FJAR 145 approved/accepted Organisation, the terms of the maintenance contract should include the provision for a certain number of meetings to be held between both parties.

7.5.25.1 Contract Review

Before the contract is applicable, it is very important that the technical personnel of both parties that are involved in the application of the contract meet in order to be sure that every point leads to a common understanding of the duties of both parties.

7.5.25.2 Workscope Planning Meeting

Workscope Planning meetings may be organised so that the tasks to be performed may be commonly agreed.

7.5.25.3 Technical Meeting

Scheduled meetings may be organised in order to review on a regular basis technical matters such as AD's, SB's, future modifications, major defects found during maintenance check, reliability, etc...

7.5.25.4 Quality Meeting

Quality meetings may be organised in order to examine matters raised by the Operator's quality surveillance and to agree upon necessary corrective actions.

7.5.25.5 Reliability Meeting

When a reliability programme exists, the contract should specify the Operator's and the FJAR 145 approved/accepted Organisation's respective involvement in that programme including the participation to reliability meetings.

7.6 **ENGINE MAINTENANCE**

This paragraph deals with engine shop maintenance. "On Wing" engine maintenance should be covered by Para 7.5 above.

7.6.1 Scope of Work

The type of engine subject to the maintenance contract must be specified. The type of maintenance to be performed by the FJAR approved/accepted Organisation should be specified unambiguously.

7.6.2 Location identified for the performance of maintenance/certificates held. The place(s) where base and line maintenance will be performed should be specified. The certificate held by the maintenance organisation at the place(s) where the maintenance will be performed has to be referred to in the contract.

7.6.3 Subcontracting

The maintenance contract should specify under which conditions the FJAR 145 approved/accepted Organisation may subcontract tasks to a third party (whether this third party is FJAR 145 approved/accepted or not). In addition, the operator may require the FJAR 145 approved/accepted Organisation to request the operator's approval before subcontracting to a third party. Access should be given to the Operator to any information (especially the quality monitoring information) about the FJAR 145 approved/accepted Organisation's subcontractors involved in the contract. It should however be noted that under Operators responsibility both the Operator and the CAAF are entitled to be fully informed about subcontracting, although the CAAF will normally only be concerned with aircraft, engine and APU subcontracting.

7.6.4 Maintenance Programme

This maintenance programme under which the maintenance has to be performed has to be specified. The Operator must have that Maintenance Programme approved by the CAAF. When the Maintenance Programme is used by several Operators, it is important to remember that it is the responsibility of the Operator to have that programme approved by the CAAF.

7.6.5 Quality Monitoring

The terms of the contract should include a provision allowing the operator to perform a quality surveillance (including audits) upon the FJAR 145 approved/ accepted Organisation. When the FJAR 145 approved/accepted Organisation is performing functions not covered by FJAR 145 such as Airworthiness Directives incorporation planning and follow-up, planning of maintenance tasks, etc., such functions must be under the control of the Operators own quality system. The maintenance contract should specify how the result of the quality surveillance is taken into account by the FJAR 145 approved/accepted Organisation (see Para 7.6.24 "Meetings"). The maintenance contract should also specify that the quality monitoring function of the contracted FJAR 145 approved/accepted Organisation should be extended to cover the specific maintenance functions the organisation performs.

7.6.6 Airworthiness Data

The airworthiness data used for the purpose of this contract as well as that required by the CAAF must be specified. This may include, but may not be limited to:

- Maintenance Programme;
- AD's;
- Major repairs/modification data;
- Engine overhaul manual;
- other?

7.6.7 Incoming Conditions

The contract should specify in which condition the Operator should send the engine to the FJAR 145 approved/accepted Organisation. For instance it is important to specify the configuration of the engine, e.g. including the list of the components that remain fitted to the engine before sending it to the FJAR 145 approved/accepted Organisation. It may also be valuable that a workscope planning meeting be organised so that the tasks to be performed may be commonly agreed (see also Para 7.6.24 "Meetings").

7.6.8 Airworthiness Directive's

It is very important that the contract specify which country's Airworthiness Directive have to be applied (normally: those approved by the country of registration of the aircraft on which the engines are to be fitted) and who supplies the Airworthiness Directive. The operator may however agree to apply instruction more restrictive than those AD's. This may be the case for instance for engines that may be fitted on aircraft from different states of registry.

The application of an AD may be divided into the following phases:-

1. applicability;
2. mean of compliance;
3. planning;
4. incorporation;
5. follow-up.

It is not requested that the operator, in order to exercise its maintenance responsibility, perform itself items 1,2,3 and 5 however, those items shall remain under the operator's responsibility.

7.6.8.1 When the FJAR 145 approved/accepted Organisation only performs the incorporation of the AD (item 4 above), the contract should specify what information the Operator is responsible to provide to the FJAR 145 approved/accepted Organisation, such as the due date of the AD, the selected means of compliance, etc. In addition the type of information the operator will need in return to complete the control should be specified.

7.6.8.2 When the FJAR 145 approved/accepted Organisation also performs actions among item 1,2,3 & 5 above:

- the contract should specify what information the FJAR 145 approved/accepted Organisation need in order to initiate those actions and what is the decision process when various options are selected (e.g. date and mean of compliance).
- the maintenance contract should allow the Operator to have access to all the necessary information from the FJAR 145 approved/accepted Organisation so that the Operator may exercise its airworthiness responsibility. The information provided by the FJAR 145 approved/accepted Organisation should allow the Operator to control the performance of items 1 to 5 (as applicable) by the FJAR 145 approved/accepted Organisation and, when necessary, to override a decision of the FJAR 145 approved/accepted Organisation if it appears necessary to the continuous airworthiness of the engine.

7.6.9 SBs Modifications

Generally, the decision to embody SB's or modification belongs to the Operator. However, the Operator may delegate that decision provided that the conditions of delegation are clearly established (e.g. the modification does not affect the interchangeability and the reliability (which should be demonstrated), the modification does not affect the maintenance or operational procedures, etc.).

Such a delegation may be useful in the case of an FJAR 145 approved/accepted Organisation that maintains to a common standard a fleet of engines that belong to different Operators.

The Operator will have to demonstrate that it has a thorough control of that procedure.

The contract should specify, where applicable, who is updating the SB and modification status and what type of information has to be exchanged for that purpose (see also Para 7.6.23 "Exchange of Information").

7.6.10 Hours & Cycles Control

Hours and Cycles control is the responsibility of the Operator, but there may be cases where the FJAR 145 approved/accepted Organisation performs that control, especially when it carries out planning functions. In the latter case, the FJAR 145 approved/accepted Organisation must be in receipt of the current flight hours and cycles on a regular basis so that it may update the control (see also Para 7.6.23 "Exchange of Information").

7.6.11 Component Control/Removal Forecast

According to the contract, maintenance tasks may include component removal/installation planning and performance. The contract should then specify who performs the component control and what type of information has to be exchanged for that purpose (see also Para 7.6.24 "Exchange of Information").

7.6.12 Life Limited Parts

Life limited parts control is the responsibility of the operator.

7.6.12.1 When this life limited parts control is performed by the operator, the FJAR 145 approved/accepted Organisation will have to provide the Operator with all the necessary information about the LLP removal/installation so that the operator may update its control (see also Para 7.6.23 "Exchange of Information").

7.6.12.2 It may also be agreed between the operator and the FJAR 145 approved/accepted Organisation that the life limited parts control is carried out by the FJAR 145 approved/accepted organisation. This will have to be specified in the contract. The FJAR 145 approved/accepted Organisation will need to be in receipt of current hours/cycles of the aircraft, as well as any other information necessary to perform the control. The Operator should be in receipt of the life limited parts status in order to exercise his airworthiness responsibility (see also Para 7.6.23 "Exchange of Information").

The contract may contain additional requirements about the origin of parts (see also Para 7.6.13 "Supply of Parts").

7.6.13 Supply of Parts

The contract should specify whether a particular type of material or component comes from the Operator's or the FJAR 145 approved/accepted Organisation's store, which type of component is pooled, etc. Attention should be paid on the fact that it is the maintenance organization competence and responsibility to be in any case satisfied that the component in question meets the approved data/standard and to insure that the aircraft component is in a satisfactory condition for fitment. In other words, there is definitely no way for a maintenance organisation to accept whatever he receives from the Operator without adequate verification.

7.6.14 Scheduled Maintenance

The maintenance contract shall specify who is planning shop visits in accordance with the approved maintenance programme.

7.6.14.1 When the Operator is planning the shop visit, the support documentation to be given to the FJAR 145 approved/accepted Organisation should be specified. This may include, but may not be limited to:

- applicable work package, including job cards;
- scheduled component removal list;
- modifications to be implemented;
- etc...

When the FJAR approved/accepted Organisation determines, for any reason, to defer a maintenance task, it has to be formally agreed by the Operator. If the deferment goes beyond an approved limit, refer to Para 7.6.18 "Deviation from the Maintenance Schedule". That should be addressed, where applicable, in the maintenance contract.

7.6.14.2 When the FJAR 145 approved/accepted Organisation is planning the shop visits, it should be in receipt from the Operator of all relevant information that will allow the performance of its planning function.

When the FJAR 145 approved/accepted Organisation defers a maintenance task, that information should be brought to the Operator's attention. If the deferment goes beyond an approved limit, refer to para "Deviation from the Maintenance Schedule". This should be addressed, where applicable, in the maintenance contract.

7.6.15 On Wing Engine Condition Monitoring

If the Operator contracts the engine condition monitoring to a FJAR 145 approved/accepted Organisation, the FJAR approved/accepted Organisation should be in receipt of all the relevant information to perform this task, including any parameter reading deemed necessary to be supplied by the Operator for this control. The contract should also specify what kind of feed-back information (such as engine limitation, appropriate technical advice, etc..) the FJAR approved/accepted Organisation has to provide to the Operator (see also Para 7.6.23 "Exchange of Information").

7.6.16 Unscheduled Maintenance/Defect Rectification

The contract should specify to which level the FJAR 145 approved/accepted Organization may rectify a defect without reference to the Operator. As a minimum the approval and incorporation of major repairs should be addressed. The deferment of any defect rectification shall be submitted to the Operator and, if applicable, to the CAAF.

7.6.17 Deferred Tasks

See Para 7.6.15 and 7.6.16 above.

7.6.18 Deviation from the Maintenance Schedule

Deviations have to be requested by the Operator to the CAAF. The contract should specify support the FJAR 145 approved/accepted Organisation may provide to the Operator in order to substantiate the deviation request.

7.6.19 Test Bench

The contract should specify the acceptability criterion and whether a representative of the Operator should witness an engine undergoing test.

7.6.20 Release to Service Documentation

The contract should specify the documentation the FJAR 145 approved/accepted Organisation should provide to the Operator upon delivery of the aircraft/engine. This may include but may not be limited to:

- JAA Form 1, FAA Form 8130 etc
- test bench report
- list of modifications embodied
- list of repairs
- list of AD's performed
- etc

7.6.21 Maintenance Recording

The Operator may contract the FJAR 145 approved/accepted Organisation to retain some of the maintenance records required. It should be insured that every requirement is fulfilled by either the Operator or the FJAR 145 approved/accepted Organisation. In such a case, free and quick access to the above mentioned records should be given by the FJAR 145 approved/accepted Organisation to the Operator and the CAAF.

7.6.22 Reliability Report

Where necessary, responsibility for the production of data for the reliability report should be defined into the contract.

7.6.23 Exchange of Information

Each time exchanges of information between the Operator and the FJAR approved/accepted Organisation is necessary, the contract should specify what information should be provided and when (i.e. on what occasion or at what frequency), how, by whom and to whom it has to be transmitted.

7.6.24 Meetings

In order that the CAAF may be satisfied that a good communication system exists between the operator and FJAR 145 approved/accepted Organisation, the terms of the maintenance contract should include the provision for a certain number of meetings to be held between both parties.

7.6.24.1 Contract Review

Before the contract is applicable, it is very important that the technical personnel of both parties that are involved in the application of the contract meet in order to be sure that every point leads to a common understanding of the duties of both parties.

7.6.24.2 Workscope Planning Meetings

Workscope Planning meetings may be organised so that the tasks to be performed may be commonly agreed.

7.6.24.3 Technical Meetings

Scheduled meetings may be organised in order to review on a regular basis technical matters such as AD's, SB's, future modifications, major defects found during shop visit, reliability etc.

7.6.24.4 Quality Meetings

Quality meetings may be organised in order to examine matters raised by the Operator's quality surveillance and to agree upon necessary corrective actions.

