Fixed-wing commercial air transport recommended practices

Acknowledgements

About

IOGP Report 691 - *Fixed-wing commercial air transport recommended practices*
(FWRP) provides recommended practices that will assist in the safe, effective, and
efficient management of fixed wing commercial air transport operations.

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Contents

Introduction

This Report forms part of IOGP's Oil and Gas Aviation Recommended Practices (OGARP, also called the 69- series). The OGARP, developed in collaboration between oil and gas companies, aviation industry associations, and aircraft operators, provides a framework for effective management of a key material risk to the safety of personnel. Please see IOGP Report 69x – *Oil and gas aviation recommended practices overview* for a full description of the OGARP series and its implementation in the industry.

This Report, covering the operation of fixed-wing commercial air transport operations, is comprised of five modules: Safety Management Systems, Aircraft Operations, Support Operations, Engineering, and Aircraft and Equipment. These modules are further divided into sections covering the main activities associated with the delivery of aviation services. Each section has a title, purpose, expectations, and recommended processes and practices. A 'responsible party' for each element is identified either as 'Company', meaning the entity which engages the services of a fixed wing operator, or 'Contractor' which may be the aircraft operator, Aircraft Maintenance Organization, or other subcontracted party (for example, a provider of ground support services such as passenger check-in and processing).

Safety Management System

1. Safety Management System - General[1]

1A. Purpose

Ensuring safe operation with all necessary approvals and with an effective system of documented safety management procedures

1B. Expectations

An effective Safety Management System (SMS) is in place, appropriate to the size and complexity of the organisation and incorporating all elements of 691-1 to manage significant safety risks to As Low As Reasonably Practicable (ALARP) levels

1C. Processes and practices

1C.1   The SMS is compliant with National Aviation Authority (NAA) regulatory requirements and meets the intent of ICAO Annex 19, Appendix 2 - Framework for an SMS, and ICAO Doc 9859, Safety Management Manual (SMM), including in those countries where national regulations for SMS are not in place for the class of operation or activity.

1C.2   The SMS interlinks all of the elements listed in IOGP Report 691-1 – *Safety Management Systems* to allow safety information to circulate freely and continuous improvements to be made.

1C.3   Each air operator subcontractor maintains an effective SMS compatible with its own system, and that a documented process between SMSs is established.

Guidance documents

- ICAO Annex 19, Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*

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[1]   The term Safety Management System (SMS) has been used for consistency, recognising that some organisations have system elements contained within a wider integrated Management System (MS).

2. Management commitment and leadership

2A. Purpose

Ensuring an organizational culture where the normal behaviour at all levels is risk conscious, safe, promotes learning and collaborative behaviour, and has management commitment and responsibility

2B. Expectations

Leaders at all levels within the aircraft operator demonstrate responsibility for safety, actively participate in safety management throughout their organization and both educate and develop personnel in safety matters as well as holding them accountable for their actions

2C. Processes and practices

2C.1   Leaders are accountable for the effective management and safety risks in their business. They:

    2C.1.1   Know the safety risks associated with their position, responsibilities in their organization, and how they are managed.

    2C.1.2   Take corrective action if the controls for a risk are ineffective.

    2C.1.3   Communicate the aircraft operator's safety policies to their personnel and relevant subcontractors.

    2C.1.4   Plan and make regular base visits to engage with their personnel and relevant sub-contractors about safety.

2C.2   Leaders demonstrate safety leadership through measurable actions. They:

    2C.2.1   Participate in safety activities, team meetings, and safety programmes and campaigns.

    2C.2.2   Act as a role model for safety compliance, intervene during day-to-day activities whenever safety requirements are not being met.

    2C.2.3   Have a process to report safety issues, near misses and Stop Work events, and empower their personnel to use these processes.

2C.3   Leaders motivate, coach, and develop personnel to manage safety risks effectively. They:

    2C.3.1   Provide constructive feedback to their personnel on their safety behaviours and performance.

    2C.3.2   Evaluate the safety culture within their organization regularly.

    2C.3.3   Develop their own competence and that of their team in line with their organization's requirements to manage safety risks effectively.

    2C.3.4   Include safety behaviours in decisions about recruitment, performance, and personnel development.

2C.4   Leaders hold individuals accountable for their safety performance and behaviours. They:

    2C.4.1   Monitor and reinforce compliance with their organization's procedures, applicable laws, and regulations and take appropriate action to correct deficiencies.

    2C.4.2   Document and implement within the SMS a "Just Culture", based on ICAO Doc 9859, Section 3 "Safety Culture", where there is a distinction between acceptable and unacceptable behaviour, which is communicated to all employees, who know that their actions or omissions, commensurate with their training and experience, will not be punished.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 452 - *Shaping safety culture through safety leadership*
- IOGP Report 453 - *Safety Leadership in Practice: A Guide for Managers*
- IOGP Report 597 - *Fabrication site construction safety recommended practice – Enabling activities*

3. Safety accountabilities and responsibilities

3A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

3B. Expectations

The Aircraft Operator has appointed key personnel and with defined accountabilities

3C. Processes and practices

3C.1   The accountable executive has ultimate responsibility and accountability for the implementation, financing, and maintenance of the SMS, irrespective of other functions.

3C.2   The accountable executive has authority to ensure all activities can be financed and carried out to the required standard, has final accountability for all safety issues.

3C.3   A safety manager has been appointed.

3C.4   Clear lines of safety accountability are in place and documented throughout the organization, including a direct accountability for safety for all members of management, regardless of other duties, as well as of other staff.

3C.5   Any changes in key personnel directly involved in the SMS during execution of the services under contract requires notification to the Company.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance
- CASA Part 119

4. Key safety personnel

4A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

4B. Expectations

Key safety personnel have defined competencies

4C. Processes and practices

4C.1   All operational staff, supervisors and management have defined competencies requirements for safety-critical activities and sufficient resources to manage and operate effectively within the SMS.

4C.2   There is a hierarchy of safety committees, appropriate to the size and complexity of the organization, with members appointed according to their expertise and responsibilities.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859 Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119.190

5. Emergency response planning

5A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

5B. Expectations

Emergency response planning is coordinated

5C. Processes and practices

5C.1   An Emergency Response Plan (ERP) has been established, with country, regional or global ERPs to meet the Company needs and response objectives covering credible scenarios.

   5C.1.1   A policy is in place and agreed that co-ordinates the air operator and Company requirements, actions and responsibilities in responding to an emergency.

5C.2   The emergency response organization is staffed to be able to manage credible scenarios.

5C.3   Emergency responders are trained to a competence level to match their roles and responsibilities as outlined in the ERP.

5C.4   ERP process reviews and exercises (at a minimum desktop) with aviation related objectives are conducted prior to commencement of operations, and then on a scheduled basis, at a minimum annually, for ongoing operations.

5C.5   The exercises test the integrity of the ERP by including credible scenarios, such as one of the following scenarios, in each operational base:

   5C.5.1   Accident on arrival or departure

   5C.5.2   Overdue aircraft

   5C.5.3   Accident/Ditching en route

   5C.5.4   Aircraft accident on a remote airstrip, landing site, helipad, or helideck

   5C.5.5   Aircraft ditching in rescue range of a facility or vessel

5C.6   A post exercise review process is in place to record exercise learnings and track them to closure.

5C.7   In addition, exercises test and validate bridging communications between the Company, the aircraft operator, other involved entities, and all emergency services.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ICAO Doc 9481 Emergency Response Guidance
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119

6. SMS documentation

6A. Purpose

To ensure that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

6B. Expectations

The SMS has documented procedures

6C. Processes and practices

6C.1   There are documented, detailed procedures covering all SMS activities and processes. These processes are linked to more broadly documented procedures in the appropriate manuals for safety critical activities related to aircraft operations, including flight operations, aircraft maintenance, and ground operations.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119

7. Safety risk assessment and hazard identification

7A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

7B. Expectations

The Aircraft Operator has established Hazard and Risk Management (HRM) systems

7C. Processes and practices

7C.1   A Hazard and Risk Management system (HRM) is documented that reflects the size and complexity of the aircraft operator.

7C.2   The HRM identifies actual and potential safety hazards, occurrences, assesses the associated risks and includes consideration of human performance, safety culture and threat and error management.

7C.3   The HRM identifies and address generic, mission specific, and location specific worst case credible scenario hazards.

7C.4   All the hazards identified are assessed using the aircraft operator's Risk Assessment (RA) process, and the assessment of these risks is documented in a Hazards and Effects Register.

7C.5   A demonstration is provided, within a documented format or software system, that all identified hazards are assessed, tracked, mitigated, and managed to ALARP.

7C.6   This demonstration:

    7C.6.1   Shows the risk assessment rating assigned to each identified hazard.

    7C.6.2.   Links high rated hazards to specific barriers and controls in an appropriate manner (e.g., using a bow tie barrier management approach)

    7C.6.3   Provides a document reference for the barriers and controls if said measure is procedural or training.

    7C.6.4.   Assigns a responsible department or job title to each barrier or control – controls identified for location specific hazards are to be assigned local responsibility.

7C.7   The HRM is demonstrably linked to the aircraft operator's Safety Reporting and Investigation process and confirmation of implementation of mitigating actions.

7C.8   A Remedial Action Plan is in place to close identified gaps.

7C.9   Establish and maintain an effective HRM review process, which includes a review of external accidents and incidents that are relevant to the operation.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations

8. Incident reporting, investigation, and learning

8A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

8B. Expectations

Safety reporting procedures are in place

8C. Processes and practices

8C.1   Safety reporting procedures are in place covering all regulatory and non-regulatory reports, including the reporting of lower-level incidents or occurrences, hazards, and near-miss events. These procedures are supported by a Just Culture and the systems in place allow for anonymous reporting to provide protection to the reporter.

8C.2   Reporting is encouraged and tools are provided to personnel to proactively report any incident, occurrence, hazard, error, or near-miss event they become aware of, as soon as possible.

8C.3   Incidents are reported to the Company as detailed in its contract and the aircraft operator allows access for investigations when agreed.

8C.4   All incidents are assessed using the aircraft operator's RA process.

8C.5   The investigation process is aligned with ICAO Annex 13, Aircraft Accident and Incident Investigation, such that it:

    8C.5.1.   Uses trained investigators, reviews the effectiveness of the HRM barriers, and generates recommendations

    8C.5.2   Includes occurrences that are not required to be reported to the NAA, but which are considered to provide valuable learning opportunities, such as high potential and near miss events

    8C.5.3   Aims to understand why an event happened and the contributing causes, by taking full account of human and organizational factors using human factors methodology (e.g., Human Factors Analysis and Classification System (HFACS[2])) as part of the investigation process. This process considers:

        8C.5.3.1   Errors, mistakes, or violations

        8C.5.3.2   Pre-conditions relating to the operational environment

        8C.5.3.3   The physical and mental states of those involved

        8C.5.3.4   Organizational and team influences, interactions, and culture

        8C.5.3.5   Management, leadership, and supervisory factors

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[2]   The HFACS was is a broad human error framework that was originally used by the US Air Force to investigate and analyse human factors aspects of aviation. It is heavily based upon James Reason's Swiss cheese model. The HFACS framework provides a tool to assist in the investigation process and target training and prevention efforts.

8C.5.4   Where possible, incident investigations are conducted jointly with the Company.

8C.6   The recommendations are tracked to closure, any modified controls or barriers identified are put in place, and a feedback process to the reporter and to the organization is included.

8C.7.   A process is in place to learn from significant and high potential incidents through communication and implementation of required actions.

8C.8.   Investigations enable the consistent application of Just Culture principles and apply process and tools for any event that may result in consequence management.

8C.9.   Safety occurrences are shared with relevant industry safety bodies and as part of its continuous improvement, the organization uses safety events from the industry as part of its HRM analysis process.

Guidance documents

- ICAO Annex 19 Appendix 2.
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ICAO Annex 13 - Aircraft Accident and Incident Investigation - Standards and Recommended Practices for aircraft accident and incident Investigation
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119
- IOGP Report 510 – *Operating Management System Framework*

9. Safety performance monitoring

9A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

9B. Expectations

The aircraft operator measures the safety performance of the organization

9C. Processes and practices

9C.1   Safety Performance Indicators (SPIs) are established to monitor and measure the safety performance of the organization, and the effectiveness of the SMS for continuous improvement.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119
- IOGP Report 510 - *Operating Management System Framework*

10. Management of change

10A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

10B. Expectations

There is an effective Management of Change (MOC) process

10C. Processes and practices

10C.1 A defined MOC procedure is in place to manage the risks associated with significant changes related to aircraft operations, including key personnel.

10C.2 The MOC identifies changes that introduce new hazards, or impact the effectiveness of the existing barriers or controls in the HRM Process and includes a process to track the effectiveness of the actions

Guidance documents

- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119

11. Continuous improvement - assurance

11A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

11B. Expectation

A Quality Assurance (Compliance Monitoring) system is in place

11C. Processes and practices

11C.1   A Quality Assurance (QA) system, in addition to, or in the absence of NAA requirements, covering flight operations, maintenance activities, ground operations, the SMS and HRM is developed, documented, and implemented.

11C.2   A QA Manager is appointed.

11C.3   The QA system details a programme of risk-based audits using trained personnel, independent from the activities to be audited.

11C.4   The audit programme covers internal processes and specialized activities, as well any externally contracted operations or activities.

   11C.4.1   Audits of externally contracted operations assess compliance with relevant IOGP 69x series recommended practices.

11C.5   The QA system monitors compliance with, and the effectiveness of, the risk barriers and controls detailed in the aircraft operator's published HRM.

11C.6   A functioning records/data management system which also tracks all audits, non-compliances and corrective actions, to closure is in place.

11C.7   Performance indicators are tracked to monitor the effectiveness of the QA system.

Guidance documents

- ISO 9001: 2015, Quality Management Systems
- ICAO Doc 9859 Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- ISO 19011:2018, Guidelines for auditing management systems
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119
- CASA Safety Management System resource kit: Booklet 3 - Safety Risk Management

12. Training, competence, and education

12A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

12B. Expectations

Key Safety Personnel are trained and educated to understand the SMS

12C. Processes and practices

12C.1 Operational staff understand the organization's safety policy and the principles and processes of the organization's SMS.

12C.2 Managers and supervisors understand the safety process, hazard identification, risk management and the management of change.

12C.3 The accountable manager has an awareness of SMS roles and responsibilities, safety policy, safety culture, SMS standards, and safety assurance.

12C.4 Staff have initial induction and two-yearly recurrent training to ensure continued competence appropriate to the level of involvement in the SMS.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859; Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Provider
- IOGP Report 510 - *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organisations
- CASA Part 119

13. Safety communication

13A. Purpose

Ensuring that SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

13B. Expectations

Safety information is monitored, shared, and reviewed by management

13C. Processes and practices

13C.1   Safety commitment and policy documents, based on Just Culture, are in place.

13C.2   There is a range of safety promotion and communication processes to enable an effective, two-way flow of information.

13C.3   There are formal meetings where all staff can engage in discussion on safety topics either directly or through appropriate representation.

13C.4   There is a yearly management review process based on a defined hierarchy of meetings that gives senior managers visibility of the SMS activity, in particular:

13C.4.1   Safety reporting and performance (review of KPIs and SPIs)

13C.4.2   The effectiveness of the HRM process

13C.4.3   Issues arising from the aircraft operator's QA process

13C.5   Safety information is disseminated via newsletters, safety bulletins, etc.

13C.6   A "read and acknowledge" process is in place for the distribution of critical safety information.

Guidance documents

- ICAO Annex 19 Appendix 2
- ICAO Doc 9859: Safety Management Manual (SMM)
- US FAA AC 120-92B - Safety Management Systems for Aviation Service Providers
- IOGP Report 510 – *Operating Management System Framework*
- UK CAA CAP 795 - Safety Management Systems (SMS) guidance for organizations
- CASA Part 119

14. Line operations safety audit

14A. Purpose

The Aircraft Operator has a Line Operations Safety Audit (LOSA) programme in place to measure the management of human error in aviation and to inform the company SMS of the effectiveness of Standard Operating Procedures (SOPs), Crew Resource Management (CRM) and Threat and Error Management (TEM) training ensuring continuous improvement

14B. Expectation

The Aircraft Operator has a structured LOSA programme for multi-crew operations

14C. Processes and practices

14C.1   The LOSA programme is implemented by the aircraft operator with support from the Company.

14C.2   The LOSA programme complies with ICAO Doc 9803 – Line Operations Safety Audit (LOSA).

14C.3   The LOSA data is analysed and appropriate action plans implemented.

14C.4   LOSA observations are conducted periodically and a full observation cycle is conducted at a minimum every three years.

14C.5   A LOSA cycle on one type at one base is credited to another base to meet the three year cycle recommendation if an aircraft operator demonstrates that:

    14C.5.1   The operation, training and Flight Data Monitoring (FDM) program of the type claiming credit at a different bases are harmonized in respect to crew procedures, training and checking and FDM event follow up.

    14C.5.2   The lessons learned from the LOSA base are applied equally to the base claiming the credit.

