**ANNEX III. PART - ORO**

**ORGANISATION REQUIREMENTS FOR AIR OPERATIONS**

**GUIDANCE MATERIAL & ACCEPTABLE MEANS of COMPLIANCE**

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**SUBPART GEN. — GENERAL REQUIREMENTS**

**SECTION I. — GENERAL**

**GM 1. ORO. GEN. 105 Competent Authority**

*NON - COMMERCIAL OPERATIONS*

***a )*** For the determination of the principal place of business “ activities referred to in this Part “ means those activities to which Part - ORO, Part - NCC or Part - SPO apply. For organizations that also exercise activities that are not subject to Part - ORO, Part - NCC

or Part - SPO, the determination of the principal place of business should consider that part of the organization that is responsible for the operation of aircraft subject to Part - ORO, Part -NCC or Part - SPO. For non-commercial operations, this is usually the home base of the aircraft concerned, or the location of the flight department ;

***b )*** For organizations that also exercise activities not subject to Part - ORO, Part - NCC or

Part - SPO, the reference to the Accountable Manager is intended to mean the manager who has the authority to ensure that all activities subject to Part - ORO, Part - NCC or Part - SPO can be financed and carried out in accordance with the applicable requirements ;

***c )*** If the Accountable Manager is not located in that part of the organization that is responsible for the operation of aircraft, but the majority of other management personnel are located there, the location of the accountable manager may not need to be considered for the determination of the principal place of business.

***AMC 1* ORO. GEN. 110 ( c ) Operator Responsibilities**

*OPERATIONAL CONTROL*

The organization and methods established to exercise operational control should be included

in the Operations Manual and should cover at least a description of responsibilities concerning the initiation, continuation and termination or diversion of each flight.

**GM 1 ORO. GEN. 110 ( c ) Operator Responsibilities**

*OPERATIONAL CONTROL*

***a )*** *ORO. GEN.110 ( c )* does not imply a requirement for licensed flight dispatchers or a full

flight watch system ;

***b )*** If the Operator employs flight operations officers in conjunction with a method of

operational control, training for these personnel should be based on relevant parts of ICAO Doc. **7192** Training Manual, Part **D -3.** This training should be described in the Operations Manual.

***AMC 1* ORO. GEN. 110 ( e ) Operator Responsibilities**

*MEL TRAINING PROGRAMME*

***a )*** The Operator should develop a Training Programme for Ground Personnel dealing with

the use of the MEL and detail such training in the continuing airworthiness maintenance exposition CAME and OM as appropriate. Such training programme should include :

1 ) the scope, extent and use of the MEL ;

2 ) placarding of inoperative equipment ;

3 ) deferral procedures ;

4 ) dispatching ; *and*

5 ) any other operator’s MEL related procedures.

***b )*** The Operator should develop a Training Programme for crew members and detail such

training in the Operations Manual. Such Training Programme should include :

1 ) the scope, extent and use of the MEL ;

2 ) the operator’s MEL procedures ;

3 ) elementary maintenance procedures in accordance with CR - EC [ *Commission Regulation ( EC )*] No 2042 / 2003 ; *and*

4 ) Pilot - in - Command / Commander responsibilities.

**GM 1 ORO. GEN. 110 ( e ) Operator Responsibilities**

*GROUND PERSONNEL*

For the purpose of the MEL training programme referred to in *AMC 1 ORO. GEN.110 ( e )*

Ground Personnel include maintenance personnel, Flight Dispatchers and Operations Officers.

***AMC 1* ORO. GEN. 110 ( f ) ( h ) Operator Responsibilities**

*ESTABLISHMENT of PROCEDURES*

***a )*** An Operator should establish procedures to be followed by Cabin Crew covering at least :

1 ) arming and disarming of slides ;

2 ) operation of cabin lights, including emergency lighting ;

3 ) prevention and detection of cabin, oven and toilet fires ;

4 ) actions to be taken when turbulence is encountered ; *and*

5 ) actions to be taken in the event of an emergency and / or an evacuation.

***b )*** When establishing procedures and a Checklist System for Cabin Crew with respect to the aircraft cabin, the Operator should take into account at least the following duties :

**Cabin Crew Check List**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Duties** | **Pre -**  **Take-Off** | **In -**  **Flight** | **Pre -Landing** | **Post Landing** |
| **( 1 )** Briefing of cabin crew by the Senior Cabin Crew member prior to commencement of a flight or series of flights | x |  |  |  |
| **( 2 )** Check of safety and emergency equipment in accordance with Operator's policies and procedures | x |  |  |  |
| **( 3 )** Security checks, as applicable | x |  |  | x |
| **( 4 )** Passenger embarkation and disembarkation | x |  |  | x |
| **( 5 )** Securing of passenger cabin *( e. g. seat belts,*  *cabin cargo / baggage )* | x |  | x |  |
| **( 6 )** Securing of galleys and stowage of equipment,  *if required* | x | *if required* | x |  |
| **( 7 )** Arming of door / exit slides | x |  |  |  |
| **( 8 )**  Safety briefing / information to passengers | x | x | x | x |
| **( 9 )** *“ Cabin Secure “* report to flight crew, *if required* | x | *if required* | x |  |
| **( 10 )** Operation of cabin lights, *if required* | x | *if required* | x | x |
| **( 11 )** Cabin crew at assigned crew stations, *if required* | x | *if required* | x | x |
| **( 12 )** Surveillance of passenger cabin | x | x | x | x |
| **( 13 )**  Prevention and detection of fire in the cabin *( including the combi-cargo area, crew rest areas, galleys, lavatories and any other cabin remote areas )* and instructions for actions to be taken | x | x | x | x |
| **( 14 )** Actions to be taken when turbulence is  encountered |  | x |  |  |
| **( 15 )** Actions to be taken in case of in - flight  incidents *( e.g. medical emergency )* |  | x |  |  |
| **( 16 )** Actions to be taken in the event of emergency  situations | x | x | x | x |
| **( 17 )** Disarming of door / exit slides |  |  |  | x |
| **( 18 )** Reporting of any deficiency and / or un -  - serviceability of equipment and / or any incident | x | x | x | x |

***c )*** The Operator should specify the contents of safety briefings for all cabin crew

members prior to the commencement of a flight or series of flights.

***AMC 1* ORO. GEN. 120 ( a ) Means of Compliance**

*DEMONSTRATION of COMPLIANCE*

In order to demonstrate that the Implementing Rules are met, a risk assessment should be

completed and documented. The result of this risk assessment should demonstrate that an

equivalent level of safety to that established by the Acceptable Means of Compliance *( AMC )*

adopted by the Agency is reached.

***AMC 1* ORO. GEN. 125 Terms of Approval and Privileges of an AOC Holder**

*MANAGEMENT SYSTEM DOCUMENTATION*

The management system documentation should contain the privileges and detailed scope of

activities for which the Operator is certified, as relevant to the applicable requirements. The

scope of activities defined in the management system documentation should be consistent

with the terms of approval.

***AMC 1* ORO. GEN. 130 Changes Related to an AOC Holder**

*APPLICATION TIME FRAMES*

( a ) The application for the amendment of an Air Operator Certificate should be submitted

at least 30 days before the date of the intended changes ;

( b ) In the case of a planned change of a nominated person, the Operator should inform

the competent authority at least 10 days before the date of the proposed change ;

( c ) Unforeseen changes should be notified at the earliest opportunity, in order to enable

the competent authority to determine continued compliance with the applicable requirements and to amend, if necessary, the Air Operator Certificate and related terms of approval.

**GM 1 ORO. GEN. 130 ( a ) Changes Related to an AOC Holder**

*GENERAL*

***a )*** Typical examples of changes that may affect the Air Operator Certificate or the Operations Specifications or the operator’s management system, as required in *ORO. GEN. 200* ( a ) ( 1 ) and ( a ) ( 2 ), are listed below :

1 ) the name of the Operator ;

2 ) a change of legal entity ;

3 ) the Operator’s principal place of business ;

4 ) the Operator’s scope of activities ;

5 ) additional locations of the Operator ;

6 ) the accountable manager ;

7 ) any of the persons referred to in *ORO. GEN. 210 ( a ) and ( b )* ;

8 ) the Operator’s documentation, as required by this Annex, safety policy and procedures ;

9 ) the facilities.

***b )*** Prior approval by the Competent Authority is required for any changes to the Operator’s procedure describing how changes not requiring prior approval will be managed and notified to the Competent Authority ;

***c )*** Changes requiring prior approval may only be implemented upon receipt of formal approval by the Competent Authority.

**GM 2 ORO. GEN. 130 ( a ) Changes Related to an AOC Holder**

*CHANGE of NAME*

A change of name requires the Operator to submit a new application as a matter of urgency.

Where this is the only change to report, the new application can be accompanied by a copy

of the documentation previously submitted to the competent authority under the previous name, as a means of demonstrating how the Operator complies with the applicable requirements.

**GM 3 ORO. GEN. 130 ( b ) Changes Related to an AOC Holder**

*CHANGES REQUIRING PRIOR APPROVAL*

The following GM is a non-exhaustive Checklist of items that require prior approval from the

Competent Authority as specified in the applicable Implementing Rules :

***a )*** Alternative Means of Compliance ;

***b )*** Procedures regarding items to be notified to the Competent Authority ;

***c )*** Cabin Crew :

1 ) evacuation procedures with a reduced number of required cabin crew during ground operations or in unforeseen circumstances ;

2 ) conduct of the training, examination and checking required by Annex **V** *( Part - CC )*

to CR - EU No 290 / 2012 and issue of cabin crew attestations ;

3 ) procedures for cabin crew to operate on four aircraft types ;

4 ) training programmes, including syllabi ;

***d )*** Leasing agreements ;

***e )*** Non - commercial operations by Air Operator Certificate *( AOC )* Holders ;

***f )*** Specific Approvals in accordance with Annex **V**  *( Part - SPA )* ;

***g )*** Dangerous Goods Training Programmes ;

***h )*** Flight Crew:

1 ) Alternative Training and Qualification Programmes *( ATQP’s )* ;

2 ) procedures for flight crew to operate on more than one type or variant ;

3 ) training and checking programmes, including syllabi and use of flight simulation training devices *( FSTD’s )* ;

***i )*** Fuel Policy ;

***j )*** Helicopter operations :

1 ) airborne radar approaches ;

2 ) over a hostile environment located outside a congested area, unless the Operator

holds an approval to operate according to Subpart **J** of Annex **V**  *( SPA. HEMS )* ;

3 ) procedures for selecting off - shore alternates ;

4 ) to / from a public interest site ;

5 ) without an assured safe forced landing capability ;

***k )*** Mass and Balance :

1 ) standard masses for load items other than standard masses for passengers and checked baggage ;

2 ) use of on - board mass and balance computer systems ;

***l )*** Minimum Equipment List :

1 ) MEL ;

2 ) operating other than in accordance with the MEL, but within the constraints of the Master Minimum Equipment List *( MMEL )* ;

3 ) Rectification Interval Extension *( RIE )* procedures ;

***m )*** Minimum Flight Altitudes :

1 ) the method for establishing minimum flight altitudes ;

2 ) descent procedures to fly below specified minimum altitudes ;

***n )*** Performance :

1 ) increased bank angles at Take-off *( for performance class A aeroplanes )* ;

2 ) short landing operations *( for performance class A and B aeroplanes )* ;

3 ) steep approach operations *( for performance class A and B aeroplanes )* ;

***o )*** Isolated Aerodrome : using an isolated aerodrome as destination aerodrome for operations with aeroplanes ;

***p )*** Approach flight technique :

1 ) all approaches not flown as stabilized approaches for a particular approach to a particular runway ;

2 ) non - precision approaches not flown with the continuous descent final approach *(CDFA)* technique for each particular approach / runway combination ;

***q )*** Maximum distance from an adequate aerodrome for two - engined aeroplanes without an Extended Range Operations With Two - Engined Aeroplanes *( ETOPS )* approval :

1 ) air operations with two - engined performance class A aeroplanes with a Maximum Operational Passenger Seating Configuration *( MOPSC )* of 19 or less and a maximum Take-off mass less than 45 360 kg, over a route that contains a point further than 120 minutes from an adequate aerodrome, under standard conditions in still air ;

***r )*** Aircraft categories :

1 ) Applying a lower landing mass than the maximum certified landing mass for determining the Indicated Airspeed at Threshold ( V**AT** ).

***AMC 1*  ORO. GEN. 150 ( b ) Findings**

*GENERAL*

The corrective action plan defined by the Operator should address the effects of the noncompliance, as well as its root cause.

**GM 1. ORO. GEN. 150 Findings**

*GENERAL*

***a )*** Preventive action is the action to eliminate the cause of a potential non - compliance or

other undesirable potential situation ;

***b )*** Corrective action is the action to eliminate or mitigate the root cause(s) and prevent

recurrence of an existing detected non - compliance or other undesirable condition or situation. Proper determination of the root cause is crucial for defining effective corrective actions to prevent reoccurrence ;

***c )*** Correction is the action to eliminate a detected non - compliance.

***AMC 1* ORO. GEN. 160 Occurrence Reporting**

*GENERAL*

a ) The Operator should report all occurrences defined in AMC 20 - 8, and as required by the applicable national rules implementing Directive 2003 / 42 / EC on occurrence reporting in civil aviation ;

b ) In addition to the reports required by AMC 20 - 8 and Directive 2003 / 42 / EC, the Operator should report volcanic ash clouds encountered during flight.

**SECTION II — MANAGEMENT**

***AMC 1* ORO. GEN. 200 ( a ) ( 1 ) ; ( 2 ) ; ( 3 ) ; ( 5 ) Management System**

*NON - COMPLEX OPERATORS — GENERAL*

a ) Safety risk management may be performed using hazard Checklists or similar risk

management tools or processes, which are integrated into the activities of the Operator ;

b ) The Operator should manage safety risks related to a change. The management of

change should be a documented process to identify external and internal change that may have an adverse effect on safety. It should make use of the Operator’s existing hazard identification, risk assessment and mitigation processes ;

c ) The Operator should identify a person who fulfils the role of safety manager and who is

responsible for coordinating the safety management system. This person may be the Accountable Manager or a person with an operational role within the Operator ;

d ) Within the Operator, responsibilities should be identified for hazard identification, risk

assessment and mitigation ;

e ) The safety policy should include a commitment to improve towards the highest safety

standards, comply with all applicable legal requirements, meet all applicable standards, consider best practices and provide appropriate resources ;

f ) The Operator should, in cooperation with other stakeholders, develop, coordinate and

maintain an Emergency Response Plan *( ERP )* that ensures orderly and safe transition from normal to emergency operations and return to normal operations. The ERP should provide the actions to be taken by the Operator or specified individuals in an emergency and reflect the size, nature and complexity of the activities performed by the Operator.

***AMC 1* ORO. GEN. 200 ( a ) ( 1 ) Management System**

*COMPLEX OPERATORS — ORGANISATION and ACCOUNTABILITIES*

The management system of an Operator should encompass safety by including a safety

manager and a safety review board in the organizational structure.

*a ) Safety Manager*

1 ) the safety manager should act as the focal point and be responsible for the development, administration and maintenance of an effective safety management system ;

2 ) the functions of the safety manager should be to :

( i ) facilitate hazard identification, risk analysis and management ;

( ii ) monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan ;

( iii ) provide periodic reports on safety performance ;

( iv ) ensure maintenance of safety management documentation ;

( v ) ensure that there is safety management training available and that it meets acceptable standards ;

( vi ) provide advice on safety matters ; *and*

( vii ) ensure initiation and follow - up of internal occurrence / accident investigations.

*b ) Safety Review Board*

1 ) the safety review board should be a high level committee that considers matters of strategic safety in support of the Accountable Manager’s safety accountability ;

2 ) the board should be chaired by the Accountable Manager and be composed of heads of functional areas ;

3 ) the safety review board should monitor :

( i ) safety performance against the safety policy and objectives ;

( ii ) that any safety action is taken in a timely manner ; *and*

( iii ) the effectiveness of the Operator’s safety management processes.

*c )* The Safety Review Board should ensure that appropriate resources are allocated to achieve the established safety performance ;

*d )* The Safety Manager or any other relevant person may attend, as appropriate, safety review board meetings. He / she may communicate to the Accountable Manager all information, as necessary, to allow decision making based on safety data.

**GM 1. ORO. GEN. 200 ( a ) ( 1 ) Management System**

*SAFETY MANAGER*

***a )*** Depending on the size of the Operator and the nature and complexity of its activities,

the Safety Manager may be assisted by additional safety personnel for the performance of all safety management related tasks ;

***b )*** Regardless of the organizational set - up it is important that the Safety Manager remains the unique focal point as regards the development, administration and maintenance of the Operator’s Safety Management System.

**GM 2. ORO. GEN. 200 ( a ) ( 1 ) Management System**

*COMPLEX OPERATORS — SAFETY ACTION GROUP*

***a )*** A Safety Action Group may be established as a standing group or as an ad - hoc group to assist or act on behalf of the Safety Review Board ;

***b )*** More than one Safety Action Group may be established depending on the scope of the task and specific expertise required ;

***c )*** The Safety Action Group should report to and take strategic direction from the safety review board and should be comprised of managers, supervisors and personnel from operational areas ;

***d )*** The safety action group should :

1 ) monitor operational safety ;

2 ) resolve identified risks ;

3 ) assess the impact on safety of operational changes ; *and*

4 ) ensure that safety actions are implemented within agreed timescales.

***e )*** The Safety Action Group should review the effectiveness of previous safety recommendations and safety promotion.

***AMC 1* ORO. GEN. 200 ( a ) ( 2 ) Management System**

*COMPLEX OPERATORS — SAFETY POLICY*

a ) The Safety Policy should :

1 ) be endorsed by the Accountable Manager ;

2 ) reflect organizational commitments regarding safety and its proactive and

systematic management ;

3 ) be communicated, with visible endorsement, throughout the Operator ; *and*

4 ) include safety reporting principles.