7.6.24.5 Reliability Meetings

When a reliability programme exists the contract should specify the operators and the FJAR 145 approved/accepted Organisation respective involvement in that programme, including the participation to reliability meetings.

7.7 AIRCRAFT LINE MAINTENANCE

This paragraph applies to maintenance contract that includes line maintenance but excludes base maintenance activities.

7.7.1 Scope of Work

The type of aircraft subject to the maintenance contract must be specified. It should include the aircraft's registration numbers.

The extent of maintenance to be performed by the FJAR 145 approved/accepted Organisation should be specified unambiguously.

7.7.2 Location identified for the performance of maintenance/certificates held.

The places(s) where line maintenance will be performed should be specified. The certification held by the maintenance organisation at the place(s) where the maintenance will be performed has to be referred to in the contract.

7.7.3 Subcontracting

The maintenance contract should specify under which conditions the FJAR 145 approved/accepted Organisation may subcontract tasks to a third party (whether this third party is FJAR 145 approved/accepted or not). At the minimum the contract should make reference to JAR 145.1 and 145.75. Additional guidance is provided by Leaflet No 3 "JAR 145 extension of the quality system to a non JAR 145 organisation in addition, the operator may require the FJAR 145 approved/accepted organisation to request the Operator's approval before subcontracting to a third party. Access should be given to the Operator to any information (especially the quality monitoring information) about the FJAR 145 approved/accepted Organisation's subcontractors involved in the contract. It should however be noted that under operators responsibility both the operator and the CAAF are entitled to be fully informed about subcontracting, although the CAAF will normally only be concerned with aircraft, engine and APU subcontracting.

7.7.4 Quality Monitoring

The fact that the Operator's contractor is appropriately approved/accepted in accordance with FJAR 145, does not preclude the Operator from performing a quality surveillance (including audits) upon the FJAR 145 approved/accepted Organisation.

7.7.5 Airworthiness Data

The airworthiness data used for the purpose of this contract as well as the authority responsible for the acceptance/approval, (normally the authority of registration of the aircraft) must be specified. This may include, but may not be limited to:

- aircraft Maintenance Manual;
- aircraft PIC;
- Wiring diagrams;
- Trouble shooting manual;
- Minimum Equipment List (normally on board the aircraft);
- Operations Manual;
- Flight Manual.

7.7.6 Supply of Parts

The contract should specify whether a particular type of material or component is supplied by the Operator or the FJAR 145 approved/accepted Organisation. Attention should be paid on the fact that it is the FJAR 145 competence and responsibility to be in any case satisfied that the component in question meets the approved data/standard and to ensure that the aircraft component is in a satisfactory condition for fitment. In other words, there is definitely no way for a FJAR 145 Organisation to accept whatever he receives from the operator.

Storage conditions should also be addressed.

7.7.7 Pooled Parts

Guidance is provided by Leaflet No. 11 "JAR 145 acceptance of aircraft components".

7.7.8 Unscheduled maintenance/Defects rectification

The contract should specify to which level the FJAR 145 approved/accepted Organisation may rectify a defect without reference to the operator, and what action should be taken in case the defect rectification may not be performed by the FJAR 145 approved/accepted Organisation.

7.7.9 Deferred Tasks

The use of the Operator's MEL and the relation with the Operator in case of a defect that cannot be rectified at the line station should be addressed.

7.7.10 Release to Service

The release to service has to be performed by the FJAR 145 approved/accepted Organisation in accordance with its MOE procedures. The contract should however specify which support forms have to be used (Operator's technical log, etc.).

7.7.11 Exchange of Information

Each time exchange of information between the Operator and the FJAR 145 approved/accepted Organisation is necessary, the contract should specify what information should be provided and when, how, by whom and to whom it has to be transmitted.

7.7.12 Meetings

Before the contract is applicable, it may be beneficial that the technical personnel of both parties that are involved in the application of the contract meet in order to be sure that every point lead to a common understanding of both parties duties.

CHAPTER 3 - AIRWORTHINESS CONTROL PROCEDURES

1 GENERAL

Procedures described in company manuals and/or required to be provided by this publication must be published in company documents and made available to staff concerned as necessary to ensure that they are aware of the procedures and their own resultant duties and responsibilities.

2 MAINTENANCE SCHEDULES - CONTROL AND DEVELOPMENT

- 2.1 Two copies of the proposed Maintenance Schedule must be prepared and submitted for approval to the CAAF, Air Safety Department. When the schedule is approved the applicant will be formally notified by means of a Maintenance Schedule Approval Document, AD 271, which also defines the frequency and conditions for issue of Certificates of Maintenance and Release to Service for Scheduled Maintenance Inspections (SMI).

Note: The CAAF Maintenance Programme Compliance Document, gives guidance in respect of the preparation and submission of schedules for the CAAF approval.

- 2.2 Procedures must ensure that the data contained in an approved schedule is reviewed periodically, e.g. at minimum intervals of six months, with the object of ensuring that the detailed schedule requirements continue to have practical applicability in the light of experience and adequately meet the maintenance needs of the aircraft if continuing airworthiness in the respective operating circumstances is to be ensured.
- 2.3 Reviews must take account of variations from the original certification standard of the aircraft which may have occurred as a result of modifications and respond to recommendations of the manufacturer contained in maintenance manuals and Service Bulletins.
- 2.4 Changes in the use of aircraft may affect the conditions for approval of the maintenance schedule, for example with respect to annual utilisation, average flight duration and operating environment. Amendments to schedules and to engine maintenance programmes must be submitted for approval in response to significant changes.
- 2.5 A continuous analysis must be undertaken of defects arising on the aircraft during flight and at maintenance inputs, from Technical Logs and from worksheets raised during scheduled maintenance inspections, particularly those where major structural inspections are undertaken. Results of the analysis must be used to amend the maintenance schedule as appropriate to eliminate repetitive defects and trends.
- 2.6 Requirements for the maintenance of aircraft are contained in BCAR Chapter A6-2 (B6-2), including requirements for Maintenance Schedules, Certificates of Maintenance Certificates of Release to Service, Duplicate Inspections and the Retention of Records, Appendix 1 to Chapters A6-2 and B6-2 describes an acceptable means of compliance with requirements for condition monitored maintenance programmes.
- 2.7 It is particularly important that maintenance schedule reviews take account of the age and utilisation of the aircraft and the continuity of corrosion control programmes. More frequent maintenance may be required, as aircraft grow older.

3 THE CERTIFICATION OF MAINTENANCE

3.1 Certificate of Release to Service

- 3.1.1 A Certificate of Release to Service fulfils the requirements of ANR Article 16 for a Certificate of Compliance to be issued after overhauls, repairs, replacements, modifications and mandatory inspections have been carried out on an aircraft which is registered in Fiji and has a Certificate of Airworthiness in force, except as follows:-

- (a) A Certificate of Release to Service is not required for certain prescribed repairs or replacements carried out on an aircraft not exceeding 2730kg Maximum Total Weight Authorised with Certificate of Airworthiness in the Special Category.
 - (b) If a repair or replacement of a part of an aircraft is carried out when the aircraft is at such a place that it is not reasonably practicable (i) to carry out the work in a manner that a Certificate of Release to Service may be issued, or (ii) for the Certificate to be issued at that particular place, the commander may fly the aircraft, if, in his opinion, it is safe to do so, to the nearest place at which a Certificate may be issued.

NOTE: The ANR prescribes that in such cases written particulars of the flight and the reasons for making it are to be given to the CAAF within ten days thereafter.

- 3.1.2 A Certificate of Release to Service shall be issued at the completion of any Scheduled Maintenance Tasks specified by an Approved Maintenance Schedule on an aircraft, which is registered in Fiji and has a Certificate of Airworthiness in any category (except Special Category).
- 3.1.3 The Certificate of Release to Service issued at the completion of any Scheduled Maintenance Tasks shall be signed in each of the licence/authorisation categories relevant to the work speciality of the particular Scheduled Maintenance Tasks, except that the CAAF may direct, for specific aircraft types that some "X" category certifications are not required.
- 3.1.4 A Certificate of Release to Service shall only be issued by appropriately authorised staff on behalf of the FJAR 145 approved Maintenance Organisation responsible to the operator for the maintenance of the aircraft in accordance with procedures prescribed in the Maintenance Organizations Exposition.
 - 3.1.5 The Certificate of Release to Service should contain the statement prescribed in Appendix A.

3.2 Certificate Of Maintenance

- 3.2.1 An aircraft registered in Fiji in respect of which a Certificate of Airworthiness in the Transport Category (Passenger), Transport Category (Cargo) or Aerial Work Category is in force, shall be subject to a maintenance review at intervals specified in the Approved Maintenance Schedule or the relevant Approval Document of the Maintenance Schedule, as appropriate. At the completion of a review, a Certificate of Maintenance shall be issued.
- 3.2.2 The signatory shall only issue a Certificate of Maintenance when satisfied, at the time of the review, that the following aspects of maintenance have been carried out:-
 - (a) All maintenance specified in the Approved Maintenance Schedule has been carried out within the prescribed time period and any extension to limiting periods is in accordance with the CAAF approved procedures.
 - (b) All modifications and inspections deemed mandatory by the CAAF have been carried out within the prescribed time periods and any extension to limiting periods has been authorised by the CAAF. Due account must be taken of any repetitive inspections.
 - (c) All defects entered in the Technical Log have been rectified or deferred in accordance with the CAAF approved procedures.

- (d) All Certificates of Release to Service required have been issued in accordance with the procedures of the FJAR 145 Maintenance Organisation.

- NOTES:** (1) The time intervals for the Certificate of Maintenance will be specified on a calendar "not exceed" basis only and therefore, it is not necessarily intended to align with any check.
- (2) The Certificate of Maintenance requires only one signature.

3.2.3 A Certificate of Maintenance shall be issued only by appropriately authorised staff. On behalf of the FJAR 145 approved organization responsible to the operator for the maintenance of the aircraft in accordance with procedures prescribed in the Maintenance Organization Exposition.

3.2.4 The Certificate of Maintenance shall be in the format prescribed in Appendix C.

3.3 Maintenance Statement

3.3.1 The CAAF Air Operator's Certificates Minimum Requirements Document requires that the Aircraft Technical Log must contain, as well as a valid Certificate of Maintenance, a Maintenance Statement.

3.3.2 The purpose of the Maintenance Statement is to advise the Aircraft Commander and Maintenance Personnel of the forthcoming maintenance requirements.

3.3.3 The statement is to be completed by the FJAR 145 Maintenance Organisation following each scheduled maintenance inspection, and should include details of all out-of-phase inspections and component changes etc, falling due prior to the next scheduled maintenance inspection. Where these are too numerous to include in a Maintenance Statement, or the operator wishes to provide for repeated inspections etc, alternative procedures and recording systems may be adopted with the agreement of the CAAF.

3.3.4 Where scheduled maintenance inspection may be completed as a line maintenance function the Maintenance Statement may be of a form, which enables the accomplishment of such minor inspections within the overall validity of the statement.

3.3.5 A specimen Maintenance Statement is shown in Appendix B.

4 DEFECTS AND OCCURRENCES

4.1 An assessment of both the cause and any potentially hazardous effect of defects or combination of defects, and occurrences must be made in order to initiate any necessary further investigation and analysis.

4.2 A system of assessment should be in operation to support the continuing Airworthiness of aircraft and to provide a continuous analysis of the effectiveness of the Operator's control system in use.

4.3 The system should provide for:-

- (a) Significant Incidents and Defects. The monitoring on a continuous basis of incidents and defects that have occurred in flight and of defects found during maintenance and overhaul, highlighting any that appear significant in their own right.
- (b) Repetitive Incidents and Defects. The monitoring on a continuous basis of defects occurring in flight and found during maintenance and overhaul, highlighting any that are repetitive.

- (c) Deferred and Carried Forward Defects. The monitoring on a continuous basis of deferred and carried forward defects.
- (d) Unscheduled Removals and System Performance. The analysis of unscheduled component removals and of the performance of aircraft systems; and its use as part of a maintenance programme.

5 OCCURRENCE REPORTING TO MANUFACTURERS

- 5.1 The Operator's maintenance organisation should have procedures for ensuring that the organisation responsible for type certificate of each aircraft type (usually the constructor) receive adequate reports of occurrences to that type, to enable it to issue appropriate service instructions and recommendations to all Operators.
- 5.2 Liaison with the manufacturer is necessary to establish whether published or proposed service information will resolve the problem or to obtain a solution to a particular problem.