    14C.5.3   The environmental threats at the base claiming credit (weather, terrain, airspace, communications, type of operation and airspace etc) are substantially the same as the LOSA base.

    Note: 1. Only LOSA cycles completed on the same aircraft type can be transferred.

14C.6   FDM and LOSA observations are analysed collectively for added insight.

14C.7   The LOSA observer has a jump seat or a forward-facing seat, positioned in such a manner that both pilots can be observed.

    14C.7.1   The Company takes into account a possible payload and number of passenger seats lost during LOSA observed flights.

14C.8   For fixed wing operations with aircraft with a Maximum Operational Passenger Seating Capacity (MOPSC) of 19 or less a LOSA programme is to be agreed with the Company.

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Guidance documents

- FAA AC 120-90
- ICAO Doc 9803 - Line Operations Safety Audit (LOSA)

15. Environmental management

15A. Purpose

The prevention of damage to the environment and personnel

15B. Expectation

The Aircraft Operator has environmental management controls in place to prevent damage to the environment and people from pollution, waste, noise, etc.

15C. Processes and practices

15C.1 Hazards to the environment, including pollution, noise, and waste, etc., have been captured in the HRM process and the associated controls are in place.

15C.2 The environmental management controls follow local and/or national regulatory requirements.

Guidance documents

- ISO 14001:2015, Environmental management systems

IOGP REPORT 691-2

Aircraft Operations

1. Air Operator Certificate

1A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures

1B. Expectations

The aircraft operator holds a valid Air Operator Certificate (AOC) or equivalent, issued by the responsible regulatory authority, that covers the aircraft type(s), all aspects of the type of operation, the geographic area relevant to the contract, and up-to-date operations specifications

1C. Processes and practices

1C.1 The aircraft operator holds an AOC issued and approved by the National Aviation Authority (NAA). This includes aircraft types operated and the scope of the operation detailed in operations specifications.

1C.2 The aircraft operator has a suite of Operations Manuals (OM) with the necessary content, approved (or when applicable, accepted) by the NAA. This is in one or more volumes and includes or is supported by appropriate procedures. The OM covers normal and emergency operations and is suitable for the operational circumstances and the aircraft types operated.

1C.3 The aircraft operator demonstrates to the NAA that its management team, organizational structure, method of control and supervision of flight operations, training programs, ground handling, airworthiness and production arrangements meet the minimum standards defined by local regulations.

Guidance documents

- ICAO Annex 6

2. Management of personnel

2A. Purpose

Ensuring operation with all necessary approvals and with an effective system of documented operational procedures

2B. Expectations

The Aircraft Operator has competent and experienced personnel in key management positions

2C. Processes and practices

2C.1 The aircraft operator has the following management and operational positions:

2C.1.1 The Accountable Manager for the AOC.

2C.1.2 A person with overall responsibility for managing the flight department.

2C.1.3 A person responsible for managing flight training.

2C.1.4 A person responsible for safety and quality assurance.

2C.1.5 A person or third party responsible for managing continuing airworthiness requirements.

2C.1.6 A person or third party responsible for aircraft maintenance.

2C.1.7 A person responsible for managing ground operations.

2C.1.8 Where the organization has more than one operating base, the management structure addresses the required responsibilities at all locations.

2C.1.9 It is acceptable for a person to hold more than one of the above positions if considered suitable and properly matched to the scale and scope of the operation.

2C.2 The aircraft operator has a documented procedure for the assessment of competence and experience for the above management and operational positions.

2C.3 In case of change of key personnel, see 691-1 Safety Management Systems, Section 10, Management of Change.

Guidance documents

- ICAO Annex 6

3. Reserved

4. Drug and alcohol policy

4A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience

4B. Expectations

The Aircraft Operator has a documented policy on the use/abuse of alcohol, medicines, and narcotics

4C. Processes and practices

4C.1   The policy establishes a pre-hire, post-accident, for cause, and random testing policy and is compliant with national legislation.

4C.2   The policy defines an acceptable level of alcohol consumption for staff in safety-critical roles, including an alcohol-free period before duty.

4C.3   The policy provides guidance on which over-the-counter and prescribed medication can impair an individual's ability to perform in the cockpit or workplace.

4C.4   The policy provides guidance on recognizing the signs of substance abuse and procedures to alert management for appropriate action to prevent staff from operating if necessary, including a method of confidential reporting.

Guidance documents

- BARS Contracted Aircraft Operations

FLIGHT OPERATIONS

5. Automation

5A. Purpose

Ensuring controlled flight can be sustained with, or without, the use of automation.

5B. Expectations

The Aircraft Operator has defined automation procedures.

5C. Processes and practices

5C.1 The automation procedures contain requirements for the appropriate use of automation to reduce cockpit workload and increase standardization.

5C.2 The automation procedures are defined for all phases of flight. The automation procedures define flight conditions when the use of automation is mandatory.

5C.3 Type-specific procedures for the use of automation are based on those published in the Flight Crew Operating Manual (FCOM), if available.

5C.4 The automation procedures detail methods to maintain flight proficiency in manual control, including those conditions under which automation systems are deselected and manual flight undertaken.

5C.5 The Minimum Equipment List (MEL) has clear serviceability requirements for the Autopilot or Automatic Flight Control System (AFCS).

5C.6 The pilot flying monitors the flight controls at all times when not carrying out other essential tasks, when the aircraft is in a coupled autopilot mode.

5C.7 For equipment details, see 691-5 – Aircraft and Equipment, Section 4.

Guidance documents

- BARS Contracted Aircraft Operations.

FLIGHT OPERATIONS

6. Terrain Awareness Warning Systems

6A. Purpose

Preventing Controlled Flight into Terrain (CFIT) accidents

6B. Expectations

The Aircraft Operator has documented procedures for the use of Terrain Awareness Warning Systems (TAWS)

6C. Processes and practices

6C.1   Flight crew Standard Operating Procedures (SOPs) and training includes the response to TAWS alerts.

6C.2   For equipment details, see 691-5 – Aircraft and Equipment, Section 7.

Guidance documents

- BARS Contracted Aircraft Operations

FLIGHT OPERATIONS

7. Airborne collision avoidance systems

7A. Purpose

Preventing mid-air collisions

7B. Expectations

The Aircraft Operator has documented procedures for the use of Airborne Collision Avoidance Systems (ACAS)

7C. Processes and practices

7C.1   Clear instructions and procedural guidance in the use of the ACAS for crews is documented.

7C.2   Flight crew training includes the response to ACAS alerts.

7C.3   For equipment details see 691-5 Aircraft and Equipment, Section 8

Guidance documents

- BARS Contracted Aircraft Operations

FLIGHT OPERATIONS

8. Flight data monitoring

8A. Purpose

Using flight data to obtain operational feedback and reduce risks

8B. Expectations

A Flight Data Monitoring (FDM) programme is in place

8C. Processes and practices

8C.1   An FDM programme is established, documented, and aligned with appropriate industry standards such as: UK CAA CAP 739 FDM, FAA AC 120-82 Flight Operational Quality Assurance, which is based upon a 'Just Culture'.

8C.2   Personnel are appointed to fill specific positions within the FDM programme (such as analyst, gatekeeper or pilot liaison) and training is provided for all personnel appropriate to their responsibilities.

8C.3   FDM data is downloaded from all aircraft daily as a minimum and a process for the review of the data is in place. If daily download is not achievable, the aircraft operator proposes an interim regular download schedule to the Company Aviation Advisor for approval.

8C.4   FDM event thresholds are implemented based on flight manual limitations, flight profiles, and SOPs:

  8C.4.1   Data is analysed for threshold exceedance events daily (operational flight days) through either aircraft operator in-house data analysis or third-party services.

  8C.4.2   At least three levels of operational risk for each event (low, medium and high[2]) are set and assessed.

      8C.4.2.1   Low-level severity criteria thresholds are set below SOP limits for trend monitoring[3]

      8C.4.2.2   Medium-level severity criteria thresholds are set at, or slightly above, SOP limits. Exceedance requires crew contact.

      8C.4.2.3   High-level severity criteria thresholds are set to identify relatively infrequent exceedances (e.g., 1 in 2000). Exceedance requires crew contact.

  8C.4.3   Event thresholds are based on the distribution of historical deviations from desired values and/or discrete and conditional events as described in the SOPs are validated.

  8C.4.4   Event criteria thresholds are established at levels that identify behaviours trending towards the exceedance of an acceptable level of hazard, but before that hazard has been reached.

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2   A normal type distribution as a default expectation is used. The ratio of low: medium: high is approximately 112:16:1
3   See CAP 739 for guidance and expectations, specifically how statistics are used to validate threshold (event criteria) settings for trending and validating medium and high severity levels

FLIGHT OPERATIONS

8C.4.5   Reserved

8C.4.6   Reserved

8C.4.7   Reserved

8C.4.8   With regards to event criteria and analysis, the aircraft operator differentiates:

8C.4.8.1   Phase of flight

8C.4.8.2   Training vs Maintenance Flights vs Regular Public (Commercial Air) Transport

8C.5   A process for communication and reporting of the FDM data is established.

8C.6   The following Key Performance Indicators (KPIs) are established and tracked as a minimum:

8C.6.1 Data capture rate is minimum 95%

8C.6.2 Flight data to be available for analysis within 24 hours (working day)

8C.6.3 Initial analysis to be completed within 72 hours (working day)

8C.6.4 Identified crew contact to be completed within 7 working days

8C.6.5 100% crew contact for all 'medium' and 'high' risk events

8C.7   An FDM review group meets at least quarterly to:

8C.7.1   Validate the reports, including a periodical review of de-identified FDM data findings.

8C.7.2   Investigate significant events identified by the FDM Programme.

8C.7.3   Reviews KPIs and trends.

8C.7.4   Make recommendations for suggested changes to operational procedures or the training syllabus and tracks their implementation.

8C.7.5   Periodically determine the effectiveness of thresholds.

8C.7.6   Meetings are minuted and actions are tracked to closure.

8C.7.7   An overview of all FDM actions, together with the KPI's are discussed in the periodic Senior Management Reviews.

8C.8   Allow the Company the right to audit the FDM programme, within the limitations of the operator's confidentiality agreement, to ensure that it is effective. Such an audit does not require access to raw or identifiable data.

8C.9 For equipment details see 691-5 – Aircraft and equipment, Section 9.

Guidance documents

- UK CAA CAP 739 – Flight Data Monitoring
- FAA AC 120-82 - Flight Operational Quality Assurance
- ICAO Annex 6
- ICAO Doc 10000

FLIGHT OPERATIONS

9. Aeroplane performance[4]

9A. Purpose

Ensuring flight operations and continuing airworthiness choices minimize the risk of critical failures and provide assurance of safe outcomes during all engine failure modes

9B. Expectations

Aircraft operators comply with performance requirements set out in the AFM, required by the NAA, or those detailed in 9C, in its entirety, whichever is the more restrictive

9C. Processes and practices

9C.1   The take-off weight does not exceed the maximum specified in the AFM for the pressure altitude and the ambient temperature at the aerodrome of departure.

9C.2   The PIC calculates the aircraft weight and configuration at take-off with associated safe speeds and does not exceed the maximum weight for the aircraft type, the runway elevation, length, slope and runway condition (braking action), and the prevailing weather conditions such that the aircraft can:

9C.2.1   Maintain specified minimum rates of climb after take-off with full thrust and with one engine inoperative

9C.2.2   If an engine failure is detected during the take-off run, the PIC either:

9C.2.2.1   Abandons the take-off and stops within the runway length

9C.2.2.2   Continues the take-off, clearing all obstacles during the climb-out path by a specified margin

9C.2.3   Continue the flight, with one engine inoperative in the forecast weather conditions, either returning to the departure airfield, the destination, or a specified alternate airfield clearing all terrain en-route.

9C.3   The take-off is not started unless the take-off distance requirements are met. In determining take-off distance requirements, the calculation does not exceed the Take-off Distance Available (TODA), Take-off Run Available (TORA), Accelerate-Stop Distance Available (ASDA) and includes allowance for alignment/position for take-off. As a minimum, the following conditions are used for calculating aircraft take-off distance:

9C.3.1   Estimated take-off weight

9C.3.2   Aircraft configuration

9C.3.3   Applicable penalties

9C.3.4   Runway to be used

9C.3.5   Runway condition

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[4] For definitions of performance classes, see Definitions in 69X, Intro and Scope, and for basic certification requirements, see 691-5 – Aircraft and Equipment Section 2, Certification Standards.

FLIGHT OPERATIONS

9C.3.6 Wind: Not more than 50% of the reported headwind component and not less than 150% of the reported tailwind component is taken into account.

9C.3.6.1 No landings are made where the reported tailwind component exceeds 10 knots

9C.3.7 Temperature

9C.3.8 Pressure altitude

9C.3.9 AFM Reverse thrust limitations for rejected take-off

9C.4 Runway to be used will be limited to runway available, obstacle clearance requirements, thrust settings, and noise abatement procedures.

9C.5 Use of engine out departure routings may be used for optimizing aircraft weight. Routings are prepared in advance of the takeoff and routings are in accordance with AFM limitations.

9C.6 Taking into account aircraft weight, terrain and oxygen and fuel requirements the enroute section complies with the minimum flight altitude at any point in the flight;

9C.6.1 In the event of the critical engine becoming inoperative at any point along the route or planned diversion therefrom, the aeroplane is able to continue the flight to a suitable aerodrome while maintaining or being able to climb to an obstacle clearance altitude (OCA) of 2000 feet plus temperature and pressure compensation.

9C.6.2 In the event of a depressurization, the aeroplane provides sufficient oxygen for passengers and crew to continue to a suitable aerodrome.

9C.6.3 For aeroplanes with three or more engines, in the event of the critical engine becoming inoperative, the probability of a second engine becoming inoperative is calculated in accordance with ICAO Annex 6. That calculation ensures that at any part of the route the aeroplane is able, in the event of any two engines inoperative, to continue the flight to an enroute alternate aerodrome and land.

9C.7 In determining a landing distance requirement, the following conditions are considered or calculated with respect the following assessments:

9C.7.1 Estimated landing weight

9C.7.2 Runway to be used

9C.7.3 Runway condition

9C.7.4 Wind: not more than 50% of the reported headwind component or not less than 150% of the reported tailwind component is taken into account

9C.7.5 Temperature

9C.7.6 Pressure altitude

9C.7.7 Aircraft configuration

9C.7.8 Applicable penalties

9C.7.9 AFM reverse thrust limitations and use

9C.8 The dispatch of aircraft to a destination aerodrome is not made unless:

9C.8.1 The weight of the aircraft on landing at the destination aerodrome at the expected time of arrival will allow a full-stop landing within 60% of the landing distance available (Landing Distance Available (LDA) (where 1.67 times AFM Landing Distance (LD) Dry is less than or equal to the LDA).

FLIGHT OPERATIONS

9C.8.2   The weight of the aircraft on landing at the alternate aerodrome at the expected time of arrival will allow a full-stop landing within 60% of the LDA (where 1.67 times AFM LD Dry is less than or equal to the LDA).

9C.8.3   If runway contamination is expected at time of arrival, the Landing Distance at Time of Arrival (LDTA) is calculated and the dispatch is limited by the most restrictive of 60% dispatch assessment or LDTA.

9C.8.3.1   LDTA considers the following factors, which are not taken into account during pre-departure landing performance calculations:

9C.8.3.1.1   Runway slope

9C.8.3.1.2   Altitude

9C.8.3.1.3   Wind

9C.8.3.1.4   Temperature

9C.8.3.1.5   Weight/configuration

9C.8.3.1.6   Approach speed (if faster than VREF)

9C.8.4   For wet runways conditions, the 15% safety margin or 1.15 factor is applied.

9C.9   Grooved runways are not considered a performance enhancement unless the AFM provides data for such.

9C.10   An approach to landing in an aircraft is not made unless the weight of the aircraft on landing at the aerodrome will allow a full-stop landing within calculated landing distance.

9C.11   Runway performance is calculated using the more restrictive value between the Global Reporting Format (GRF) runway condition code or least favorable reported runway condition. If data published by the manufacturer includes accountability for items required for an LDTA calculation, in this case the manufacturer's data is used and is less than the LDA.

9C.11.1   Where a braking action report is given by preceding aircraft that is more adverse than the reported runway condition or GRF then an updated runway condition report is requested.

Guidance documents

- ICAO Annex 6
- ICAO Doc 10064
- Annex 1 (Definitions) to EASA "Air Operations – SOPS"

10. Reserved

FLIGHT CREW

11. Flight crew - experience and qualification

11A. Purpose

Ensuring flight crew are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill, and experience

11B. Expectations

The operator demonstrates flight crew meet the required experience and qualifications level

11C. Processes and practices

11C.1   Pilots are licensed and current in accordance with local regulatory requirements. The required experience levels are tabulated in Table 1. Table 1 details the required qualifications and flying experience of pilots before they can fly Company or Contractor(s) personnel.