***b )*** The safety policy should include a commitment :

1 ) to improve towards the highest safety standards ;

2 ) to comply with all applicable legislation, meet all applicable standards and consider best practices ;

3 ) to provide appropriate resources ;

4 ) to enforce safety as one primary responsibility of all managers ; *and*

5 ) not to blame someone for reporting something which would not have been otherwise detected ;

***c )*** Senior management should :

1 ) continually promote the safety policy to all personnel and demonstrate their commitment to it ;

2 ) provide necessary human and financial resources for its implementation ; *and*

3 ) establish safety objectives and performance standards.

**GM 1. ORO. GEN. 200 ( a ) ( 2 ) Management System**

*SAFETY POLICY*

The safety policy is the means whereby the Operator states its intention to maintain and,

where practicable, improve safety levels in all its activities and to minimize its contribution

to the risk of an aircraft accident as far as is reasonably practicable. The safety policy should state that the purpose of safety reporting and internal investigations is to improve safety, not to apportion blame to individuals.

**AMC 1 ORO. GEN. 200 ( a ) ( 3 ) Management System**

*COMPLEX OPERATORS — SAFETY RISK MANAGEMENT*

*a ) Hazard Identification Processes*

1 ) reactive and proactive schemes for hazard identification should be the formal means of collecting, recording, analyzing, acting on and generating feedback about hazards and the associated risks that affect the safety of the operational activities of the Operator ;

2 ) all reporting systems, including confidential reporting schemes, should include an effective feedback process.

*b ) Risk Assessment and Mitigation Processes*

1 ) a formal risk management process should be developed and maintained that ensures analysis *( in terms of likelihood and severity of occurrence ),* assessment *( in terms of tolerability )* and control *( in terms of mitigation )* of risks to an acceptable level ;

2 ) the levels of management who have the authority to make decisions regarding the tolerability of safety risks, in accordance with *( b ) ( 1 ),* should be specified.

*c ) Internal Safety Investigation*

1 ) the scope of internal safety investigations should extend beyond the scope of occurrences required to be reported to the Competent Authority.

*d ) Safety Performance Monitoring and Measurement*

1 ) safety performance monitoring and measurement should be the process by which the safety performance of the Operator is verified in comparison to the safety policy and objectives ;

2 ) this process should include :

( i ) safety reporting, addressing also the status of compliance with the applicable requirements ;

( ii ) safety studies, that is, rather large analyses encompassing broad safety concerns ;

( iii ) safety reviews including trends reviews, which would be conducted during

introduction and deployment of new technologies, change or implementation of procedures, or in situations of structural change in operations ;

( iv ) safety audits focusing on the integrity of the Operator’s management system, and periodically assessing the status of safety risk controls ; *and*

( v ) safety surveys, examining particular elements or procedures of a specific operation, such as problem areas or bottlenecks in daily operations, perceptions and opinions of operational personnel and areas of dissent or confusion.

*e ) The Management of Change*

The Operator should manage safety risks related to a change. The management of change should be a documented process to identify external and internal change that may have an adverse effect on safety. It should make use of the Operator’s existing hazard identification, risk assessment and mitigation processes ;

*f ) Continuous Improvement*

The Operator should continuously seek to improve its safety performance. Continuous

improvement should be achieved through :

1 ) proactive and reactive evaluations of facilities, equipment, documentation and procedures through safety audits and surveys ;

2 ) proactive evaluation of individuals’ performance to verify the fulfilment of their safety responsibilities ; *and*

3 ) reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk.

*g ) The Emergency Response Plan ( ERP )*

1 ) an ERP should be established that provides the actions to be taken by the Operator or specified individuals in an emergency. The ERP should reflect the size, nature and complexity of the activities performed by the Operator ;

2 ) the ERP should ensure :

( i ) an orderly and safe transition from normal to emergency operations ;

( ii ) safe continuation of operations or return to normal operations as soon as practicable ;

( iii ) coordination with the Emergency Response Plans of other organizations, where appropriate.

**GM 1. ORO. GEN. 200 ( a ) ( 3 ) Management System**

*INTERNAL OCCURRENCE REPORTING SCHEME*

***a )*** The overall purpose of the scheme is to use reported information to improve the level

of safety performance of the Operator and not to attribute blame ;

***b )*** The objectives of the scheme are to :

1 ) enable an assessment to be made of the safety implications of each relevant incident and accident, including previous similar occurrences, so that any necessary action can be initiated ;

2 ) ensure that knowledge of relevant incidents and accidents is disseminated, so that other persons and Operators may learn from them.

***c )*** The scheme is an essential part of the overall monitoring function and it is complementary to the normal day - to - day procedures and “ control “ systems and is not intended to duplicate or supersede any of them. The scheme is a tool to identify those

instances where routine procedures have failed ;

***d )*** All occurrence reports judged reportable by the person submitting the report should be

retained as the significance of such reports may only become obvious at a later date.

**GM 2. ORO. GEN. 200 ( a ) ( 3 ) Management System**

*RISK MANAGEMENT of FLIGHT OPERATIONS with KNOWN*

*or FORECAST VOLCANIC ASH CONTAMINATION*

***a )*** *Responsibilities*

The Operator is responsible for the safety of its operations, including within an area with known or forecast volcanic ash contamination. The Operator should complete this assessment of safety risks related to known or forecast volcanic ash contamination as part of its management system before initiating operations into airspace forecast to be or aerodromes / operating sites known to be contaminated with volcanic ash. This process is intended to ensure the Operator takes account of the likely accuracy and quality of the information sources it uses in its management system and to demonstrate its own competence and capability to interpret data from different sources in order to achieve the necessary level of data integrity reliably and correctly resolve any conflicts among data sources that may arise.

In order to decide whether or not to operate into airspace forecast to be or aerodromes / operating sites known to be contaminated with volcanic ash, the Operator should make use of the safety risk assessment within its management system, as required by *ORO. GEN. 200.*

The Operator’s safety risk assessment should take into account all relevant data including data from the Type Certificate Holders *( TCH’s )* regarding the susceptibility of the aircraft they operate to volcanic cloud - related airworthiness effects, the nature and severity of these effects and the related pre - flight, in - flight and post - flight precautions to be observed by the Operator. The Operator should ensure that personnel required to be familiar with the details of the safety risk assessments receives all relevant information *( both pre-flight and in-flight )* in order to be in a position to apply appropriate mitigation measures as specified by the safety risk assessments ;

***b )*** *Procedures*

The Operator should have documented procedures for the management of operations into airspace forecast to be or aerodromes / operating sites known to be contaminated with volcanic ash. These procedures should ensure that, at all times, flight operations remain within the

accepted safety boundaries as established through the management system allowing for any variations in information sources, equipment, operational experience or organization. Procedures should include those for flight crew, flight planners, dispatchers, operations, continuing airworthiness personnel such that they are in a position to evaluate correctly the risk of flights into airspace forecast to be contaminated by volcanic ash and to plan accordingly. Continuing airworthiness personnel should be provided with procedures allowing them to correctly assess the need for and to execute relevant continuing airworthiness interventions. The Operator should retain sufficient qualified and competent staff to generate well supported operational risk management decisions and ensure that its staff are appropriately trained and current. It is recommended that the Operator make the necessary arrangements for its relevant staff to take up opportunities to be involved in volcanic ash exercises conducted in their areas of operation ;

***c )*** *Volcanic Activity Information and Operator’s Potential Response*

Before and during operations, information valuable to the Operator is generated by various volcano agencies worldwide. The Operator’s risk assessment and mitigating actions need to take account of, and respond appropriately to, the information likely to be available during each phase of the eruptive sequence from pre-eruption through to end of eruptive activity. It is nevertheless noted that eruptions rarely follow a deterministic pattern of behaviour. A typical Operator’s response may consist of the following :

*1 ) pre - eruption*

The Operator should have in place a robust mechanism for ensuring that it is constantly vigilant for any alerts of pre - eruption volcanic activity relevant to its operations. The staff involved need to understand the threat to safe operations that such alerts represent. An Operator whose routes traverse large, active volcanic areas for which immediate International Airways Volcano Watch *( IAVW )* alerts may not be available, should define its strategy for capturing information about increased volcanic activity before pre-eruption alerts are generated. For example, an Operator may combine elevated activity information with information concerning the profile and history of the volcano to determine an operating policy, which could include re-routing or restrictions at night. This would be useful when dealing with the 60 % of volcanoes which are unmonitored. Such an Operator should also ensure that its crews are aware that they may be the first to observe an eruption and so need to be vigilant and ready to ensure that this information is made available for wider dissemination as quickly as possible ;

*2 ) start of an eruption*

Given the likely uncertainty regarding the status of the eruption during the early stages of an event and regarding the associated volcanic cloud, the Operator’s procedures should include a requirement for crews to initiate re-routes to avoid the affected airspace. The Operator should ensure that flights are planned to remain clear of the affected areas and that consideration is given to available aerodromes / operating sites and fuel requirements.

It is expected that the following initial actions will be taken by the Operator :

( i ) determine if any aircraft in flight could be affected, alert the crew and provide advice on re-routing and available aerodromes / operating sites as required ;

( ii ) alert management ;

( iii ) for flight departures, brief flight crew and revise flight and fuel planning in

accordance with the safety risk assessment ;

( iv ) alert flight crew and operations staff to the need for increased monitoring of information *( e. g. special air report ( AIREP ), volcanic activity report ( VAR ), significant weather information ( SIGMET ), NOTAM’s and company messages ) ;*

( v ) initiate the gathering of all data relevant to determining the risk ; *and*

( vi ) apply mitigations identified in the safety risk assessment.

*3 ) on - going eruption*

As the eruptive event develops, the Operator can expect the responsible Volcanic

Ash Advisory Centre *( VAAC )* to provide volcanic ash advisory messages *( VAA / VAG’s )* defining, as accurately as possible, the vertical and horizontal extent of areas and layers of volcanic clouds. As a minimum, the Operator should monitor, and take account of, this VAAC information as well as of relevant SIGMET’s and NOTAM’s. Other sources of information are likely to be available such as VAR / AIREP’s, satellite imagery and a range of other information from State and commercial organizations. The Operator should plan its operations in accordance with its safety risk assessment taking into account the information that it considers accurate and relevant from these additional sources. The Operator should carefully consider and resolve differences or conflicts among the information sources, notably between published information and observations ( pilot reports, airborne measurements, etc. ). Given the dynamic nature of the volcanic hazards, the Operator should ensure that the situation is monitored closely and operations adjusted to suit changing conditions. The Operator should be aware that the affected or danger areas may be established and presented in a different way than the one currently used in Europe, as described in EUR Doc. 019 - NAT Doc 006.

The Operator should require reports from its crews concerning any encounters with volcanic emissions. These reports should be passed immediately to the appropriate Air Traffic Services *( ATS )* unit and to the Operator’s Competent Authority. For the purpose of flight planning, the Operator should treat the horizontal and vertical limits of the Temporary Danger Area *( TDA )* or airspace forecast to be contaminated by volcanic ash as applicable, to be overflown as it would mountainous terrain, modified in accordance with its safety risk assessment. The

Operator should take account of the risk of cabin depressurization or engine failure resulting in the inability to maintain level flight above a volcanic cloud, especially when conducting ETOPS operations. Additionally, Minimum Equipment List *( MEL )* provisions should be considered in consultation with the TCH’s. Flying below volcanic ash contaminated airspace should be considered on a case-by-case basis. It should only be planned to reach or leave an aerodrome / operating site close to the boundary of this airspace or where the ash contaminati- -on is very high and stable. The establishment of Minimum Sector Altitude *( MSA )* and the availability of aerodromes / operating sites should be considered.

***d )*** *Safety Risk Assessment*

When directed specifically at the issue of intended flight into airspace forecast to be or

aerodromes / operating sites known to be contaminated with volcanic ash, the process should involve the following :

*1 ) Identifying the Hazards*

The Generic Hazard, in the context of this document, is airspace forecast to be or aerodromes / operating sites known to be contaminated with volcanic ash, and whose characteristics are harmful to the airworthiness and operation of the aircraft.

This GM is referring to volcanic ash contamination since it is the most significant hazard for flight operations in the context of a volcanic eruption. Nevertheless, it might not be the only hazard and therefore the Operator should consider additional hazards which could have an adverse effect on aircraft structure or passengers safety such as gases. Within this generic hazard, the Operator should develop its own list of specific hazards taking into account its specific aircraft, experience, knowledge and type of operation, and any other relevant data stemming from previous eruptions ;

*2 ) Considering the Severity and Consequences of the Hazard Occurring* ( i. e. the nature and actual level of damage expected to be inflicted on the particular aircraft from exposure to that volcanic ash cloud ) ;

*3 ) Evaluating the Likelihood of Encountering Volcanic Ash Clouds* with characteristics harmful to the safe operation of the aircraft. For each specific hazard within the generic hazard, the likelihood of adverse consequences should be assessed, either qualitatively or quantitatively ;

*4 ) Determining whether the Consequent Risk is Acceptable* and within the Operator’s risk performance criteria. At this stage of the process, the safety risks should be classified as acceptable or unacceptable. The assessment of tolerability will be subjective, based on qualitative data and expert judgement, until specific quantitative data are available in respect of a range of parameters ;

*5 ) Taking Action to reduce the Safety Risk to a Level that is Acceptable*  to the Operator’s management. Appropriate mitigation for each unacceptable risk identified should then be considered in order to reduce the risk to a level acceptable to the Operator’s management.

***e )*** *Procedures to be Considered when Identifying Possible Mitigations Actions*

When conducting a volcanic ash safety risk assessment, the Operator should consider the following non - exhaustive list of procedures and processes as mitigation :

*1 ) Type Certificate Holders*

Obtaining advice from the TCH’s and other engineering sources concerning operations in po -tentially contaminated airspace and /or aerodromes /operating sites contaminated by volcanic ash.

This advice should set out :

( i ) the features of the aircraft that are susceptible to airworthiness effects related to volcanic ash ;

( ii ) the nature and severity of these effects ;

( iii ) the effect of volcanic ash on operations to / from contaminated aerodromes / operating sites, including the effect on take-off and landing aircraft performance ;

( iv ) the related pre-flight, in-flight and post-flight precautions to be observed by the Operator including any necessary amendments to Aircraft Operating and Aircraft Maintenance Manuals, Master Minimum Equipment List / Dispatch Deviation or equivalents ; *and*

( v ) the recommended inspections associated with operations in volcanic ash potentially contaminated airspace and operations to / from volcanic ash contaminated aerodromes / operating sites ;

This may take the form of instructions for continuing airworthiness or other advice.

*2 ) Operator / Contracted Organizations’ Personnel*

Definition of procedures for flight planning, operations, engineering and maintenance ensuring that :

( i ) personnel responsible for flight planning are in a position to evaluate correctly the risk of encountering volcanic ash contaminated airspace, or aerodromes / operating sites, and can plan accordingly ;

( ii ) flight planning and operational procedures enable crews to avoid areas and aerodromes / operating sites with unacceptable volcanic ash contamination ;

( iii ) flight crew are aware of the possible signs of entry into a volcanic ash cloud and execute the associated procedures ;

( iv ) continuing airworthiness personnel are able to assess the need for and to execute any necessary maintenance or other required interventions ; *and*

( v ) crews are provided with appropriate aircraft performance data when operating to / from aerodromes / operating sites contaminated with volcanic ash.

*3 ) provision of enhanced flight watch*

This should ensure :

( i ) close and continuous monitoring of VAA, VAR / AIREP, SIGMET, NOTAM,

ASHTAM and other relevant information, and information from crews, concerning the volcanic ash cloud hazard ;

( ii ) access to plots of the affected areas from SIGMET’s, NOTAM’s and relevant company information for crews and personnel responsible for the management and the supervision of the flight operations ; *and*

( iii ) communication of the latest information to crews and personnel responsible for the management and the supervision of the flight operations in a timely fashion.

*4 ) flight planning*

Flexibility of the process to allow re-planning at short notice should conditions change.

*5 ) departure, destination and alternate aerodromes*

For the airspace to be traversed, or the aerodromes / operating sites in use, parameters to evaluate and take account of :

( i ) the probability of contamination ;

( ii ) any additional aircraft performance requirements ;

( iii ) required maintenance considerations ;

( iv ) fuel requirements for re-routeing and extended holding.

*6 ) routing policy*

Parameters to evaluate and take account of :

( i ) the shortest period in and over the forecast contaminated area ;

( ii ) the hazards associated with flying over the contaminated area ;

( iii ) drift down and emergency descent considerations ;

( iv ) the policy for flying below the contaminated airspace and the associated hazards.

*7 ) diversion policy*

Parameters to evaluate and take account of :

( i ) maximum allowed distance from a suitable aerodrome / operating site ;

( ii ) availability of aerodromes / operating sites outside the forecast contaminated area ;

( iii ) diversion policy after an volcanic ash encounter.

*8 ) minimum equipment list ( MEL )*

Additional provisions in the MEL for dispatching aircraft with unserviceabilities that might affect the following non - exhaustive list of systems :

( i ) air conditioning packs ;

( ii ) engine bleeds ;

( iii ) pressurization system ;

( iv ) electrical power distribution system ;

( v ) air data system ;

( vi ) standby instruments ;

( vii ) navigation systems ;

( viii ) de - icing systems ;

( ix ) engine - driven generators ;

( x ) auxiliary power unit *( APU ) ;*

( xi ) airborne collision avoidance system *( ACAS ) ;*

( xii ) terrain awareness warning system *( TAWS )* ;

( xiii ) autoland systems ;

( xiv ) provision of crew oxygen ;

( xv ) supplemental oxygen for passengers.