6 MANDATORY OCCURRENCE REPORTING TO THE CAAF

- 6.1 In addition to reporting occurrences to manufacturers, an Operator's maintenance organisation has responsibilities for Mandatory Occurrence Reporting as required by the Air Navigation Regulations in respect of public transport aircraft the MTWA of which exceeds 2300kg. Guidance on meeting the mandatory requirements is given in CAP 382 ('Mandatory Occurrence Reporting - Informational and Guidance').
- 6.2 The maintenance organisation should operate procedures to discharge these responsibilities and personnel should be instructed as to their use. As far as possible these procedures should be integrated with the Airworthiness occurrence control system.
- 6.3 Mandatory Occurrence Reports should normally be made to the CAAF through the person authorised under paragraph 8.1 of this chapter.
- 6.4 An Operator who has contracted-out maintenance support may also need to submit occurrence reports direct to the CAAF and to liaise with the maintenance organisation to ensure that adequate follow-up action takes place, including the provision of supplementary reports.

This is particularly necessary where a foreign maintenance organisation is involved.

7 OTHER OCCURRENCE REPORTING TO THE CAAF

- 7.1 The organisation should ensure that such other reporting requirements as are prescribed from time to time are met: e.g. reporting Bird and Lighting Strikes in accordance with the relevant Aeronautical Information Circular.

8 RESPONSIBILITY FOR REPORTING OCCURRENCES

- 8.1 Responsibility for co-ordinating action on Airworthiness occurrences and for initiating any necessary further investigation and follow-up activity should be assigned to a suitably qualified senior person with clearly defined authority and status.
 - 8.1.1 Operational and maintenance responsibilities may be combined in one individual as long as the necessary integration is provided by the organisation, i.e. where the Operator undertakes his own maintenance.
- 8.2 A suitably qualified engineer within the support organisation should be assigned responsibility for co-ordinating with the Operator's operational staff in connection with occurrences which have both airworthiness and operational implications.

- 8.2.1 This is particularly necessary where the Operator contracts out his maintenance, when it must be clearly shown who performs this task in both the Operations and the Maintenance Control Manuals.

9 DEFERRED AND CARRIED FORWARD DEFECTS

- 9.1 The systems for controlling deferred and carried forward defects must be described in Operations and Maintenance Control Manuals. When transferring a defect in the Technical Log to the deferred sheets or carrying forward a defect during a maintenance check, the conditions agreed with the CAAF for the control of deferred defects must be complied with.

Notes: (1) Deferred defects are defined as those defects reported in operational service which are deferred for later rectification's.
(2) Carried forward defects are defined as those defects arising during maintenance which are carried forward for rectification at a later maintenance input.

- 9.2 There should be a system to consider the cumulative effect of a number of deferred or carried forward defects occurring on the same aircraft. Any restrictions contained in the Minimum Equipment List must be considered. Whenever possible deferred defects should be made known to the flight crew during pre-flight briefing, prior to their arrival at the aircraft.
- 9.3 There should be a procedure to ensure that the period for which defects are deferred or carried forward reflects the importance of the defect as it affects Airworthiness and/or safe operation. Limitation periods to be applied should be identified in the Exposition or Manual (e.g. flight hours, calendar time, number of sectors, return to base). The control system should ensure that the number of deferred defects and the length of time during which each defect is deferred are kept to a minimum.
- 9.4 There should be a procedure to ensure that deferred defects are transferred to worksheets at maintenance periods, and to ensure that deferred which have not been actioned during maintenance periods, are re-entered on to a new deferred defect record sheet, the original date of the defect must be retained.
- 9.5 There should be a procedure to ensure that the necessary components or parts are made available or ordered on a priority basis, and that they are fitted at the earliest opportunity.
- 9.6 There should be a cross reference in the Technical Log to enable each defect which has been deferred to be traced back to its original entry.

10 REPETITIVE DEFECTS

- 10.1 There should be a system to control and monitor repetitive defects on a continuous basis appropriate to the number of aircraft operated and the nature of the operation. The system should ensure that the history of a particular repetitive defect is not lost at scheduled inspections. A limit to the number of times a particular defect may be repeated should be established, after which it should be brought to the attention of a senior person in the Organisation, usually the Quality Manager. This person is responsible for ensuring that positive action is taken to obviate a further repetition of the defect.
- 10.2 Defects should be recorded in a standardised way to assist in identifying which problems are repetitive. There should be an arrangement to ensure that line and outstation maintenance personnel have access to repetitive defect information.

11 INSTRUCTIONS TO MAINTENANCE PERSONNEL

- 11.1 In addition to the technical and procedural contents of documents such as maintenance manuals and the Exposition prepared by the maintenance organisation, there is a need for a system of bulletins or instructions with which to advise maintenance personnel of matters of immediate technical importance, and to define company practices where these differ from other published information.

- 11.2 The maintenance organisation must therefore have a system for publishing instructions, which should be:-
- (a) Distributed individually to maintenance personnel or in such a way that person has access to a copy and there is a record kept to show that he has seen each document issued.
 - (b) Numbered sequentially and dated. Where instructions are revised an issue or revision number must be shown.
 - (c) Identified as to content, e.g. by ATA Chapter or by aircraft type number so as to permit easy access to particular subjects.
- 11.3 The principal source of matters to be addressed by the issue of instructions is expected to be the in-service experience of the aircraft being operated and maintained, to which the maintenance organisation finds a need to respond with guidance to maintenance personnel. Other likely sources of information which should not be overlooked include UK CAA Airworthiness Notices, CAAF Airworthiness Advisory Leaflets, Occurrence Digest, GASIL, in-service experience reports and similar continuing Airworthiness information published by Airworthiness authorities and manufacturers.
- 11.4 Where instructions are issued which conflict with, or vary, information published by manufacturers or other sources it must be clearly shown which information takes priority. It must also be ensured that instructions cannot be construed as overriding published mandatory information or concern matters beyond the scope of the Approval held by the organisation.

12 TECHNICAL RECORDS

- 12.1 A department responsible for the compilation and co-ordination of technical records should maintain a data recording system:
- (a) Such that it is possible to ensure that the hours of service or elapsed times quoted in the approved Maintenance Schedule are not exceeded as regards components and structural assemblies, and that scheduled maintenance periods are adhered to.
 - (b) To record the number of landings, flights or cycles, and the use of maximum contingency or intermediate contingency power, when this information is specified in the approved Maintenance Schedule or manufacturer's manuals as basis for inspection or other necessary action.
 - (c) To process the foregoing, information into aircraft, engine and propeller log books or equivalent records, to maintain the records and documents concerning overhaul and repair work, component changes, mandatory modifications and inspections and to maintain the Modification Record Book.
- 12.2 A computer may be used as part of a technical records system with the agreement of the CAAF. In this case procedures should be instituted which will ensure that the computerised record will provide storage, preservation and retrieval to the same level as would have been achieved by hard copy records. The CAAF acceptance of computerised recording does not exempt the Operator or his contracted maintenance organization from complying with the appropriate provisions of the Air Navigation Regulation for the keeping and retention of records.

13 DOCUMENTATION FOR MAINTENANCE CHECKS

- 13.1 The department responsible for technical records should also be responsible for the accuracy of the documents for a maintenance check and should maintain a procedure to ensure that only documents to the latest amendment state are issued, and that all superseded documents are withdrawn and cancelled. Working documents made available for use by hangar engineering staff such as worksheets or cards should include:

- (a) A list of inspections, checks or work items required to meet the requirements of the approved maintenance schedule and adequate directions for their implementation.
 - (b) The part numbers and serial numbers (unless not relevant to component control) of all components to be removed and replaced, and their locations on the aircraft.
 - (c) Details of any modifications which have to be incorporated during the check.
 - (d) Any mandatory or special inspections, or any other checks which are required to be made by the company in addition to those required by the approved maintenance schedule.
 - (e) Detailed procedures for engine runs, power unit or propeller change, fuel flow tests, duplicate inspection of controls landing gear retraction tests etc., as applicable.
 - (f) A list of outstanding deferred and carried forward defects.
- 13.2 Additional worksheets or cards should be provided for recording the work completed as a result of the maintenance check and any defects arising from inspections.
- 13.3 All worksheets or cards should be readily identified and should bear an issue number. They should also be identified to associate them positively with the relevant items in the maintenance schedule. The procedures for documentation control should ensure that if any worksheet or card is mislaid, or lost this will be readily apparent on completion of the check, and that each 'pack' of worksheets or cards is complete and certified before the aircraft is release for service.
- 13.4 Before issue, all worksheets or cards must be recorded on a 'workpack control' sheet which should also state the following:
- (a) Name and CAAF Approval reference of the maintenance organisation.
 - (b) Aircraft type and registration letters.
 - (c) The maintenance check to be carried out.
 - (d) The date.
 - (e) The approved maintenance schedule reference number and amendment state.
 - (f) The name of the Operator whose aircraft is being maintained.
- 13.5 Technical records are deemed to be essential records and may not be destroyed without permission form the CAAF.
- 13.6 The compilation of maintenance check documentation may, alternatively, be allocated to a maintenance-planning department, subject to the agreement of the CAAF. In such case the company Exposition must contain details not only of the procedures of the planning department through which the documentation is complied but also of the monitoring programme exercised by Quality Assurance.

14 AIRWORTHINESS DIRECTIVES AND MANUFACTURERS TECHNICAL INFORMATION

- 14.1 Maintenance organization must have procedures and the necessary personnel to ensure that Airworthiness Directives are complied with as required. It must be quite clear, when maintenance accomplishment is in any way subcontracted, where responsibility lies for compliance with Directives.
- 14.2 When assessing the overall capability of the organization to provide satisfactory maintenance support, the CAAF will take into account the organisation's arrangement for:
- (a) The assessment of incoming technical information from manufactures, including Service Bulletins, relating to relevant aircraft types.
 - (b) Initiating action as necessary on such information, particularly in relation to the Maintenance Schedule.
 - (c) Responding to requests by the Manufacturer and the CAAF to have 'in- service' experience reports transmitted for their evaluation.

Note: The CAAF may require access to an Operator's assessments of manufacturer's service information to assist in evaluation of such information for the purpose of possible mandatory classification.

14.3 When manufacturer's service information is received an immediate assessment must be made to establish priority of response. Matters of significant Airworthiness importance, such as those having an impact on ETOPS flights, must be responded to promptly.

Note: CAAF requirements for Extended Range Twin Operations (ETOPS) are contained in MRD8.

14.4 By means of Modification Records (AD 259), Technical Records, Log Books or other means adopted by the organization it must be possible at any time to establish the record of compliance with Directives and Service Information for each of the Operator's aircraft.

14.5 Operators must ensure that the relevant aircraft manufacturer is aware that they are users of this aircraft so that all relevant service information, details of in-service experience of the aircraft and amendments to manuals, including the Flight Manual, are received and embodied in a timely manner. This is especially important where the Operator is not the original owner of the aircraft, or it has been leased from the owner.

14.6 Where manuals, including the Flight Manual, have been prepared or amended by an agency other than the manufacturer, the Operator must ensure that amendments are prepared as necessary, submitted to the CAAF through an appropriately approved organisation for approval and incorporated into manuals promptly.

14.7 The technical library must hold and make available to personnel concerned the necessary technical data e.g. JAA/CAA and the CAAF publications, the ANR, manufacturer's manuals, any relevant service information, any other related literature appropriate to the aircraft type; covered by the AOC and copies of appropriate company manuals, procedures and Instructions. A person must be appointed to be responsible for the technical library.

14.8 Arrangements must be made for:

- (a) The supply of amendments, so that all publications are kept up-to-date and for department concerned to be notified of such amendments, and of any additional technical information relevant to the work undertaken.
- (b) Maintenance manual information recorded on microfilm, microfiche or disk to be checked at specific intervals for amendments state and legibility, and any temporary amendments to be kept available adjacent to each reader.

14.9 Arrangements should be made for all technical drawings to be suitably stored and a procedure operated to ensure that only drawings of the correct issue are released. A person should be made responsible for maintaining an up-to-date records of drawings available and also for notifying departments concerned when drawings have been superseded by a later issue.

14.10 The technical library must make arrangements for manuals or sections of manuals, schedules, service information, etc., appropriate to the work undertaken, to be made available to line maintenance stations and a suitable procedure maintained to ensure that such information is kept up to date.

14.11 Microfilm, microfiche and compact disk viewing and printing equipment must be available, as appropriate, at each location where manuals in these formats are in use, and in the library. Adequate arrangements must be made for regular maintenance of the equipment and users should be made aware of contact points for servicing and repair.