11C.2   Where these requirements cannot be met, a mechanism to obtain a dispensation providing mitigating factors is set in place (see 69x-0, Section 11). Where this is requested, full details of an individual's experience and qualifications under the headings shown in the tables are to be submitted to the Company Aviation Advisor for assessment and consideration prior to agreeing or otherwise issuing such a dispensation.

11C.3   In some countries, air taxi pilots may not be entitled to an Air Transport Pilot's License (ATPL) or equivalent. If this is the case, a Commercial Pilot's License (CPL), or equivalent in the country of operation, is considered acceptable.

FLIGHT CREW

Table 1: Aircraft Commander and Co-Pilot qualifications and experience levels for FW CAT

	Aeroplanes >5700kg CTOM [1]	Turbine-powered ≤ 5700kg CTOM: Turboprop certified with 19 pax seats or less
Aircraft Commander Qualifications		
Licences	ATPL	ATPL (CPL for cargo)
Type rating on contract aircraft [2]	Current	Current
Instrument rating on contract aircraft	Current	Current
Aircraft Commander Experience not less than:		
Total hours	4000 [3]	3000
Total hours in command aeroplane [4]	2500	1500
Total hours in command/PICUS – ME aeroplane [4]	2000	1200
Total hours in command on contract type [5]	100	100
Co-Pilot Qualifications [6]		
Licences	CPL	CPL
Type rating on contract aircraft [2]	Current	Current
Instrument rating on contract aircraft	Current	Current
Co-Pilot Experience not less than:		
Total hours aeroplane	1000	500
Total hours on ME aeroplane [7]	500	250
Total hours in command - ME aeroplane [4]	100	-
Total hours in command/PICUS aeroplane [4]	-	100
Total hours on contract type [5]	50	50

Notes:

1. The requirements for Turboprop below 5700 kg also apply to the following types that have a CTOM above 5700 kg: King Air 300, Fairchild Metro III/23, SC-7 Skyvan, Let 410/420, AN 28, Skytruck 28, and Dornier 228 series aircraft.

2. The type rating includes the multi-crew license endorsement as appropriate, except for Single Pilot Cargo operations (see 691-2, Section 16.

3. Total hours may be reduced by 1000 hours when total hours in similar aircraft complexity exceeds 1000 hours and no dispensation has been granted in the other Aircraft Commander Qualifications.

4. For Pilot in Command Under Supervision requirements, see 691-2, Section 12.

5. When introducing a new aircraft type, dispensation can be given for 'Total hours in command on contract type', see 691-2, Section 45.

6. Co-pilots with less than one year of similar topographical experience, see additional recency requirement in 691-2, Section 40.

7. Co-pilots who do not meet the 500 or 250 hours ME experience for the specific category, can qualify with 100 or 50 hours respectively, provided that they have successfully completed all of the following training, which is documented in the pilot's training records:

   • An approved aircraft endorsement course for the contracted aircraft type

   • A technical, emergencies and CRM course in the appropriate type-specific flight simulator prior to commencing operational flight operations

   • Until reaching 100 or 50 on contracted type, all hours are supervised operational flights with an approved LTC

   • A successful line check flight by a different LTC/TRI when ready to be released for revenue flights

FLIGHT CREW

12. Flight crew experience - Pilot In Command Under Supervision (PICUS) Flight Time

12A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill, and experience

12B. Expectations

Co-pilots are permitted to log PICUS time to meet the requirements of command time in Table 1

12C. Processes and practices

12C.1 In those countries where the NAA has an allowance for logging these hours, the aircraft operator uses the approved national programme.

12C.2 The logged time as PICUS meets the requirements of Section 11, if:

12C.2.1   Reserved

12C.2.2   The aircraft operator has control and supervision over the programme

12C.2.3   The flight time is recorded in the pilot's training records

FLIGHT CREW

13. Medical certification

13A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill, and experience

13B. Expectations

All pilots hold a valid medical certificate appropriate to their age and licence (e.g., CPL, ATPL) requirements

13C. Processes and practices

13C.1   The local NAA and/or company policy determines the frequency of medical examinations.

Guidance documents

- ICAO Annex 1 Chapter 6

FLIGHT CREW

14. Use of subcontracted pilots

14A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill, and experience

14B. Expectations

The Aircraft Operator uses subcontracted pilots subject to certain conditions.

14C. Processes and practices

14C.1 Subcontracted pilot complies with all training, checking and recency requirements of the aircraft operator.

14C.2 Subcontracted pilots inform the aircraft operator of all their flight and duty times.

FLIGHT CREW

15. Pilots flying more than one aircraft type

15A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill, and experience

15B. Expectations

Pilots flying more than one type are subject to certain conditions

15C. Processes and practices

15C.1   The aircraft operator has a written policy on the number of aircraft types pilots may fly in one day which applies across their operations, and which complies with national legislation.

15C.2   The policy includes the requirement for the pilot to maintain recency and proficiency on those types on which the pilot is permitted to fly Commercial Air Transport (CAT).

15C.3   Recency and proficiency on multiple types is closely monitored.

15C.4   The aircraft operator does not schedule pilots for operation on more than one type during the same duty period.

15C.5   Pilots operate a second type only as a result of on-the-day operational changes, such as unserviceability, and when the following have been complied with:

15C.5.1.   The recency and competence qualification requirements on either type are met.

15C.5.2.   The time between the types or variant is a minimum of one hour.

15C.5.3.   Before operating a second type, the crew is briefed on differences in fuel planning, performance, and weather minima.

15C.5.4.   Any additional actions required by the "flying more than one aircraft type" risk assessments are met.

FLIGHT CREW

16. Composition of flight crew

16A. Purpose

Ensuring flight crew handling and monitoring duties are appropriately divided, defined, and conducted in line with human factors principles

16B. Expectations

Aircraft are appropriately crewed for the task and environment.

16C. Processes and practices

16C.1 For Fixed Wing CAT, the following minimum crew composition is to be used:

    16C.1.1   FAR/CS 25 IFR/VFR: 2 pilots

    16C.1.2   FAR/CS 23 IFR/VFR: 2 pilots

    16C.1.3   FAR/CS 23 IFR/VFR: Cargo only:1 pilot

16C.2 The aircraft operator has procedures outlining the duties and responsibilities of all flight crew members, and the 'pilot flying' and 'pilot monitoring' roles and tasks are defined.

Guidance documents

- ICAO Annex 6

FLIGHT CREW FATIGUE MANAGEMENT

17. Flight crew fatigue management - flight time limits

17A. Purpose

Ensuring flight crew personnel are alert and fit-for-work

17B. Expectations

The Aircraft Operator has established limits for flight times

17C. Processes and practices

17C.1 Additional restrictions are in place for particularly demanding flights, such as short sector flights, or operations in locally extreme temperatures.

17C.2 Maximum flight times meet the criteria in the table 17-1:

Table 17-1: Maximum flight times

Period (consecutive days)	1	7	28	365
Maximum flight time in period for dual-pilot crew (hours)	12	60	120	1200
Maximum flight time in period for single-pilot crew(hours) (Cargo operations only)	8	45	100	1000

Guidance documents

- ICAO Annex 6
- ICAO Doc 9966

FLIGHT CREW FATIGUE MANAGEMENT

18. Flight crew fatigue management - flight duty times and rest periods

18A. Purpose

Ensuring flight crew personnel are alert and fit-for-work

18B. Expectations

The Aircraft Operator has established limits for flight crew duty times

18C. Processes and practices

18C.1   The maximum Flight Duty Period (FDP) is normally 14 hours. Where a documented Fatigue Risk Management System (FRMS) is in place, this may be extended to:

18C.1.1   16 hours when managed in accordance with a split duty procedure

18C.1.2   20 hours when managed in accordance with an augmented crew procedure

18C.2   This includes administrative/office time, flight planning, flight preparation, flight time, post flight duties, completion of any associated maintenance or paperwork.

18C.3   The operations manual defines when the duty day starts and ends and how the FDP is calculated.

18C.4   The minimum rest period is 10 hours, or the length of the preceding FDP, whichever is the greater, unless the operator has an active and Company accepted FRMS which includes a means to proactively monitor fatigue risk. For operators that have an accepted FRMS, the rest period is not less than 10 hours.

18C.5   An extension to the FDP is permitted on condition that the aircraft operator has a FRMS.

18C.6   Rostering takes account of local traditions and/or religious practices that impact flight crew's ability to meet normal Flight Duty Time (FDT) limitations.

Guidance documents

- ICAO Doc 9966
- ICAO Annex 6 Vol 3 Appendix 6
- ICAO Fatigue Risk Management System (FRMS) Implementation guide for aircraft operators

FLIGHT CREW FATIGUE MANAGEMENT

19. Flight crew fatigue management – rest for rotating crews

1A. Purpose

Ensuring the flight crew are suitably rested for the type of operation

1B. Expectations

The Aircraft Operator has established a rest policy for rotating crews, if applicable

19C. Processes and practices

19C.1   Crews on rotating assignments that arrive following prolonged or overnight travel, or travel exceeding four time zone changes, are not rostered for flying duties until the minimum 10 hour rest period is met.

19C.2   Workload, roster schedules, and duty start times are considered to increase the minimum required rest period. Appropriate rest periods are established for all operations with guidance from the NAA and/or the Company's Aviation Advisor.

Guidance documents

- ICAO Annex 6
- ICAO Doc 9966

FLIGHT CREW FATIGUE MANAGEMENT

20. Flight crew fatigue management – night standby duty

20A. Purpose

Ensuring the flight crew are suitable rested for the type of operation

20B. Expectations

The Aircraft Operator has established a policy for night standby duty, if applicable

20C. Processes and practices

20C.1 After a day duty period, each pilot has at least 12 hours rest prior to being rostered for night standby duty.

20C.2 Pilots nominated for night standby duty (at their place of rest) who are not called out to fly, are considered available for duty in the following day period. If the pilots are called out to fly during the night, they have a minimum of 12 hours rest after completion of their FDP.

Guidance documents

- ICAO Annex 6
- ICAO Doc 9966

AVIATION WEATHER

21. Aviation weather - IFR/VFR

21A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions

21B. Expectations

All CAT flights are conducted under IFR when possible

21C. Processes and practices

21C.1   All CAT flights are flown using only IFR procedures and minima where available. If IFR procedures are not published, the aircraft operates at a minimum altitude of 1000 feet AGL (Day), 1500 feet AGL (Night) except for the purposes of take-off and landing, maintain ground visibility and a reported ceiling that allows for 500 feet of vertical cloud clearance and 5km visibility.

21C.2   IFR operations comply with local regulatory IFR weather minima unless more stringent Company requirements are issued.

Guidance documents

- ICAO Annex 6

AVIATION WEATHER

22. Aviation weather - adverse weather policy

22A. Purpose

Establishing weather limitations consistent with the capabilities of the aircraft and rescue assets are applied to each flight, with provision for appropriate training in anticipated conditions.

22B. Expectations

An adverse weather policy has been developed by the Aircraft Operator in conjunction with the company.

22C. Processes and practices

22C.1　An adverse weather policy is in place which has been developed by the aircraft operator and approved by the Company.

22C.2　The adverse weather policy clearly states under what conditions flying operations are to be restricted or temporarily halted and supported by appropriate procedures. The policy also contains instructions for en-route monitoring.

22C.3　Adverse weather situations include, but are not restricted to:

　　22C.3.1　Thunderstorms, including lightning

　　22C.3.2　Volcanic ash

　　22C.3.3　Freezing rain

　　22C.3.4　Hail

　　22C.3.5　Forest fires

22C.4　The adverse weather policy considers the aircraft type and survival equipment in use (see 691-5), the available Search and Rescue (SAR) capability and applicable Emergency Response Plans (ERP) (see 691-1, Section 5) and is revised when material changes to these considerations occur.

22C.5　If applicable within probable weather scenarios, the aircraft operator trains their pilots to recognize microbursts/windshear during the approach and landing phases in addition to take-off and departure phases; the aircraft operator has SOPs describing microburst / windshear recovery.

22C.6　Document and implement a policy for flight crews to monitor weather information whilst en-route, including destination, destination alternate (when applicable) and en-route alternate (when applicable).

22C.7　For management of en-route turbulence the aircraft operator assesses compliance with maximum turbulence penetration speeds using the FDM programme. See 691-2, Section 8.

Guidance documents

- ICAO Annex 6

23. Reserved

24. Reserved

25. Reserved

FLIGHT PLANNING

26. Flight planning

26A. Purpose:

Ensuring that a safe and efficient flight can be conducted

26B. Expectations

The Aircraft Operator has established flight planning procedures

26C. Processes and practices

26C.1   Flight planning procedures take account of:

26C.1.1   The configuration and serviceability of the aircraft, including Minimum Equipment List/Minimum Departure Standard (MEL/MDS) items

26C.1.2   Weather conditions and performance

26C.1.3   Routing, manifest (see 691-3, Support Operations, Section 10), fuel requirements and weight and balance

26C.1.4   Destination(s) and alternates

26C.1.5   Preparation of an Operational Flight Plan (OFP)[5]

Guidance documents

- ICAO Annex 6

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[5]   Aircraft operators use different formats for OFPs which may contain the following information:
- aircraft registration
- aircraft type and variant
- date of flight
- flight identification
- names of flight crew members
- duty assignment of flight crew members
- place of departure
- place of arrival
- type of operation (ETOPS, VFR, Ferry flight, etc.)
- route and route segments with checkpoints/waypoints, distances and tracks
- planned cruising speed and expected wind components with estimated flying times between check-points/waypoints
- safe altitudes and minimum levels
- planned altitudes and flight levels
- fuel calculations and estimated fuel remaining at each checkpoint/waypoint
- alternate(s) for destination and, where applicable, take-off and en-route, including information on fuel burn, routes and safety altitudes

Items which are readily available in other documentation or from another acceptable source or are irrelevant to the type of operation may be omitted from the OFP.

FLIGHT PLANNING

27. Fuel planning

27A. Purpose

Ensuring aircraft depart with sufficient fuel reserves to avoid fuel exhaustion

27B. Expectations

The Aircraft Operator has established flight planning procedures

27C. Processes and practices

27C.1 Aircraft operator's fuel planning requirements are published in aircraft operator's Operations Manuals (OM). The requirements meet ICAO Annex 6, Part 1, Para 4.3.6 (Fuel and Oil Supply), which provides detailed requirements of the fuel to be carried under different circumstances. If national requirements are more restrictive than those in ICAO Annex 6 then the national requirements apply.

Guidance documents

- ICAO Annex 6
- BARS Contracted Aircraft Operations

28. Reserved

29. Reserved

FLIGHT PROCEDURES

30. Flight procedures – General

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30A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action

30B. Expectations

The Aircraft Operator has developed appropriate flight procedures

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30C. Processes and practices

30C.1 Flight procedures (SOPs or OMs) are used by the flight crew in the performance of their duties. The flight procedures are developed in accordance with the Aeroplane Flight Manual (AFM) and references the FCOM when available/appropriate.

30C.2 The flight procedures (SOPs or OMs) are documented concisely for all phases of flight (planning, pre-flight, in-flight and post-flight) and include appropriate Crew Resource Management (CRM) and Threat and Error Management (TEM).

30C.3 The documented flight procedures include specifically:

30C.3.1 Clear and detailed Pilot Flying (PF)/Pilot Monitoring (PM) task assignments, so that flight crew recognize and act on deviations from standards in a timely manner

30C.3.2 Identification of threats and errors and the strategies to counteract them, involving all relevant crew

30C3.3 Situational awareness

30C3.4 Identification of critical phases of flight and categorising threat levels for all flight phases with defined mitigations and limitations on crew actions

30C3.5 Use of active monitoring and cross checking

30C3.6 Use of standard flight deck procedural phraseology including 'standard call-outs' for each phase of flight

30C.3.7. Application of Sterile Cockpit procedures during critical phases of flight (see 691-2, Section 31, Flight procedures – sterile cockpit).

30C.3.8 Use of checklists for all normal, abnormal and emergency procedures and a procedure for interruption of a checklist

30C.3.9 Automation policy (see 691-2, Section 5, Automation)

30C.3.10 Usage of the OFP (see 691-2, Section 26, Flight planning)

30C.3.11 Transfer of control

30C.3.12. Crew briefings for planning, pre-flight, departure, approach and post-flight. (See 691-2, Section 34, Pre-flight and post-flight procedures)

30C.4 LOSA, FDM and/or Flight Operations Quality Assurance (FOQA) are used to monitor trends regarding these procedures. See 691-1, Section 14 and 691-2, Section 8.

FLIGHT PROCEDURES

30C.5 Flight crew are trained in, and make active use of, the following techniques to identify and manage flight risk:

30C.5.1 CRM to develop and maintain efficient use and co-ordination of all flight crew members technical and non-technical skills. Key to good CRM is teamwork, situational awareness, communication, decision making, workload management and problem solving.

30C.5.2 TEM is embedded in all flight procedures, particularly those dealing with critical flight phases in order that threats which may endanger safe operations are recognized and managed. In the same way, the potential for errors by flight crew is recognized and managed.