*9 ) standard operating procedures*

Crew training to ensure they are familiar with normal and abnormal operating procedures and particularly any changes regarding but not limited to :

( i ) pre - flight planning ;

( ii ) in-flight monitoring of volcanic ash cloud affected areas and avoidance procedures ;

( iii ) diversion ;

( iv ) communications with ATC ;

( v ) in-flight monitoring of engine and systems potentially affected by volcanic ash cloud contamination ;

( vi ) recognition and detection of volcanic ash clouds and reporting procedures ;

( vii ) in-flight indications of a volcanic ash cloud encounter ;

( viii ) procedures to be followed if a volcanic ash cloud is encountered ;

( ix ) unreliable or erroneous airspeed ;

( x ) non-normal procedures for engines and systems potentially affected by volcanic ash cloud contamination ;

( xi ) engine-out and engine relight ;

( xii ) escape routes ; *and*

( xiii ) operations to / from aerodromes / operating sites contaminated with volcanic ash.

*10 ) provision for aircraft technical log*

This should ensure :

( i ) systematic entry in the aircraft technical log related to any actual or suspected volcanic ash encounter whether in-flight or at an aerodrome / operating site ; *and*

( ii ) checking, prior to flight, of the completion of maintenance actions related to an entry in the aircraft Technical Log for a volcanic ash cloud encounter on a previous flight.

*11 ) incident reporting*

Crew requirements for :

( i ) reporting an airborne volcanic ash cloud encounter *( VAR )* ;

( ii ) post-flight volcanic ash cloud reporting *( VAR )* ;

( iii ) reporting non-encounters in airspace forecast to be contaminated ; *and*

( iv ) filing a mandatory occurrence report in accordance with *ORO. GEN. 160.*

*12 ) continuing airworthiness procedures*

Procedures when operating in or near areas of volcanic ash cloud contamination :

( i ) enhancement of vigilance during inspections and regular maintenance and appropriate adjustments to maintenance practices ;

( ii ) definition of a follow-up procedure when a volcanic ash cloud encounter has been reported or suspected ;

( iii ) thorough investigation for any sign of unusual or accelerated abrasions or corrosion or of volcanic ash accumulation ;

( iv ) reporting to TCH’s and the relevant authorities observations and experiences from operations in areas of volcanic ash cloud contamination ;

( v ) completion of any additional maintenance recommended by the TCH or by

the Competent Authority.

***f )*** *Reporting*

The Operator should ensure that reports are immediately submitted to the nearest ATS unit using the VAR / AIREP procedures followed up by a more detailed VAR on landing together with, as applicable, a report, as defined in CR - EU No 996 / 2010 and Directive 2003 / 42 / EC, and an aircraft technical log entry for :

1 ) any incident related to volcanic clouds ;

2 ) any observation of volcanic ash activity ; *and*

3 ) any time that volcanic ash is not encountered in an area where it was forecast to be.

***g )*** *References*

Further guidance on volcanic ash safety risk assessment is given in ICAO Doc. **9974**

*( Flight safety and volcanic ash — Risk management of flight operations with known or*

*forecast volcanic ash contamination ).*

**GM 3. ORO. GEN. 200 ( a ) ( 3 ) Management System**

*SAFETY RISK ASSESSMENT — RISK REGISTER*

The results of the assessment of the potential adverse consequences or outcome of each

hazard may be recorded by the operator in a risk register, an example of which is provided

below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Monitoring**  **and**  **review Requirements** | |  |  |  |  |  |  |  |  |
| **Actions**  **and Owners** | |  |  |  |  |  |  |  |  |
| **Outcome**  **( post - mitigation )** | **Risk** |  |  |  |  |  |  |  |  |
| **Likelihood** |  |  |  |  |  |  |  |  |
| **Severity** |  |  |  |  |  |  |  |  |
| **Additional Mitigation Required** | |  |  |  |  |  |  |  |  |
| **Outcome**  **( pre - mitigation )** | **Risk** |  |  |  |  |  |  |  |  |
| **Likelihood** |  |  |  |  |  |  |  |  |
| **Severity** |  |  |  |  |  |  |  |  |
| **Existing Control** | |  |  |  |  |  |  |  |  |
| **Incident**  **Sequence**  **Description** | |  |  |  |  |  |  |  |  |
| **Hazard** | **Description** |  |  |  |  |  |  |  |  |
| **N 0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |

***AMC 1* ORO. GEN. 200 ( a ) ( 4 ) Management System**

*TRAINING and COMMUNICATION on SAFETY*

***a )*** *Training*

1 ) all personnel should receive safety training as appropriate for their safety

responsibilities ;

2 ) adequate records of all safety training provided should be kept.

***b )*** *Communication*

1 ) the operator should establish communication about safety matters that :

( i ) ensures that all personnel are aware of the safety management activities as appropriate for their safety responsibilities ;

( ii ) conveys safety critical information, especially relating to assessed risks and analyzed hazards ;

( iii ) explains why particular actions are taken ; *and*

( iv ) explains why safety procedures are introduced or changed.

2 ) regular meetings with personnel where information, actions and procedures are

discussed may be used to communicate safety matters.

**GM 1. ORO. GEN. 200 ( a ) ( 4 ) Management System**

*TRAINING and COMMUNICATION on SAFETY*

The safety training programme may consist of self - instruction via the media *( newsletters,*

*flight safety magazines )*, classroom training, e - learning or similar training provided by

training service providers.

***AMC 1* ORO. GEN. 200 ( a ) ( 5 ) Management System**

*MANAGEMENT SYSTEM DOCUMENTATION — GENERAL*

a ) The Operator’s management system documentation should at least include the

following information :

1 ) a statement signed by the Accountable Manager to confirm that the Operator will

continuously work in accordance with the applicable requirements and the Operator’s documentation, as required by this Annex ;

2 ) the Operator's scope of activities ;

3 ) the titles and names of persons referred to in *ORO. GEN. 210 (a) and (b) ;*

4 ) an Operator chart showing the lines of responsibility between the persons referred to in *ORO. GEN. 210* ;

5 ) a general description and location of the facilities referred to in *ORO. GEN. 215* ;

6 ) procedures specifying how the operator ensures compliance with the applicable requirements ;

7 ) the amendment procedure for the Operator’s management system documentation.

b ) The Operator’s management system documentation may be included in a separate

manual or in ( one of ) the Manual(s), as required by the applicable subpart(s). A cross reference should be included.

***AMC 2* ORO. GEN. 200 ( a ) ( 5 ) Management System**

*COMPLEX OPERATORS — SAFETY MANAGEMENT MANUAL*

a ) The Safety Management Manual *( SMM )* should be the key instrument for communicating the approach to safety for the whole of the Operator. The SMM should document all aspects of safety management, including the safety policy, objectives, procedures and individual safety responsibilities ;

b ) The contents of the Safety Management Manual should include all of the following :

1 ) scope of the Safety Management System ;

2 ) safety policy and objectives ;

3 ) safety accountability of the Accountable Manager ;

4 ) safety responsibilities of key safety personnel ;

5 ) documentation control procedures ;

6 ) hazard identification and risk management schemes ;

7 ) safety action planning ;

8 ) safety performance monitoring ;

9 ) incident investigation and reporting ;

10 ) emergency response planning ;

11 ) management of change *( including organizational changes with regard to safety responsibilities ) ;*

12 ) safety promotion.

c ) The SMM may be contained in ( one of ) the Manual(s) of the Operator.

**GM 1. ORO. GEN. 200 ( a ) ( 5 ) Management System**

*MANAGEMENT SYSTEM DOCUMENTATION — GENERAL*

***a )*** It is not required to duplicate information in several manuals. The information may be

contained in any of the Operator Manuals *( e. g. Operations Manual, Training Manual ),* which may also be combined ;

***b )*** The Operator may also choose to document some of the information required to be documented in separate documents *( e. g. procedures ).* In this case, it should ensure that manuals contain adequate references to any document kept separately. Any such documents are then to be considered an integral part of the Operator’s management system documentation.

***AMC 1* ORO. GEN. 200 ( a ) ( 6 ) Management System**

*COMPLIANCE MONITORING — GENERAL*

*( a ) Compliance Monitoring*

The implementation and use of a compliance monitoring function should enable the Operator to monitor compliance with the relevant requirements of this Annex and other applicable Annexes.

1 ) the operator should specify the basic structure of the compliance monitoring function applicable to the activities conducted ;

2 ) the compliance monitoring function should be structured according to the size of the Operator and the complexity of the activities to be monitored ;

*( b ) Organizations* should monitor compliance with the procedures they have designed to ensure safe activities. In doing so, they should as a minimum, and where appropriate, monitor compliance with :

1 ) privileges of the Operator ;

2 ) manuals, logs, and records ;

3 ) training standards ;

4 ) management system procedures and manuals.

*( c ) Organizational Set Up*

1 ) to ensure that the Operator continues to meet the requirements of this Part and other applicable Parts, the Accountable Manager should designate a compliance monitoring manager. The role of the compliance monitoring manager is to ensure that the activities of the Operator are monitored for compliance with the applicable regulatory requirements, and any additional requirements as established by the Operator, and that these activities are carried out properly

under the supervision of the relevant head of functional area ;

2 ) the compliance monitoring manager should be responsible for ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved ;

3 ) the compliance monitoring manager should :

( i ) have direct access to the Accountable Manager ;

( ii ) not be one of the other persons referred to in *ORO. GEN. 210 ( b )* ;

( iii ) be able to demonstrate relevant knowledge, background and appropriate experience related to the activities of the Operator, including knowledge and experience in compliance monitoring ; *and*

( iv ) have access to all parts of the Operator, and as necessary, any contracted Operator.

4 ) in the case of a non-complex Operator, this task may be exercised by the Accountable Manager provided he / she has demonstrated having the related competence as defined in *( c ) ( 3 ) ( iii ) ;*

5 ) in the case the same person acts as compliance monitoring manager and as Safety Manager, the Accountable Manager, with regards to his / her direct accountability for safety, should ensure that sufficient resources are allocated to both functions, taking into account the size of the Operator and the nature and complexity of its activities ;

6 ) the independence of the compliance monitoring function should be established by ensuring that audits and inspections are carried out by personnel not responsible for the function, procedure or products being audited.

*( d ) Compliance Monitoring Documentation*

1 ) relevant documentation should include the relevant part(s) of the Operator’s management system documentation ;

2 ) in addition, relevant documentation should also include the following :

( i ) terminology ;

( ii ) specified activity standards ;

( iii ) a description of the Operator ;

( iv ) the allocation of duties and responsibilities ;

( v ) procedures to ensure regulatory compliance ;

( vi ) the compliance monitoring programme, reflecting :

( A ) schedule of the monitoring programme ;

( B ) audit procedures ;

( C ) reporting procedures ;

( D ) follow - up and corrective action procedures ; *and*

( E ) recording system.

( vii ) the training syllabus referred to in ( e ) ( 2 ) ;

( viii ) document control.

*( e ) Training*

1 ) correct and thorough training is essential to optimize compliance in every Operator. In order to achieve significant outcome of such training, the Operator should ensure that all personnel understand the objectives as laid down in the Operator’s management system documentation ;

2 ) those responsible for managing the compliance monitoring function should receive training on this task. Such training should cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting and recording ;

3 ) time should be provided to train all personnel involved in compliance management and for briefing the remainder of the personnel ;

4 ) the allocation of time and resources should be governed by the volume and complexity of the activities concerned.

**GM 1. ORO. GEN. 200 ( a ) ( 6 ) Management System**

*COMPLIANCE MONITORING — GENERAL*

***a )*** The organizational set-up of the compliance monitoring function should reflect the size of the Operator and the nature and complexity of its activities. The compliance monitoring manager may perform all audits and inspections himself / herself or appoint one or more auditors by choosing personnel having the related competence as defined in *AMC 1 ORO. GEN. 200 ( a ) ( 6 ) point ( c ) ( 3 ) ( iii ),* either from, within or outside the Operator ;

***b )*** Regardless of the option chosen it must be ensured that the independence of the audit function is not affected, in particular in cases where those performing the audit or inspection are also responsible for other functions for the Operator ;

***c )*** In case external personnel are used to perform compliance audits or inspections :

1 ) any such audits or inspections are performed under the responsibility of the compliance monitoring manager ; *and*

2 ) the Operator remains responsible to ensure that the external personnel has relevant knowledge, background and experience as appropriate to the activities being audited or inspected ; including knowledge and experience in compliance monitoring.

***d )*** The Operator retains the ultimate responsibility for the effectiveness of the compliance

monitoring function, in particular for the effective implementation and follow-up of all

corrective actions.

**GM 2. ORO. GEN. 200 ( a ) ( 6 ) Management System**

*COMPLEX OPERATORS — COMPLIANCE MONITORING PROGRAMME*

***a )*** Typical subject areas for compliance monitoring audits and inspections for Operators should be, as applicable :

1 ) actual flight operations ;

2 ) ground de - icing / anti - icing ;

3 ) flight support services ;

4 ) load control ;

5 ) technical standards.

***b )*** Operators should monitor compliance with the operational procedures they have designed to ensure safe operations, airworthy aircraft and the serviceability of both operational and safety equipment. In doing so, they should, where appropriate, additionally monitor the following :

1 ) operational procedures ;

2 ) flight safety procedures ;

3 ) operational control and supervision ;

4 ) aircraft performance ;

5 ) all weather operations ;

6 ) communications and navigational equipment and practices ;

7 ) mass, balance and aircraft loading ;

8 ) instruments and safety equipment ;

9 ) ground operations ;

10 ) flight and duty time limitations, rest requirements, and scheduling ;

11 ) aircraft maintenance / operations interface ;

12 ) use of the MEL ;

13 ) flight crew ;

14 ) cabin crew ;

15 ) dangerous goods ;

16 ) security.

**GM 3. ORO. GEN. 200 ( a ) ( 6 ) Management System**

*NON - COMPLEX OPERATORS — COMPLIANCE MONITORING*

***a )*** Compliance monitoring audits and inspections may be documented on a

“ Compliance Monitoring Checklist “, and any findings recorded in a

“ Non - compliance Report “.

The following documents may be used for this purpose.

|  |  |  |  |
| --- | --- | --- | --- |
| **COMPLIANCE MONITORING CHECKLIST**  **Year :** | | | |
| **Subject** | **Date**  **Checked** | **Checked**  **by** | **Comments / Non-compliance Report N 0** |
| **Flight Operations** | | | |
| Aircraft Checklists checked for accuracy and validity |  |  |  |
| Minimum five flight plans checked and verified for proper and correct information |  |  |  |
| Flight planning facilities checked for updated manuals, documents and access to relevant flight information |  |  |  |
| Incident reports evaluated and reported to the appropriate Competent Authority |  |  |  |
| **Ground Handling** | | | |
| Contracts with ground handling organiz-ns established and valid, *if applicable* |  |  |  |
| Instructions regarding fuelling and  de-icing issued, *if applicable* |  |  |  |
| Instructions regarding Dangerous Goods is-sued and known by all relevant personnel, *if applicable* |  |  |  |
| **Mass & Balance** | | | |
| Min. **5**  Load-sheets checked and verified for proper and correct information, *if app-le* |  |  |  |
| Aircraft fleet checked for valid weight check*, if applicable* |  |  |  |
| Minimum **1**  check per aircraft of correct loading and distribution, *if applicable* |  |  |  |
| **Training** | | | |
| Training records updated and accurate |  |  |  |
| All pilot licenses checked for currency, correct ratings and valid medical check |  |  |  |
| All pilots received recurrent training |  |  |  |
| Training facilities & Instructors approved |  |  |  |
| All pilots received daily inspection ( DI ) training |  |  |  |
| **Documentation** | | | |
| All issues of Operations Manual ( OM ) checked for correct amendment status |  |  |  |
| AOC checked for validity and appropriate operations specifications, *if applicable* |  |  |  |
| Aviation requir-nts applicable and updated |  |  |  |
| Crew flight and duty time record updated, *if applicable* |  |  |  |
| Flight documents record checked and updated |  |  |  |
| Compliance monitoring records checked and updated |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * **NON - COMPLIANCE REPORT — N o :** | | | | |
| To Compliance Monitoring  Manager | Reported by : | Date : | | |
| Category  Flight Operations Ground Handling Mass & Balance  Training Documentation Other | | | | |
| Description : | | | | Reference : |
| Level of finding : | | | | |
| Root - cause of non - compliance : | | | | |
| Suggested correction : | | | | |
| Compliance Monitoring Manager :  Corrective action required Corrective action not required | | | | |
| Responsible Person : | | Time limitation : | | |
| Corrective action : | | Reference : | | |
| Signature Responsible Person : | | Date : | | |
| Compliance Monitoring Manager  Correction and corrective action verified Report Closed | | | | |
| Signature Compliance Monitoring Manager : | | | Date : | |

**GM 4. ORO. GEN. 200 ( a ) ( 6 ) Management System**

*AUDIT AND INSPECTION*

***a )*** *“ Audit “* means a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which requirements are complied with ;

***b )*** *“ Inspection “* means an independent documented conformity evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging, in order to verify compliance with applicable requirements.