15 SPARES

- 15.1 **Provision and Storage** The Operator must provide for sufficient spares to be available to ensure that aircraft, engine and equipment defects can be promptly rectified. Spares may be provided by either the Operator or the maintenance organisation, as contractually agreed, but must as far as possible be located where they will be required to be used.
- 15.2 Account must be taken of the Operator's Minimum Equipment Lists (MEL) to ensure that essential spares to support the rectification of defects in systems required for operation are placed where they are most likely to be needed and in such numbers as to ensure that successive defects will be promptly addressed.
- 15.3 Operators may make arrangements with manufactures and overhaul agencies for the provision of spares on demand subject to the arrangements being the subject of a firm contract. Spares obtained from another Operator or Maintenance Organisation will only qualify for installation if the source is considered to be acceptable within the criteria defined in UK CAA Airworthiness Notice 17.
- 15.4 The CAAF may require to examine spares provisioning arrangements; and any agreements entered into to ensure that adequate support for defect rectification is being made. Where necessary the CAAF may require additional provisions to be made.
- 15.5 Spares provisions at each maintenance location should be determined when the particular base or station is commissioned and published in the company instructions/procedures defining the maintenance operations undertaken at the particular location.
- 15.6 Spares holdings should be reviewed at regular intervals at all locations to ensure that:
- (a) Redundant items are removed e.g. for aircraft no longer operated.
 - (b) Superseded parts, or those with out of date modification states, are removed for replacement or up-dating.
 - (c) Previously assessed numbers of spares remain adequate for support in relation to routes, frequency of flights and number of aircraft.
 - (d) Airworthiness Directives and other mandatory requirements published while parts are in storage are complied with before the part is released for service.
- 15.7 **Storage Procedures** All spares must be stored, at all times and locations, in such a manner as to ensure that they remain airworthy and fit for use when required. Parts must be used in rotation so that they remain in stores for as short a time as possible, i.e. first in - first out.
- 15.7.1 Procedures must be established to control the return to stores of items withdrawn for use but not needed, especially where the item has been installed in the aircraft and subsequently removed. The robbery of components from completed assemblies must be rigidly controlled and any removal positively identified.
- 15.7.2 Spares having a limited allowable shelf life, including materials and consumable products must be identified and controlled.
- 15.7.3 Stores reference or batch numbers should be recorded on worksheets, cards or technical log pages so as to facilitate subsequent tracing of the associated part to source.
- 15.7.4 Management procedures and conditions of storage must be reviewed regularly to ensure that satisfactory standards are being implemented.

16 INSTRUCTIONS TO FLIGHT CREWS

- 16.1 Operators should arrange for written instructions to be included in the Operations Manual so that:
- (a) Aircraft commanders are advised of the action to be taken to obtain engineering assistance when aircraft are away from main base, of the procedures which are acceptable for any necessary certifications, and of the procedure to be adopted where any doubt exists over work being carried out by any other organisation, or which cannot be certified.
 - (b) Where no arrangements have been made in respect of engineering support at route stations, aircraft commanders are advised of the procedures to be followed for reporting defects to main base. See also Chapter 8 paragraph 9.
 - (c) Where it is desired to transmit advisory information of a temporary nature to flight crews, e.g. in respect of modifications to the aircraft, trial installations or other changes which the crew need to be aware of during their operations of the aircraft, or which impose operating restrictions, an information sheet should be included in the Technical Log containing the relevant data.

17 AIRCRAFT REFUELLING - QUALITY ASSURANCE

- 17.1 The Operator must be satisfied with the quality of all fuel taken on board his aircraft, particularly in respect of freedom from water contamination.
- 17.1.1 Fuel suppliers within Fiji are required to comply with the provisions of the Air Navigation Regulation concerned with Aviation Fuel at Aerodromes and must ensure that fuel dispensed is fit for use in aircraft. The Operators must comply with this Article himself if he has a facility or vehicle in which fuel is stored and/or delivered to aircraft.
- 17.1.2 The Operator is required to:
- (a) Keep a record of the fuelling arrangements at each station where fuel is uplifted, indicating the company or person responsible for monitoring the fuel suppliers. This may be a nominated airline at each location, or the Operator may, himself, choose to monitor the supplier's quality performance.
 - (b) Institute a fuel uplift-sampling programme taking into account matters such as:
 - [i] Known supplier quality performance, including any history of contamination.
 - [ii] Local environmental conditions, e.g. likely sources of contamination including microbiological contamination.
 - [iii] Supply facilities.
 - [iv] Frequency of use.
 - (c) Provide flight crew with guidance on the accomplishment of fuel uplift sample checks and clear instructions as to when these are to be carried out.
 - (d) Provide maintenance personnel with guidance, in respect of fuel quality sampling, in relation to their station. Ensure that persons engaged in refuelling activities are properly trained for their tasks.
 - (e) Audit the arrangements as defined to ensure the continuing acceptability of fuel quality throughout the operation.
- 17.3 The minimum frequency of fuel contamination checking, at the point of uplift, must be declared in guidance to maintenance personnel and acceptable to the CAAF.
- 17.4 The control of fuel storage and dispensing by suppliers should conform to the standards defined in CAP 343, Aviation Fuel at Aerodromes.

18 ALL WEATHER OPERATIONS - MAINTENANCE REQUIREMENTS

- 18.1 All Weather Operations, defines the means by which an Operator can achieve approval to perform operations in Category 2 or 3 landing conditions. In order to perform such operations certain aircraft systems must be fully serviceable and the equipment in those systems must be to a defined modification standard.
- 18.2 The Operator or his maintenance organisation must publish guidance to maintenance personnel and flight crews on the control of the validity of all weather categorisation. This guidance should take the form of:
- (a) A list of the systems required to be fully serviceable in order to qualify the aircraft for Category 2 or 3 operations.
 - (b) A company procedure for the control of the modification status of the equipment fitted in the he required systems which are deemed to be 'sensitive' in terms of all weather operations.
 - (c) Placards applied to both equipment and installation to alert maintenance personnel to the need to fit only controlled equipment.
 - (d) Procedures for downgrading all weather capability from Category 3 or 2 to Category 1 in the event that an uncontrolled item of equipment is fitted or after any defect in an affected system or any event which results in disturbance of the system.
 - (e) Procedures for up-grading capability from Category 1 to Category 2 or 3 as appropriate when serviceability is proven, normally by performing a successful Category 2 approach or Category 3 landing in Category 1 weather conditions (sometimes referred to as a standard landing).
- 18.3 Provisions should be made to inform the crew of the Category 2 or 3 status of the aircraft before the flight is begun.
- 18.4 When setting alert levels in system reliability monitoring, consideration must be given to the levels of reliability assumed in qualifying the aircraft for Category 2 or 3 operations. Significant trends must be responded to promptly or all weather classification must be suspended until remedial action has been taken. Note: The published company procedures for controlling the engineering aspects of all weather operations, incorporating the subjects included in this paragraph, forms part of the details required by the CAAF for grant of operational approval.

It should, therefore, be sent to the Airworthiness Office, for assessment.

19 PREPARATION OF AIRCRAFT FOR FLIGHT

- 19.1 The ANR Regulation 31 concerned with pre-flight action required to be taken by the aircraft commander prescribes that he satisfy himself that the aircraft is fit to make the intended flight. In order to permit the Commander to discharge this responsibility, in respect of the maintenance of the aircraft, the Operator must:
- (a) Ensure that the Operations Manual and Maintenance Schedule contain a pre-flight inspection to be completed by the crew, or by maintenance personnel where available, with which to verify that the aircraft continues to be serviceable. Details of this inspection should also be included in the Technical Log.
 - (b) Provide information, preferably, in the Technical Log, to advise the Commander when the next Scheduled Maintenance Inspection (SMI) is due, by flying hours and calendar time, any defects existing on the aircraft affecting its operational Airworthiness and safety, and any maintenance actions falling due before the next SMI.
 - (c) Where a procedure acceptable to the CAAF exists for the control of maintenance actions necessary between Scheduled Maintenance Inspection it may not be practicable to include full details in the Technical Log. In such cases it should be

possible for flight crew to verify, with the assistance of maintenance personnel if necessary, that no maintenance task is due or will become due before the end of the intended flight.

- (d) Provide any other information to the REW concerning the aircraft and its systems, including changes resulting from modifications, which may affect the operation of the aircraft.
- (e) Have management and quality assurance procedures, which will ensure that, whether the aircraft is dispatched by the Operator or the task is wholly or partly sub-contracted:
 - [i] Fuel uplifted prior to flight is free from contamination.
 - [ii] Refuelling of the aircraft is carried out in a controlled manner taking into account essential safety measures for fire prevention. CAP 74 - Aircraft Fuelling, provides guidance to all persons concerned with the fuelling of aircraft, including helicopters.
 - [iii] Baggage and cargo is loaded and restrained in accordance with Flight Manual limitations and that cargo doors are securely fastened.
 - [iv] Push-back and start-up are carried out to a standard procedure for the specific type of aircraft, under the control of a suitably trained person, that the area in which engines will be started is free from debris and contamination likely to damage the engines and that fire-fighting facilities are immediately available.

Note: It is recommended that ground personnel take appropriate precautions when pushback occurs during electrical storms and lightning. Interphone connection should not be made with the aircraft and dispatch instructions should be given with agreed hand signals.

- [v] Control surface and landing gear locks, restraint devices and blanks are removed.
- [vi] Proper attention is given to the rectification of recorded defects, compliance with the MEL and any limitations imposed in respect of the period of flights, flying hours or calendar time, and
- [vii] The aircraft is serviced and inspected as required by the approved maintenance schedule.

19.2 Where aircraft are not dispatched by or under the direct control of appropriately authorised maintenance personnel it must be ensured that persons performing dispatch tasks have been properly trained to do so and have been given written authority to that effect, and where tasks are divided between two parties the responsibility of each are clearly defined.

19.2.1 Written authority may be granted individually or to a group of persons by virtue of a maintenance agreement, where the contracted party has its own system of authorisation.

19.2.2 Where flight crew personnel are authorised it is sufficient for the particular training and authority to be included in training records.

20 CABIN RECONFIGURATION - APPROVAL AND CONTROL

20.1 Any change to the cabin configuration from that for which the aircraft was first certificated constitutes a modification which must be approved by the CAAF. Airworthiness requirements to be satisfied in order to gain CAAF approval of cabin re-configuration for the carriage of cargo are shown in Appendix A to this Chapter.

20.2 Revised or alternative seating layouts, the fitting of stretchers or the conversion of the cabin to a cargo carrying role all constitute modifications which must conform to an approved design and be certified with the issue of a Certificate of Release to Service (CRS) each time they are installed or the original configuration is restored. (See also paragraph 20.8).

20.3 The Operations Manual and instructions to maintenance personnel must contain precise description, preferably pictorial, of the approved configuration and any limitations to be

observed. It is recommended that the various actions necessary are summarised in a checklist in each case, particularly in respect of the fitting or securing of emergency equipment and exits. Checklists should be readily available to personnel when carrying out configuration changes.

- 20.4 Where any possibility of error exists, such as in the position of seats and of fitting incorrect seats at and adjacent to emergency exits, the aircraft and the item to be fitted should be clearly marked and the pictorial diagram of the configuration should illustrate the arrangements.
- 20.5 Clear and easily interpreted guidance must be given to persons responsible for loading and securing the aircraft for flight so that the conditions of the approved modification are observed. In cases where the main cabin is used for the carriage of cargo it should be possible to readily install a configuration embodying methods of restraint which will ensure compliance with cabin design limitations without the need for extensive calculations at the point of dispatch.
- 20.5.1 It must be ensured that all cabin configurations are fully represented in APS weights and indices used in the loading calculations made prior to flight dispatch.
- 20.6 Approved modifications for cargo configurations should contain the various restraint practices used by the Operator to facilitate the satisfactory carriage of different types and sizes of load.
- 20.7 Operators must have a care and maintenance programme for cargo containers and pallets used either in cargo holds or the main cabin, particularly where the container itself is designed to provide necessary restraint and, in some cases, fire containment. CAAF requirements for the use, care and maintenance of Unit Load Devices (ULD) are contained in Appendix E to this Chapter.
- 20.8 Certification of Changes
- 20.8.1 Certificates of Release to Service (CRS) must be issued for each change of configuration. The CRS must refer to the modification being embodied or removed but may do so through reference to a company instruction or role diagram etc, which directly records compliance with the requirements of the modification.
- 20.8.2 Certificates of Release to Service may be issued by appropriately licensed or authorised personnel.