30C.5.3 Aeronautical Decision Making (ADM) provides a systematic approach to processes used by pilots as they adapt to changing circumstances through the flight.

30C.6 If one pilot leaves the flight deck the other pilot wears full seat belt, including shoulder harness and wears headset. On returning to the flight deck the returning pilot is briefed on the aircraft status, including any changes in systems and radio settings.

Guidance documents

- ICAO Annex 6
- FAA-AC-120-51E (Crew Resource Management Training)

FLIGHT PROCEDURES

31. Flight procedures – sterile cockpit

31A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action.

31B. Expectations

The Aircraft Operator has established a sterile cockpit policy.

31C. Processes and practices

31C.1 There is a sterile cockpit policy covering, as a minimum, restrictions on unnecessary conversation, restricting activities to essential operational matters during critical phases of flight, use of Electronic Flight Bags (EFBs) or Personal Electronic Devices (PEDS), and paperwork, during flight below key altitudes, and during certain phases of flight or ground operations.

31C.2 The sterile cockpit policy contains:

    31C.1.1   PF/PM responsibilities

    31C.1.2   Cabin crew responsibilities

Guidance documents

- FAA CFR 121.542.
- EASA Part ORO.GEN.110(f)
- Flight Safety Foundation Approach and Landing Accident Reduction Toolkit

FLIGHT PROCEDURES

32. Flight procedures – stabilized approaches and landings

32A. Purpose

Ensuring a safe flightpath with early identification of deviations and timely corrective action

32B. Expectations

The Aircraft Operator has established and documented stabilized approach procedures

32C. Processes and practices

32C.1 Stabilized approach procedures are documented that define when to conduct a missed approach or abort a landing if deviation criteria for a stabilized approach are not met.

32C.2 The procedures are written with reference to international or Original Equipment Manufacturer (OEM) guidance/recommended practices.

32C.3 Stabilized approach procedures are specific to the aircraft type or use a Type Certificate (TC) Holder issued FCOM.

32C.4 Procedures are characterized by defined speeds, climb/descent rate, vertical flight-path and configuration, through a series of defined 'gates' as necessary.

32C.5 Stabilized approach criteria confirm that:

32C.5.1 The aircraft is on the correct flight path and only requires small changes in heading, attitude and thrust to remain on the correct flight path.

32C.5.2 The aircraft is in the correct landing configuration and all briefings and checklists have been conducted.

32C.5.3 The thrust setting is appropriate for the aircraft configuration, not below the manufacturer's minimum if specified in the AFM or FCOM.

32C.5.4 Flight crew procedures include monitoring of the flight path and the requirement to announce deviations and subsequent actions using specified criteria.

32C.6 All instrument approaches are flown in accordance with the published instrument procedure. Unique approach procedures or abnormal conditions that require a deviation from stabilized approach criteria require a special briefing.

32C.7 Procedures are in place for no-fault, mandatory go-arounds if any approach is not stabilized, and pilots practice all-engine operating (AEO) go-arounds as part of their proficiency training.

32C.8 The aircraft operator uses FDM and LOSA analysis of stabilized approaches, landings and departures within its SMS to assist with the identification of specific risks in the conduct of flight procedures. See 691-1, Section 14 and 691-2, Section 8.

FLIGHT PROCEDURES

32C.9 The procedures confirm that:

32C.9.1   The approach is stabilized 1,000 ft above airport elevation when conducting an IFR approach and 500 ft above the airport elevation when conducting a VFR approach.

32C.9.2   All instrument approaches are flown in accordance with published instrument procedures.

32C.9.3   Precision approaches such as ILS1, LPV and LNAV/VNAV are flown within one dot of the glideslope and localizer (or course deviation indicator).

32C.9.4   The airspeed is not more than OEM approach speed +20 knots indicated airspeed and not less than Vref, unless otherwise recommended by the manufacturer.

32C.9.5   Unless otherwise recommended by the manufacturer, or required for a specific, published approach, the rate of descent is not greater than:

32C.9.5.1   750 ft per minute for approach speed up to 110 kts., and

32C.9.5.2   1,000 ft per minute for approach speed above 110 kts.

32C.9.6   During circling approaches the bank angle does not exceed 30°, the aeroplane is wings level on final by no later than 300 ft above the airport elevation.

Guidance documents

- ICAO PANS OPS Vol 1 (Flight Procedures).
- ICAO Global Runway Safety Action Plan.
- Flight Safety Foundation – Approach and Landing Accident Reduction Task Force.

33. Reserved

FLIGHT PROCEDURES

34. Pre-flight and post-flight procedures

34A. Purpose

Ensuring the aircraft and crew are correctly prepared for flight and any aircraft defects are properly recorded.

34B. Expectations

The Aircraft Operator has established procedures for the identification and management of flight risks and the use of the aircraft technical log and MEL/MDS.

34C. Processes and practices

34C.1 Flight crew pre-flight actions:

    34C.1.1 Identify relevant flight risks and mitigation strategies by using appropriate TEM techniques.

    34C.1.2 Complete pre-flight planning, including selection of flight altitude, aerodromes, fuel requirements, minimum safe altitudes, aircraft performance, weather, adverse weather avoidance and all other pertinent information

    34C.1.3 Brief crew responsibilities and tasks

    34C.1.4 Perform an exterior aircraft inspection prior to each flight, which is conducted by a member of the flight crew.

34C.2 Flight crew responsibilities for the use of the MEL/MDS and Aircraft Technical Log (ATL) are clearly defined.

34C.3 The aircraft is prohibited from departure with a defect that has not been processed in accordance with the MEL/MDS/Configuration Deviation List (CDL).

34C.4 Post flight the flight crew complete a debrief to ensure lessons from the flight are captured and any necessary safety reports are submitted. At a minimum, the debrief covers CRM/Human Factors (HF) performance, compliance with SOPs, recording of any aircraft defects, and debriefing maintenance personnel and operational facilities staff (management and infrastructure) as required.

Guidance documents

- ICAO Annex 6

FLIGHT PROCEDURES

35. Flight following

35A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

35B. Expectations

The Aircraft Operator has established flight following procedures.

35C. Processes and practices

35C.1   Flight following is achieved by Air Traffic Control (ATC) delivered radar, voice or electronic surveillance. A satellite flight following system is installed that records aircraft position when the aircraft is outside an effective ATC surveillance service (Radar, Voice or Automatic Dependent Surveillance – Broadcast (ADS-B)).

35C.2   Satellite position reporting frequency is a maximum interval of two minutes.

35C.3   The system and processes in place are appropriate to the environment and mission. As a minimum the following is required:

35C.3.1   When satellite tracking is in use, the aircraft's position is shown on a monitor which is in direct view of trained operations personnel who keep the aircraft under constant surveillance during the whole flight.

35C.3.2   When the aircraft is not under ATC surveillance, aircraft operator's flight following personnel are able to initiate the Emergency Response Plan (ERP) if required. There is a reliable means of direct communication available between the aircraft and flight follower throughout the flight. Activation of an ERP occurs in event of distress or loss of communications.

35C.4   The flight following system is not to be unserviceable for more than one day. In the event of unserviceability, the following applies:

35C.4.1   When the aircraft is not under ATC surveillance and the satellite flight following system is inoperative, procedures are in place for regular "ops normal" radio calls at least every 15 minutes. Such calls include heading, speed, and position, and are recorded in a log.

Guidance documents

- ICAO Global Aeronautical Distress & Safety System (GADSS).

36. Reserved

FLIGHT PROCEDURES

37. Bird strike avoidance

37A. Purpose

Ensuring effective bird control measures are in place to minimize bird strikes

37B. Expectations

The Aircraft Operator has established procedures to minimize the risk of bird strikes

37C. Processes and p ractices

37C.1　Aircraft routing considers bird sanctuaries, known nesting areas, and migratory bird paths as far as practical.

37C.2　In the area where bird strike risk is identified, mitigating actions are implemented by the aircraft operator including documented defined, speed and altitude limits and the use of personal safety equipment if appropriate.

37C.3　Reserved

37C.4　The aircraft routing and mitigation procedures are tracked in FDM.

Guidance documents

- BARS Contracted Air Operation

FLIGHT PROCEDURES

38. Cabin area cargo

38A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits

38B. Expectations

Cabin area cargo is correctly secured

38C. Processes and practices

38C.1   Cargo carried inside the passenger compartment is adequately secured.

38C.2   Blocking of exits/emergency exits with cargo is done in accordance with the aircraft flight manual.

38C.3   Cargo carried in the cabin is subject to approval by the Company.

Guidance documents

- ICAO Annex 6

FLIGHT CREW TRAINING

39. Flight crew training – records and programmes

39A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

39B. Expectations

The Aircraft Operator maintains training documentation for flight crew

39C. Processes and practices

39C.1 Comprehensive training documentation and competence assessment is maintained, including details of training programmes and the required training frequency.

Guidance documents

- ICAO Annex 6

FLIGHT CREW TRAINING

40. Flight crew recency

40A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate competence and recent experience

40B. Expectations

The Aircraft Operator has a documented type and role programme for recency and absence of flight crew

40C. Processes and practices

40C.1 Flight crew maintain the recency requirements in Table 40-1

Table 40-1: Flight crew competence and recency requirements

Requirement	Recency
Total hours previous 60 days	15 hours on contracted type (See note 1)
Recency previous 90 days	3 cycles on contracted type (see notes 2, 3 and 4)
For night operations, night recency previous 90 days	3-night cycles on contracted type (See notes 2, 3, 4 and 5)
IFR recency, previous 90 days	3 instrument approaches
Instrument Ratings	Requires to be tested at periods not exceeding 13 months (instrument base checks at 6 monthly intervals)
Experience in the topographical area and in the type of operations specified (note 6)	One-year experience in areas similar to that specified in the contract (e.g., Arctic, mountain, desert, jungle, etc)

Table Notes:

1. If hours are not met, a line check on the contracted type (a dedicated flight or a normal revenue flight) is conducted with a designated Line Training Captain (LTC) or TRI. The flight includes at least a sector flying as PM and another sector as PF. The Company Aviation Advisor is to be notified each time a recency flight was required.
2. If the cycles are not met within 90 days, a flight with a LTC/TRI is made to regain recency.
3. One cycle consists of a take-off, approach, and landing.
4. A take-off, approach, and landing at night can count as a day cycle.
5. Use of a simulator of the same type or series being flown is acceptable to meet the night recency requirements, provided this is acceptable under national legislation, and it has the sufficient visual fidelity.
6. Co-pilots with less than one year of similar topographical experience may be used if, following their initial ground school and competence-based simulator courses, these co-pilots perform in the aircraft, and under the supervision of a LTC/TRI, the following:
   • Fly as an observer in the jump seat or as a crewmember on a non-revenue flight.
   • Fly as an observer in the jump seat or as a crewmember for at least one flight into each of the airfields used regularly for operations, prior to the new co-pilot acting as a crewmember in the co-pilot's seat
   • Five take-offs, approaches, and landings by night, prior to flying on the line in the co-pilot seat by night (if applicable)
   • Fly in the co-pilot's seat with a LTC/TRI for at least the first 50 hours on line
   • Successful completion of a full co-pilot flight evaluation flight for suitability as a line co-pilot after completion of the above.

Guidance documents

• ICAO Annex 6

FLIGHT CREW TRAINING

41. Flight crew training – recurrent training and maintenance check flights

41A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

41B. Expectations

The Aircraft Operator has established a recurrent training programme for flight crews

41C. Processes and practices

41C.1   All pilots receive recurrent training and checking to the standards of the NAA, including a six-monthly aircraft operator proficiency check (OPC).

41C.1.1   One of these proficiency checks includes an annual instrument rating and licence renewal proficiency check (LPC).

41C.1.2   A six-monthly Operational Proficiency Check (OPC) which includes emergency drills.

Note. See 691-2 Aircraft Operations, Section 43, Use of Flight Simulation Training Devices – General, 43C.1, and Section 44, Use of Flight Simulation Training Devices – Devices, item 44C.1.

41C.2   Where distinct climatic seasons exist, training is related to seasonal changes.

41C.3   Before being scheduled for flight duties in a new location, a risk assessment is completed for each airfield and crews are trained on how to review the assessment and incorporate it in threat and error management planning.

41C.4   The aircraft operator develops a specific training program for complex Maintenance Check Flights (MCF), appropriate for the complexity of the aircraft and the level of the MCF required. If required, the aircraft operator assigns this MCF training program to a specific selection of flight crew and as required, engineers. See 691-4 - Engineering, Section 18 – Maintenance Check Flights.

Guidance documents

- ICAO Annex 6

FLIGHT CREW TRAINING

42. Rostering flight crew

42A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience.

42B. Expectations

The Aircraft Operator has established a rostering policy for flight crew.

42C. Processes and practices

42C.1   The operator has a rostering policy which covers at least:

42C.1.1   Rostering pilots who:

42C.1.1.1   Hold a valid and current license as appropriate

42C.1.1.2   Hold a valid aircraft rating and instrument rating

42C.1.1.3   Meet the customer and operator recency requirements

42C.1.1.4   Hold a valid medical certificate

42C.1.1.5   Are competent for the rostered flight

42C.1.1.6   Are compliant with all FDT and FTL limitations for the scheduled flight

42C.1.2   Rostering pilots in a new environment

42C.1.3   Not rostering co-pilots with less than 500 hours multi-engine and multi-crew with any commander who has less than 100 hours PIC since command appointment on the contracted type

42C.1.4   Avoiding the rostering of pilots continuously together causing possible familiarity complacency on the base

42C.1.5   Reserved

42C.1.6   When rostering crews for night operations, crews are "paired" to avoid a crew having a low total or recent night experience

Guidance documents

- ICAO Annex 6

FLIGHT CREW TRAINING

43. Use of flight simulation training devices – general

43A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

43B. Expectations

Flight Crews conduct training in suitable Flight Simulation Training Devices (FSTDs)

43C. Processes and practices

43C.1   Flight crews are to be seated at their normal flight control stations to receive credit for simulator time.

    43C.1.1   Pilots who operate in either seat are trained and checked in both seats in accordance with the operator's training manual.

43C.2   FSTDs include landing area visual, weather experienced, simulations that are representative of those being used by the aircraft operator, including for example, aerodrome visuals with markings representative of those being used in daily operations.

43C.3   Instructors can communicate effectively with the trainees.

43C.4   Where differences exist between the aircraft and training devices (e.g., equipment fit, software version), a gap analysis is conducted, and suitable mitigations applied.

Guidance documents

- ICAO Doc 9625 Vol 2

FLIGHT CREW TRAINING

44. Use of flight simulation training devices – devices

44A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

44B. Expectations

Flight Crews conduct training in suitable FSTDs every six months

44C. Processes and practices

44C.1 Flight crew undergo recurrent training and checking (including OPC/LPC/IR check) in an approved FSTD at a frequency of at least every six months. Level C or Level D FFS (or type -specific Type III, IV or V devices as described in ICAO Doc 9625 Vol 2) are used where available for the type. See 691-2 Aircraft Operations, Section 41, Flight crew training – recurrent training and maintenance check flights, item 41C.1.

44C.2. The FSTD training syllabus incorporates Line Orientated Flight Training (LOFT) scenarios and TEM training, including those emergencies that cannot be practised in the air.

44C.3 Use of a simulator of the same type and series being flown with a lower certification/specifications mentioned in 44C.1, is used if agreed by the Company provided the device has the capability of simulating the approach and landing to relevant airfields. In addition, the specific device to be used is approved for that use by the relevant NAA.

Guidance documents

- ICAO Doc 9625 Vol 2

FLIGHT CREW TRAINING

45. Introduction of new aircraft types

45A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

45B. Expectations

The Aircraft Operator has a documented conversion syllabus when introducing a new aircraft type conversion syllabus

45C. Processes and practices

45C.1   When new types are introduced into service, an introduction into service programme is developed with the Company.

45C.2   The programme is approved by the NAA and is run either by the OEM or by an approved and licenced Approved Training Organization (ATO); if applicable, it includes time spent in an FSTD.

45C.3   The hours to be achieved during type conversion or an initial type rating (including any initial conversion training) is agreed with the Company.

Guidance documents

- ICAO Annex 6

OTHER TRAINING

46. Other training - crew resource management

46A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

46B. Expectations

The Aircraft Operator has a CRM training programme in place for all crew

46C. Processes and practices

46C.1   CRM concepts are embedded in line operations including checklists, briefings, abnormal and emergency procedures. The aircraft operator CRM system, approved by the NAA if required, includes the following components:

46C.1.1   Initial classroom-based training.