**AMC 1 ORO. GEN. 200 ( b ) Management System**

*SIZE, NATURE and COMPLEXITY of the ACTIVITY*

a ) An Operator should be considered as complex when it has a workforce of more than 20

Full Time Equivalents *( FTE’s )* involved in the activity subject to CR - EC No  216 / 2008 and its Implementing Rules.

b ) Operators with up to 20 FTE’s involved in the activity subject to CR - EC No 216 / 2008 and its Implementing Rules may also be considered complex based on an assessment of the following factors :

1 ) in terms of complexity, the extent and scope of contracted activities subject to the

approval ;

2 ) in terms of risk criteria, whether any of the following are present :

( i ) operations requiring the following specific approvals : Performance - Based Navigation *( PBN ),* Low Visibility Operation *( LVO ),* Extended Range Operations with Two - Engined Aeroplanes *( ETOPS ),* Helicopter Hoist Operation *( HHO ),* Helicopter Emergency Medical Service *( HEMS ),* Night Vision Imaging System *( NVIS )* and Dangerous Goods *( DG )* ;

( ii ) commercial specialized operations requiring an authorization ;

( iii ) different types of aircraft used ;

( iv ) the environment *( offshore, mountainous area, etc. ).*

***AMC 1* ORO. GEN. 205 Contracted Activities**

*RESPONSIBILITY WHEN CONTRACTING ACTIVITIES*

a ) The Operator may decide to contract certain activities to external organizations ;

b ) A written agreement should exist between the operator and the contracted organization clearly defining the contracted activities and the applicable requirements ;

c ) The contracted safety-related activities relevant to the agreement should be included in the Operator's safety management and compliance monitoring programmes ;

d ) The Operator should ensure that the contracted organization has the necessary authorization or approval when required, and commands the resources and competence to undertake the task.

**GM 1. ORO. GEN. 205 Contracted Activities**

*CONTRACTING — GENERAL*

***a )*** Operators may decide to contract certain activities to external organizations for the provision of services related to areas such as :

1 ) ground de - icing / anti - icing ;

2 ) ground handling ;

3 ) flight support *( including performance calculations, flight planning, navigation database and dispatch ) ;*

4 ) training ; *and*

5 ) manual preparation.

***b )*** Contracted activities include all activities within the Operator’s scope of approval that are performed by another organization either itself certified or authorized to carry out such activity or if not certified or authorized, working under the Operator’s approval ;

***c )*** The ultimate responsibility for the product or service provided by external organizations should always remain with the Operator.

**GM 2. ORO. GEN. 205 Contracted Activities**

*RESPONSIBILITY when CONTRACTING ACTIVITIES*

***a )*** Regardless of the approval status of the contracted organization, the contracting operator is responsible for ensuring that all contracted activities are subject to hazard identification and risk management, as required by *ORO. GEN. 200 ( a ) ( 3 ),* and to compliance monitoring, as required by *ORO. GEN. 200 ( a ) ( 6 ) ;*

***b )*** When the contracted organization is itself certified or authorized to carry out the contracted activities, the Operator’s compliance monitoring should at least check that the approval effectively covers the contracted activities and that it is still valid.

***AMC 1* ORO. GEN. 220 ( b ) Record - keeping**

*GENERAL*

a ) The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organized in a way that ensures traceability and retrievability throughout the required retention period ;

b ) Records should be kept in paper form or in electronic format or a combination of both.

Records stored on microfilm or optical disc format are also acceptable. The records should remain legible throughout the required retention period. The retention period starts when the record has been created or last amended ;

c ) Paper systems should use robust material which can withstand normal handling and filing. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Computer systems should include safeguards against the ability of unauthorized personnel to alter the data ;

d ) All computer hardware used to ensure data backup should be stored in a different location from that containing the working data and in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the full period specified in the relevant subpart. In the absence of such indication, all records should be kept for a minimum period of 5 years.

**GM 1 ORO. GEN. 220 ( b ) Record - keeping**

*RECORDS*

Microfilming or optical storage of records may be carried out at any time. The records

should be as legible as the original record and remain so for the required retention period.

*INTENTIONALLY LEFT BLANK*

**SUBPART AOC — Air Operator Certification**

***AMC 1* ORO. AOC. 100 Application for an Air Operator Certificate ( AOC )**

*APPLICATION TIME FRAMES*

The application for the initial issue of an AOC should be submitted at least 90 days before

the intended start date of operation. The Operations Manual may be submitted later, but in

any case not later than 60 days before the intended start date of operation.

***AMC 1* ORO. AOC. 110 Leasing Agreement**

*GENERAL*

The Operator intending to lease-in an aircraft should provide the Competent Authority with

the following information :

a ) the aircraft type, registration markings and serial number ;

b ) the name and address of the registered owner ;

c ) a copy of the valid certificate of airworthiness ;

d ) a copy of the lease agreement or description of the lease provisions, except financial

arrangements ;

e ) duration of the lease ; *and*

f ) in case of wet lease-in, a copy of the AOC of the third country Operator and the areas

of operation ;

The information mentioned above should be accompanied by a statement signed by the lessee that the parties to the lease agreement fully understand their respective responsibilities under the applicable regulations.

***AMC 1* ORO. AOC. 110 ( c ) Leasing Agreement**

*WET LEASE - IN*

If the Operator is not intending to apply EU safety requirements for air operations and

continuing airworthiness when wet leasing-in an aircraft registered in a third country, it

should demonstrate to the Competent Authority that the standards complied with are equivalent to the following requirements :

( a ) Annex **IV** ( Part - CAT ) ;

( b ) Annex **III**  ( Part - ORO ) :

1 ) ORO. GEN. 110 and Section II of Subpart GEN ;

2 ) ORO. MLR, excluding ORO. MLR. 105 ;

3 ) ORO. FC ;

4 ) ORO. CC, excluding ORO. CC. 200 and ORO. CC. 210 ( a ) ;

5 ) ORO. TC ;

6 ) ORO. FTL, including related CS - FTL ; *and*

7 ) ORO. SEC ;

( c ) Annex **V** ( Part - SPA ), if applicable ;

( d ) for continuing airworthiness management of the third country operator, Part-M Subpart-B, Subpart-C and Subpart-G, excluding M. A. 707, and M. A. 710 ;

( e ) for the maintenance organization used by the third country operator during the lease period : Part - 145 ; *and*

( f ) the Operator should provide the competent authority with a full description of the flight time limitation scheme(s), operating procedures and safety assessment demonstrating compliance with the safety objectives set out in points *( b ) ( 1 ) - ( 6 ).*

***AMC 2* ORO. AOC. 110 ( c ) Leasing Agreement**

*WET LEASE - IN*

The lessee should maintain a record of occasions when lessors are used, for inspection by the State that issued its AOC.

**GM 1. ORO. AOC. 110 ( c ) Leasing Agreement**

*SHORT - TERM WET LEASE - IN*

In anticipation of an operational need the Operator may enter into a framework agreement with more than one third country Operator provided that these Operators comply with ORO. AOC. 110 ( c ). These third country Operators should be placed in a list maintained by the lessee.

***AMC 1* ORO. AOC. 110 ( f ) Leasing Agreement**

*WET LEASE - OUT*

When notifying the Competent Authority, the Operator intending to wet lease - out an aircraft should provide the Competent Authority with the following information :

( a ) the aircraft type, registration markings and serial number ;

( b ) the name and address of the lessee ;

( c ) a copy of the lease agreement or description of the lease provisions, except financial

arrangements ; *and*

( d ) the duration of the lease agreement.

***AMC 1* ORO. AOC. 115 ( a ) ( 1 ) Code Share Agreements**

*INITIAL VERIFICATION of COMPLIANCE*

( a ) In order to verify the third country Operator’s compliance with the applicable ICAO

standards, in particular ICAO Annexes 1, 2, 6, Part I and III, as applicable, 8 and 18,

the EU Operator should conduct an audit of the third country Operator, including interviews of personnel and inspections carried out at the third country Operator’s facilities ;

( b ) The audit should focus on the operational, management and control systems of the

Operator.

***AMC 1* ORO. AOC. 115 ( b ) Code - share Arrangements**

*CODE - SHARE AUDIT PROGRAMME*

( a ) Operators should establish a code-share audit programme for monitoring continuous

compliance of the third country Operator with the applicable ICAO standards. Such a

code-share audit programme should include :

1 ) the audit methodology *( audit report + compliance statements ) ;*

2 ) details of the specific operational areas to audit ;

3 ) criteria for defining satisfactory audit results ;

4 ) a system for reporting and correcting findings ;

5 ) a continuous monitoring system ;

6 ) auditor qualification and authorization ; *and*

7 ) the frequency of audits.

( b ) The third country code-share Operator should be audited at periods not exceeding

24 months. The beginning of the first 24-month oversight planning cycle is determined

by the date of the first audit and should then determine the start and end dates of the

recurrent 24-month planning cycle. The interval between two audits should not exceed

24 months ;

( c ) The EU Operator should ensure a renewal audit of each third country code-share

Operator prior to the audit expiry date of the previous audit. The audit expiry date for the previous audit becomes the audit effective date for the renewal audit provided the closing meeting for the renewal audit is within 150 days prior to the audit expiry date for the previous audit. If the closing meeting for the renewal audit is more than 150 days prior to the audit expiry date from the previous audit, then the audit effective date for the renewal audit is the day of the closing meeting of the renewal audit. Renewal audits are valid for 24 consecutive months beginning with the audit effective date and ending with the audit expiry date ;

( d ) A code-share audit could be shared by several Operators. In case of a shared audit, the report should be made available for review by all duly identified sharing Operators by any means ;

( e ) After closure of all findings identified during the audit, the EU Operator should submit

an audit compliance statement to the competent authority demonstrating that the third country Operator meets all the applicable safety standards.

***AMC 2* ORO. AOC. 115 ( b ) Code - share Agreements**

*THIRD PARTY PROVIDERS*

( a ) The initial audit and / or the continuous monitoring may be performed by a third party

provider on behalf of the EU Operator when it is demonstrated that :

1 ) a documented arrangement has been established with the third party provider ;

2 ) the audit standards applied by the third party provider addresses the scope of the regulation in sufficient detail ;

3 ) the third party provider uses an evaluation system, designed to assess the operational, management and control systems of the third country code-share Operator ;

4 ) independence of the third party provider, its evaluation system as well as the impartiality of the auditors is ensured ;

5 ) the auditors are appropriately qualified and have sufficient knowledge, experience and training, including on - the - job training, to perform their allocated tasks ;

6 ) audits are performed on - site ;

7 ) access to the relevant data and facilities is granted to the level of detail necessary to verify compliance with the applicable requirements;

8 ) access to the full audit report is granted to the EU Operator ;

9 ) procedures have been established for monitoring continued compliance of the third country code-share Operator with the applicable requirements, taking into account the timelines in *AMC 1 ORO. AOC. 115 ( b ) and ( c ) ;*

10 ) procedures have been established to notify the third country code-share operator of any non-compliance with the applicable requirements, the corrective actions to be taken, the follow up of these corrective actions and closure of findings.

( b ) The use of a third party provider for the initial audit or the monitoring of continuous

compliance of the third country code-share Operator does not exempt the EU Operator from its responsibility under *ORO. AOC. 115. ;*

( c ) The EU Operator should maintain a list of the third country code-share Operators monitored by the third party provider. This list and the full audit report prepared by the third party provider should be made available to the Competent Authority upon request.

***AMC 1* ORO. AOC. 130 Flight Data Monitoring — Aeroplanes**

*FLIGHT DATA MONITORING ( FDM ) PROGRAMME*

( a ) The Safety Manager, as defined under *AMC 1 ORO. GEN. 200 ( a ) ( 1 ),* should be responsible for the identification and assessment of issues and their transmission to the manager(s) responsible for the process(es) concerned. The latter should be responsible for taking appropriate and practicable safety action within a reasonable period of time that reflects the severity of the issue ;

( b ) An FDM programme should allow an Operator to :

1 ) identify areas of operational risk and quantify current safety margins ;

2 ) identify and quantify operational risks by highlighting occurrences of nonstandard, unusual

or unsafe circumstances ;

3 ) use the FDM information on the frequency of such occurrences, combined with an estimation of the level of severity, to assess the safety risks and to determine which may become unacceptable if the discovered trend continues ;

4 ) put in place appropriate procedures for remedial action once an unacceptable risk, either actually present or predicted by trending, has been identified ; *and*

5 ) confirm the effectiveness of any remedial action by continued monitoring.

( c ) FDM analysis techniques should comprise the following :

1 ) exceedance detection : searching for deviations from aircraft flight manual limits and standard operating procedures. A set of core events should be selected to cover the main areas of interest to the Operator. A sample list is provided in Appendix 1 to AMC 1 ORO. AOC. 130. The event detection limits should be continuously reviewed to reflect the Operator’s current operating procedures ;

2 ) all flights measurement : a system defining what is normal practice. This may be accom- -plished by retaining various snapshots of information from each flight ;

3 ) statistics : - a series of data collected to support the analysis process : this technique should include the number of flights flown per aircraft and sector details sufficient to generate rate and trend information.

( d ) FDM analysis, assessment and process control tools : the effective assessment of

information obtained from digital flight data should be dependent on the provision of appropriate information technology tool sets ;

( e ) Education and publication : sharing safety information should be a fundamental principle of aviation safety in helping to reduce accident rates. The operator should pass on the lessons learnt to all relevant personnel and, where appropriate, industry ;

( f ) Accident and incident data requirements specified in *CAT. GEN. MPA. 195* take precedence over the requirements of an FDM programme. In these cases the FDR data

should be retained as part of the investigation data and may fall outside the de-identification

agreements ;

( g ) Every crew member should be responsible for reporting events. Significant risk bearing

incidents detected by FDM should therefore normally be the subject of mandatory occurrence reporting by the crew. If this is not the case, then they should submit a retrospective report that should be included under the normal process for reporting and analyzing hazards, incidents and accidents ;

( h ) The data recovery strategy should ensure a sufficiently representative capture of flight

information to maintain an overview of operations. Data analysis should be performed sufficiently, frequently to enable action to be taken on significant safety issues :

( i ) The data retention strategy should aim at providing the greatest safety benefits practicable from the available data. A full dataset should be retained until the action and review processes are complete ; thereafter, a reduced dataset relating to closed issues should be maintained for longer - term trend analysis. Programme managers may wish to retain samples of de-identified full-flight data for various safety purposes *( detailed analysis, training, benchmarking, etc. ).*

( j ) The data access and security policy should restrict information access to authorized

persons. When data access is required for airworthiness and maintenance purposes, a

procedure should be in place to prevent disclosure of crew identity.

( k ) The procedure to prevent disclosure of crew identity should be written in a document,

which should be signed by all parties ( airline management, flight crew member, representatives nominated either by the union or the flight crew themselves ). This procedure should, as a minimum, define :

1 ) the aim of the FDM programme ;

2 ) a data access and security policy that should restrict access to information to specifically authorized persons identified by their position ;

3 ) the method to obtain de-identified crew feedback on those occasions that require specific flight follow-up for contextual information ; where such crew contact is required the authorized person(s) need not necessarily be the programme manager or safety manager, but could be a third party *( broker )* mutually acceptable to unions or staff and management ;

4 ) the data retention policy and accountability, including the measures taken to ensure the security of the data ;

5 ) the conditions under which advisory briefing or remedial training should take place ; this should always be carried out in a constructive and non-punitive manner ;

6 ) the conditions under which the confidentiality may be withdrawn for reasons of gross negligence or significant continuing safety concern ;

7 ) the participation of flight crew member representative(s) in the assessment of the data, the action and review process and the consideration of recommendations ; *and*

8 ) the policy for publishing the findings resulting from FDM.

( l ) Airborne systems and equipment used to obtain FDM data should range from an already installed full Quick Access Recorder *( QAR ),* in a modern aircraft with digital systems, to a basic crash-protected recorder in an older or less sophisticated aircraft. The analysis potential of the reduced data set available in the latter case may reduce the safety benefits obtainable. The Operator should ensure that FDM use does not adversely affect the serviceability of equipment required for accident investigation.

**GM 1. ORO. AOC. 130 Flight Data Monitoring — Aeroplanes**

*DEFINITION of an FDM PROGRAMME*

For the purposes of this Guidance Material, an FDM programme may be defined as a proactive and non - punitive programme for gathering and analyzing data recorded during

routine flights to improve aviation safety.

***a )*** FDM analysis techniques :

1 ) exceedance detection :

( i ) FDM programmes are used for detecting exceedances, such as deviations from Flight Manual Limits, Standard Operating Procedures ( SOP’s ), or good airmanship. Typically, a set of core events establishes the main areas of interest to Operators.

*Examples :* high lift - off rotation rate, stall warning, ground proximity warning system

( GPWS ) warning, flap limit speed exceedance, fast approach, high / low on glideslope,

and heavy landing ; ( ii ) trigger logic expressions may be simple exceedances such as redline values. The

majority, however, are composites that define a certain flight mode, aircraft

configuration or payload-related condition. Analysis software can also assign different

sets of rules dependent on airport or geography. For example, noise sensitive airports

may use higher than normal glideslopes on approach paths over populated areas. In

addition, it might be valuable to define several levels of exceedance severity *( such as*

*low, medium and high ) ;*

( iii ) exceedance detection provides useful information, which can complement that provided in crew reports.

*Examples :* reduced flap landing, emergency descent, engine failure, rejected Take-off, Go-around, Airborne Collision Avoidance System *( ACAS )* or GPWS warning, and system malfunctions.

( iv ) the Operator may also modify the standard set of core events to account for unique situations they regularly experience, or the SOP’s they use.

*Example :* to avoid nuisance exceedance reports from a non-standard instrument departure ;

( v ) the Operator may also define new events to address specific problem areas.

*Example :* restrictions on the use of certain flap settings to increase component life.

2 ) all - flights measurements :

FDM data are retained from all flights, not just the ones producing significant events. A selection of parameters is retained that is sufficient to characterize each flight and allow a comparative analysis of a wide range of operational variability. Emerging trends and tendencies may be identified and monitored before the trigger levels associated with exceedances are reached.

*Examples of parameters monitored :* take-off weight, flap setting, temperature, rotation and lift-off speeds versus scheduled speeds, maximum pitch rate and attitude during rotation, and gear retraction speeds, heights and times.

*Examples of comparative analyses :* pitch rates from high versus low take-off weights, good versus bad weather approaches, and touchdowns on short versus long runways.

3 ) statistics :

Series of data are collected to support the analysis process : these usually include the numbers of flights flown per aircraft and sector details sufficient to generate rate and trend information.