21 BALLOONS

21.1 The Operator must establish procedures to ensure:

(a) that all appropriate Maintenance Schedules, Maintenance Manuals, Service Bulletins, CAAF or Foreign mandatory inspections/modifications publications and any other supporting information necessary for the maintenance of a particular balloon are available to personnel working on the balloon;

(b) that all such publications are kept up-to-date and that the Approved Maintenance Schedule is regularly reviewed to reflect the maintenance needs of the balloons;

(c) that all manufacturers' service information is evaluated and appropriate action taken as considered necessary;

(d) that all required scheduled maintenance, mandatory inspections modifications and defect rectification are carried out;

(e) that all materials and parts used or held in storage have been obtained from acceptable sources and are fit for use;

- (f) that storage conditions are satisfactory and batch control guarantees traceability to source;
- (g) that calibration/servicing, where appropriate, of tools, test equipment or servicing rigs

is carried out at the appropriate intervals and suitable records are maintained;

- (h) all technical documentation such as log books, work sheets etc., are maintained in a complete and up-to-date manner;
- (i) that any outstanding defects considered acceptable for flight on completion of the particular scheduled maintenance are notified to the commander and endorsed in the Technical Log;
- (j) that the organisation responsible for type certification of each balloon type usually the manufacturer), and the maintenance organisation, receive adequate reports of all Airworthiness occurrences to that type, to enable the issue of appropriate service instructions and recommendations to all operators.

Note: Mandatory Occurrence Reporting is required by the Air Navigation Regulations in respect of public transport aircraft exceeding 2300 kg MTWA. It is recommended that balloon operators not affected by this requirement nevertheless report to the CAAF any occurrence interpreted as within the guidance given in MRD 11 - Mandatory Occurrence Reports and Accidents Investigation.

21.2 The Operator must establish a procedure acceptable to the CAAF to ensure that pilots-in-command discharge the following responsibilities:

- (a) that all routine servicing/maintenance is carried out including pre-flight checks;
- (b) that defects affecting Airworthiness or safe operation of the balloon are recorded in

the Sector Record Page of the Technical Log;

- (c) ensure that defects are rectified before flight by appropriately qualified persons, or are deferred in a manner acceptable to the CAAF and in accordance with the provisions of an allowable defects list.

22 AIRCRAFT EXTERNAL DAMAGE MARKING

22.1 In the course of normal service aircraft may suffer external damage in the form of scratches and minor dents as a result of collision with cargo and baggage loading equipment, access steps and vehicles.

22.2 Operators should have a system for identifying such damage after inspection and acceptance by the supporting maintenance organisation so that it is readily apparent when new damage occurs.

22.3 Damage should be entered in a record kept in the aircraft either directly on pictorial diagrams or by use of a grid referencing system. Such records may be included in the Technical Log or another readily available document.

22.4 When considered desirable as a means of prompt recognition of accepted damage it is acceptable for the actual damage to be marked using a suitable method of identification.

22.5 The damage record for each aircraft must be reviewed from time to time to ensure that it has been kept up to date, that repaired damage is removed from the record and that the cumulative effects of damage do not exceed manufacturers limitations.

23 AIRCRAFT FURNISHINGS

- 23.1 Operators and maintenance organizations must have adequate control over the cleaning of aircraft furnishing materials. For this, they need to have a knowledge of the material type, the recommended cleaning or proprietary finishing processing methods, the effects of time in service on the flame resistance properties, the flame retardant processes applied, if any, and the method of re-application of such a process, where this is necessary.
- 23.2 Where materials, e.g. seat covers, require the application of a proprietary flame retardant process in order to satisfy Airworthiness requirements it is strongly recommended that each item is identified with the number and type of cleaning actions it receives until it is re-proofed.
- 23.3 It is not acceptable to place reliance on unsubstantiated claims concerning the continuance of flame resistant properties of a material after durability or additional flame retarded processes have been applied. Where such processes have been applied, there is a need to prove the continued acceptability of a particular material or process in service, and, therefore, further flame resistance tests must be conducted in accordance with requirements identified in UK CAA Airworthiness Notices 58 and 59 as appropriate.

24 THE MAINTENANCE OF CABIN AND OTHER SAFETY PROVISIONS

- 24.1 Provisions made for the safety of passengers in flight and in the event of emergency alighting may be subject to abuse by passengers either deliberately or by virtue of frequent use. It is therefore essential that regular inspections take place to ensure that the means by which the particular provision is implemented remain valid and any defined or implied inspection requirements are accomplished.
- 24.1.1 In some cases re-configuration of the cabin can result in seat positions, placards and emergency equipment being moved or omitted.
- 24.2 Subjects which require frequent monitoring include the following matters where the requirement has been notified as a UK CAA Airworthiness Notice, with, or without a specific maintenance requirement:
- (a) Stowage and accessibility of lifejackets.
 - (b) Continuing compliance, and test, of floor proximity escape path marking.
 - (c) Testing of cabin and toilet smoke detector systems.
 - (d) Access to and functioning of type III and IV exits.
 - (e) Integrity of cargo compartment fire containment capability, linings and seals.
 - (f) Inspection of catering carts and trolleys, brakes, restraints and placards.
 - (g) Functional test of inflatable escape chutes and flotation devices (aeroplane and helicopters).
 - (h) Continuing integrity of toilet fire precautions.
 - (i) Protection of life rafts and flotation bags from damage after deployment.
 - (j) Compliance with approved cabin configurations for seat positions, access to exists and minimum space for seated passengers, particularly where seats are regularly removed and refitted.
 - (k) Statutory provisions for the marking of exits and break-in areas.

Appendix A

CERTIFICATE OF RELEASE TO SERVICE FORMAT

CERTIFICATE OF RELEASE TO SERVICE

"Certifies that the work specified except as otherwise specified was carried out in accordance with FJAR 145 and in respect to that work the aircraft/aircraft component is considered ready for release to service".

Appendix C

CERTIFICATE OF MAINTENANCE FORMAT

CERTIFICATE OF MAINTENANCE

Aircraft Type

Nationality and Registration Mark

CAAF Approved Maintenance Schedule reference

Certified that the maintenance of this aircraft including its engines together with its equipment and radio station has been carried out in accordance with the approved maintenance schedule as required by the Air Navigation Regulations for the time being in force.

The next Certificate of Maintenance is due

Signed :

Authorisation No :

Date :

Organisation :

APPENDIX D –

THE CONVERSION OF PASSENGER CABINS FOR THE CARRIAGE OF CARGO (AEROPLANE) - AIRWORTHINESS REQUIREMENTS

1 General

- 1.1 The Flight Manual may often include structural limitations in terms of floor loading and the strength of fixtures but no information is usually given in respect of crash worthiness, emergency escape or fire precautions. In any event the Flight Manual rarely defines the configuration used by the Operator and any details included in the Flight Manual, for example in respect of restraint methods, are in a Section which, is not usually subject to the CAAF assessment and approval.
- 1.2 Where the Operator wishes to use such aircraft for the purpose of carrying cargo, approval of the associated cabin configuration must be obtained by modification action to show compliance with the following requirements.

2 All Aeroplanes With A Maximum Certificated Take-Off Weight Above 5700 Kg (12,500 Lb)

- 2.1 **Fire Precautions**, JAR 25.855 and either:
- a) JAR 225.857 (b) as a Class B cargo compartment, or
 - b) JAR 25.857 (e) as a Class E cargo
- 2.2 **Crash worthiness**, JAR 25.561 (c) and 25.787 and
- 2.3 **Emergency Exits**, JAR 25.787, 25.803(a), 25.805 and 25.809.

3 ALL AEROPLANES WITH A MAXIMUM CERTIFICATED TAKE-OFF WEIGHT OF 5700KG (12,500LB) AND BELOW

- 3.1 **Fire Precautions.** There are no compartment classifications in BCAR Section K or BCAR 23.
- (a) If the crew can easily detect the presence of smoke (eg. where there is no physical barrier between crew and load) then no smoke detectors or additional fire extinguishes are required (although Operators may consider them to be desirable in which case they may be incorporated into modifications).
- The Operation Manual must say 'land at the nearest available airfield' in such circumstances.
- (b) If the crew are separated from the cargo then a detector is required. Detectors would also be required in a pressurised aircraft unless it can be shown that the air flow path from a fire to the cabin air outflow will bring a fire to the notice of the crew reasonably quickly.
- 3.2 **Crash worthiness** The load; must be restrained to the requirements of BCAR K3-8 paragraphs 2 and 3 and K4-3 paragraph 2, or BCAR 23.56(e) and 23.787. The means of restraint may be a bulkhead, barrier net, tie downs or nets or any combination shown to meet the requirements.
- 3.3 **Emergency Exits** The load must not prevent or impinge upon the crew emergency exit route or the exit. BCAR Chapter K4-3 paragraph 2, 4.3 and 4.4 apply, or BCAR 23.787 and 23.807.

4 FLIGHT MANUAL

Where emergency procedures are simple in content, i.e. 'land at nearest airfield in the event of a cabin fire', it is acceptable for them to be included in the Operations Manual only (see paragraph) 5 below). In any other cases, for example where more detailed operational limitations/conditions or crew action is necessary a Flight Manual Supplement or Change Sheet will be required and should be submitted for approval with the modification proposal.

5 OPERATIONS MANUAL

5.1 An Operations Manual amendment must be submitted as part of the modification. It must be possible, by reference to the Operations Manual or related instructions such as a loading manual, to respond to the Airworthiness considerations taken into account the Modification. If the crew are themselves responsible for achieving the passenger to cargo re-configuration the Operations Manual guidance must be such as to enable them to readily satisfy the limitations and approved arrangements of the modification.

5.2 Typical contents of the Operations Manual will include:

- (a) The identity of the Modification and CAAF Approval.
- (b) The means of identifying fire and the necessary response derived from above.
- (c) Any other guidance in respect of fire in the cabin. (The modification may include guidance from other parts of the Flight Manual, FCOM, POH etc).
- (d) Cargo loading limitations, e.g. maximum height, width and forward dimensions.

(There imitations in the Manual e.g. floor loading and attachment point strengths any be repeated).

- (e) Methods/Routes of escape in the event of an emergency landing/stop. The locations of smoke/oxygen masks and other fire-fighting equipment may also be shown including fire extinguishes if appropriate, (i.e. if the crew is/are able to use them).

6 REQUIREMENT FOR A MODIFICATION

6.1 A modification is required to show how the aircraft cabin is converted from passenger to cargo use and how the relevant Airworthiness requirements are satisfied.

6.2 The modification should be presented to the CAAF in the draft form for classification. It should describe the cabin in its modified condition for carrying of cargo and typically will include extracts from the manufacturer's loading instructions. Cargo 'bays' should be shown, if applicable, together with the relevant floor loading limitations, (with or without floor spreader boards as appropriate).

6.3 The involvement of an approved design organisation will be necessary where design changes take place, special equipment is fitted or it is necessary to make performance assessments, (unless the changes are the subject of a manufacturer's approved modification or Service Bulletin). Typical instances include the installation of fixed freight restraining bulkheads/barriers, the location of smoke detectors and the determination of cabin airflow patterns.

APPENDIX E

THE USE, CARE AND MAINTENANCE OF CARGO UNIT LOAD DEVICES (ULD)

1 USE OF CARGO CONTAINERS, PALLETS AND NETS (UNITS LOAD DEVICES)

- 1.1 In addition to providing an efficient means of transfer and loading, containers and pallets are designed to ensure that cargo and baggage is properly restrained.
- 1.2 To ensure that the restraint capability of both containers, pallets and nets are fully effective and that Airworthiness requirements are satisfied, it is essential that no unit is used which is damaged beyond the ULD manufacturer's specified limits. In the case of containers, doors and screens must be fully attached using all fasteners and latches.
- 1.3 Specific attention must be paid to the manner in which cargo is loaded on to pallets and the method of restraint utilised. The net (or strap) and pallet combination must restrain the loaded cargo as required by the Flight Manual, usually to withstand inertia forces of 1 1/2g forwards in the case of a Class II system or 9g in the case of a Class I system. Instances are frequently found where nets are used solely to hold the load together without due attention being paid to the need to attach the load to the pallet so as to comply with aircraft design requirements.
- 1.4 Operators are reminded of their responsibilities for safe operation including security of cargo. Contracts with cargo agencies must state clearly how cargo is to be restrained and the contractor's performance must be regularly monitored, including checks at the point of loading on to the aircraft.