46C.1.2   Annual recurrent training, including in-person classroom training and aircraft type training elements

46C.1.3   CRM command course training

46C.1.4   Periodic assessment and competency

46C.2   The CRM training programme provides the following:

46C.2.1   A standard training syllabus for every crew member

46C.2.2   An additional training programme tailored specifically to the operator

46C.3   The initial classroom-based training covers, as a minimum, the following 10 topics:

46C.3.1   TEM procedures and techniques

46C.3.2   Effective communication and coordination, including the effects of cultural differences

46C.3.3   Situational awareness, information acquisition, and processing

46C.3.4   Pressure and stress

46C.3.5   Fatigue and vigilance

46C.3.6   Workload management, human performance and limitations

46C.3.7   Monitoring, intervention, decision building

46C.3.8   Leadership and team building

46C.3.9   Automation, philosophy on the use of automation and technology management

46C.3.10   Relevant case studies appropriate to the aircraft operator and type of operations

46C.3.11   Error avoidance

46C.3.12   Threat management

46C.3.13   Error management

46C.3.14   Undesired aircraft state management

OTHER TRAINING

46C.4 The annual recurrent CRM training covers, as a minimum, the following:

    46C.4.1   TEM procedures and techniques

    46C.4.2   In-depth review of a minimum of three core elements as found in 46C.3.2 – 46C3.10 above. On a three-year cycle, all nine topics are covered.

    46C.4.3   Review and discussion of current safety trends with the Operator's specific operations and industry case studies.

    46C.4.4   Crew member evacuation drills, including de-briefing.

    46C.4.5   The recurrent training to be in-person classroom training every third year.

46C.5 The operator develops the above CRM training programme tailored to the size and scope of their operations and pays particular attention to the current state of human factors and technology interface in the operational environment.

46C.6 The CRM is integrated in every stage of training. Whenever practicable, parts of the CRM training are conducted in FSTDs that reproduce a realistic operational environment and permit interaction, this includes LOFT scenarios. The OPC to include a LOFT section during which a complementary CRM assessment is completed in conditions that reproduce a realistic operational environment.

46C.7 The non-technical skills are assessed, if possible.

46C.8 CRM training is reviewed at least every three years for effectiveness based on output from the operator's management system and is adjusted with the regular output/outcome of the FDM and LOSA programme (see 690-1 Safety Management Systems, Section 14, Line Operations Safety Audit).

46C.9 While CRM training can be delivered by different means, some components of training are facilitated using a specific training, e-learning, Computer Based Training (CBT), and self-study; however, these may only be used as a pre-requisite for classroom trainer/facilitation.

46C.10 The operator documents the competence and training requirements of the CRM trainer/facilitator. As a minimum, the CRM trainer/facilitator has:

    46C.10.1   Adequate knowledge of CRM

    46C.10.2   Adequate knowledge of Human Performance and Limitations (HPL)

    46C.10.3   Completed CRM training themselves

    46C.10.4   Adequate knowledge of the operational environment of the specific operator

    46C.10.5   Adequate knowledge, skills and credibility required to deliver the CRM training elements in the non-operational environment

46C.11 The CRM trainer/facilitator competence to be assessed every three years through a documented aircraft operator procedure.

Guidance documents

- EASA ORO.FC.115 Crew resource management (CRM) training.
- FAA AC 120-51E - Crew Resource Management Training.
- ICAO Doc 9683 – Human Factors Training Manual.

OTHER TRAINING

47. Other training – dangerous goods training

47A. Purpose

Ensuring only appropriately packaged and documented dangerous goods are carried in the appropriate aircraft hold locations

47B. Expectations

The Aircraft Operator has a dangerous goods training programme in place

47C. Processes and practices

47C.1 Dangerous goods awareness training, compliant with NAA requirements, is in place for all flight crew, cabin crew, technical crew, and appropriate ground staff as mandated under ICAO/IATA Technical Instructions - at least every two years to ensure that they are aware of the requirements, including relevant legislation, limitations and documentation, for the carriage of hazardous materials.

Guidance documents

- ICAO Annex 18
- IATA Dangerous Goods Regulations

OTHER TRAINING

48. Flight crew – emergency and safety equipment training

48A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

48B. Expectations

The Aircraft Operator has a training programme in place for the use of emergency and safety equipment

48C. Processes and practices

48C.1   Conduct initial emergency and safety equipment training during contracted type conversion for all aircraft crew members that includes instruction on the location and operation of all emergency equipment and at least every three years thereafter.

48C.2   The emergency and safety equipment training and testing is carried out on equipment representative of that carried in the contracted aircraft.

48C.3   Maintain documented records of the training completed.

OTHER TRAINING

49. Reserved

50. Reserved

ROLE SPECIFIC TRAINING

51. Role specific training – control guarding

51A. Purpose

Preventing injuries following an accidental flight control input while engines or propellers are running on the ground

51B. Expectations

Flight controls are guarded during embarkation/disembarkation

51C. Processes and practices

51C.1   When loading or unloading passengers from aeroplanes with engines or propellers running, procedures are in place to ensure that safe transit to and from the aircraft is maintained. A member of the flight crew guards the controls and only performs cockpit duties related to the identification of external hazards and passenger movement around the aircraft.

52. Cabin crew members - training

52A. Purpose

Ensuring safety critical personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

52B. Expectations

Cabin Crew Members complete a formal and documented course of training.

52C. Processes and practices

52C.1 Document and provide National Aviation Authority (NAA) approved ground and flight training so that all technical/cabin crew (whether employed or subcontracted) are trained to act as technical/cabin crew on a specific aircraft type and/or in specific roles and operations aligned with pilot training, where applicable.

52C.2 Document and provide NAA-approved checks to assure the competence of all cabin crew (whether employed or subcontracted) to operate on a specific aircraft type and/or in specific roles and operations.

52C.3. Complete an approved HF/TEM/CRM training programme at least every two years.

52C.4. Require and verify that all training personnel (whether employed or subcontracted) are qualified to NAA requirements and use standard company procedures for their assigned tasks.

52C.5. Maintain records of all training and retain records for three years, including training carried out by third parties.

52C.6. Maintain a documented training process which is updated to reflect current procedures, is available to all operational personnel process and is approved by the NAA (if applicable), to include training syllabi and checking programmes.

52C.7. Require and verify that training facilities, devices and course materials reflect the configuration of the aircraft for which the respective training is being provided.

53. Use of Oxygen

53A. Purpose:

To ensure the safety of the aircraft and occupants at high cabin pressure altitudes

53B. Expectations

Supplemental oxygen supplies are available and used.

53C. Processes and practices

53C.1   Require each crew member to wear an oxygen mask and use supplemental oxygen for any part of the flight at cabin pressure-altitudes above 10,000 ft. (700 hPa) but not exceeding 13,000 ft. (620 hPa) that is more than 30 minutes in duration.

53C.2. Require all persons on board the aircraft to wear an oxygen mask and use supplemental oxygen at cabin pressure- altitudes above 13,000 ft. (620 hPa).

53C.3. Require the pilot at the flight controls to wear an oxygen mask and use supplemental oxygen if an aircraft is not equipped with quick-donning oxygen masks and flying above FL250.

53C.4. Require the pilot at the flight controls to wear use an oxygen mask and use supplemental oxygen if the other pilot leaves the flight deck for any reason above FL 350, except in defined situations.

53C.5. Crew operating aeroplanes operating above 10,000 ft have attended a one-time hypoxia course.

54. Aeroplane de-ice and anti-ice

54A. Purpose

Aeroplane performance is not degraded due to accumulations of snow and ice on fuselage, wings and control surfaces

54B. Expectations

Aeroplanes are free from snow and ice during pre-flight in sections and prior to flight

54C. Processes and practices

54C.1 Aircraft operators ensure that aircraft are free from snow and ice during pre-flight inspections.

55C.2 If any accumulation of snow or ice is present, the aircraft is de-/anti-iced.

55C.3 Aircraft operator's operations and training manuals include flight crew actions to be followed for de-/anti-icing which include the following and are type specific to the aircraft model to be used:

55C.3.1 Training on the recognition of surface contamination, de-/anti-icing procedures, and the use of hold over timetables

55C.3.2 Examination of the aircraft surfaces for contamination is completed within five minutes prior to take off.

55C.3.3 Inspection and clearance of any openings (engine or heater intakes, pitot static openings, wheel wells, fuel vents, elevator and rudder controls, control tubes, etc.) for snow/ice obstruction that could affect normal operations during and/or after blowing snow conditions.

(if operator has approval to use holdover times) and responsibilities.

55C.3.4 De-/anti-icing procedures, fluids, and methods authorized for use.

55C.3.5 Verification from the ground crew that the de-icing has been completed and of the holdover time start if the operator has an approved de-icing programme.

55C.3.6 Checking of the aircraft exterior post de-/anti-icing.

Guidance documents

- ICAO Annex 6
- ICAO Doc 9640

IOGP REPORT 691-3
Support Operations

PASSENGER HANDLING

1. Passenger check-in

1A. Purpose

Ensuring manifests are accurate, and that passengers are appropriately escorted and seated

1B. Expectations

A passenger check in process is established

1C. Processes and practices

1C.1   A process is in place to verify the identity of passengers prior to boarding, ensure they meet safety training requirements where appropriate, medical or other currency requirements, searched for prohibited items (prohibited either in-flight or at the destination) and deny boarding to passengers who are disruptive.

Guidance documents

- ICAO Annex 9 Appendix 2

PASSENGER HANDLING

2. Passenger holding areas

2A. Purpose

Ensuring the physical design of aerodromes, their markings, lighting, emergency cover, and all ancillary systems are suitable for safe operations

2B. Expectations

A suitable passenger holding area is provided

2C. Processes and practices

2C.1   The passenger holding area includes:

    2C.1.1   A designated area for the passenger and freight check-in process and security checks, i.e., for weighing and registering all outgoing passengers (where necessary), baggage, and freight on calibrated scales.

    2C.1.2   A dedicated and secure waiting area for outbound passengers that separates them from incoming passengers.

    2C.1.3   A designated area for the display of written and graphic information related to aircraft safety and local procedures.

    2C.1.4   Reserved

    2C.1.5   Reserved

    2C.1.6   A baggage collection area for incoming passengers.

    2C.1.7   A separated and secure area for holding checked-in baggage.

    2C.1.8   A screened/private passenger search/testing area.

Guidance documents

- ICAO Annex 6
- ICAO Annex 17

PASSENGER HANDLING

3. Alcohol and drugs

3A. Purpose

Ensuring passengers are qualified and approved to travel, and are free of prohibited items

3B. Expectations

Passengers are fit to travel

3C. Processes and Practices

3C.1   Personnel under the influence of alcohol or non-prescription drugs are prohibited from boarding any aircraft.

3C.2   Check-in and security staff are trained to recognize the signs of substance abuse and alert their management for appropriate action to remove the passenger from the flight.

Guidance documents

- ICAO Annex 9 Chapter 6.43, 6.44
- ICAO Doc 10117 (Manual on the Legal Aspects of Unruly and Disruptive Passengers)

PASSENGER HANDLING

4. Passenger and baggage weights

4A. Purpose

Ensuring the accurate and safe loading of aircraft, within approved limits

4B. Expectations

For aeroplanes carrying 30 passengers or fewer, passenger and baggage weights are accurate

4C. Processes and practices

4C.1   For aeroplanes with less than 30 seats, actual weights are used for passengers and all baggage (including hand baggage).

4C.1.1   Where the use of actual weights is impractical/not possible, standard weights are used and a validation process is documented.

4C.2   Weighing scales are calibrated throughout the full range of measurement, as per manufacturer's recommended intervals. If a manufacturer's interval is not specified/ available, the scales are calibrated annually.

Guidance documents

- ICAO Annex 6
- BARS Contracted Aircraft Operations

5. Reserved

6.   Reserved

PASSENGER HANDLING

7. Passenger briefing

7A. Purpose

Ensuring passengers have the necessary knowledge to safely board, disembark, and evacuate the aircraft

7B. Expectations

Passengers are adequately briefed before the flight

7C. Processes and Practices

7C.1   Passengers are briefed on emergency procedures and other safety matters prior to every flight. A video briefing or a briefing by the flight crew/cabin crew are acceptable.

7C.2   Passenger briefings are tailored to the specific design features and equipment of the aircraft to be used. If there are minor differences in configuration between the briefing and aircraft to be used, a supplementary briefing on the aircraft or using illustrations of the differences is provided before flight. Differences are minor if they are easy to understand and identify, do not introduce risk of injury if misused, and have no adverse effect on survivability.

7C.3   Reserved.

7C.4   Briefings are conducted in the language of the operator and/or the state of departure and destination as well as in English. In locations where some passengers do not fully understand the language used for the briefing, any video briefing contains subtitles in the local language. Flight crew members assist with translation if necessary.

7C.5   There is a safety briefing card for each passenger seat containing information on safety equipment and emergency procedures, including the brace position. The cards use graphics with international symbols, or have information added in the local language(s) if required.

7C.6   The passenger briefing includes (as appropriate to the operation):

    7C.6.1   A general description of the aircraft and the danger areas around engines, propellers and auxiliary power unts, including safe and unsafe directions of approach

    7C.6.2   Reserved

    7C.6.3   Procedures for boarding and exiting the aircraft; passengers are required to remain seated until the flight/ground crew or other designated personnel open the doors and instruct them to disembark

    7C.6.4   Proper storage of hand carried items

    7C.6.5   Instructions that smoking and the use of electronic cigarettes are prohibited at all times in aircraft, or on the aircraft movement area

    7C.6.6   Instructions that seat belts and shoulder harnesses (for side facing seats) are required to be worn when seated, other than when embarking/disembarking

PASSENGER HANDLING

7C.6.7   Instructions on the use of personal electronic devices, if permitted

7C.6.8   The location and operation of doors, emergency exits, emergency and lifesaving equipment such as fire extinguishers, first aid kits, life jackets, life rafts, survival gear, and emergency radio equipment (ELT and Emergency Position Radio Indicating Beacon (EPIRBs)) as appropriate to the aircraft type

7C.6.9   Actions to be taken in the event of emergencies, including the brace position .

7C.6.10   Procedures for evacuating an aircraft in the event of an emergency landing on the water or ditching, including the use of reference points for orientation, reminders to not inflate life jackets until outside the aircraft

7C.6.11   The means of communication between crew and passengers

7C.6.12   The location and review of passenger briefing card

7C.6.13   The use of hearing protection, if required

7C.6.14   The brace position to be adopted in an emergency landing

7C.7   Reserved

Guidance Documents

- ICAO Annex 6
- ICAO Doc 10086

PASSENGER HANDLING

8. Cargo - weighing and documentation

8A. Purpose

Ensuring the accurate and safe aircraft loading within approved limits

8B. Expectations

Cargo is correctly weighed and recorded in the manifest

8C. Processes and practices

8C.1   Each piece of cargo offered for transport by air is weighed separately and recorded in the manifest, or equivalent.

8C.2   The contents of each piece of cargo is verified against the manifest, or equivalent by its packing list or by visual inspection

8C.3   Weighing scales are calibrated throughout the full range of measurement, as per manufacturers recommended intervals. If a manufacturer's interval is not specified/ available, the scales are calibrated annually.

Guidance documents

- ICAO Annex 6

PASSENGER HANDLING

9. Cargo – dangerous goods

9A. Purpose

Ensuring only appropriately packaged and documented dangerous goods (DG) are carried in the appropriate aircraft hold locations

9B. Expectations

The aircraft operator has an appropriate DG programme in place

9C. Processes and practices

9C.1   Where the carriage of DG by the aircraft operator is authorized, procedures comply with the ICAO Technical Instructions or the IATA DG Regulations and with local regulatory requirements. These include the training of relevant ground staff and the provision of the correct documentation for all DG shipments.

9C.2   Where DG are not carried, DG Awareness training, compliant with local regulatory requirements, is in place for all relevant ground staff at least every 2 years to prevent the carriage of undeclared dangerous goods in passengers' baggage and consigned freight.

9C.3   Provisions for dangerous goods carried by passengers or crew. Limitations for Portable Electronic Devices (PED), batteries, including lithium metal or lithium ion cells or batteries, and specified ignition sources are in place. This includes spare or loose batteries.

9C.4   At a minimum, these cover:

    9C.4.1   Check-in procedures, including passenger declarations

    9C.4.2   Forbidding charging PED in-flight

    9C.4.3   Mitigation measures – flame/smoke containment bag, etc.

    9C.4.4   E-cigarettes (if permitted) have batteries removed

    9C.4.5   Checked in PED are switched off

    9C.4.6   No transport of loose lithium batteries

Guidance Documents

- IATA Dangerous Goods Regulations
- US FAA 49 CFR 175.10(q)(18)

PASSENGER HANDLING

10. Manifests

10A. Purpose

Ensuring manifests are accurate

10B. Expectations

A record of passengers and cargo carried is created for each flight

10C. Processes and practices

10C.1   The manifest, or equivalent, is developed from the published flight schedule containing the following information, at a minimum:

    10C.1.1   Aircraft registration

    10C.1.2   Flight number (if applicable)

    10C.1.3   Passenger name

    10C.1.4   Passenger company affiliation

    10C.1.5   Passenger weight (actual or standard weights used – see 691-3, Section 4)

    10C.1.6   Passenger baggage weight

    10C.1.7   Cargo weight

10C.2   The manifest, or equivalent, may be hand-written or generated from a computer-based system. Where a hand-written manifest is used, a copy is left with a responsible person on the ground who retains it until the flight is completed.