4 ) investigation of incidents flight data :

Recorded flight data provide valuable information for follow-up to incidents and other technical reports. They are useful in adding to the impressions and information recalled by the flight crew. They also provide an accurate indication of system status and performance, which may help in determining cause and effect relationships.

*Examples of incidents where recorded data could be useful :*   high cockpit workload conditions as corroborated by such indicators as late descent, late localizer and / or glideslope interception, late landing configuration ;

 unstabilized and rushed approaches, glide path excursions, etc. ;

 exceedances of prescribed operating limitations ( such as flap limit speeds, engine over-temperatures ) ; *and*

 wake vortex encounters, turbulence encounters or other vertical accelerations.

It should be noted that recorded flight data have limitations, e. g. not all the information displayed to the flight crew is recorded, the source of recorded data may be different from the source used by a flight instrument, the sampling rate or the recording resolution of a parameter may be insufficient to capture accurate information ;

5 ) continuing airworthiness :

Data of all-flight measurements and exceedance detections can be utilized to assist the continuing airworthiness function. For example, engine-monitoring programmes look at measures of engine performance to determine operating efficiency and predict impending failures.

*Examples of continuing airworthiness uses :*  engine thrust level and airframe drag measurements, avionics and other system performance monitoring, flying control performance, and brake and landing gear usage.

***b )*** FDM equipment :

1 ) general.

FDM programmes generally involve systems that capture flight data, transform the data into an appropriate format for analysis, and generate reports and visualization to assist in assessing the data. Typically, the following equipment capabilities are needed for effective FDM programmes :

( i ) an on-board device to capture and record data on a wide range of in-flight parameters ;

( ii ) a means to transfer the data recorded on board the aircraft to a ground based processing station ;

( iii ) a ground-based computer system to analyze the data, identify deviations from expected performance, generate reports to assist in interpreting the read-outs, etc. ; *and*

( iv ) optional software for a flight animation capability to integrate all data, presenting them as a simulation of in-flight conditions, thereby facilitating visualization of actual events.

2 ) airborne equipment .

( i ) the flight parameters and recording capacity required for flight data recorders ( FDR ) to support accident investigations may be insufficient to support an effective FDM programme. Other technical solutions are available, including the following :

( A ) Quick Access Recorders *( QAR’s ).* QAR’s are installed in the aircraft and record flight

data onto a low-cost removable medium.

( B ) Some systems automatically download the recorded information via secure wireless

systems when the aircraft is in the vicinity of the gate. There are also systems that

enable the recorded data to be analyzed on board while the aircraft is airborne.

( ii ) fleet composition, route structure and cost considerations will determine the most cost -

effective method of removing the data from the aircraft.

3 ) ground replay and analysis equipment.

( i ) data are downloaded from the aircraft recording device into a ground-based processing station, where the data are held securely to protect this sensitive information ;

( ii ) FDM programmes generate large amounts of data requiring specialized analysis software.

( iii ) the analysis software checks the downloaded flight data for abnormalities ;

( iv ) the analysis software may include : annotated data trace displays, engineering unit listings, visualization for the most significant incidents, access to interpretative material, links to other safety information and statistical presentations.

***c )*** FDM in practice.

1 ) FDM process.

Typically, Operators follow a closed-loop process in applying an FDM programme, for example :

( i ) establish a baseline : initially, Operators establish a baseline of operational parameters against which changes can be detected and measured.

*Examples :* rate of unstable approaches or hard landings ;

( ii ) highlight unusual or unsafe circumstances : the user determines when non-standard, unusual or basically unsafe circumstances occur ; by comparing them to the baseline margins of safety, the changes can be quantified.

*Example :* increases in unstable approaches *( or other unsafe events )* at particular locations ;

( iii ) identify unsafe trends : based on the frequency and severity of occurrence, trends are identified. Combined with an estimation of the level of severity, the risks are assessed to determine which may become unacceptable if the trend continues.

Example : a new procedure has resulted in high rates of descent that are nearly triggering GPWS warnings ;

( iv ) mitigate risks : once an unacceptable risk has been identified, appropriate risk mitigation actions are decided on and implemented.

*Example :* having found high rates of descent, the SOP’s are changed to improve aircraft control for optimum / maximum rates of descent.

( v ) monitor effectiveness : once a remedial action has been put in place, its effectiveness is monitored, confirming that it has reduced the identified risk and that the risk has not been transferred elsewhere.

*Example :* confirm that other safety measures at the aerodrome with high rates of descent do not change for the worse after changes in approach procedures.

2 ) analysis and follow - up.

( i ) FDM data are typically compiled every month or at shorter intervals. The data are then reviewed to identify specific exceedances and emerging undesirable trends and to disseminate the information to flight crews ;

( ii ) if deficiencies in pilot handling technique are evident, the information is usually de-identified in order to protect the identity of the flight crew. The information on specific exceedances is passed to a person *( safety manager, agreed flight crew representative, honest broker )*  assigned by the Operator for confidential discussion with the pilot. The person assigned by the Operator provides the necessary contact with the pilot in order to clarify the circumstances, obtain feedback and give advice and recommendations for appropriate action. Such appropriate action could include re-training for the pilot *( carried out in a constructive and non-punitive way )*, revisions to manuals, changes to ATC and airport operating procedures;

( iii ) follow-up monitoring enables the effectiveness of any corrective actions to be assessed. Flight crew feedback is essential for the identification and resolution of safety problems and could be collected through interviews, for example by asking the following :

( A ) Are the desired results being achieved soon enough ?

( B ) Have the problems really been corrected, or just relocated to another part of the system ?

( C ) Have new problems been introduced ?

( iv ) all events are usually archived in a database. The database is used to sort, validate and display the data in easy-to-understand management reports. Over time, this archived data can provide a picture of emerging trends and hazards that would otherwise go unnoticed ;

( v ) lessons learnt from the FDM programme may warrant inclusion in the Operator’s safety promotion programmes. Safety promotion media may include newsletters, flight safety magazines, highlighting examples in training and simulator exercises, periodic reports to industry and the Competent Authority. Care is required, however, to ensure that any information acquired through FDM is de-identified before using it in any training or promotional initiative ;

( vi ) all successes and failures are recorded, comparing planned programme objectives with expected results. This provides a basis for review of the FDM programme and the foundation for future programme development.

***d )*** Preconditions for an effective FDM programme.

1 ) Protection of FDM data.

The integrity of FDM programmes rests upon protection of the FDM data. Any disclosure for purposes other than safety management can compromise the voluntary provision of safety data, thereby compromising flight safety ;

2 ) Essential trust. The trust established between management and flight crew is the foundation for a successful FDM programme. This trust can be facilitated by :

( i ) early participation of the flight crew representatives in the design, implementation and operation of the FDM programme ;

( ii ) a formal agreement between management and flight crew, identifying the procedures for the use and protection of data ; *and*

( iii ) data security, optimized by :

( A ) adhering to the agreement ;

( B ) the operator strictly limiting data access to selected individuals ;

( C ) maintaining tight control to ensure that identifying data is kept securely ; *and*

( D ) ensuring that operational problems are promptly addressed by management.

3 ) Requisite safety culture.

Indicators of an effective safety culture typically include :

( i ) top management’s demonstrated commitment to promoting a proactive safety culture ;

( ii ) a non-punitive operator policy that covers the FDM programme ;

( iii ) FDM programme management by dedicated staff under the authority of the safety manager, with a high degree of specialization and logistical support ;

( iv ) involvement of persons with appropriate expertise when identifying and assessing the risks *( for example, pilots experienced on the aircraft type being analyzed ) ;*

( v ) monitoring fleet trends aggregated from numerous operations, not focusing only on specific events ;

( vi ) a well-structured system to protect the confidentiality of the data ; *and*

( vii ) an efficient communication system for disseminating hazard information ( and subsequent risk assessments ) internally and to other organizations to permit timely safety action.

***e )*** Implementing an FDM programme.

1 ) General considerations

( i ) typically, the following steps are necessary to implement an FDM programme :

( A ) implementation of a formal agreement between management and flight crew ;

( B ) establishment and verification of operational and security procedures ;

( C ) installation of equipment ;

( D ) selection and training of dedicated and experienced staff to operate the programme ; *and*

( E ) commencement of data analysis and validation. ( ii ) an Operator with no FDM experience may need a year to achieve an operational FDM

programme. Another year may be necessary before any safety and cost benefits appear.

Improvements in the analysis software, or the use of outside specialist service providers,

may shorten these time frames.

2 ) Aims and objectives of an FDM Programme.

( i ) as with any project there is a need to define the direction and objectives of the work. A phased approach is recommended so that the foundations are in place for possible subsequent expansion into other areas. Using a building block approach will allow expansion, diversification and evolution through experience.

*Example :* with a modular system, begin by looking at basic safety-related issues only. Add engine health monitoring, etc. in the second phase. Ensure compatibility with other systems.

( ii ) a staged set of objectives starting from the first week’s replay and moving through early production reports into regular routine analysis will contribute to a sense of achievement as milestones are met.

Examples of short-term, medium-term and long-term goals :

( A ) Short - term goals :

— establish data download procedures, test replay software and identify aircraft defects ;

— validate and investigate exceedance data ; *and*

— establish a user - acceptable routine report format to highlight individual exceedances and facilitate the acquisition of relevant statistics ;

( B ) Medium - term goals :

— produce an annual report — include key performance indicators ;

— add other modules to the analysis ( e. g. continuing airworthiness ) ; *and*

— plan for the next fleet to be added to programme.

( C ) Long - term goals :

— network FDM information across all of the Operator’s safety information systems ;

— ensure FDM provision for any proposed alternative training and qualification programme *( ATQP )* ; *and*

— use utilization and condition monitoring to reduce spares holdings.

( iii ) initially, focusing on a few known areas of interest will help prove the system’s effectiveness. In contrast to an undisciplined “ scatter-gun “ approach, a focused approach is more likely to gain early success.

*Examples :* rushed approaches, or rough runways at particular aerodromes. Analysis of such known problem areas may generate useful information for the analysis of other areas.

3 ) The FDM team.

( i ) experience has shown that the “team “ necessary to run an FDM programme could vary in size from one person for a small fleet, to a dedicated section for large fleets. The descriptions below identify various functions to be fulfilled, not all of which need a dedicated position.

( **A** ) Team Leader : it is essential that the team leader earns the trust and full support of both management and flight crew. The team leader acts independently of others in line management to make recommendations that will be seen by all to have a high level of

integrity and impartiality. The individual requires good analytical, presentation and management skills ;

( **B** ) Flight Operations Interpreter : this person is usually a current pilot *( or perhaps a recently retired senior captain or instructor )*, who knows the Operator’s route network and aircraft. This team member’s in-depth knowledge of SOP’s, aircraft handling characteristics,

aerodromes and routes is used to place the FDM data in a credible context ;

( **C** ) Technical Interpreter : this person interprets FDM data with respect to the technical aspects of the aircraft operation and is familiar with the power plant, structures and systems departments’ requirements for information and any other engineering monitoring programmes in use by the Operator ;

( **D** ) Gate - keeper : this person provides the link between the fleet or training managers and flight crew involved in events highlighted by FDM. The position requires good people skills and a positive attitude towards safety education. The person is typically a representative of the flight crew association or an “ honest broker “ and is the only person permitted to connect the identifying data with the event. It is essential that this person earns the trust of both management and flight crew ;

( **E** ) Engineering Technical Support : this person is usually an avionics specialist, involved in the supervision of mandatory serviceability requirements for FDR systems. This team member is knowledgeable about FDM and the associated systems needed to run the

programme ;

( **F** ) Replay Operative and Administrator : this person is responsible for the day-to-day running of the system, producing reports and analysis.

( ii ) all FDM team members need appropriate training or experience for their respective area of data analysis. Each team member is allocated a realistic amount of time to regularly spend on FDM tasks.

**Appendix 1. to AMC 1 Flight ORO. AOC. 130 Data Monitoring — Aeroplanes**

*TABLE of FDM EVENTS*

The following Table provides examples of FDM events that may be further developed using

Operator and aeroplane specific limits. The table is considered illustrative and not exhaustive.

|  |  |
| --- | --- |
| ***Event Group*** | ***Description*** |
| Rejected Take - off | *High speed rejected Take-off* |
| Take - off Pitch | *Pitch rate high on Take - off* |
| *Pitch attitude high during Take-off* |
| Unstick Speeds | *Unstick speed high* |
| *Unstick speed low* |
| Height loss in Climb - out | *Initial climb height loss 20 ft AGL to 400 ft above AAL* |
| *Initial climb height loss 400 ft to 1 500 ft AAL* |
| Slow Climb - out | *Excessive time to 1 000 ft AAL after Take-off* |
| Climb - out Speeds | *Climb - out speed high below 400 ft AAL* |
| *Climb - out speed high 400 ft AAL to 1 000 ft AAL* |
| *Climb - out speed low 35 ft AGL to 400 ft AAL* |
| *Climb - out speed low 400 ft AAL to 1 500 ft AAL* |
| High Rate of Descent | *High Rate of Descent below 2 000 ft AGL* |
| Missed Approach | *Missed Approach below 1 000 ft AAL* |
| *Missed Approach above 1 000 ft AAL* |
| Low Approach | *Low on Approach* |
| Glideslope | *Deviation under Glideslope* |
| *Deviation above Glideslope ( below 600 ft AGL )* |
| Approach Power | *Low Power on Approach* |
| Approach Speeds | *Approach Speed high within 90 seconds of Touchdown* |
| *Approach Speed high below 500 ft AAL* |
| *Approach Speed high below 50 ft AGL* |
| *Approach Speed low within* ***2***  *minutes of Touchdown* |
| Landing Flap | *Late Land Flap ( not in position below 500 ft AAL )* |
| *Reduced Flap Landing* |
| *Flap Load Relief System Operation* |
| Landing Pitch | *Pitch Attitude high on Landing* |
| *Pitch Attitude low on Landing* |
| Bank Angles | *Excessive Bank below 100 ft AGL* |
| *Excessive Bank 100 ft AGL to 500 ft AAL* |
| *Excessive Bank above 500 ft AGL* |
| *Excessive Bank near Ground ( below 20 ft AGL )* |
| Normal Acceleration | *High Normal Acceleration on Ground* |
| *High Normal Acceleration in Flight, Flaps Up (+/- increment )* |
| *High Normal Acceleration in Flight Flaps Down (+/-increment)* |
| *High Normal Acceleration at Landing* |
| Abnormal Configuration | *Take - off Configuration warning* |
| *Early configuration change after Take - off ( Flap )* |
| *Speed - brake with Flap* |
| *Speed - brake on Approach below 800 ft AAL* |
| *Speed - brake not armed below 800 ft AAL* |

|  |  |
| --- | --- |
| ***Event Group*** | ***Description*** |
| Ground Proximity Warning | *Ground Proximity Warning System ( GPWS ) Operation - Hard Warning* |
| *GPWS Operation — Soft Warning* |
| *GPWS Operation — Windshear Warning* |
| *GPWS Operation — False Warning* |
| Airborne Collision Avoidance System ( ACAS II ) Warning | *ACAS Operation — Resolution Advisory* |
| Margin to Stall / Buffet | *Stick Shake* |
| *False Stick Shake* |
| *Reduced Lift Margin except near Ground* |
| *Reduced Lift Margin at Take - off* |
| *Low Buffet Margin ( above 20 000 ft )* |
| Aircraft Flight Manual Limitations | *Maximum Operating Speed Limit (* ***V MO*** *) exceedance* |
| *Maximum Operating Speed Limit (* ***M MO*** *) exceedance* |
| *Flap placard Speed exceedance* |
| *Gear Down Speed exceedance* |
| *Gear selection up / down Speed exceedance* |
| *Flap / Slat Altitude exceedance* |
| *Maximum operating Altitude exceedance* |

**GM 2. ORO. AOC. 130 Flight Data Monitoring — Aeroplanes**

*FLIGHT DATA MONITORING*

Additional Guidance Material for the establishment of Flight Data Monitoring can be found in UK Civil Aviation Authority CAP 739 *( Flight Data Monitoring ).*

***AMC 1* ORO. AOC. 135 ( a ) Personnel Requirements**

*NOMINATED PERSONS*

( a ) The person may hold more than one of the nominated posts if such an arrangement is

considered suitable and properly matched to the scale and scope of the operation ;

( b ) A description of the functions and the responsibilities of the nominated persons, including their names, should be contained in the Operations Manual ;

( c ) The holder of an AOC should make arrangements to ensure continuity of supervision in

the absence of nominated persons ;

( d ) The person nominated by the holder of an AOC should not be nominated by another

holder of an AOC, unless agreed with the competent authorities concerned ;

( e ) Persons nominated should be contracted to work sufficient hours to fulfill the management functions associated with the scale and scope of the operation.

***AMC 2* ORO. AOC. 135 ( a ) Personnel Requirements**

*COMBINATION of NOMINATED PERSONS RESPONSIBILITIES*

( a ) The acceptability of a single person holding several posts, possibly in combination with being the Accountable Manager, should depend upon the nature and scale of the operation. The two main areas of concern should be competence and an individual’s capacity to meet his / her responsibilities ;

( b ) As regards competence in different areas of responsibility, there should not be any

difference from the requirements applicable to persons holding only one post ;

( c ) The capacity of an individual to meet his / her responsibilities should primarily be dependent upon the scale of the operation. However, the complexity of the organization or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances ;

( d ) In most circumstances, the responsibilities of a nominated person should rest with a single individual. However, in the area of ground operations, it may be acceptable for responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

**GM 1. ORO. AOC. 135 ( a ) Personnel Requirements**

*NOMINATED PERSONS*

The smallest organization that can be considered is the one - man organization where all of

the nominated posts are filled by the accountable manager, and audits are conducted by an

independent person.