2 CARE AND MAINTENANCE OF UNIT LOAD DEVICES

- 2.1 CAAF requirements in respect of the care and maintenance of cargo containers, nets and pallets (ULD) are contained in UK CAA Airworthiness Notice 92. It is recommended that the Operator's care and maintenance programme is included in the Loading Manual or a similar document to which persons responsible for using containers have access.
- 2.2 Acceptable damage limits must be given, as stated in the manufacturer's manual, together with the company procedure for responding to unacceptable damage. The procedures should show how units are to be directed to a appropriately approved organisation for repair and show the position in the company of the persons responsible for declaring units fit for service at each station served. Operators may arrange for containers damaged overseas to be repaired locally provided that the repair facility is appropriately approved by the Responsible Authority and details of the repair are recorded and certified in accordance with the requirements of that Authority.
- 2.3 It is essential that cargo/baggage-handling personnel are kept fully aware of the Airworthiness implications of damage and mis-use of cargo restraint equipment. Empty containers for example, should be stored on rails at the correct height to permit transfer to trolleys. Containers must never be lifted with fork-lifts especially when full, unless they are specifically designed for the purpose.
- 2.4 ULDs should be inspected before use and discarded, if damaged, for detailed examination and repair at a later date. Inspections of all ULDs should be made at each station at frequent intervals to ensure that overall standards remain high and the condition of ULD is satisfactory.
- 2.5 Specific guidance should be given to both loading and maintenance personnel so that the division of duties in respect of ULD serviceability is fully understood.

CHAPTER 4 - MAINTENANCE FACILITIES

1 GENERAL

Facilities provided by the supporting maintenance organization, at each location where maintenance is performed, must be adequate for the size and scope of the operation and be such as to enable personnel to perform their duties satisfactorily.

2 Working Accommodation

2.1 Covered accommodation must be provided to house aircraft completely during Scheduled Maintenance Inspections except as may be agreed by the CAAF in a particular case. The accommodation should have provision for heating and have a good standard of overall and concentrated lighting. The floors should be sealed to minimise dust and to assist in maintaining a satisfactory house-keeping standard.

2.2 Minor scheduled or pre-planned maintenance of aircraft in the open is acceptable provided it is closely controlled by the Operator/maintenance organisation concerned. It must be ensured that:

(a) work packages are continually assessed in order to determine that their contents do not include complex maintenance tasks which, with more effective planning, could be conducted at a maintenance base where covered accommodation is available.

(b) due consideration is given to the weather conditions prevailing at the time the maintenance is being completed, including the extent of the external work required and the amount of protection given to the personnel involved.

(c) there is sufficient ground servicing and support equipment for the tasks undertaken including provision of effective lighting, heating, portable covers and access equipment.

2.3 Those areas of an aircraft that may require unscheduled work in the open, e.g. for rectification of defects, major replacements, or any work where the ingress of moisture, dust etc., could be detrimental, must be provided with protective cover against adverse weather conditions, and adequate lighting to facilitate the work.

3 MAINTENANCE EQUIPMENT

3.1 Sufficient rostrums, stands or docks must be provided to permit access to all parts of the aircraft, together with suitable racks and stands for engines, aerofoil surfaces and other components removed from aircraft. Accommodation must also be provided for drawings, maintenance manuals, maintenance schedules, worksheets etc.

Particular emphasis is placed on the need for complete docking installations for larger aircraft where positioning of rostrums, stands, ladders and lifts is time consuming and their use does not provide comprehensive access to upper surfaces of wings, fuselage and tail.

3.2 Equipment necessary for the completion of work required by the approved Maintenance Schedule must be available, together with any special test equipment needed for the diagnosis of faults and related functional checks specified in the relevant technical publications.

4 TEST FACILITIES AND TOOLS

4.1 The organisation must have, or must have access to, suitable facilities for carrying out such tests as are necessary to establish compliance with the appropriate standards and specifications.

4.2 Maintenance equipment, tools and test equipment should be controlled to ensure that they remain fit for use when required and, where necessary, services or calibrated at such intervals

as necessary to maintain confidence in their accuracy. Equipment and tools should be marked with the date when the next check is due.

5 OFFICE ACCOMMODATION

- 5.1 Suitably furnished offices for quality control and inspection staff and supervisors should be provided and should be such that manuals and drawings may be studied and aircraft maintenance documents may be controlled, completed and checked without undue disturbance.

6 STORAGE FACILITIES

- 6.1 A controlled stores area must be provided at each location where spare parts and materials are held, and a person should be appointed to be responsible for its day-to-day operation. A secure area must also be provided where it is necessary to segregate parts and materials which, are unfit, or improperly certified for aircraft use.

- 6.2 Suitable controlled arrangements must be made for the storage of bulky items such as wheels, brakes, engines, propellers and major aircraft assemblies which, cannot be housed in the main store.

- 6.3 Provisions must be made for the storage of:

Tools and Equipment,
'Pre-load' items awaiting immediate fitting to the aircraft to rectify deferred or carried forward defects,
Flammable Materials.

- 6.4 The environmental conditions in all storage facilities must be such as to ensure that parts and materials are maintained in a fit condition for use throughout their period of storage.

7 WORKSHOPS

- 7.1 Workshop facilities are not normally the subject of an investigation for AOC purposes. Overhaul and repair services provided by the maintenance organisation must be the subject of direct approval by the CAAF in accordance with the provision of FJAR-145.

8 LINE MAINTENANCE FACILITIES

- 8.1 The numbers and qualifications of staff at line stations must be sufficient to perform the tasks allocated to the station. Shift arrangements must ensure that persons are available when needed and to ensure continuity of control over servicing and dispatch activities. Arrangements must be made to ensure that in-coming shifts are made fully aware of any outstanding or incomplete task.

- 8.2 Scheduled or pre-planned tasks must only be allocated to line stations where sufficient staff and down-time are available to perform the task, in a manner commensurate with its Airworthiness significance, the working conditions are appropriate to the nature of the task and the necessary tools, equipment, test apparatus and technical instructions are available.

- 8.3 Each line station must be provided with:

- (a) A summary of the technical literature provided for the station. The list should be kept up to date and made available to the technical library so that amendments and periodic checks of currency can be made.
- (b) A summary of the station spares holding with an indication of which items are held for priority purposes, e.g. to meet possible MEL compliance requirements or ETOPS dispatches etc.

- (c) Company procedures and technical instructions appropriate to the aircraft types supported.
- (d) Such extracts from the maintenance schedule, in the form of worksheets or cards etc, as are necessary to perform the tasks allocated to the station.
- (e) Access to deferred and repetitive defect information to assist in the diagnosis of reported defects.
- (f) Details of any subcontracts for line support, fuel supply, loading and ground handling entered into by the Operator to enable the person responsible for dispatch to ensure that all significant Airworthiness tasks are satisfactorily accomplished.
- (g) Maintenance facilities and working accommodation appropriate to the scale to work and undertakings of the station.
- (h) Ground support equipment as appropriate including equipment or access to equipment for the ground de-icing or anti-icing of aircraft as necessary.

8.4 Ground De-Icing and Anti-Icing

- 8.4.1 It must be ensured that de-icing equipment is checked immediately before the commencement of winter operations and at intervals throughout the winter season to verify that the equipment is fully serviceable at each location where aircraft are likely to require de-icing.
- 8.4.2 Items such as mixer nozzles must be correctly calibrated and it must be ensured that they are not replaced with incorrectly calibrated nozzles during the winter season.
- 8.4.3 Satisfactory procedures for testing mixtures of de-icing fluids must be established together with suitable conditions for the storage and identification of de-icing fluid.
- 8.4.4 Where facilities for common use are provided at airports or this task is contracted-out to a specialist organisation such audit checks must be carried out by the Operator as are necessary to ensure that de-icing/anti-icing of his type of aircraft will be carried out effectively and in a manner to ensure subsequent safe operation.

8.5 Balloons

- 8.5.1 No scheduled or unscheduled tasks may be carried out on a balloon in the open during adverse weather conditions. All work must be completed in conditions appropriate to the task being undertaken with adequate lighting, heating etc., and such as to avoid ingress of moisture or other contaminants detrimental to the balloon or its components.
- 8.5.2 Equipment necessary for the completion of work required by the approved maintenance schedule must be available together with any special test equipment needed for the diagnosis and rectification of defects. Where some of the specialist tasks are sub-contracted to another organization/person, it must be shown that any necessary equipment can be provided on site within a reasonable time period appropriate to the nature of balloon operation.
- 8.5.3 It is the responsibility of the Operator to ensure that balloons are stored and transported in such a manner, and with adequate protection, so as to ensure continuing Airworthiness and security from damage and other deterioration.

CHAPTER 5 - QUALITY CONTROL AND ASSURANCE

1 GENERAL

- 1.1 The maintenance organization's systems for quality control and assurance must take into account all of the facilities and procedures utilized to ensure continued Airworthiness, at each of the Operator's locations where activities take place affecting the Airworthiness of the aircraft.

NOTE: FJAR-145.65 defines such requirements.

- 1.2 Quality control must therefore be effective throughout the operation and maintenance of aircraft and quality auditing must ensure that control is being properly applied and achieving satisfactory results.
- 1.3 The organization's quality control policies and systems must be described in the Exposition or Maintenance Control Manual together with the Quality Assurance audit programme.

2 PROCEDURES

- 2.1 Staff assigned to quality control and assurance duties must be:

- (a) Sufficiently experienced in the company systems and procedures and technically knowledgeable of the aircraft being maintained so as to enable them to perform their duties satisfactorily;
- (b) experienced in the techniques of quality control and assurance or receive suitable training before taking up their duties;
- (c) given clearly defined terms of reference and responsibility within the organisation.

NOTE: This is particularly important where QC/QA personnel are also expected to perform other duties in the organisation, e.g. to issue C of M or other maintenance certification.

- 2.2 The department responsible for Quality Control and Assurance must arrange for independent quality audit checks to be carried out on a planned basis. Emphasis should be placed on the company systems employed to achieve and ensure Airworthiness their suitability and effectiveness. The scope of quality checks within the organisation should follow the guidelines given at Appendix A to this Chapter.
- 2.3 All quality checks must be recorded and assessed and any criticisms forwarded to the person responsible for the particular facility or procedure for corrective action to be taken. There must be a feed-back system for confirming to the quality assurance staff that corrective action has been taken and to ensure that persons concerned with any audit deficiency are kept aware of both the adverse report and the outcome.

Quality Control A management system for programming and co-ordinating Airworthiness standards within an organisation to provide for maintenance, overhaul, repair and defect rectification to be accomplished in compliance with CAAF requirements, together with the specific company or customer requirements, and continuing Airworthiness.

Quality Assurance Overall supervision of Airworthiness achievement to ensure that the standards set by the system of Quality Control are enforced.

APPENDIX A

QUALITY CONTROL AND ASSURANCE

- 1 Quality Assurance procedures should ensure that audit checks are carried out as follows:

NOTE: This summary of quality assurance checks is not exhaustive but is intended to provide an indication of the range of checks necessary. Additional or different checks may be needed in respect of particular support arrangements.

- 1.1 Check on aircraft whilst undergoing scheduled maintenance for:

- (a) compliance with maintenance schedule requirements and ensuring that only worksheets and cards reflecting the latest amendment standard are used,
- (b) completion of worksheets, including the transfer of defects to additional worksheets; their control, and final assembly. Action taken in respect of items carried forward, not completed during the particular inspection or maintenance task,
- (c) compliance with manufacturers' and company standard specifications,
- (d) standards of inspection and workmanship,
- (e) conservation of aircraft corrosion prevention techniques and other protective processes,
- (f) procedures adopted during shift-changeover to ensure continuity of inspection and responses,
- (g) precautions taken to ensure that all aircraft are checked, on completion of any work or maintenance, for loose tools and miscellaneous small items such as split pins, wire, rivets, nuts, bolts and other debris, general cleanliness and housekeeping.

- 1.2 Checks on aircraft in service for:

- (a) compliance with company approved practices for cargo restraint, load distribution and spreading such that the approved modifications for cargo configurations are observed,
- (b) procedures to ensure that the APS weight data in use reflects the aircraft configuration and the weight balance schedule,
- (c) satisfactory condition of cargo/baggage compartments and their linings, cargo handling and restraint equipment and special provisions for the carriage of livestock and attendants,
- (d) continuing compliance with CAA Airworthiness Notices in respect of cabin and other safety provisions. (See paragraph 24 Chapter 4).