10C.3   Where a flight involves multiple sectors, a single consolidated manifest, or equivalent, is generated for each sector and provided to the pilot.

10C.4   Any last-minute changes are incorporated, and the manifest, or equivalent, is revised accordingly.

Guidance documents

- ICAO Annex 6
- ICAO Annex 9

11. Reserved

12. Reserved

13. Reserved

14. Reserved

15. Reserved

16. Reserved

AERODROME

17. Aerodrome - Passenger control

17A. Purpose

Ensuring that passengers are appropriately escorted

17B. Expectations

Passengers are properly controlled

17C. Processes and practices

17C.1   Passenger handling staff are used to control passenger movements in aerodromes.

17C.1.1   At locations where ground staff is limited or absent, the flight/cabin crew control passenger movements.

Guidance documents

- ICAO Annex 17

AERODROME

18. Refuelling with passengers embarking, on board, or disembarking

18A. Purpose

Ensuring safety of passengers during refuelling with passengers embarking, on board or disembarking

18B. Expectations

The aircraft operator has established a procedure for refuelling with passengers embarking, on board, or disembarking

18C. Processes and practices

18C.1   The aircraft operator has documented procedures for the conduct of refuelling with passengers embarking, on board, or disembarking, where this is permitted, and this has been subject to a risk assessment.

18C.2   When refuelling with passengers on board, ground servicing activities and work inside the aircraft, such as catering and cleaning, are conducted in such a manner that they do not create a hazard and allow emergency evacuation to take place through those aisles and exits intended for emergency evacuation.

18C.3   The procedures include the following, in addition to any local regulatory requirements:

18C.3.1   One qualified person remains at a specified location during fuelling operations with passengers on board. This qualified person is capable of handling emergency procedures concerning fire protection and firefighting, handling communications, and initiating and directing an evacuation.

18C.3.2   Two-way communication is established and remains available by the aeroplane's inter-communication system, or other suitable means, between the ground crew supervising the refuelling and the qualified personnel on board the aeroplane; the involved personnel remain within easy reach of the system of communication.

18C.3.3   Crew, personnel, and passengers are warned that refuelling will take place.

18C.3.4   Passengers are instructed to unfasten their seat belts.

18C.3.5   The minimum required number of cabin crew are on board and are prepared for an immediate emergency evacuation.

18C.3.6   If the presence of fuel vapour is detected inside the aeroplane, or any other hazard arises during refuelling, fuelling is stopped immediately.

18C.3.7   The ground area beneath the exits intended for emergency evacuation and slide deployment areas are kept clear at doors where stairs are not in position for use in the event of evacuation.

18C.3.8   Provision is made for a safe and rapid evacuation.

18C.3.9   Firefighting capability is available and manned with trained personnel

AERODROME

18C.4 After refuelling, a member of the crew verifies to the flight crew the fuel quantity uplifted and that all equipment has been removed, the fuel cap has been replaced securely and the aircraft is properly configured for flight.

Guidance documents

- EASA CAT.OP.MPA.195.

19. Ground operations staff – training and competence

19A. Purpose

Ensuring personnel have appropriate training, qualifications, knowledge, skills and experience

19B. Expectations

Ground operations staff, including check-in and security staff, are appropriately qualified, experienced and competent

19C. Processes and Practices

19C.1   There is a training programme which provides ground operations staff with appropriate initial and subsequent training as defined by their roles and responsibilities and includes details of the accepted training providers, training syllabi and persons/organizations responsible for training.

19C.2   A training and authorization record is maintained for all personnel.

19C.3   All training is tracked in an appropriate process.

19C.4   Ground operations staff are subject to competence assessments at least every three years.

19C.5   Staff involved in passenger/baggage/freight handling are trained in dangerous goods handling.

19C.6   For further information see 691-2, Section 4, Drug and alcohol policy.

Guidance Documents

- ICAO Annex 17
- ICAO Annex 18

IOGP REPORT 691-4
Engineering

1. Basic principles

1A. Purpose

Ensuring aircraft are airworthy and reliable

1B. Expectations

The Aircraft Operator provides airworthy aircraft and demonstrates that continuing airworthiness activities and aircraft maintenance are performed in accordance with its approved Maintenance Control Manual (MCM)

1C. Processes and Practices

1C.1   All appropriate organizational approvals and certificates as required by the National Aviation Authority (NAA) are in place.

1C.2   A competent manager (Post-holder, Department Manager, or equivalent), is accountable for the aircraft operator's management of continuing airworthiness and maintenance, or any contracted continuing airworthiness or maintenance organizations. Where applicable they are approved by the NAA.

1C.3   The aircraft operator has an internal Aircraft Maintenance Organization (AMO) or a contract with an external AMO to perform maintenance activities for the aircraft operator. This details the scope of contracted activity and the interfaces between the operator and the contracted party.

1C.4   The aircraft operator's continuing airworthiness management has a process to communicate requirements, such as formal work orders, to the internal or contracted AMO, clearly describing what maintenance is required, when it has to be performed and to what standard, based on manufacturers' recommendations or the Aircraft Maintenance Programme (AMP).

1C.5   The aircraft operator has a MCM or equivalent document which meets the requirements of ICAO Annex 6 Part III Chapter 6.2.

Guidance documents

- ICAO Annex 6
- ICAO Doc 10086

CONTINUING AIRWORTHINESS

2. Continuing airworthiness - management

2A. Purpose

Ensuring aircraft are airworthy and reliable

2B. Expectations

The Aircraft Operator is responsible for the continuing airworthiness of its aircraft

2C. Processes and practices

2C.1　An AMP is developed and reviewed in accordance with applicable regulations and approved by the NAA.

2C.2　All airworthiness data and instructions are reviewed and managed, including any Airworthiness Directives (ADs) from the applicable NAA and Service Bulletins (SBs) from the Original Equipment Manufacturer (OEM) or Supplemental Type Certificate (STC) holder.

2C.3　Any operational directives or other measures mandated by the governing airworthiness authority in response to a safety issue or an issue reported by a relevant authority are implemented.

2C.4　All defects or damage affecting safe operation, are rectified in accordance with applicable regulations or managed in accordance with the approved Minimum Equipment List (MEL), or contract Minimum Departure Standard (MDS).

2C.5　Maintenance data is retained (see Section 5.2.3 Maintenance Data).

2C.6　All maintenance is planned in accordance with the AMP.

2C.7　All maintenance is controlled and it has been executed by an AMO to the required standard and in adherence to applicable regulations and maintenance data.

2C.8　Modifications are accomplished using data approved by the governing NAA.

2C.9　All continuing airworthiness records (e.g., airframe/ engine logbooks, life limited parts, and log cards), including the aircraft operator technical log are properly managed in accordance with the aircraft operator's procedures.

2C.10　The aircraft configuration is monitored and it reflects the current status of the aircraft in accordance with the Type Certificate (TC).

2C.11　Procedures are developed to be included in a manual approved by the NAA, to identify the numbers, duties and responsibilities, qualifications and competence of the staff employed to accomplish the above tasks; and how airworthiness related activities, including those described above, will be accomplished.

Guidance documents

• ICAO Annex 6

CONTINUING AIRWORTHINESS

3. Continuing airworthiness – approved maintenance programme

3A. Purpose

Ensuring aircraft are airworthy and reliable

3B. Expectations

The Aircraft Operator manages an AMP for each aircraft type operated

3C. Processes and practices

3C.1   The AMP complies with the following:

    3C.1.1   Instructions issued by the NAA

    3C.1.2   Instructions for continuing airworthiness issued by the OEM and holders of TCs and STCs

    3C.1.3   Instructions for continuing airworthiness issued by approved design organizations for modifications and repairs

    3C.1.4   Additional instructions proposed by the aircraft operator and approved by the OEM/STC holder and NAA

3C.2   The aircraft is only maintained according to one AMP.

3C.3   The AMP is approved by the NAA and is reviewed at least annually, considering the environmental conditions and aircraft utilization, to:

    3C.3.1   Ensure compliance with new and/or modified maintenance instructions included in the documents affecting the programme basis (e.g., from the OEM or Maintenance Review Board (MRB)

    3C.3.2   Evaluate the AMP effectiveness by monitoring systems, equipment and component reliability, aiming to reduce repetitive defects, malfunctions and damage to a minimal level.

    3C.3.3   Adherence to scheduling of inspection and maintenance tasks; the source of such scheduling includes internal or external organizations, MRBs, OEM instructions or directives from the governing airworthiness authority.

Guidance documents

- ICAO Doc 9760

CONTINUING AIRWORTHINESS

4. Continuing airworthiness – maintenance data

4A. Purpose

Ensuring maintenance is conducted to the approved maintenance programme and standards

4B. Expectations

The Aircraft Operator manages the appropriate maintenance data (any applicable requirement, AD, SB, or information issued by the OEM/STC holder and/or NAA)

4C. Processes and practices

4C.1   All airworthiness data and instructions including any ADs from the applicable NAA, are tracked.

4C.2   All ADs and SBs are evaluated using a documented assessment procedure.

4C.3   All mandatory SBs are embodied, and there is an embodiment policy regarding OEM/STC holder recommended/optional SBs and any applicable bulletins are applied to both aircraft and stored components.

4C.4   The maintenance of a list of compliance by airframe, engine, and STC installed appliance and developing a method to clearly demonstrate the status of compliance for each airframe and currently installed components.

4C.5   All applicable maintenance data, including manuals, is current and readily available for use by the continuing airworthiness and AMO staff.

4C.6   The current revision status, including temporary revision, of all applicable maintenance data and documentation within the organization (e.g., maintenance manuals, parts catalogues and bulletins) is tracked and checked against the source documents of the OEM. This includes all master copies and copies distributed to the AMO, out-stations, or contractors.

Guidance documents

- ICAO Doc 9760

CONTINUING AIRWORTHINESS

5. Continuing airworthiness - minimum equipment list/minimum departure standard

5A. Purpose

Ensuring aircraft are airworthy and reliable

5B. Expectations

The Aircraft Operator has a Minimum Equipment List (MEL)/Minimum Departure Standard (MDS) for each aircraft in the fleet

5C. Processes and practices

5C.1   The MEL is developed by the aircraft operator and based on, but is no less restrictive than, the OEM Master Minimum Equipment List (MMEL) and is approved by the NAA.

5C.2   Where permitted by local regulations, Non-essential Equipment and Furnishings (NEF) are incorporated into the MEL or a supplement to the MEL.

5C.3   The MEL/MDS are readily available to flight crews and maintenance personnel for reference.

5C.4   Required equipment as detailed in contract requirements, in addition to the MEL requirements, are controlled by an MDS, or equivalent.

5C.5   Notify the Pilot-in-Command (PIC) of all deferred defects that affect, or may affect, the safe operation of the aircraft so that the PIC retains the final decision on acceptance of an aircraft with deferred defects.

Guidance documents

- ICAO Annex 6 Part
- ICAO Doc 9760

CONTINUING AIRWORTHINESS

6. Continuing airworthiness – aircraft maintenance records

6A. Purpose

Ensuring maintenance is conducted to the approved maintenance programme and standards

6B. Expectations

The Aircraft Operator maintains proper maintenance and flight records

6C. Processes and practices

6C.1 Maintenance and flight records are maintained as required by applicable national regulations.

6C.2 Document an aircraft records process which, as a minimum, consists of the following documents:

6C.2.1 The airframe logbook

6C.2.2 The engine logbook(s) and related components log cards.

6C.2.3 The Auxiliary Power Unit (APU) logbook(s) (if applicable)

6C.2.4 Log cards for any Service Life Limit (SLL) and Time Between Overhaul (TBO) component

6C.2.5 The Aircraft Technical Log (ATL)

6C.2.6 The propellor log (if applicable)

6C.3 The above aircraft records contain complete and current:

6C.3.1 ADs, SBs, or information issued by the OEM/STC holder and NAA

6C.3.2 Status of modifications and repairs

6C.3.3 Status of compliance with the AMP

6C.3.4 Status of SLL components

6C.3.5 Weight and balance report

6C.3.6 List of deferred defects

6C.4 An ATL is used that meets local NAA requirements and:

6C.4.1 Details of the ATL content requirements are documented.

6C.4.2 All defects are immediately recorded in the ATL post-flight.

6C.4.3 There is provision for the PIC to sign and date such entries including, where appropriate, a nil defect state post-flight

CONTINUING AIRWORTHINESS

6C.5   All the above-mentioned continuing airworthiness records are managed by means of a reliable aviation maintenance software programme, or equivalent, capable of managing:

6C.5.1   Component tracking, including any condition-based penalties cycles from operational flight data (e.g., increased gross weight, start/stop engine cycles, One Engine Inoperative (OEI) events, etc.)

6C.5.2   Flight time tracking

6C.5.3   Logbook tracking

6C.5.4   Compliance tracking for all issued ADs and SBs

6C.5.5   Work Order management, including:

6C.5.5.1   The requirements of the approved AMP for each aircraft type

6C.5.5.2   Control of the forecasting and recording of aircraft and component maintenance as detailed within the appropriate AMP

6C.5.5.3   Details of the required maintenance "due lists" in terms of flying hours, cycles, landings or calendar intervals

6C.5.6   Inventory control

6C.5.7   Deferred defect tracking

6C.6   All maintenance records of work carried out on its aircraft are maintained to demonstrate that the work has been executed to the required standard.

6C.7   The records are stored in a secure manner that ensures protection from damage, alteration, and theft.

6C.8   Electronic records have a backup system which is updated at least every 24 hours.

Guidance documents

- ICAO Annex 6

CONTINUING AIRWORTHINESS

7. Continuing airworthiness – reliability programme

7A. Purpose

Ensuring aircraft are airworthy and reliable

7B. Expectations

The Aircraft Operator has a reliability programme in place appropriate to the size and complexity of the operation

7C. Processes and practices

7C.1   The aircraft operator has a reliability programme that monitors the effectiveness of the maintenance programme by recording, as a minimum:

    7C.1.1   Component Low Mean Time Before Unscheduled Removals (MTBUR) by aircraft type

    7C.1.2   Flight hour trends of non-serialized parts usage by aircraft type

    7C.1.3   Flight hour model trends of MEL/MDS usage by system by aircraft type

    7C.1.4   Flight hour pilot reported discrepancy trends by aircraft type

7C.2   There is a procedure in place to alert the OEM/TC/STC holder to any design feature that increases the risk of a critical error where practical.

7C.3   There is a procedure in place to regularly communicate reliability data with the OEM/TC/STC holder with a focus on improving low performing systems and extending inspection intervals (human error risk reductions) on repeated "no defect noted" inspections of non-flight critical systems where practical.

Guidance documents

- ICAO Annex 8
- ICAO Doc 9760

CONTINUING AIRWORTHINESS

8. Continuing airworthiness – workplace

8A. Purpose

Ensuring aircraft are airworthy and reliable.

8B. Expectations

The Aircraft Operator provides suitable accommodation for continuing airworthiness staff.

8C. Processes and practices

8C.1   Continuing airworthiness staff are provided with suitable office accommodation so that they can carry out their designated duties in a manner that contributes to upholding good standards.

8C.2   A dedicated space for a technical library is included in the accommodation, and fireproof lockers are provided for hard copies of airworthiness records.

Guidance documents

- ICAO Doc 9760

MAINTENANCE MANAGEMENT

9. Maintenance management – Aircraft Maintenance Organization procedures

9A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

9B. Expectations

The maintenance organization has a set of documented procedures

9C. Processes and practices

9C.1   Document procedures in a dedicated manual (e.g., Company Maintenance Manual and Maintenance Organization Exposition (MOE)) that is approved by the NAA and amended as necessary and reflects the actual organization processes in place.

9C.2   Document procedures for Quality Assurance (QA) or Quality Control (QC) to allow the maintenance organization to verify that all maintenance and administration is properly performed and to monitor compliance with procedures and regulatory requirements, including contracted maintenance.

9C.3   Ensure the supplier approval process and any contracted maintenance is appropriate for the scale and scope of work, and a list of current contracted (and sub-contracted) organizations is maintained.

Guidance documents

- ICAO Annex 8
- ICAO Annex 6

MAINTENANCE MANAGEMENT

10. Maintenance management - maintenance planning

10A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

10B. Expectations

An effective process for scheduling of maintenance is in place

10C. Processes and practices

10C.1 The planning of maintenance, in accordance with the AMP, is executed by using reliable software, or equivalent which allows for traceability.

10C.2 Formal work orders, or similar, listing each scheduled maintenance inspection/check/ repair/modification required, are issued by the Continuing Airworthiness Management and performed by the AMO.

Guidance documents

- ICAO Annex 8

MAINTENANCE MANAGEMENT

11. Maintenance management - maintenance records

11A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

11B. Expectations

The maintenance organization keeps detailed maintenance records, allowing the airworthiness status and history of the aircraft to be clearly established

11C. Processes and practices

11C.1 Detail accomplishment of each maintenance task in a work card or worksheet system (or electronic equivalent), which contains detailed records of the work carried out.