**GM 2. ORO. AOC. 135 ( a ) Personnel Requirements**

*COMPETENCE of NOMINATED PERSONS*

***a )*** Nominated persons in accordance with *ORO. AOC. 135* should be expected to possess the experience and meet the licensing provisions that are listed in *( b ) to ( f ).* Exceptionally, in particular cases, the Competent Authority may accept a nomination that does not meet these provisions in full. In that circumstance, the nominee should have comparable experience and also the ability to perform effectively the functions associated with the post and with the scale of the operation ;

***b )*** Nominated persons should have :

1 ) practical experience and expertise in the application of aviation safety standards and safe operating practices ;

2 ) comprehensive knowledge of :

( i ) the applicable ICAO and EU safety regulations and any associated requirements and procedures ;

( ii ) the AOC holder's operations specifications ; *and*

( iii ) the need for, and content of, the relevant parts of the AOC holder's Operations Manual;

3 ) familiarity with management systems preferably in the area of aviation ;

4 ) appropriate management experience, preferably in a comparable organization ; *and*

5 ) 5 years of relevant work experience of which at least 2 years should be from the aeronautical industry in an appropriate position.

***c )*** Flight Operations. The nominated person should hold or have held a valid flight crew

licence and the associated ratings appropriate to a type of operation conducted under the AOC. In case the nominated person’s licence and ratings are not current, his / her deputy should hold a valid flight crew licence and the associated ratings ;

***d )*** Crew Training. The nominated person or his / her deputy should be a current Type Rating

Instructor on a type / class operated under the AOC. The nominated person should have a thorough knowledge of the AOC holder’s crew training concept for flight, cabin and when relevant other crew ;

***e )*** Ground Operations. The nominated person should have a thorough knowledge of the

AOC holder’s ground operations concept ;

***f )*** Continuing Airworthiness. The nominated person should have the relevant knowledge and appropriate experience requirements related to aircraft continuing airworthiness as detailed in Part - M.

**GM 1. ORO. AOC. 140 ( b ) ; ( c ) Facility Requirements**

*VFR DAY OPERATIONS with AEROPLANES with a MOPSC of LESS than* ***7*** *and*

*HELICOPTERS with a MOPSC of LESS than* ***5***  *TAKING-OFF and LANDING at the SAME AERODROME or OPERATING SITE*

Taking into account the size of the operator and the type of operations, appropriate facilities

may consist in arrangements for :

***a )*** Suitable office accommodation for the nominated person(s), as requested by *ORO. AOC. 135 ; and*

***b )*** Adequate working space for the flight preparation to be performed by the flight crew.

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**SUBPART DEC. DECLARATION**

***AMC 1* ORO. DEC. 100 Declaration**

*CHANGES*

The new Declaration should be submitted before the change becomes effective indicating the date as of which the change would apply.

**GM 1. ORO. DEC. 100 Declaration**

*GENERAL*

The intent of the Declaration is to :

***a )*** Have the Operator acknowledge its responsibilities under the applicable safety regulations and that it holds all necessary approvals ;

***b )*** Inform the Competent Authority of the existence of an Operator ; *and*

***c )*** Enable the Competent Authority to fulfill its oversight responsibilities in accordance with ARO. GEN. 300 and 305.

*MANAGED OPERATIONS*

When the non-commercial operation of a complex motor-powered aircraft is managed by a third party on behalf of the owner, that party may be the operator in the sense of Article 3 ( h ) of CR - EC No 216 / 2008, and therefore has to declare its capability and means to discharge the responsibilities associated with the operation of the aircraft to the Competent Authority.

In such a case, it should also be assessed whether the third party Operator undertakes a commercial operation in the sense of Article 3 ( i ) of CR - EC No 216 / 2008.

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**SUBPART SPO. COMMERCIAL SPECIALISED OPERATIONS**

***AMC 1* ORO. SPO. 100 ( a ) Personnel Requirements**

*NOMINATED PERSONS*

( a ) The person may hold more than one of the nominated posts if such an arrangement is

considered suitable and properly matched to the scale and scope of the commercial specialized operation ;

( b ) A description of the functions and the responsibilities of the nominated persons, including their names, should be contained in the Operations Manual ;

( c ) A commercial specialized Operator should make arrangements to ensure continuity of

supervision in the absence of nominated persons ;

( d ) The person nominated by a commercial specialized Operator should normally not be

nominated by another commercial specialized operator ;

( e ) Persons nominated should be contracted to work sufficient hours to fulfill the management functions associated with the scale and scope of the commercial specialized operation.

***AMC 2* ORO. SPO. 100 ( a ) Personnel Requirements**

*COMBINATION of NOMINATED PERSONS RESPONSIBILITIES*

( a ) The acceptability of a single person holding several posts, possibly in combination with

being the Accountable Manager, should depend upon the nature and scale of the commercial specialized operation. The two main areas of concern should be competence and an individuals capacity to meet his / her responsibilities ;

( b ) As regards competence in different areas of responsibility, there should not be any difference from the requirements applicable to persons holding only one post ;

( c ) The capacity of an individual to meet his / her responsibilities should primarily be

dependent upon the scale of the commercial specialized operation. However, the complexity of the organization or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances ;

( d ) In most circumstances, the responsibilities of a nominated person should rest with a single individual. However, in the area of ground operations, it may be acceptable for

responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

**GM 1. ORO. SPO. 100 ( a ) Personnel Requirements**

*NOMINATED PERSONS*

The smallest organization that can be considered is the one-man organization where all of

the nominated posts are filled by the Accountable Manager, and audits are conducted by an

independent person.

**GM 2. ORO. SPO. 100 ( a ) Personnel Requirements**

*COMPETENCE of NOMINATED PERSONS*

***a )*** Nominated persons in accordance with ORO. AOC. 135 should normally be expected to possess the experience and meet the licensing provisions that are listed in *( b )* *to* *( f ).* There may be exceptional cases where not all of the provisions can be met. In that circumstance, the nominee should have comparable experience and also the ability to perform effectively the functions associated with the post and with the scale of the specialized operation ;

***b )*** Nominated persons should have :

1 ) practical experience and expertise in the application of aviation safety standards and safe operating practices ;

2 ) comprehensive knowledge of :

( i ) the applicable EU safety regulations and any associated requirements and procedures ;

( ii ) the operator’s high-risk specialized operation authorization, if applicable ; *and*

( iii ) the need for, and content of, the relevant parts of the commercial specialized operator’s Operations Manual ;

3 ) familiarity with management systems preferably in the area of aviation ;

4 ) appropriate management experience, preferably in a comparable organization ; *and*

5 ) 5 years of relevant work experience of which at least 2 years should be from the aeronautical industry in an appropriate position.

***c )*** Flight Operations. The nominated person should hold or have held a valid flight crew

licence and the associated ratings appropriate to the type of commercial specialized operations conducted by the Operator. In case the nominated person’s licence and ratings are not current, his / her deputy should hold a valid flight crew licence and the associated ratings ;

***d )*** Crew Training. The nominated person or his / her deputy should be a current Type Rating

Instructor on a type / class operated by the commercial specialized operator. The nominated person should have a thorough knowledge of the operator’s crew training concept for flight crew and when relevant other crew ;

***e )*** Ground Operations. The nominated person should have a thorough knowledge of the

commercial specialized operator’s ground operations concept ;

***f )*** Continuing Airworthiness. The nominated person should have the relevant knowledge and appropriate experience requirements related to aircraft continuing airworthiness as detailed in Part - M.

***AMC 1* ORO. SPO. 100 ( c ) Common Requirements for Commercial Specialized Operators**

*LEASING of THIRD COUNTRY OPERATOR or AIRCRAFT - INFORMATION to be PROVIDED to the COMPETENT AUTHORITY*

The Operator intending to Lease - in an aircraft or Operator should provide the Competent Authority with the following information :

( a ) the aircraft type, registration markings and serial number ;

( b ) the name and address of the registered owner ;

( c ) a copy of the valid certificate of airworthiness ;

( d ) a copy of the lease agreement or description of the lease provisions, except financial

arrangements ;

( e ) duration of the lease.

The information mentioned above should be accompanied by a statement signed by the lessee that the parties to the lease agreement fully understand their respective responsibilities under the applicable regulations.

**GM 1. ORO. SPO. 100 ( c ) Common Requirements for Commercial Specialized Operators**

*LEASE AGREEMENTS BETWEEN OPERATORS REGISTERED in an EU MEMBER STATE*

No approval is required for any Lease agreements between Operators having their principle

place of business in an EU Member State.

***AMC 1* ORO. SPO. 100 ( c ) ( 1 ) Common Requirements for Commercial Specialized**

**Operators**

*WET LEASE - IN of an AIRCRAFT REGISTERED in a THIRD COUNTRY*

If the Operator is not intending to apply EU safety requirements for air operations and

continuing airworthiness when wet leasing - in an aircraft registered in a third country, it

should demonstrate to the Competent Authority that the standards complied with are

equivalent to the following requirements :

( a ) Annex VIII ( Part - SPO ) ;

( b ) Annex III ( Part - ORO ) :

1 ) ORO. GEN. 110 and SECTION II of SUBPART GEN ;

2 ) ORO. MLR, excluding ORO. MLR. 105 ;

3 ) ORO. FC ;

( c ) Annex V ( Part - SPA ), if applicable ;

( d ) for continuing airworthiness management of the third country Operator, Part - M

SUBPART - B, SUBPART - C and SUBPART - G, excluding M. A. 707, and M. A. 710 ;

( e ) for the maintenance organization used by the third country Operator during the lease

period : Part - 145 ; *and*

( f ) the Operator should provide the competent authority with a full description of the

operating procedures and safety assessment demonstrating compliance with the requirements safety objectives set out in points *( b ) ( 1 ) - ( 3 ).*

***AMC 2* ORO. SPO. 100 ( c ) ( 1 ) Common Requirements for Commercial Specialized**

**Operators**

*WET LEASE - IN*

The lessee should maintain a record of occasions when lessors are used, for inspection by

the Competent Authority.

**GM 1. ORO. SPO. 100 ( c ) ( 1 ) Common Requirements for Commercial Specialized**

**Operators**

*SHORT - TERM WET LEASE - IN*

In anticipation of an operational need the Operator may enter into a framework agreement

with more than one third country Operator provided that these Operators comply with

*ORO. SPO. 110 ( c ).* These third country Operators should be placed in a list maintained by the lessee.

**GM 1. ORO. SPO. 110 ( a ) Authorization of High - risk Commercial Specialized**

**Operations**

*DECLARATION / AUTHORISATION*

Any commercial specialized Operator should declare its activity to its Competent Authority,

as required by *ORO. DEC. 100*.

**GM 2. ORO. SPO. 110 ( a ) Authorization of High - risk Commercial Specialized**

**Operations**

*VALIDITY of the AUTHORISATION*

The Operator may submit an application to its Competent Authority for a single event, a

defined series of flights or for an unlimited duration, depending on the type of operations

foreseen.

**GM 1. ORO. SPO. 115 ( a ) Changes**

*GENERAL*

Any change to information contained in the authorization, but not leading to an amendment

of the SOP’s or the Operator’s risk assessment should be notified by the commercial specialized Operator to its Competent Authority which should amend the authorization.

**SUBPART MLR — MANUALS, LOGS and RECORDS**

***AMC 1* ORO. MLR. 100 Operations Manual — General**

*GENERAL*

( a ) The Operations Manual ( OM ) may vary in detail according to the complexity of the operation and of the type and number of aircraft operated ;

( b ) The OM or parts thereof may be presented in any form, including electronic form. In all cases, the accessibility, usability and reliability should be assured ;

( c ) The OM should be such that :

1 ) all parts of the manual are consistent and compatible in form and content ;

2 ) the manual can be readily amended ; *and*

3 ) the content and amendment status of the manual is controlled and clearly indicated.

( d ) The OM should include a description of its amendment and revision process specifying :

1 ) the person(s) who may approve amendments or revisions ;

2 ) the conditions for temporary revisions and / or immediate amendments or revision required in the interest of safety ; *and*

3 ) the methods by which Operator personnel are advised of the changes.

( e ) The OM content may be based on, or may refer to, industry codes of practice ;

( f ) When compiling an OM, the Operator may take advantage of the contents of other relevant documents. Material produced by the Operator for the type - related part of the OM may be supplemented with, or substituted by, applicable parts of the Aircraft Flight Manual *( AFM )* or, where such a document exists, by an Aircraft Operating Manual *( FCOM )* produced by the manufacturer of the aircraft ;

( g ) In the case of commercial operations with other-than-complex motor-powered aircraft or non-commercial operations, a “ Pilot Operating Handbook “ *( POH )*, or equivalent document, may be used as the type - related part of the OM, provided that the POH covers the normal and abnormal / emergency operating procedures ;

( h ) For the route and aerodrome part of the OM, material produced by the Operator may be supplemented with or substituted by applicable route guide material produced by a specialist company ;

( i ) If the Operator chooses to use material from another source in the OM, either the applicable material should be copied and included directly in the relevant part of the OM, or the OM should contain a reference to the appropriate section of that applicable material ;

( j ) If the Operator chooses to make use of material from another source *( e. g. a route manual producer, an aircraft manufacturer or a training organization )*, this does not absolve the Operator from the responsibility of verifying the applicability and suitability of this material. Any material received from an external source should be given its status by a statement in the OM.

**AMC 2 ORO. MLR. 100 Operations Manual — General**

*CONTENTS - Non - COMMERCIAL OPERATIONS with COMPLEX MOTOR - POWERED*

*AIRCRAFT and COMMERCIAL AIR TRANSPORT OPERATIONS with SINGLE - ENGINED*

*PROPELLER DRIVEN AEROPLANES with a MOPSC of* ***5***  *or SINGLE ENGINED Non -COMPLEX HELICOPTERS with a MOPSC of* ***5,*** *TAKING - OFF and LANDING at the same AERODROME or OPERATING SITE, under VFR by DAY and COMMERCIAL AIR TRANSPORT OPERATIONS with SAILPLANES and BALLOONS.*

The OM should contain at least the following information, where applicable :

( a ) Table of contents ;

( b ) Amendment control status and List of Effective Pages or paragraphs, unless the entire

manual is re - issued and the manual has an effective date on it ;

( c ) Duties, responsibilities and succession of management and operating personnel ;

( d ) Description of the management system ;

( e ) Operational control system ;

( f ) Flight Time Limitations *( FTL )* ;

( g ) Standard Operating Procedures *( SOP’s )* ;

( h ) Weather Limitations ;

( i ) Emergency Procedures ;

( j ) Accidents / incidents considerations ;

( k ) Security Procedures ;

( l ) Minimum Equipment List ( MEL ) ;

( m ) Personnel qualifications and training ;

( n ) Record - keeping ;

( o ) Normal flight operations ;

( p ) Performance Operating Limitations ;

( q ) Use / protection of Flight Data Recorder ( FDR ) / Cockpit Voice Recorder ( CVR )

records, where applicable ;

( r ) Handling of Dangerous Goods.

***AMC 3* ORO. MLR. 100 Operations Manual — General**

*CONTENTS — COMMERCIAL AIR TRANSPORT OPERATIONS*

( a ) The OM should contain at least the following information, where applicable, as relevant for the area and type of operation :

**PART** **A. GENERAL / BASIC**

**Subpart 0.**  ADMINISTRATION and CONTROL of OPERATIONS MANUAL

**0. 1** Introduction :

( a ) A statement that the Manual complies with all applicable regulations and with the terms and conditions of the applicable Air Operator Certificate *( AOC )* ;

( b ) A statement that the Manual contains operational instructions that are to be complied with by the relevant personnel ;

( c ) A list and brief description of the various parts, their contents, applicability and use ;

( d ) Explanations and definitions of terms and words needed for the use of the Manual.

**0. 2** System of Amendment and Revision :

( a ) Details of the person(s) responsible for the issuance and insertion of Amendments and Revisions ;

( b ) A record of amendments and revisions with insertion dates and effective dates ;

( c ) A statement that handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment or revision in the interest of safety ;

( d ) A description of the system for the annotation of pages or paragraphs and their effective dates ;

( e ) A list of effective pages or paragraphs ;

( f ) Annotation of changes ( in the text and, as far as practicable, on charts and diagrams ) ;

( g ) Temporary Revisions ;

( h ) A description of the distribution system for the manuals, amendments and revisions.

**Subpart 1.** ORGANIZATION and RESPONSIBILITIES

**1. 1** Organizational Structure. A description of the organizational structure, including the General and Operations Departments organograms. The organogram should depict the relationship between the Operations Departments and the other departments of the Operator. In particular, the subordination and reporting lines of all divisions, departments, etc., which pertain to the safety of flight operations, should be shown.

**1. 2** Nominated Persons. The name of each nominated person responsible for Flight Operations, Crew Training and Ground Operations, as prescribed in ORO. AOC. 135.

A description of their function and responsibilities should be included.

**1. 3** Responsibilities and Duties of Operations Management Personnel. A description of the duties, responsibilities and authority of operations management personnel

pertaining to the safety of flight operations and the compliance with the applicable regulations.

**1. 4** Authority, Duties and Responsibilities of the Pilot - in - Command / Commander. A statement defining the authority, duties and responsibilities of the Pilot - in - Command / Commander.

**1. 5** Duties and Responsibilities of Crew Members other than the PIC / Commander.

**Subpart 2.** OPERATIONAL CONTROL and SUPERVISION

**2. 1** Supervision of the operation by the Operator. A description of the system for supervision of the operation by the Operator *( see ORO. GEN. 110 ( c ) ).* This should

show how the safety of flight operations and the qualifications of personnel are supervised. In particular, the procedures related to the following items should be described :

( a ) licence and qualification validity ;

( b ) competence of operations personnel ;

( c ) control, analysis and storage of the required records.

**2. 2** System and Responsibility for promulgation of additional operational instructions and information. A description of any system for promulgating information which may be of an operational nature, but which is supplementary to that in the OM. The applicability of this information and the responsibilities for its promulgation should be included.