- 1.3 Check on Technical Logs for:

- (a) correct completion of sector record pages and their transmission to technical records.
- (b) satisfactory rectification of defects or their deferral in accordance with the MEL and company procedures. The recording of component details and stores control numbers, cross-referencing to deferred defect records and additional worksheets where appropriate, and the inclusion of rectification details in the Sector Record Page,
- (c) compliance with required reporting procedures in the event of flights taking place after rectification of defects without issue of a Certificate of Release to Service.
- (d) certification of modifications including the installation of role equipment such as stretchers and conversion of the aircraft from passenger to cargo roles, and return to passenger,
- (e) correct use of maintenance and inspection, control systems included in the technical log for the completion of scheduled and pre-planned tasks between Scheduled Maintenance Inspections,
- (f) operation of systems for recording external damage to the aircraft which has been inspected and is considered safe for further operation.

1.4 Checks on Technical Service Information for:

- (a) adequacy of aircraft manuals and other technical information appropriate to each aircraft type, including engines, propellers and other equipment, and the continuing receipt of revisions and amendments,
- (b) assessment of manufacturers service information, determining its application to the Operator's aircraft and the recording of compliance or embodiment in each aircraft,
- (c) maintaining a register of manuals and technical literature held within the company, their locations and current amendment status,
- (d) ensuring that all company manuals and documents, both technical and procedural, are kept up to date.

1.5 Checks on the Company's general Airworthiness Control Procedures for:

- (a) responding to the requirements of Airworthiness Directives, mandatory modifications and inspections, UK CAA Airworthiness Notices and special fleet checks instituted in response to occurrence etc.
- (b) monitoring company practices in respect of scheduling or pre-planning maintenance tasks to be carried out in the open, and adequacy of the facilities provide,
- (c) effective completion of maintenance reviews at intervals provided, required by the approved maintenance schedule and the availability of information into the certificate signatory,
- (d) operation of the defects analysis system for the Operator's airframes, engines and systems and its integration with the system for mandatory occurrence reporting; the highlighting of repetitive defects and the control of deferred defects,
- (e) authorisation of personnel to perform inspections and maintenance tasks on the Operator's aircraft and for the issue of C of M and CRS; the effectiveness and adequacy of training and the recording of personnel experience, training and qualifications for grant of authorisation,
- (f) the effectiveness of technical instructions issued to maintenance staff,
- (g) the adequacy of staff in terms of qualifications, numbers and ability in all areas support for the Operator which affect Airworthiness,
- (h) the efficacy and completeness of the quality audit programme.
- (i) compliance with the requirements of the approved Maintenance Schedule, including maintenance/inspection periods, component overhaul/test/calibration control, records of cycles/landings etc, and for granting variations at the request of the Operator,
- (k) maintaining logbooks and other required records on behalf of the Operator,
- (i) ensuring that major and minor repairs are only carried out in accordance with approved repair schemes and practices.

1.6 Checks on Stores and Storage Procedures for:

- (a) the adequacy of stores and storage conditions for rotatable components, small parts, perishable items, flammable fluids, engines and bulky assemblies,
- (b) the procedure for examining incoming components, materials and items for conformity with order, release documentation and approved source.
- (c) the 'batching' of goods and identification of raw materials, the acceptance of part life items into stores, requisition procedures,
- (d) labelling procedure including the use of serviceable/unserviceable/repairable labels, and their certification and final disposal after installation. Also labelling procedures for components which are serviceable but 'part life' only,
- (e) the internal release procedure to be used when components are to be forwarded to other locations within the organisation,
- (f) the procedure to be adopted for the release of goods or overhauled items to other organisations.
- (g) the procedure for the requisitioning of tools together with the system for ensuring that the location of the tools is known at all times. (This procedure should also cover items being sent away for rectification or calibration),

- (h) control of shelf life and storage conditions in the stores. Control of the free-issue dispensing of standard parts, identification and segregation.

1.7 Checks on Maintenance Facilities for:

- (a) cleanliness, state of repair and correct functioning of hangars, hangar facilities and special equipment, and the maintenance of mobil equipment,
- (b) adequacy and functioning of special services and techniques including welding, NDI, weighing, painting,
- (c) viewer/printer equipment provided for use with micro-fiche, micro-film and compact disk ensuring regular maintenance takes place and an acceptable standards of screen reproduction and printed copy are achieved,
- (d) the adequacy of special tools and equipment appropriate to each type of aircraft, including engines, propellers and other equipment.

1.8 Checks at line and Route Stations, in addition to the foregoing as applicable for:

- (a) the adequacy of facilities and staff,
- (b) the provision of covered accommodation for aircraft when maintenance is undertaken which requires a controlled environment, and for the accomplishment of work in the open where this is unavailable,
- (c) the cleanliness, site of repair, correct functioning and maintenance of ground support equipment including ground de-icing/anti-icing equipment,
- (d) the effectiveness of any sub-contracted arrangements for ground handling, servicing and maintenance support and compliance with the operator's contracted arrangements,
- (e) quality monitoring of fuel supplies including suppliers checks and uplift contamination checks; the effectiveness and completion of fuel tank water drain checks;
- (f) the care and maintenance of cargo containers, freight, nets, pallets and other cargo equipment,
- (g) the currency, scope and effectiveness of locally raised technical instructions and the procedures for bringing them to the notice of maintenance personnel,
- (h) adequacy of the technical publications held at the station for the operator's aircraft, their currency and procedures for amendment,
- (i) the accuracy and control of worksheets or cards, to ensure that only up-to-date issues are use.



CHAPTER 6 - THE MAINTENANCE CONTROL MANUAL

1 GENERAL

1.1 The Operator is required to provide a description of his maintenance support arrangements for the direction and guidance of flight crew and maintenance personnel engaged in the day to day operation and maintenance support of his aircraft, throughout his operating network.

The manual is also required as a basis for the CAAF acceptance of the arrangements, a pre-requisite for the grant of an AOC.

1.2 For the purposes of these requirements this description of the arrangements will be referred to as the MAINTENANCE CONTROL MANUAL but may take other forms in practice, as defined in this Chapter.

1.3 The Operator may:

- (a) publish a discrete Maintenance Control Manual containing a full description of the support provided for his Operation or,
- (b) use the Operations Manual to satisfy the requirement for a Maintenance Control Manual including the necessary details as a Volume, Section or Chapter of that manual as appropriate and he may:
- (c) refer in his manual to the Exposition of the approved maintenance organisation for those parts of the maintenance arrangements which are described therein or,
- (d) he may use the Exposition to describe the whole of his maintenance arrangements.

1.4 The CAAF will require to hold copies of the Manual as dictated by the nature of the operation and the necessary surveillance.

1.6 Operators of balloons may utilise a section of the Operations Manual to describe all of their maintenance arrangements.

2 PREPARATION OF THE MANUAL

2.1 The purpose of the Maintenance Control Manual is to describe the maintenance arrangements made by the Operator to support his operation, in accordance with these requirements. The contents of the Manual should therefore address all of the subjects included in this document. The Contents List given at the front of this document may be used as a summary of subjects to be included in the Maintenance Control Manual.

2.1.1 Whether details appear in the Operator's engineering manual or in the maintenance organisation's Exposition will depend on the nature of the relationships between the two parties.

2.2 It is apparent from the foregoing that the Operator will need to liaise closely with his maintenance organisation in the preparation of his Maintenance Control Manual, to take advantage of those aspects of his maintenance support which are adequately described in the Exposition.

2.3 It is recommended that the Maintenance Control Manual is divided into parts appropriate to the functions of maintenance. The Exposition in particular should be divided between main base and line maintenance functions and may be further; sub-divided for ease of use and to facilities its management.

2.4 In preparing the Manual account should be taken of CAAF and UK CAA publications and other sources of information, including:

- SD – Air Operator's Certificate of Competency
- SD – Extended Range Operation of Twin engine aircraft
- Civil Aviation (Occurrence Reporting and Investigation) Regulations 2009



- SD - Airworthiness of Aircraft
- SD – Personnel Licensing
- SD – ANR145C Approval of Aircraft Maintenance Organizations
- Fiji Aeronautical Information Circulars (AIC's)
- CAP 74 Aircraft fuelling - fire prevention and safety measures for the fuelling of aeroplanes and helicopters
- CAP 359 All- weather Operations
- CAP418 Condition Monitored Maintenance
- CAP434 Aviation Fuel at Aerodromes
- CAP455 Airworthiness Notices
- CAP512 Ground De-icing of Aircraft
- CAP553 and CAP 554 BCAR Sections A and B
- CAP549 Master Minimum Equipment Lists (MMEL) and Minimum Equipment Lists (MEL)
- CAP562 Civil Aircraft Airworthiness Information and Procedures
- CAP 172 Safety Management Systems for Commercial Air Transport Operations
- JAR OPS Sub Part M

2.5 Where a maintenance organisation provides all or part of the support for more than one Operator it should be possible to clearly identify the support provided for each operator in the Maintenance Control Manual or Exposition.

CHAPTER 7 - THE TECHNICAL LOG

1 GENERAL

- 1.1 A Technical Log is required to be kept for any aircraft with a Certificate of Airworthiness in either the Transport or Aerial Work Category and at the end of every flight (except as indicated below) the aircraft pilot-in-command must enter the following details:
- 1.1.1 The times when the aircraft took off and landed.
- 1.1.2 Particulars of any defect known to him if it affects the Airworthiness or safe operation of the aircraft, (if there are no defects the aircraft commander must make an entry to his effect).
- 1.1.3 An other particular required by the CAAF.
- 1.1.4 His/her signature and the date.
- 1.2 If the aircraft is 2730 kg or less MTWA and is not operated by the holder of an AOC (or by a person who is required to hold an AOC) the CAAF may approve a different record (see paragraph 5 'Alternative Records').
- 1.3 If a number of consecutive flights occur within the same period of 24 hours at the same aerodrome with the same aircraft pilot-in-command, all entries may be made at the end of the last flight unless defect becomes known to the commander in the meantime, which must be entered as it occurs.

2 CAAF REQUIREMENTS

- 2.1 In addition to the particulars required by the Air Navigation Regulations as indicated above, the Technical Log may contain maintenance control and Flight Crew advisory information for use during the routine operation of the aircraft between scheduled maintenance inputs to main base.
- 2.2 The log must contain pre-serialized Sector Record Pages of a design acceptable to the CAAF, provision to record acceptable deferred defects which are waiting rectification, a valid Certificate of Maintenance and a Maintenance Statement.
- 2.3 A specimen Certificate of Maintenance is shown in Appendix C to Chapter 3.

3 THE SECTOR RECORD PAGE

- 3.1 Each sector record page must include provision to record:
- (a) The aircraft type and registration.
 - (b) The date, place and times of take-off and landing.
 - (c) The name and address of the Operator (the address may be omitted if it is printed on the title page to the log).
 - (d) Particulars of defects.
 - (e) The post-flight signature of the aircraft commander and the date.
 - (f) The fuel state on arrival.
 - (g) Details of rectification action taken in respect of defects together with a pre-printed Certificate of Release to Service (CRS) in such a position as to be readily identifiable with the defect entry to which it relates. (Provision should also be made for CRS signature with the date and authority for issue).



- (h) The quantities of fuel and oil uplifted and the quantity available in each tank or combination of tanks at the beginning of each flight (see note).

NOTE: the format in which fuel quantities are recorded must encourage the identification of any gross errors present in the quantity of fuel onboard e.g. by comparison of the calculated and actual fuel uplifted, using the recorded fuel on arrival. Common units of quantity should be used within columns or provision should be made in the record for the conversion units to a standard.

- (i) The running total of flying hours so that the flying hours remaining to the next inspection can be readily determined, and the date of such inspection.
- (j) The completion of pre-flight and/or daily inspections.
- (k) The times when de-icing was started and completed, unless otherwise agreed with the CAAF.

3.1.1 It may also be necessary to record additional information for specific aircraft. Examples include:

- (a) **Maximum or Intermediate Contingency Power.** It is necessary to record the duration of maximum and intermediate contingent power usage, and subsequently to transfer the information to the engine log book or maintenance record. For rotor craft the record of each use of such power settings must also subsequently be transferred to the log cards or other appropriate documents applicable to those components of the transmission which always transmit the power from a single engine only; i.e. components upstream of any combining gearbox.
- (b) Landings
- (c) Flight Pressure Cycles

3.1.2 This list is not exhaustive and additional records may be required. The supplementary information to be recorded should be assessed by the Operator in consultation with the relevant maintenance organisation and submitted for agreement to the CAAF.

3.2 The sector Record Page layout should be divided to show clearly what is required to be completed after flight and what is required to be completed in preparation for the next flight.