11C.2 Any parts utilized in the performance of said tasks are determined through the paper or electronic system.

11C.3 Maintenance records are neat, legible, and complete in accordance with aircraft operator procedures and local regulation.

11C.4 Staged Work Sheets (SWS) or computerized task cards are in place for complex tasks that require the use of multiple OEM maintenance manuals or reference materials, (e.g., engine changes) or are likely to be handed over between shifts.

    11C.4.1 SWS are in place for tasks where the aircraft operator is required to record information and has elected to utilize forms for the process.

    11C.4.2 SWS are part of a revision process to ensure engineers are using the correct revision of the technical publications.

    11C.4.3 Design the SWS to reduce the likelihood that steps within a complex task are inadvertently missed and to specifically identify the point(s) at which independent inspections are required as part of the task, or prior to it being hidden during subsequent work.

11C.5 Any duplicate/independent inspection requirement is clearly identified and signed off.

11C.6 Identifying stamps or electronic signatures are detailed in the aircraft operator procedures and are listed in the organization's documented processes against the names of the authorized personnel.

11C.7 The work cards or work sheets are collected into a work package which contains maintenance records in a structured manner.

11C.8 Maintenance records refer to the revision status of the maintenance data used.

11C.9 All maintenance records are checked for completeness and compliance as detailed in the aircraft operator procedures.

Guidance documents

- ICAO Annex 6

MAINTENANCE MANAGEMENT

12. Maintenance management - foreign object debris checks

12A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

12B. Expectations

The AMO has a process for a post-maintenance verification check for damage, security, tools, and equipment

12C. Processes and practices

12C.1 Implement a process to prevent Foreign Object Debris (FOD) on aircraft and components under maintenance.

12C.2 On completion of each maintenance task, a verification check is carried out to ensure the aircraft or component is clear of all tools, equipment, cleaning materials, such as rags, and any other extraneous parts and material, and that all access panels removed have been refitted correctly.

12C.3 The verification check is recorded on the maintenance work card system.

12C.4 Procedures are in place to conduct leak checks when any maintenance has been performed which compromises the integrity of the fuel, oil, hydraulic or pitot static systems.

12C.5 Prevent FOD in areas used for maintenance activities, engine ground running and flight line activities.

MAINTENANCE MANAGEMENT

13. Maintenance management - independent inspections (Note 1)

13A. Purpose

Ensuring design and continuing airworthiness practices minimize the probability and consequence of human error in maintenance

13B. Expectations

There is a procedure to clearly identify and document Critical Maintenance Tasks (CMT)

13C. Processes and practices

13C.1 CMTs are subject to an independent inspection, carried out firstly by an engineer holding a "Certificate of Release to Service (CRS)" authorization, who assumes full responsibility for the satisfactory completion of the work, then a second person not involved in the original task, or similar system (e.g. other engine), who confirms that no deficiencies have been found and that the work has been satisfactorily completed.

13C.2 The training, competence and authorization requirements for those staff approved to perform independent inspections on the aircraft or components are documented.

13C.3 CMT procedures are detailed for independent inspections during complex or lengthy tasks using staged worksheets (e.g., an engine or gearbox replacement, where independent inspections are performed at key stages of the overall task to ensure the current work is properly inspected and certified, before it is covered by further assembly).

13C.4 There is a procedure to alert the TC Holder or STC Holder to any design features or maintenance requirements that increase the risk of critical error if/when identified.

13C.5 CMTs are also identified as part of the aircraft operator's Safety Management System (SMS). These may include simple, repetitive tasks, which have been identified as being prone to error (engine cowling closure, oil caps) are subject to a secondary inspections and procedures are in place for these tasks.

13C.7 Other CMTs may include emergency safety equipment, as directed by the Company.

13C.8 Single engineer independent inspection processes or procedures are prohibited.

Note 1:
• The principle of additional inspections on critical aircraft systems is well understood and accepted.
• National Aviation Authorities (NAA) have given these additional inspections different titles: Duplicate Inspections by the UK CAA; Independent Inspections by CASA and EASA; Required Inspection Items (RII) by the FAA; and Dual Inspection or Independent Check by Transport Canada.

Guidance documents

• UKCAA CAA PAPER 2002/06

MAINTENANCE MANAGEMENT

14. Maintenance management – release to service

14A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

14B. Expectations

The aircraft operator has a documented system of maintenance control and release to service of all aircraft

14C. Processes and practices

14C.1   The aircraft operator will not operate an aircraft unless it is maintained and released to service by an AMO.

14C.2   Document a system of 'maintenance release to service' for all aircraft, whether the AMO is in-house or a contracted organization, that demonstrates the work specified in the work order is carried out in accordance with the applicable rules and an appropriately authorized engineer considers the aircraft/component ready for service.

14C.3   A CRS is then issued by appropriately authorized engineers, as authorized by the AMO, where it verifies that all maintenance, as required by the work order, has been properly carried out.

14C.4   Elementary work or servicing (e.g., oil changes and light bulb replacement) is performed under the supervision of an appropriately authorised engineer.

14C.5   Develop and document remote location procedures to manage any aircraft unserviceability at a location where maintenance support is not routinely provided.

Guidance documents

- ICAO Annex 16

MAINTENANCE MANAGEMENT

15. Maintenance observation programme

15A. Purpose

Ensuring SMSs are effective at gathering and analysing safety information, managing risk, providing assurance and ensuring continuous improvement

15B. Expectations

The Aircraft Operator has a structured Maintenance Observation Programme (MOP) in place

15C. Processes and practices

15C.1   Identify, understand and rectify weaknesses or errors within the organization via a structured MOP, which the operator or AMO has in place.

15C.2   Monitor maintenance practices at regular intervals using formal documented observations of maintenance activity and supporting processes at each operational location.

15C.3   Track and analyse the MOP data and implement appropriate action plans.

15C.4   Monitor the overall performance of the MOP programme in the QA/Compliance programme.

MAINTENANCE MANAGEMENT

16. Quality (Compliance Monitoring) System

16A. Purpose

Ensuring SMSs are effective at gathering and analysing safety information, managing risk, providing assurance, and ensuring continuous improvement

16B. Expectations

The Aircraft Operator and AMO has an independent Quality System (Compliance Monitoring), or QA System

16C. Processes and practices

16C.1 There is a system in place to review human errors in maintenance and quality through a Just Culture mechanism with the focus on improving company procedures and enhancing the barriers to prevent maintenance errors. Data is analysed to identify trends, by aircraft type/model and causal factors and appropriate action is put in place to address identified issues.

16C.2 For more details on quality assurance and compliance monitoring, see 691-1 Safety Management Systems, Section 11, Continuous Improvement - Assurance

Guidance documents

- ICAO Annex 8

MAINTENANCE MANAGEMENT

17. Occurrence reporting system

17A. Purpose

Ensuring a collaborative approach to sharing safety information to directly benefit the entire industry and all stakeholders

17B. Expectations

The Aircraft Operator and the AMO both have occurrence reporting systems in place

17C. Processes and practices

17C.1   A structured occurrence reporting system is in place that is integral to the AMO's SMS.

17C.2   For more details on occurrence reporting, see Report 691-1, Safety Management Systems, Section 8, Incident reporting, investigation, and learning.

Guidance documents

- ICAO Annex 19 Chapter 5

MAINTENANCE MANAGEMENT

18. Maintenance Check Flights

18A. Purpose

Ensuring aircraft are airworthy

18B. Expectations

The Aircraft Operator has documented procedures for Maintenance Check Flights (MCF)

18C. Processes and practices

18C.1 MCFs are carried out as required by:

18C.1.1   The Aircraft Maintenance Manual (AMM)

18C.1.2   The aircraft operator's continuing airworthiness management after maintenance

18C.1.3   For verification of a successful defect rectification or to assist with fault isolation or troubleshooting.

18C.2 The aircraft operator develops a specific training program for complex Maintenance Check Flights (MCF), appropriate for the complexity of the aircraft and the level of the MCF required. If required, the aircraft operator assigns this MCF training program to a specific selection of flight crew and as required, engineers. See 691-2 Aircraft Operations, Section 41 Flight Crew Training – Recurrent training and Maintenance Check Flights

18C.3 The flight crew and engineers perform a risk assessment and safety brief prior to any MCF which considers the risks associated with the flight.

18C.4 Only essential personnel are on board the aircraft during any MCF.

Guidance documents

- UK CAA CAP 1038 – Check Flight Handbook
- BARSOHO BIG – Section 2.4 Airworthiness Management

MAINTENANCE FACILITES AND STORES

19. Maintenance facilities - general

19A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

19B. Expectations

Maintenance facilities are adequate for the task

19C. Processes and practices

19C.1   Maintenance facilities are capable of enclosing the largest aircraft for which the AMO or aircraft operator is rated.

19C.2   Specialised workshops are segregated to ensure that environmental or work area contamination is unlikely to occur.

19C.3   Adequate office facilities are available for personnel and particularly those engaged in the management of quality, planning, and technical records.

19C.4   Maintenance facilities have lighting suitable for the task and provide protection from adverse weather conditions.

19C.5   A FOD prevention programme is in place in the maintenance facilities.

Guidance documents

- ICAO Annex 8
- ICAO Doc 9760 Chapter 10.6

MAINTENANCE FACILITES AND STORES

20. Maintenance facilities - working conditions

20A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

20B. Expectations

The AMO ensures that personnel work safely in appropriate conditions

20C. Processes and practices

20C.1   Personnel are equipped with appropriate clothing and hearing protection for work in the prevailing environmental conditions.

20C.2   Personnel are equipped with appropriate PPE and provided with adequate instructions for its use.

20C.3   A "working at height" policy has been established and appropriate equipment (PPE, access equipment, stands, lifts, harnesses, etc.) is provided.

20C.4   For line station maintenance of aircraft, hangars are not essential, but a hangar or other shelter is used during inclement weather (e.g., outside air temperatures lower than 5°C or higher than 40°C, during snowfall, heavy rain, hail, or sandstorms).

20C.5   The maintenance working environment is such that the particular maintenance or inspection tasks can be carried out without environmentally caused hazards or distraction to the work process or maintenance personnel.

Guidance documents

- ICAO Annex 8
- ICAO Doc 9760 Chapter 10.6

MAINTENANCE FACILITES AND STORES

21. Aircraft components/material management – equipment and tools

21A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

21B. Expectations

The AMO has a process for the control of tools and equipment

21C. Processes and practices

21C.1 All tools and equipment are made available during the execution of maintenance as specified in the OEM's maintenance data. Such tools and equipment are supplied by the organization conducting the maintenance and are not privately owned.

21C.2 All tools and equipment are subject to a documented control process to identify the user, the item's whereabouts and the aircraft concerned; the process includes a reconciliation, daily or prior to an aircraft's release for service, whichever comes first. This process also includes any subcontractors working on the premises.

21C.3 All tools are secured when not in use. They are contained in locked tool kits, or a controlled tool store, and the system in use for tracking items, also tracks those that are issued from a tool store, including the contents of each item that is issued from the store as a kit, e.g., rigging kits, or similar kits that contain individual tools, assemblies and parts of tools.

21C.4 A process is in place to track tools and equipment that require inspection, or service or calibration, and a system of labelling all such tools and equipment is established to give information on when the next inspection, service or calibration is due, and/or if the item is unserviceable for any other reason. Inspection, calibration, or servicing procedures for all such tools and equipment comply with manufacturers' instructions, regulatory requirements and/or applicable industry standards.

21C.5 Tools and tool kits are subject to a regular QA or QC inspection for serviceability and contents.

21C.6 When a remote outstation is set up, all necessary equipment and supplies are available on site according to the authorized level of maintenance.

MAINTENANCE FACILITES AND STORES

22. Aircraft components/material management – bonded, quarantine, and inflammables storage areas

22A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

22B. Expectations

The AMO has suitable aircraft parts, quarantine and inflammables/explosive storage areas

22C. Processes and practices

22C.1   Storage facilities for serviceable aircraft components are clean, well-ventilated, and maintained at a constant dry temperature to minimize the effects of condensation.

22C.2   Unauthorized access to serviceable parts is prevented.

22C.3   Manufacturer's storage recommendations are followed, when available. Instructions are available for items requiring special handling.

22C.4   Dedicated and clearly identified areas are provided to properly segregate incoming, unserviceable and serviceable material.

22C.5   Parts certified as fit to be used on or fitted to an aircraft are labelled (tagged) 'serviceable' and held in a bonded store awaiting allocation to an aircraft.

22C.6   Parts not yet certified or parts that have failed certification, have reached their life limited expiry date or have been damaged are held in a quarantine store until they are disposed of in an appropriate manner (e.g., returned to supplier, recertified, repaired, scrapped).

22C.7   Inflammable and explosive materials, such as paints and lubricants (including some chemicals) are stored in a properly constructed fireproof storage compartment which is built and equipped to meet the local fire regulations.

22C.8   There is a programme to control parts limited by shelf life.

22C.9   There is a process for the identification and disposal of unserviceable parts, materials, tools, and equipment.

Guidance documents

- ICAO Annex 8

MAINTENANCE FACILITES AND STORES

23. Aircraft components/material management – responsibilities of stores personnel

23A. Purpose

Ensuring maintenance is conducted to the approved AMP and standards

23B. Expectations

The AMO has defined the responsibilities of stores personnel

23C. Processes and practices

23C.1 Stores personnel are trained and competent.

23C.2 Incoming components/material are inspected to ensure compliance with company procedures to include shipping damage and proper certification. Components with a time interval or life limit have paperwork quality reviewed and are processed per company procedures. Acceptance into supply or movement to quarantine will be permanently recorded by name or company identifier electronically.

Guidance documents

• ICAO Annex 8

MAINTENANCE FACILITES AND STORES

24. Maintenance - aircraft fuel checks

24A. Purpose

Ensuring the quality of fuel dispensed to aircraft is acceptable

24B. Expectations

Aircraft fuel is checked for quality

24C.   Processes and practices

24C.1   Document the fuel quality control policies, processes and procedures to ensure fuel quality prior to delivery to the aircraft are verified as adequate in the logistics chain immediately prior to the point at which fuel is received (and by default the point at which the aircraft operator becomes the owner or custodian of that fuel).

24C.2   Aircraft fuel checks are carried out daily, or as specified by the airframe manufacturer.

  24C.2.1   For all helicopters

  24C.2.2   For all aeroplanes under 5,700kg MTOW

  24C.2.3   For all aircraft re-fuelled at remote locations, for example, desert/jungle landing strips or aerodromes and offshore locations.

24C.3   Water in suspension tests are carried out using a recognized process and samples are retained for 24 hours or until the next sample is taken, whichever is later:

  24C.3.1   Inspect and test fuel samples for contaminants and water visually and using water detecting capsule kits or equivalent detection aids.

24C.4   Samples that are a minimum of 0.5 litre are taken, unless specified otherwise by the aircraft manufacturer.

24C.5   Sample jars are clearly labelled such that the aircraft and sump drain or tank group from which the sample was taken can be clearly identified.

Guidance documents

- CAP 748

MAINTENANCE PERSONNEL

25. Maintenance personnel general requirements – fatigue prevention

25A. Purpose

Ensuring maintenance personnel are alert and fit for work

25B. Expectations

A fatigue management programme is in place for maintenance personnel

25C. Processes and practices

25C.1   The fatigue management programme complies with national legislation.

25C.2   The following minimum standard is applied to all engineering staff unless national legislation is more restrictive:

25C.2.1   Total work periods do not exceed 12 hours in any 24-hour period. Where it is essential that the working period is extended, the Head of Maintenance approves it on a case-by-case basis. This approval is documented along with any required mitigations.

25C.2.1.1   In no case may an approved work period authorized under the above process exceed 16 hours.

25C.2.2   Each full working shift is followed by a minimum 10-hour rest period.

25C.2.3   When working a split shift operation, at least 6 hours uninterrupted rest is provided excluding travel.

25C.3   There is a minimum of seven days off per month of which at least four are in a minimum of two-day periods. When the location or climate is arduous, the rest period is increased to minimize fatigue.

25C.4   Engineering staff on rotating assignments that arrive following prolonged or overnight travel or travel exceeding four time zone changes, are not rostered for duties until the minimum 10 hours rest period is met.

25C.5   A process is in place which defines the required man hours for each maintenance task, and links this to maintenance planning and forecasting.

25C.6   Engineers working hours are recorded.

Guidance documents

- CAP 716 Aviation Maintenance Human Factors

MAINTENANCE PERSONNEL

26. Maintenance personnel – qualifications and experience

26A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

26B. Expectations

Maintenance management and personnel are appropriately qualified, experienced, and competent for the task

26C. Processes and practices

26C.1   An accountable person is appointed to manage all maintenance activities performed by the Continuing Airworthiness Management Organization (CAMO) or AMO, whether these are performed in-house or by a contracted organization.

26C.2   Competence and experience requirements for these appointments and other supervisory, licensed, and authorized staff are documented.