**2. 3**  Operational Control. A description of the procedures and responsibilities necessary to exercise operational control with respect to flight safety.

**2. 4** Powers of the Authority. A description of the powers of the Competent Authority

and guidance to staff on how to facilitate inspections by authority personnel.

**Subpart 3.** MANAGEMENT SYSTEM

A description of the Management System, including at least the following :

( a ) safety policy ;

( b ) the process for identifying safety hazards and for evaluating and managing the associated

risks ;

( c ) compliance monitoring system ;

( d ) allocation of duties and responsibilities ;

( e ) documentation of all key management system processes.

**Subpart 4.** CREW COMPOSITION

**4. 1** Crew Composition. An explanation of the method for determining crew compositions, taking account of the following :

( a ) the type of aircraft being used ;

( b ) the area and type of operation being undertaken ;

( c ) the phase of the flight ;

( d ) the minimum crew requirement and flight duty period planned ;

( e ) experience *( total and on type ),* recency and qualification of the crew members ;

( f ) the designation of the Pilot - in - Command / Commander and, if necessitated by the duration of the flight, the procedures for the relief of the Pilot - in - Command / Commander

or other members of the flight crew *( see ORO. FC. 105 )* ;

( g ) the designation of the Senior Cabin Crew member and, if necessitated by the duration of the flight, the procedures for the relief of the Senior Cabin Crew member and any other member of the cabin crew.

**4. 2** Designation of the PIC / Commander. The rules applicable to the designation of the Pilot - in - Command / Commander.

**4. 3** Flight Crew Incapacitation. Instructions on the succession of command in the event of flight crew incapacitation.

**4. 4** Operation on more than one Type. A statement indicating which aircraft are considered as one type for the purpose of :

( a ) flight crew scheduling ; *and*

( b ) cabin crew scheduling.

**Subpart 5.**  QUALIFICATION REQUIREMENTS

**5. 1** A description of the required Licence, Rating(s), Qualification / Competency *( e. g. for routes and aerodromes ),* Experience, Training, Checking and Recency for operations personnel to conduct their duties.

Consideration should be given to the aircraft type, kind of operation and composition of the crew.

**5. 2**  Flight Crew :

( a ) Pilot - in - command / Commander ;

( b ) pilot relieving the Pilot - in - Command / Commander ;

( c ) Co - pilot ;

( d ) Pilot relieving the Co - pilot ;

( e ) Pilot under Supervision ;

( f ) System Panel Operator ;

( g ) Operation on more than one Type or Variant.

**5. 3** Cabin Crew :

( a ) Senior Cabin Crew member ;

( b ) Cabin Crew member :

( i ) required Cabin Crew member ;

( ii ) additional Cabin Crew member and Cabin Crew member during familiarization flights ;

( c ) Operation on more than one Type or Variant.

**5. 4** Training, Checking and Supervision Personnel :

( a ) for Flight Crew ; *and*

( b ) for Cabin Crew.

**5. 5** Other Operations Personnel *( including Technical Crew and Crew members other than Flight, Cabin and Technical Crew ).*

**Subpart 6.** CREW HEALTH PRECAUTIONS

**6. 1** Crew Health Precautions. The relevant regulations and guidance to crew members concerning health, including the following :

( a ) alcohol and other intoxicating liquids ;

( b ) narcotics ;

( c ) drugs ;

( d ) sleeping tablets ;

( e ) anti - depressants ;

( f ) pharmaceutical preparations ;

( g ) immunization ;

( h ) deep - sea diving ;

( i ) blood / bone marrow donation ;

( j ) meal precautions prior to and during flight ;

( k ) sleep and rest ;

( l ) surgical operations.

**Subpart 7.** FLIGHT TIME LIMITATIONS

**7. 1** Flight and Duty Time Limitations and Rest Requirements.

**7. 2** Exceedance of Flight and Duty Time Limitations and / or Reductions of Rest Periods.

Conditions under which flight and duty time may be exceeded or rest periods may be reduced, and the procedures used to report these modifications.

**Subpart 8.** OPERATING PROCEDURES

**Section** **8. 1** Flight Preparation Instructions.

*As applicable to the operation :*

8.1.1 Minimum Flight Altitudes. A description of the method of determination and application of minimum altitudes including :

( a ) a procedure to establish the Minimum Altitudes / Flight Levels for Visual Flight Rules *( VFR )* flights ; *and*

( b ) a procedure to establish the Minimum Altitudes / Flight Levels for Instrument Flight Rules *( IFR )* flights.

8.1.2 Criteria and Responsibilities for determining the adequacy of Aerodromes to be used.

8.1.3 Methods and Responsibilities for establishing Aerodrome Operating Minima. Reference should be made to procedures for the determination of the Visibility and / or Runway Visual Range *( RVR )* and for the applicability of the actual visibility observed by the pilots, the reported visibility and the reported RVR.

8.1.4 En - route Operating Minima for VFR Flights or VFR portions of a flight and, where single - engined aircraft are used, instructions for route selection with respect to the availability of surfaces that permit a safe forced landing.

8.1.5 Presentation and application of Aerodrome and En - route Operating Minima.

8.1.6 Interpretation of meteorological information. Explanatory material on the decoding of meteorological *( MET )* Forecasts and MET Reports relevant to the area of operations, including the interpretation of conditional expressions.

8.1.7 Determination of the quantities of fuel, oil and water methanol carried.

The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in - flight. This section should also include instructions on the measurement and distribution of the fluid carried on board. Such instructions should take account of all circumstances likely to be encountered on the flight, including the possibility of in - flight re - planning and of failure of one or more of the aircraft’s power plants. The system for maintaining fuel and oil records should also be described.

8.1.8 Mass and Centre of Gravity. The general principles of mass and centre of gravity including the following :

( a ) definitions ;

( b ) methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations ;

( c ) the policy for using standard and / or actual masses ;

( d ) the method for determining the applicable passenger, baggage and cargo mass ;

( e ) the applicable passenger and baggage masses for various types of operations and aircraft type ;

( f ) general instructions and information necessary for verification of the various types of mass and balance documentation in use ;

( g ) Last - minute Changes Procedures ;

( h ) specific gravity of fuel, oil and water methanol ;

( i ) seating policy / procedures ;

( j ) for helicopter operations, standard load plans.

8.1.9 Air Traffic Services *( ATS )* Flight Plan. Procedures and responsibilities for the preparation and submission of the ATS Flight Plan. Factors to be considered include the means of submission for both Individual and Repetitive Flight Plans *( RPL ).*

8.1.10 Operational Flight Plan. Procedures and responsibilities for the preparation and acceptance of the Operational Flight Plan. The use of the Operational Flight Plan should be described, including samples of the Operational Flight Plan formats in use.

8.1.11 Operator’s Aircraft Technical Log. The responsibilities and the use of the Operator’s Aircraft Technical Log should be described, including samples of the format used.

8.1.12 List of Documents, Forms and additional information to be carried.

**Section** **8. 2** Ground Handling Instructions.

*As applicable to the operation :*

8.2.1 Fuelling Procedures. A description of fuelling procedures, including :

( a ) safety precautions during refueling and defueling including when an Auxiliary Power Unit *( APU )* is in operation or when rotors are running or when an engine is or engines are running and the prop-brakes are on ;

( b ) refueling and defueling when passengers are embarking, on board or disembarking ; *and*

( c ) precautions to be taken to avoid mixing fuels.

8.2.2 Aircraft, Passengers and Cargo handling procedures related to safety. A description of the handling procedures to be used when allocating seats, embarking and disembarking passengers and when loading and unloading the aircraft. Further procedures, aimed at achieving safety whilst the aircraft is on the ramp, should also be given.

Handling Procedures should include :

( a ) special categories of passengers, including Children / Infants, persons with reduced mobility, inadmissible passengers, deportees and persons in custody ;

( b ) permissible size and weight of hand baggage ;

( c ) loading and securing of items in the aircraft ;

( d ) positioning of ground equipment ;

( e ) operation of aircraft doors ;

( f ) safety on the aerodrome / operating site, including fire prevention and safety in blast and suction areas ;

( g ) start - up, ramp departure and arrival procedures, including, for aeroplanes, push - back and towing operations ;

( h ) servicing of aircraft ;

( i ) documents and forms for aircraft handling ;

( j ) special loads and classification of load compartments ; *and*

( k ) multiple occupancy of aircraft seats.

8.2.3 Procedures for the refusal of embarkation. Procedures to ensure that persons who appear to be intoxicated, or who demonstrate by manner or physical indications that they are under the influence of drugs, are refused embarkation. This does not apply to medical patients under proper care.

8.2.4 De - icing and Anti - icing on the Ground. A description of the De - icing and Anti - icing policy and procedures for aircraft on the ground. These should include descriptions of the types and effects of icing and other contaminants on aircraft whilst stationary, during ground movements and during Take - off. In addition, a description of the fluid types used should be given, including the following :

( a ) proprietary or commercial names ;

( b ) characteristics ;

( c ) effects on aircraft performance ;

( d ) hold - over times ;

( e ) precautions during usage.

**Section 8. 3** Flight Procedures.

8.3.1 VFR / IFR Policy.

A description of the policy for allowing flights to be made under VFR, or for requiring flights to be made under IFR, or for changing from one to the other.

8.3.2 Navigation Procedures.

A description of all navigation procedures, relevant to the type(s) and area(s) of operation.

Special consideration should be given to :

( a ) Standard Navigational Procedures, including policy for carrying out independent cross -checks of keyboard entries where these affect the flight path to be followed by the aircraft ; *and*

( b ) Required Navigation Performance *( RNP ),* Minimum Navigation Performance Specification *( MNPS )* and Polar Navigation and navigation in other designated areas ;

( c ) in - flight re - planning ;

( d ) procedures in the event of system degradation ; *and*

( e ) Reduced Vertical Separation Minima *( RVSM ),* for aeroplanes.

8.3.3 Altimeter Setting Procedures, including, where appropriate, use of :

( a ) Metric Altimetry and Conversion Tables ; *and*

( b ) QFE Operating Procedures.

8.3.4 Altitude Alerting System Procedures for Aeroplanes or Audio Voice Alerting Devices for Helicopters.

8.3.5 Ground Proximity Warning System *( GPWS )* / Terrain Avoidance Warning System *( TAWS )*, for Aeroplanes. Procedures and instructions required for the avoidance of Controlled Flight Into Terrain *(CFIT),*  including limitations on high rate of descent near the surface *( the related training requirements are covered in OM - D 2.1 ).*

8.3.6 Policy and Procedures for the use of Traffic Collision Avoidance System *( TCAS )* / Airborne Collision Avoidance System *( ACAS )* for Aeroplanes and, when applicable, for Helicopters.

8.3.7 Policy and Procedures for in - flight fuel management.

8.3.8 Adverse and Potentially Hazardous Atmospheric Conditions. Procedures for operating in, and / or avoiding, adverse and potentially hazardous atmospheric conditions, including the following :

( a ) thunderstorms ;

( b ) icing conditions ;

( c ) turbulence ;

( d ) windshear ;

( e ) jet stream ;

( f ) volcanic ash clouds ;

( g ) heavy precipitation ;

( h ) sand storms ;

( i ) mountain waves ;

( j ) significant temperature inversions.

8.3.9 Wake Turbulence.

Wake turbulence separation criteria, taking into account aircraft types, wind conditions and Runway / Final Approach and Take - off area ( FATO ) location. For Helicopters, consideration should also be given to rotor downwash.

8.3.10 Crew members at their stations.

The requirements for crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interest of safety and, for

aeroplane operations, including procedures for controlled rest in the flight crew compartment.

8.3.11 Use of Restraint Devices for Crew and Passengers.

The requirements for crew members and passengers to use safety belts and / or restraint

systems during the different phases of flight or whenever deemed necessary in the interest of safety.

8.3.12 Admission to Flight Crew Compartment.

The conditions for the admission to the flight crew compartment of persons other than the flight crew. The policy regarding the admission of inspectors from an authority should also

be included.

8.3.13 Use of Vacant Crew Seats.

The conditions and procedures for the use of vacant crew seats.

8.3.14 Incapacitation of Crew Members.

Procedures to be followed in the event of incapacitation of crew members in-flight. Examples of the types of incapacitation and the means for recognizing them should be included.

8.3.15 Cabin Safety Requirements. Procedures :

( a ) covering cabin preparation for flight, in - flight requirements and preparation for landing, including procedures for securing the cabin and galleys ;

( b ) to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the aircraft ;

( c ) to be followed during passenger embarkation and disembarkation ;

( d ) when refueling / defueling with passengers embarking, on board or disembarking ;

( e ) covering the carriage of special categories of passengers ;

( f ) covering smoking on board ;

( g ) covering the handling of suspected infectious diseases.

8.3.16 Passenger Briefing Procedures.

The contents, means and timing of passenger briefing in accordance with Annex **IV** ( Part -CAT ).

8.3.17 Procedures for aircraft operated whenever required cosmic or solar radiation detection equipment is carried.

8.3.18 Policy on the use of Autopilot and Auto-throttle for aircraft fitted with these

systems.

**Section 8. 4**  LVO -- Low Visibility Operations .

A description of the operational procedures associated with LVO.

**Section 8. 5** ETOPS -- Extended - range Operations with two - engined aeroplanes .

A description of the ETOPS operational procedures. *( Refer to EASA AMC 20 - 6 ).*

**Section 8. 6** MEL / CDL -- use of the minimum equipment and configuration deviation list(s).

**Section 8. 7** Non - Revenue Flights -- procedures and limitations, for example, for the following :

( a ) non-commercial operations by AOC holders, a description of the differences to

commercial operations ;

( b ) training flights ;

( c ) test flights ;

( d ) delivery flights ;

( e ) ferry flights ;

( f ) demonstration flights ;

( g ) positioning flights, including the kind of persons who may be carried on such flights.

**Section 8. 8** Oxygen Requirements :

8.8.1 An explanation of the conditions under which oxygen should be provided and used.

8.8.2 The oxygen requirements specified for the following persons :

( a ) flight crew ;

( b ) cabin crew ;

( c ) passengers.

**Subpart**  **9**. DANGEROUS GOODS and WEAPONS

**9. 1** Information, instructions and general guidance on the transport of Dangerous Goods, in accordance with Subpart G of Annex **V**  ( SPA. DG ), including :

( a ) Operator’s policy on the transport of Dangerous Goods ;

( b ) guidance on the requirements for acceptance, labeling, handling, stowage and segregation of Dangerous Goods ;

( c ) special notification requirements in the event of an accident or occurrence when Dangerous Goods are being carried ;

( d ) procedures for responding to emergency situations involving Dangerous Goods ;

( e ) duties of all personnel involved ; *and*

( f ) instructions on the carriage of the operator’s personnel on cargo aircraft when Dangerous Goods are being carried.

**9. 2** The conditions under which weapons, munitions of war and sporting weapons may be carried.

**Subpart 10.** SECURITY

Security instructions, guidance, procedures, training and responsibilities, taking into account Regulation ( EC ) No 300 / 2008. Some parts of the security instructions and guidance may be kept confidential.

**Subpart 11.** HANDLING, NOTIFYING and REPORTING ACCIDENTS, INCIDENTS

and OCCURRENCES

Procedures for handling, notifying and reporting Accidents, Incidents and Occurrences.

This section should include the following :

( a ) definition of Accident, Incident and Occurrence and of the relevant responsibilities of all persons involved ;

( b ) illustrations of Forms to be used for reporting all types of accident, incident and occurrence *( or copies of the Forms themselves ),* instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done ;

( c ) in the event of an accident, descriptions of which departments, authorities and other organizations have to be notified, how this will be done and in what sequence ;

( d ) procedures for verbal notification to Air Traffic Service Units of incidents involving ACAS Resolution Advisories *( RA’s ),* bird hazards, dangerous goods and hazardous conditions ;

( e ) procedures for submitting written reports on Air Traffic Incidents, ACAS RA’s, bird strikes, dangerous goods incidents or accidents, and unlawful interference ;

( f ) Reporting Procedures. These procedures should include internal safety related reporting procedures to be followed by crew members, designed to ensure that the Pilot - in - Command / Commander is informed immediately of any incident that has endangered, or may have endangered, safety during the flight, and that the Pilot - in - Command / Commander is provided

with all relevant information ;

( g ) Procedures for the preservation of recordings following a reportable event.

**Subpart 12.**  RULES of the AIR

( a ) Visual and Instrument Flight Rules ;

( b ) Territorial application of the Rules of the Air ;

( c ) Communication Procedures, including communication - failure procedures ;

( d ) Information and Instructions relating to the interception of civil aircraft ;

( e ) The circumstances in which a radio listening watch is to be maintained ;

( f ) Signals ;

( g ) Time system used in operation ;

( h ) ATC Clearances, Adherence to Flight Plan and Position Reports ;

( i ) Visual Signals used to Warn an unauthorized aircraft flying in or about to enter a Restricted, Prohibited or Danger Area ;

( j ) Procedures for Flight Crew observing an Accident or receiving a Distress transmission ;

( k ) The Ground / Air Visual Codes for use by survivors, and description and use of signal aids ;

( l ) Distress and Urgency Signals.

**Subpart 13.** LEASING / CODE - SHARE

A description of the operational arrangements for Leasing and Code - share, associated procedures and management responsibilities.

**PART B. AIRCRAFT OPERATING MATTERS - TYPE RELATED**

Taking account of the differences between types / classes, and variants of types, under the following headings :

**Subpart 0.** GENERAL INFORMATION and UNITS of MEASUREMENT

**0. 1** General Information *( e. g. aircraft dimensions ),* including a description of the units of measurement used for the operation of the aircraft type concerned and conversion tables.