3.3 Typical layouts for Sector Record Pages are shown in the Appendices to this Chapter:

- Appendix A Multi sector Record
- Appendix B Single Sector Light aircraft record
- Appendix C Single Sector large aircraft record
- Appendix D Balloons

4 RETENTION OF RECORDS

4.1 All entries made on a Sector Record Page must be made in duplicate with provision for one copy of each entry to be removed from the Technical Log and retained on the ground before the next flight commences.

4.1.1 In the case of an aeroplane not exceeding 2730kg MTWA or a helicopter, it is not reasonably practicable for a copy of the Sector Record Page to be kept on the ground, it may be carried in the aeroplane or helicopter in a container approved for the purpose by the CAAF.

4.2 Arrangements must be made to extract information recorded in the Sector Record Page for use by the maintenance organization. Additional copies of the page may be necessary for this purpose.



- 4.3 All entries in the Sector Record Page must be retained by the Operator for a period of not less than two years after the particular aircraft has been destroyed or permanently withdrawn from service except that the CAAF may consider a different retention period in a particular case.

4.3.1 Where the Operator arranges for the relevant maintenance organisation to retain copies of sector Record Page on his behalf he will nevertheless continue to be responsible for the records under the Air Navigation Regulation relating to the preservation of records. If he ceases to be the operator of the aircraft he also remains responsible for transferring the records, if requested, to any other person who becomes the Operator of the aircraft.

5 ALTERNATIVE RECORDS

- 5.1 In circumstances when the operator of an aircraft with a Certificate of Airworthiness in the transport Category is permitted to use an alternative form of record the following arrangements must be made if the aircraft undertakes a flight or flights for the purpose of public transport. The pertinent details must be transferred to the Sector Record Page from the Alternative Record, including:

- (a) Total flight hours.
- (b) Hours to next maintenance check and date of such check.
- (c) Any acceptable deferred defects awaiting rectification. (It is strongly recommended that the standard record of deferred defects is utilized for all aircraft, whether a full Sector Record Page or Alternative Record is used, (see Appendix E).
- (d) Any maintenance actions falling due before the next scheduled maintenance inspection (see paragraph 7, Maintenance Statement). When the aircraft returns to non-AOC flying the above details must be transferred to the alternative record to ensure continuity of maintenance control.

NOTE: The form of alternative record must be approved by the CAAF. Operators are advised to contact the CAAF for guidance before considering the adoption of such a record.

- 5.2 Alternative records and any Sector Record Pages completed during the period must be made available to the maintenance organization when the aircraft is presented for the accomplishment of scheduled maintenance so that a full assessment of the maintenance needed by the aircraft can be verified.
- 5.3 Use of an alternative record does not alter the Operator's responsibilities for recording defects as they become known to the Commander and for their rectification. Where defects are deferred, or transferred to aircraft log books for entry of rectification details and issue of CRS, detailed cross-referencing must be included so that continuity of maintenance actions can be established.

6 ACCEPTABLE DEFERRED DEFECTS

- 6.1 A procedure for deferring the rectification of defects where this is permitted by the Minimum Equipment List (MEL) for that aircraft should be published in the Operations Manual and Engineering Technical Procedures. A suitable records sheet for this purpose is shown at Appendix E, however, Operators may develop procedures and records more suited to their methods of defect control, and to permit, for example, recording of rectification attempts and component replacement.
- 6.2 The CAAF investigates operator's procedures for deferring defects at the time of application for an AOC to ensure that they will be effective, in practice and result in defects remaining un-rectified for minimum periods. Any change in procedures must be notified to the CAAF for further investigation.



- 6.3 When a defect is to be transferred, the 'Action Taken' column of the Sector Record should be completed in the following manner.

Transferred to ADD Record sheet serial no:.....
Item No.....
Signed.....
Date

- 6.3.1 Details of the defect, Sector Record page serial number, signature of person authorising deferment and date (or aircraft hours) of origin, should be entered on the ADD Record. The period for which the deferred defect may be carried should also be stated in accordance with the company procedure.
- 6.3.2 On rectification of the defect it is necessary to enter on the current Sector Record page:
- (a) the ADD Record sheet serial number and item number.
 - (b) details and date of the original defect and of the rectification, together with the applicable component change date or other action, and to Complete the Certificate of Release to Service. The 'Defect Cleared' columns of the ADD Record must than be signed and dated.
- 6.4 Completed ADD Records may be removed from the Technical Log at each Schedules Maintenance Inspection. Where single defects remain current on each page, resulting in numerous pages being carried in the log it is acceptable to consolidate these entries on to a single page for ease of assessment by the crew. When this occurs the original date of entry must be retained so that the duration of entry can be readily established.
- 6.5 Where deferred defects are transferred to worksheets at maintenance periods there should be a procedure to ensure that defects which have not been actioned are re-entered on a new deferred defect record sheet, ensuring that the original date of the defect is retained.

7 THE MAINTENANCE STATEMENT

- 7.1 The purpose of the Maintenance Statement is to advise the Pilot-in-Command and maintenance personnel of the forthcoming maintenance requirements.
- 7.2 The statement is to be completed by the maintenance organization following each scheduled maintenance inspection and should include details of all out-of-phase inspections and component changes etc; falling due prior to the next SMI. Where these are too numerous to include in a Maintenance Statement or the Operator wishes to provide for repeated inspections, etc; alternative procedures and recording systems may be adopted with the agreement of the CAAF.

NOTE: Where scheduled maintenance inspection may be completed as a line maintenance function the Maintenance Statement may be of a form which enables the accomplishment of such minor inspections within the overall validity period of the Statement.

- 7.3 A specimen Maintenance Statement is shown at Appendix B of Chapter 3.

8 PROCEDURES

- 8.1 Detailed instructions should be given to flight crew in the Operations Manual and to maintenance engineers in Maintenance Control Manuals on the manner in which the Technical Log is to be used and completed. These should be repeated in the Log itself if necessary to ensure a disciplined response by pilots and engineers.



- 8.2 Specific guidance should be given in respect of special inspections, Line Maintenance Requirements, Notices to crew, External Damage Recording systems and compliance with short-term mandatory requirements etc; which may also be included in the Technical Log.
- 8.3 As a general rule one legible copy of each Sector Record Page should remain in the log for a sufficient period to permit the identification of a repetitive defect by maintenance engineers at the point of operation. Similarly deferred defect records should not be removed prematurely. It will be necessary to ensure a balance exists between permitting a degree of defect analysis on the aircraft on the one hand and preventing a situation in which too many pages, particularly of deferred defects, obscures the Airworthiness status of the aircraft.
- 8.4 In cases when the copy of the Sector Record page provided for maintenance control is not extracted directly by the maintenance organization, Operations Manual procedures must show the responsibilities of the Operator for removing and dispatching completed pages to that organization. It is essential that details of flights undertaken and any defects, whether rectified or deferred are advised promptly to the maintenance organization, so that maintenance planning and spares provision can be effective.

9 FLIGHT WITH UNCERTIFIED RECTIFICATION OF DEFECTS

- 9.1 The Air Navigation Regulations permits an aircraft to be flown to a place where a Certificate of Release to Service can be issued for the rectification of a defect when the aircraft is at a place where it is not reasonably practicable to do so.

- 9.2 If such a flight is undertaken the Pilot-in-Command of the aircraft must notify the CAAF within ten days, giving particulars of the flight and the reasons for making it. The flight itself must be to the nearest place where the necessary certification can be made, it must be flown by a route for which it is properly equipped, and must take into account any hazards to the liberty or health of the persons on board.

9.2.1 All reports should be addressed as noted below. Operational aspects will then be co-ordinated with the Flight Standards Inspector. Reports should include the following details:

- (a) Aircraft Type, Registration, Date, Time, Place and Flight Number.
- (b) Technical Log reference for Sector Record Page on which the defect is recorded, and the deferred number.
- (c) Description of Defect and Rectification
- (d) Person/Organization who carried out the work, and confirmation that the Operator's maintenance organization was consulted and authorized this course of action.
- (e) Whether or not a duplicate inspection was necessary and if so, who carried it out.
- (f) An indication of whether normal operation of the aircraft was affected (altitude, route, etc).
- (g) Name and signature of the aircraft commander.

NOTE: Reports should be addressed to the CAAF Flight Standards Inspector. It is recommended that Operators prepare a reporting form with provisions for entering the above information and arrange for copies to be available to the flight crew.

10 GUIDANCE FOR COMPILATION AND MAINTENANCE

- 10.1 The information in this section gives guidance in the compilation and maintenance of a Technical Log to record the essential data required by the Air Navigation Regulations, British Civil Airworthiness Requirements (BCAR) and FJAR145.
- 10.2 The detailed requirements for Technical Logs are prescribed in BCAR, Chapter A6-8.
- 10.3 The Technical Log must be compiled by the operator and be related to the type of aircraft operated and routes flown and, although the format is not mandatory, the log must contain the

information and documents required by BCAR, Chapter A6-8.

- 10.4 The Technical Log should contain the following:
- (i) A valid Certificate of Maintenance (C of M), a maintenance record sheet giving the categories of the signatories required for signing the Certificate, and a maintenance statement giving details of the next maintenance check, any out of phase inspections and components changes etc; falling due prior to the next SMI due in order to comply with the approved Maintenance Schedule.
 - (ii) A record sheet for recording the times at which the aircraft took off and landed, any defect in any part of the aircraft or its equipment affecting Airworthiness, and other reports that may be required by the company.
 - (iii) A Certificate of Release to Service (CRS) in respect of work done for the rectification of defects.
 - (iv) A record sheet for entering the defects which have been accepted for deferment (Acceptable Deferred Defects).
 - (v) A record sheet in duplicate for entering the quantities of fuel and oil uplifted and the quantities available in each tank, or combination of tanks, at the beginning of the flight.
 - (vi) A record of all ground de-icing carried out.
- 10.5 The Technical Log should be so made to provide duplicate copies of all entries except the record of deferred defects (paragraph 4(iv) unless this is required by the company. Care should be taken to ensure that all copies are legible.
- 10.6 In order that the entries should be consistent and correct, it is good practice to have the procedures printed in the Log for guidance of flight crews and aircraft maintenance engineers.
- 10.7 Appendix A, B, C, D, E to this chapter provides examples of acceptable layouts for the content of the Technical Log, and deferred defect record page but these may be varied according to the demands of a particular operator.
- 10.7.1 When a defect is to be transferred, the 'Action Taken' column of the Sector Record should be completed in the following manner:-
- Transferred to ADD Record sheet serial No.
Item No
Signed
Date
- 10.7.2 Details of the defect, Sector Record sheet serial number, signature of person authorising deferment and date (or aircraft hours) or origin, should be entered on the ADD Record. The period for which the deferred defect may be carried should also be stated in accordance with the company procedure.
- 10.7.3 On rectification of the defect it is necessary to:
- (i) Enter on the current Sector Record details such as:
 - (a) ADD Record sheet serial number and item number.
 - (b) Original Sector Record sheet serial number and date.
 - (c) Details of the original defect and the rectification together with the applicable component change data or other action.



- (ii) Complete the Certificate of Release to Service.
- 10.7.4 The 'Defect Cleared' Columns of the ADD Record should then be signed and dated.
- 10.7.5 Completed ADD Record sheets may be removed from the Technical Log at each maintenance check.
- 10.8 The CAAF requires to be satisfied that the format of Technical Logs and associated procedures satisfy the intent of the requirements prescribed in BCAR, Chapter A6-8.



CHAPTER 8 – FLIGHT RECORDERS

1. General

- 1.1 Aircraft shall be equipped with flight recorders in accordance with the requirements of ICAO Annex 6 Part 1, Chapter 6.3 and Appendix 8.
- 1.2 Crash protected flight recorders can comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR) and/or a data link recorder (DLR). Image and data link information may be recorded on either the CVR or the FDR.
- 1.3 Light weight flight recorders comprise one or more of the following systems: an aircraft data recording system (ADRS), a cockpit audio recording system (CARS), an airborne image recording system (AIRS) and/or a data link recording system (DLRS) . Image and data link information may be recorded on either the CARS or the ADRS.
- 1.4 Notwithstanding (1) above, an aircraft may be operated without a required recorder if –
 - a) it is being flown to a place where the recorder can be installed, repaired or replaced; or
 - b) the operation is being carried out in accordance with the operator's Minimum Equipment List that is acceptable to the Authority.
- 1.5 Flight recorders fitted under requirements of (1.1) shall be equipped with an under-water sonar location device.

2. Requirement

- 2.1 The air operator is required to maintain regular up to date and sufficient documentation concerning FDR parameter allocation, conversion equations, periodic calibration and other serviceability/maintenance information and ensure their availability to accident investigation authorities.