26C.3   Personnel carrying out aircraft maintenance hold appropriate licences and endorsements.

26C.4   In addition, a system of local approvals exists whereby the aircraft operator or maintenance organization approves the individual to exercise the privileges granted by the licence and/or endorsements held on the range of equipment operated or maintained by that organization and includes expiry and renewal dates for the authorisations granted.

26C.5   Such approvals are granted following formal type training and/or local on-the-job training/ evaluation and tracked in an appropriate process.

26C.6   Training and authorization records are maintained for all certifying personnel in the continuing airworthiness functions and the AMO.

Guidance documents

- ICAO Annex 8

MAINTENANCE PERSONNEL

27. Maintenance personnel – competence and training

27A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skill and experience

27B. Expectations

There is an appropriate training programme for continuing airworthiness and maintenance personnel

27C. Processes and practices

27C.1 Establish a training programme, which provides all responsible personnel, including management, with appropriate initial induction, relevant type and continuation training as defined by their roles and responsibilities and includes details of the accepted training providers, training syllabi and persons/organisations responsible for training.

27C.2 Maintain training records for all personnel and track them in an appropriate process.

27C.3 Establish and document a formal training process for maintenance personnel, who have aircraft certification authorisations, to receive and have OEM, or equivalent level training, on the type of aircraft to be used.

27C.4 Provide Aircraft Type Engineers (where applicable) with OEM, or equivalent level training, on the aircraft type for which they are responsible.

27C.5 Conduct continuation/recurrent training at least every two years for maintenance personnel, with aircraft certification authorisations, and include as a minimum:

27C.5.1 Type-specific training

27C.5.2 Changes in relevant regulatory requirements

27C.5.3 Change in company organizational procedures

27C.5.4 Human factors

27C.5.5 Issues identified from any internal or external analyses of incidents

27C.5.6 Information on relevant AD/SBs or similar documents issued since the last training session

27C.5.7 Changes in the aircraft operator's SMS

27C.6 Document and perform competence assessments on maintenance and support personnel, who have certification authorization, at least every two years.

27C.7 Provide a training programme that addresses initial, on-going training and competency for maintenance support personnel performing the continuing airworthiness function, including maintenance planning and technical records staff.

MAINTENANCE PERSONNEL

27C.8 Provide continuation training, including human factors, training to all other maintenance support personnel, on a two-yearly basis.

27C.9 Prior to promotion to a more senior position or supervisory roles, personnel receive formal instruction in company procedures and responsibilities applicable to the new position and management training appropriate to their level in the company

Guidance documents

- ICAO Annex 8

28. Reserved

29. Reserved

MAINTENANCE PERSONNEL

30. Supervision of unlicensed and recently licensed maintenance personnel

30A. Purpose

Ensuring personnel are competent to fulfil their duties by having appropriate training, qualifications, knowledge, skills, and experience

30B. Expectations

There is adequate supervision of maintenance work and CRS

30C. Processes and practices

30C.1 Where organizations employ a mix of licensed, unlicensed, or recently licensed personnel, the proportion of those having CRS privileges to others is sufficiently high to ensure adequate supervision of work is provided at all times.

Guidance documents

- ICAO Annex 8

31. Reserved

32. Reserved

33. Reserved

34. Reserved

35. Reserved

36. Reserved

37. Engine health trend monitoring

37A. Purpose

Ensuring the early detection of impending failures in engine systems to facilitate timely corrective action

37B. Expectations

Engine performance is monitored on a regular basis
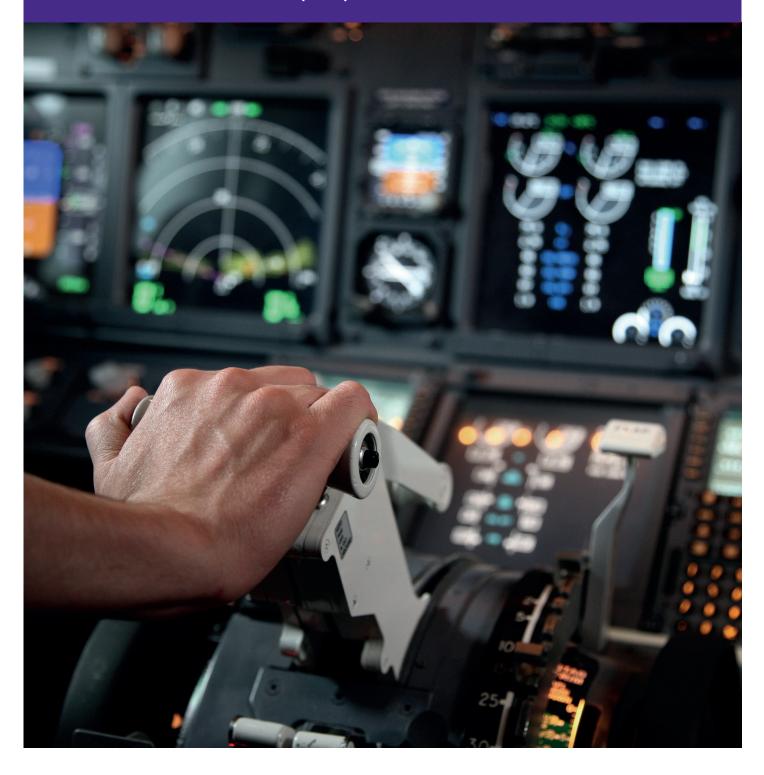
37C. Processes and practices

37C.1 All aircraft are subject regular performance analysis using:

    37C.1.1   Measurement and trending of power output

    37C.1.2   Spectroscopic oil analysis where appropriate

    37C.1.3   Vibration trending analysis where appropriate

37C.2 Automatic electronic engine trend monitoring system are used where available for the aircraft type.

Guidance Documents

- BARS Contracted Aircraft Operations

IOGP REPORT 691-5
Aircraft and Equipment

1. Equipment serviceability

1A. Purpose

Ensuring that all critical safety equipment is serviceable

1B. Expectations

Equipment fitted to contracted aircraft is serviceable within defined limits specified in the Minimum Equipment List (MEL)/Minimum Departure Standard (MDS)

1C. Processes and Practices

1C.1   The MEL and contracted MDS, if applicable, includes serviceability requirements for all company required installed equipment described in this document.

1C.2   Unless otherwise stated, the maximum deferable period for all company required installed equipment is Category C or equivalent terminology (10 days).

1C.3   The MDS is agreed with the aircraft operator prior to contract start and updated as required.

1C.4   If no MEL or MDS is in place, all aircraft equipment is serviceable on departure.

2. Certification standard

2A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed to select reliable and resilient aircraft and equipment, suitable for the intended operations

2B. Expectations

Contracted aeroplanes meet an appropriate certification standard

2C. Processes and Practices

2C.1   Contracted aeroplanes are certified to one of the following specifications:

2C.1.1   United States Code of Federal Regulations Title 14 Part 25, Amendment 45 – Airworthiness Standards Transport Category (FAR 25)

2C.1.2   European Aviation Safety Agency (EASA) CS-25, Certification Specifications, Acceptable Means of Compliance for Large Aeroplanes Initial issue.

2C.1.3   United States Code of Federal Regulations Title 14 Part 23 Amendment 31 - Airworthiness Standards Transport Category (FAR 23) and capable of meeting the FAR 25 OEI requirements.

2C.1.4   EASA CS-23, Initial issue and capable of meeting the CS-25 OEI requirements.

2C.1.5   Later equivalent standards.

3. Instrument flight rules - equipment

3A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed to select reliable and resilient aircraft and equipment, suitable for the intended operations

3B. Expectations

Contracted aeroplanes are equipped for Instrument Flight Rules (IFR) operations

3C. Processes and Practices

3C.1   Contracted aeroplanes are fully equipped for IFR operations relevant to the region of operations.

Guidance documents

- ICAO Annex 6

4. Aircraft automation

4A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed to select reliable and resilient aircraft and equipment, suitable for the intended operations

4B. Expectations

Contracted aeroplanes are equipped with appropriate flight automation

4C. Processes and Practices

4C.1 Contracted aeroplanes have at least 2-axis autopilot installed with auto-throttle, if available for the type.

4C.2 For further information and operational requirements see 691-2 – Aircraft Operations Section 5C.

Guidance documents

- ICAO Annex 6

5.   Aircraft-mounted emergency locator transmitters

5A. Purpose

Ensuring the relative merits of safety features, design standards and service experience are assessed to select reliable and resilient aircraft and equipment, suitable for the intended operations.

5B. Expectations

Contracted aeroplanes are fitted with a compliant automatic fixed or deployable Emergency Locator Transmitters (ELT), depending on the regulatory requirements of the operating region.

5C. Processes and Practices

5C.1   The ELTs are compliant with European Technical Standard Order (ETSO) C126a or later approved version.

5C.2   ELT/Crash Position Indicator (CPI) – has a minimum specification of Cosmicheskaya Sistema Poiska Avariynyh Sudov (COSPAS)/Search and Rescue Satellite Aided Tracking System (SARSAT), 406 MHz capable, with an identification code registered to the aircraft and aircraft operator, GPS capability, and can transmit on 121.5/243 MHz.

5C.3   The ELT is registered with the appropriate national agency and the responsible parties registered as ELT contacts are detailed in the aircraft operator's Emergency Response Plan.

Guidance documents

- ICAO Annex 6
- ICAO Annex 10

6. Underwater locator beacon fitted to cockpit voice recorder and flight data recorder

6A. Purpose

Ensuring the relative merits of safety features, design standards, and service experience are assessed to select reliable and resilient aircraft and equipment, suitable for the intended operations

6B. Expectations

Contracted aeroplanes are fitted with a Cockpit Voice Recorder (CVR)/Flight Data Recorder (FDR) that is fitted with an Underwater Locator Beacon (ULB) for over water flights

6C. Processes and Practices

6C.1   The ULB has a minimum 90-day battery life and is compliant with ETSO C121a or later approved version.

6C.2   The ULB is attached to the CVR and FDR, or combined CVR/FDR.

Guidance documents

- ICAO Annex 6
- EASA Air Ops CAT.IDE.A.185
- SAE AS8045A – Minimum Performance Standard for Acoustic Underwater Locating Devices

7. Terrain Awareness Warning System

7A. Purpose

Ensuring the relative merits of safety features, design standards, and service experience are assessed so as to select reliable and resilient aircraft and equipment, suitable for the intended operations

7B. Expectations

Contracted aeroplanes are fitted with a Terrain Awareness Warning System (TAWS) as a minimum

7C. Processes and Practices

7C.1   Contracted aircraft are fitted with TAWS.

7C.2   Reserved

7C.3   There is a documented process to ensure that the latest version of the database for predictive terrain hazard warnings is installed.

7C.4   For further information and operational requirements, see 691-2 - Aircraft Operations, Section 6C.

Guidance documents

- ICAO Annex 6

8. Airborne Collision Avoidance Systems

8A. Purpose

The prevention of mid-air collisions

8B. Expectations

Contracted aeroplanes are fitted with an Airborne Collision Avoidance System (ACAS)

8C. Processes and Practices

8C.1   As a minimum, ACAS 1 is installed.

8C.2   ACAS II is installed, if available and certified for the aircraft type, unless operations are in low density air traffic areas and supported by a Risk Assessment.

8C.3   For operational requirements see 691-2 – Aircraft Operations, Section 7C.

Guidance documents

- ICAO Annex 10

9. Flight Data Monitoring

9A. Purpose

The use of flight data to obtain operational feedback and reduce risks.

9B. Expectations

Contracted aeroplanes are fitted with Flight Data Monitoring (FDM) recording equipment.

9C. Processes and Practices

9C.1   The minimum recorded and synchronized parameters of the FDM system are:

9C.1.1   GPS location

9C.1.2   Radar height above ground (AGL), may be calculated

9C.1.3   Altitude

9C.1.4   Ground speed

9C.1.5   Indicated Air speed (can be derived from video recording)

9C.1.6   Vertical speed

9C.1.7   Heading

9C.1.8   UTC time

9C.1.9   Pitch and roll attitudes

9C.1.10   Pitch, roll and yaw rates

9C.1.11   Normal, longitudinal and lateral accelerations

9C.1.12   Weight on wheels with elapsed flight time; (when the Radar Altimeter (RadAlt) indicates the aircraft has landed or if calculated AGL is used, when parameter is less than 10 feet)

9C.1.13   Minimum record rate 1 per second

9C.2   A serviceability policy for both airborne and ground station equipment has been established.

9C.2.1   System unserviceability is not to exceed 50 flight hours between data downloads.

9C.3   For further information and system requirements see 691-2 – Aircraft Operations, Section 8C

Guidance documents

- UK CAA CAP 739
- FAA CA 120.82

10. Reserved

11. Life rafts

11A. Purpose

Ensuring occupants can survive after a ditching event.

11B. Expectations

Contracted aeroplanes are fitted with life rafts compliant with ETSO C70 [or ETSO 2C505] sufficient for the maximum number of persons on board.

11C. Processes and Practices

11C.1   Aeroplanes on long-range over-water flights as defined in ICAO Annex 6 Part 1 carry life rafts able to carry all aircraft occupants.

11C.2   All life rafts are equipped according to the nature of the flight undertaken.

Guidance documents

- ICAO Annex 6

12. Emergency exits

12A. Purpose

Ensuring the occupants can escape in the event of a capsize or submersion.

12B. Expectations

Aeroplanes are fitted with emergency exits appropriate to the size of aircraft and number of passengers carried.

12C. Processes and Practices

12C.1   All emergency exits are clearly highlighted.

12C.2   There is a suitable means of opening that is resistant to inadvertent operation and which is suitably marked by placards and contrasting colour(s).

Guidance documents

- ICAO Annex 8
- ICAO Annex 6
- UK CAA CAP 747

13. Reserved

14. Reserved

15. Reserved

16. Cockpit camera

16A. Purpose

To prevent recurrence of accidents or incidents and supporting accident and incident investigations

16B. Expectations

A cockpit camera is fitted

16C. Processes and Practices

16C.1 The cockpit is equipped with a camera, with adequate fidelity and a recording function, where available for the aircraft type.

16C.2 The camera is fitted in the cockpit with a clear view of the instrument panel and relevant controls.

16C.3 Procedures are in place to use the data from cockpit cameras for accident and incident investigation.

16C.4 Procedures are in place to safeguard the recordings and prevent unauthorized use.

16C.5 Maintenance requirements are in place that periodically check the serviceability of the camera system.

16C.6 The cockpit camera recording system is capable of recording data for a duration that exceeds the total flight time without overwriting data.

Guidance documents

- US National Transportation Safety Board, Safety Recommendation A-00-031
- Fact sheet – FAA Response to NTSB's "Most Wanted" Safety Recommendations
- Transportation Safety Board of Canada. Air transportation safety investigation report A18W0116

17. Reserved

18. Flight following

18A. Purpose

Ensuring timely alerting and location identification to aid SAR services.

18B. Expectations

A satellite flight following, or Automatic Dependent Surveillance – Broadcast (ADS-B) system is installed and serviceable

18C. Processes and Practices

18C.1   The prime flight following system may be unserviceable for no more than one day. In the event of unserviceability, the following is to apply:

18C.1.1   Continuous communication between flight crew and a ground radio operator is acceptable, provided the procedure is documented, including the obligation of ground operators of keeping up-dated records of aircraft position.

18C.1.2   Where there is more than one period of unserviceability in 30 days the client/ customer is consulted.

18C.2   For further information on Flight Following, see Report 691-2, Section 35, Flight following.

Guidance documents

- ICAO Annex 6

19. Passenger seats belts and harnesses

19A. Purpose

Ensuring occupants survive a crash impact

19B. Expectations

Passenger seats are fitted with appropriate harnesses and fittings

19C. Processes and Practices

19C.1   Unless sideways facing seats can be repositioned in either the forward or aft position, their use is avoided during take-off and landing unless lap straps are supplemented with shoulder harnesses/restraints which are fitted, used and correctly tensioned.

19C.2   Seat belt buckles to remain fastened until the lever attains an angle of not less than 70° or not more than 95° to its position at rest.

Guidance documents

- ICAO Annex 6
- UK CAA Specification No 1. Safety Belts

20. Survival kits

20A. Purpose

Ensuring the occupants can survive in the operating environment post an emergency

20B. Expectations

Survival kits are carried

20C. Processes and Practices

20C.1 Survival kits appropriate to the area of operations are carried.

Guidance documents

- ICAO Annex 6

21. Reserved

22. Continuous improvement of aircraft operational safety systems

22A. Purpose

Aircraft operators continuously improve aircraft systems to enhance operational safety where possible

22B. Expectations

Contracted aircraft are equipped with enhanced operational safety systems, where available from the OEM

22C. Processes and Practices

22C.1   The operator and the Company collaborate to review the benefits of safety enhancements developed by the OEM and implement as agreed.

IOGP Report 691 - *Fixed-wing commercial air transport recommended practices* (FWRP) provides recommended practices that will assist in the safe, effective, and efficient management of fixed wing commercial air transport operations.