**Subpart 1.** LIMITATIONS

**1. 1** A description of the Certified Limitations and the Applicable Operational Limitations should include the following :

( a ) certification status *( e. g. EASA ( supplemental )* *Type Certificate ; environmental certification, etc. ) ;*

( b ) passenger seating configuration for each aircraft type, including a pictorial presentation ;

( c ) types of operation that are approved *( e. g. VFR / IFR, CAT II / III, RNP, flights in known icing conditions, etc. ) ;*

( d ) Crew Composition ;

( e ) Mass and Centre of Gravity ;

( f ) speed limitations ;

( g ) flight envelope(s) ;

( h ) wind limits, including operations on contaminated runways ;

( i ) performance limitations for applicable configurations ;

( j ) ( Runway ) slope ;

( k ) for aeroplanes, limitations on wet or contaminated runways ;

( l ) airframe contamination ;

( m ) system limitations.

**Subpart 2.** NORMAL PROCEDURES

The normal procedures and duties assigned to the crew, the appropriate Checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin / other crew members. The normal procedures and duties should include the following :

( a ) pre - flight ;

( b ) pre - departure ;

( c ) altimeter setting and checking ;

( d ) taxi, take - off and climb ;

( e ) noise abatement ;

( f ) cruise and descent ;

( g ) approach, landing preparation and briefing ;

( h ) VFR approach ;

( i ) IFR approach ;

( j ) visual approach and circling ;

( k ) missed approach ;

( l ) normal landing ;

( m ) post - landing ;

( n ) for aeroplanes, operations on wet and contaminated runways.

**Subpart 3.** ABNORMAL and / or EMERGENCY PROCEDURES

The Abnormal and / or Emergency procedures and duties assigned to the crew, the appropriate Checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin / other crew members. The following abnormal and / or emergency procedures and duties should include the following :

( a ) crew incapacitation ;

( b ) fire and smoke drills ;

( c ) for aeroplanes, un - pressurized and partially pressurized flight ;

( d ) for aeroplanes, exceeding structural limits such as overweight landing ;

( e ) lightning strikes ;

( f ) distress communications and alerting ATC to emergencies ;

( g ) engine / burner failure ;

( h ) system failures ;

( i ) guidance for diversion in case of serious technical failure ;

( j ) Ground Proximity Warning, including for helicopters Audio Voice Alerting Device ( AVAD ) warning ;

( k ) ACAS / TCAS warning for aeroplanes / Audio Voice Alerting Device ( AVAD ) warning for helicopters ;

( l ) Windshear ;

( m ) emergency landing / ditching ;

( n ) for aeroplanes, departure contingency procedures.

**Subpart 4.** PERFORMANCE

**4. 0** Performance Data should be provided in a form that can be used without difficulty.

**4. 1**  Performance Data. Performance material that provides the necessary data for compliance with the performance requirements prescribed in Annex **IV**  ( Part - CAT ) of this Manual.

For aeroplanes, this performance data should be included to allow the determination of the following :

( a ) take - off climb limits — mass, altitude, temperature ;

( b ) take - off field length *( for dry, wet and contaminated runway conditions ) ;*

( c ) net flight path data for obstacle clearance calculation or, where applicable, take-off flight path ;

( d ) the gradient losses for banked climb - outs ;

( e ) en - route climb limits ;

( f ) approach climb limits ;

( g ) landing climb limits ;

( h ) landing field length ( for dry, wet and contaminated runway conditions ), including the effects of an in - flight failure of a system or device, if it affects the landing distance ;

( i ) brake energy limits ;

( j ) speeds applicable for the various flight stages *( also considering dry, wet and contaminated runway conditions).*

4.1.1 Supplementary data covering flights in icing conditions. Any certified performance related to an allowable configuration, or configuration deviation, such as anti-skid inoperative.

4.1.2 If performance data, as required for the appropriate performance class, is not available in the AFM, then other data should be included. The OM may contain cross-reference to the data contained in the AFM where such data is not likely to be used often or in an emergency.

**4. 2** Additional Performance Data for Aeroplanes. Additional performance data, where applicable, including the following :

( a ) all engine climb gradients ;

( b ) drift - down data ;

( c ) effect of De - icing / Anti - icing fluids ;

( d ) flight with landing gear down ;

( e ) for aircraft with 3 or more engines, one - engine - inoperative ferry flights ;

( f ) flights conducted under the provisions of the Configuration Deviation List ( CDL ).

**Subpart 5.** FLIGHT PLANNING

**5. 1** Data and instructions necessary for pre - flight and in - flight planning including, for aeroplanes, factors such as speed schedules and power settings. Where applicable, procedures for engine(s) - out operations, ETOPS *( particularly the one - engine - inoperative cruise speed and maximum distance to an adequate aerodrome determined in accordance with Annex* ***IV*** *( Part - CAT ) )* and flights to isolated aerodromes should be included.

**5. 2** The method for calculating fuel needed for the various stages of flight.

**5. 3**  When applicable, for aeroplanes, performance data for ETOPS critical fuel reserve and area of operation, including sufficient data to support the critical fuel reserve and area of operation calculation based on approved aircraft performance data. The following data should be included :

( a ) detailed engine(s) - inoperative performance data, including fuel flow for standard and non - standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering :

( i ) drift down *( includes net performance ),* where applicable ;

( ii ) cruise altitude coverage including 10 000 ft ;

( iii ) holding ;

( iv ) altitude capability *( includes net performance )* ; *and*

( v ) missed approach.

( b ) detailed all - engine - operating performance data, including nominal fuel flow data, for standard and non - standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering :

( i ) cruise *( altitude coverage including 10 000 ft )* ; *and*

( ii ) holding ;

( c ) details of any other conditions relevant to ETOPS operations which can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aircraft, Ram Air Turbine ( RAT ) deployment, thrust - reverser deployment, etc. ; *and*

( d ) the altitudes, airspeeds, thrust settings, and fuel flow used in establishing the ETOPS area of operations for each airframe - engine combination should be used in showing the corresponding terrain and obstruction clearances in accordance with Annex **IV** ( Part - CAT ).

**Subpart 6.** MASS and BALANCE

Instructions and data for the calculation of the mass and balance, including the

following :

( a ) calculation system *( e. g. index system ) ;*

( b ) information and instructions for completion of mass and balance documentation, including manual and computer generated types ;

( c ) limiting masses and centre of gravity for the types, variants or individual aircraft used by the Operator ;

( d ) dry operating mass and corresponding centre of gravity or index.

**Subpart 7.** LOADING

Procedures and provisions for loading and unloading and securing the load in the

aircraft.

**Subpart 8.** CONFIGURATION DEVIATION LIST *( CDL )*

The CDL(s), if provided by the manufacturer, taking account of the aircraft types and variants operated, including procedures to be followed when an aircraft is being dispatched under the terms of its CDL.

**Subpart 9.** MINIMUM EQUIPMENT LIST *( MEL )*

The MEL for each aircraft type or variant operated and the type(s) / area(s) of operation. The MEL should also include the dispatch conditions associated with operations required for a specific approval *( e. g. RNAV, RNP, RVSM, ETOPS ).*

Consideration should be given to using the ATA number system when allocating Chapters and numbers.

**Subpart 10.** SURVIVAL and EMERGENCY EQUIPMENT INCLUDING OXYGEN

**10. 1** A list of the survival equipment to be carried for the routes to be flown and the

procedures for checking the serviceability of this equipment prior to Take-off. Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated Checklist(s) should also be included.

**10. 2** The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile, number of occupants and possible cabin decompression should be considered.

**Subpart 11.** EMERGENCY EVACUATION PROCEDURES

**11. 1** Instructions for preparation for emergency evacuation, including crew coordination and emergency station assignment.

**11. 2** Emergency Evacuation Procedures. A description of the duties of all members of the crew for the rapid evacuation of an aircraft and the handling of the passengers in the event of a forced landing, ditching or other emergency.

**Subpart 12.** AIRCRAFT SYSTEMS

A description of the aircraft systems, related controls and indications and operating instructions. Consideration should be given to use the ATA number system when allocating chapters and numbers.

**PART C. ROUTE / ROLE / AREA and AERODROME / OPERATING SITE**

**INSTRUCTIONS and INFORMATION**

**Subpart 1.** Instructions and information relating to communications, navigation and aerodromes / operating sites, including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome / operating site planned to be used, including the following :

( a ) minimum flight level / altitude ;

( b ) operating minima for departure, destination and alternate aerodromes ;

( c ) communication facilities and navigation aids ;

( d ) runway / Final Approach and Take - off area *( FATO )* data and aerodrome / operating site facilities ;

( e ) approach, missed approach and departure procedures including noise abatement procedures;

( f ) communication - failure procedures ;

( g ) search and rescue facilities in the area over which the aircraft is to be flown ;

( h ) a description of the aeronautical charts that should be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity ;

( i ) availability of aeronautical information and MET services ;

( j ) en - route communication / navigation procedures ;

( k ) aerodrome / operating site categorization for flight crew competence qualification ;

( l ) special aerodrome / operating site limitations *( performance limitations and operating procedures, etc. ).*

**PART D. TRAINING**

**Subpart 1.** Description of Scope : Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and / or conduct of a flight.

**Subpart 2.** Content :

Training syllabi and checking programmes should include the following :

**2. 1** for Flight Crew, all relevant items prescribed in Annex **IV** ( Part - CAT ), Annex **V**

( Part - SPA ) and ORO. FC ;

**2. 2** for Cabin Crew, all relevant items prescribed in Annex **V** ( Part - CC ) of ARM - AIR CREW , Annex **IV**  ( Part - CAT ) and Annex **III** ( Part - ORO ) Subpart CC ;

**2. 3** for Technical Crew, all relevant items prescribed in Annex **IV** ( Part - CAT ), Annex **V**

( Part - SPA ) and Annex **III** ( Part - ORO ) Subpart TC ;

**2. 4** for operations personnel concerned, including crew members :

( a ) all relevant items prescribed in Annex **V**  ( Part - SPA ), Subpart G of ( SPA. DG ) ; *and*

( b ) all relevant items prescribed in Annex **IV**  ( Part - CAT ) and Annex **III**  ( Part - ORO ) Subpart SEC ; *and*

**2. 5** for operations personnel other than crew members ( e. g. Dispatcher, Handling personnel, etc. ), all other relevant items prescribed in Annex **IV** ( Part - CAT ) and in this Annex **III** pertaining to their duties.

**Subpart 3.** Procedures :

**3. 1** Procedures for training and checking.

**3. 2**  Procedures to be applied in the event that personnel do not achieve or maintain

the required standards.

**3. 3** Procedures to ensure that abnormal or emergency situations requiring the application of part or all of the abnormal or emergency procedures, and simulation of Instrument Meteorological Conditions *( IMC )* by artificial means are not simulated during commercial air transport operations.

**Subpart 4.** Description of Documentation to be stored and storage periods.

If there are sections that, because of the nature of the operation, do not apply, it is recommended that Operators maintain the numbering system described in ORO. MLR. 101 and above and insert “ Not Applicable “ or “ Intentionally Blank “ where appropriate.

***AMC 4* ORO. MLR. 100 Operations Manual — General**

*CONTENTS – NON - COMMERCIAL SPECIALISED OPERATIONS with COMPLEX*

*MOTOR - POWERED AIRCRAFT and COMMERCIAL SPECIALISED OPERATIONS*

( a ) The OM should contain at least the following information, where applicable, as relevant

to the area and type of operation :

**PART A. GENERAL / BASIC**

For Subparts **0 - 7** refer to *AMC 3 ORO. MLR. 100.*

In addition for Subpart **6** :

**6. 2** The relevant regulations and guidance to crew members concerning Dangerous Goods used for specialized tasks *( pesticides and chemicals, etc. ).*

**Subpart 8. OPERATING PROCEDURES**

**8. 1** Flight Preparation Instructions.

*As applicable to the operation :*

8.1.1 General Procedures ;

8.1.2 Minimum Flight Altitudes.

A description of the method of determination and application of minimum altitudes, including a procedure to establish the minimum Altitudes / Flight Levels;

8.1.3 Criteria and responsibilities for determining the adequacy of aerodromes / operating sites to be used ;

8.1.4 Interpretation of meteorological information. Explanatory material on the decoding of MET Forecasts and MET Reports relevant to the area of operations, including the interpretation of conditional expressions ;

8.1.5 Determination of the quantities of fuel, oil and water methanol carried.

The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in-flight. The system for maintaining fuel and oil records should also be described ;

8.1.6 Procedure for the determination of the mass of loads, the calculation of performance margins and the centre of gravity ;

8.1.7 Emergency Procedures, e. g. load, fuel or chemical jettison ( to include the actions of all personnel ) ;

8.1.8 System for supply of NOTAMS, meteorological and other safety-critical information both at base and in field locations ;

8.1.9 Mandatory equipment for specific tasks ( mirror, cargo sling, load cell, special radio equipment, radar altimeters, etc. ) ;

8.1.10 Guidance on the CDL and MEL ;

8.1.11 Policy on completion and carriage of documents including Operator's Aircraft Technical Log and Journey Log, or equivalent ;

8.1.12 Any task - specific Standard Operating Procedures not covered above.

**8. 2**  Ground Handling Instructions.

*As applicable to the operation :*

8.2.1 Briefing requirements for in-flight and ground task specialists ;

8.2.2 Decontamination Procedures ;

8.2.3 Fuelling Procedures, including safety precautions during refueling and defueling including quality checks required in the field location, precautions against spillage and environmental damage ;

8.2.4. De - icing and Anti - icing on the Ground. A description of the De - icing and Anti -icing policy and procedures for aircraft on the ground.

**8. 3** Flight Procedures.

*As applicable to the operation :*

8.3.1 Procedures relevant to the aircraft type, specific task and area ;

8.3.2 Altimeter setting procedures ;

8.3.3 Actions following alerts from audio warning devices ;

8.3.4 GPWS / TAWS for aeroplanes. Procedures and instructions required for the avoidance of Controlled Flight Into Terrain, including limitations on high rate of descent near the surface *( the related training requirements are covered in OM - D 2. 1 ) ;*

8.3.5 Policy and procedures for the use of TCAS / ACAS for aeroplanes and, when applicable, for helicopters ;

8.3.6 Policy and procedures for in - flight fuel management ;

8.3.7 Procedures for operating in adverse and potentially hazardous atmospheric conditions ;

8.3.8 Wake turbulence and rotor downwash for helicopters ;

8.3.9 Use of restraint devices ;

8.3.10 Policy on use of vacant seats ;

8.3.11 Cabin safety requirements including smoking.

**8. 4** Task - specific weather limitations.

**8. 5** Use of the minimum equipment and configuration deviation list(s) *( MEL & CDL ).*

**8. 6** Oxygen Requirements.

An explanation of the conditions under which oxygen should be provided and used *( altitude, exposure times, night etc. ).*

**Subpart 9. DANGEROUS GOODS and WEAPONS**

**9. 1** Information, Instruction and General Guidance on the Transport of Dangerous Goods as internal or external loads, including :

9.1.1 The Operator's Policy on the transport of dangerous goods ;

9.1.2 Guidance on the requirements for acceptance, labeling, handling, stowage, and segregation of dangerous goods ;

9.1.3 Procedures for responding to emergency situations involving dangerous goods ;

9.1.4 Duties of all personnel involved ; *and*

9.1.5 Instructions on carriage of the Operator’s personnel on cargo aircraft when dangerous goods are being carried.

**9. 2** The conditions under which weapons, munitions of war and sporting weapons may be carried.

**Subpart 10. SECURITY**

Security instructions, guidance, procedures, training and responsibilities, taking into account

Regulation ( EC ) No 300 / 2008. Some parts of the security instructions and guidance may be kept confidential.

**Subpart 11. HANDLING, NOTIFYING and REPORTING ACCIDENTS,**

**INCIDENTS and OCCURRENCES**

Procedures for the handling, notifying and reporting of accidents and occurrences. This Subpart should include :

**11. 1** Definitions of accidents and occurrences and responsibilities of all persons involved ;

**11. 2** Reporting procedures *( including any mandatory Forms ) ;* *and*

**11. 3** Special Notification when Dangerous Goods are carried.

**Subpart 12. RULES of the AIR**

In addition to the items referred to in *AMC 3* ORO. MLR. 100, territorial procedures for

obtaining permissions and exemptions, e. g. for under-slung loads and low-flying clearances.

**Subpart 13. LEASING**

Refer to *AMC 3*  ORO. MLR. 100.

**PART B. AIRCRAFT OPERATING MATTERS — TYPE RELATED**

For **Subparts 0 - 1** refer to *AMC 3* ORO. MLR. 100.

**Subpart** **2 . NORMAL PROCEDURES**

The normal procedures and duties assigned to the crew, the appropriate Checklists and

the system for their use, including any task or specific role equipment procedures not

contained in the AFM.

**Subpart** **3. ABNORMAL and / or EMERGENCY PROCEDURES**

The abnormal and / or emergency procedures and duties assigned to the crew, the

appropriate Checklists and the system for their use, including any task or specific role

equipment emergency procedures not contained in the AFM.

**Subpart** **4. PERFORMANCE**

**4. 1** Performance Data should be provided in a form in which it can be used without difficulty.

**4. 2** Performance Data. Performance material which provides the necessary data for

compliance with the performance requirements prescribed in Annex **VIII**  ( Part - SPO ).

**Subpart** **5. FLIGHT PLANNING**

**5. 1** Data and instructions necessary for pre - flight and in - flight planning.

**5. 2** Procedures for specialized tasks.

**Subpart** **6. MASS and BALANCE**

Instructions and data for the calculation of the mass and balance, including :

**6. 1** Calculation system ( e. g. index system ) ;

**6. 2** Information and instructions for completion of mass and balance documentation ; *and*

**6. 3** Limitations.

**Subpart** **7. LOADING**

Refer to *AMC 3* ORO. MLR. 100.

**Subpart** **8. CONFIGURATION DEVIATION LIST** *( CDL )*

Refer to *AMC 3* ORO. MLR. 100.

**Subpart** **9. MINIMUM EQUIPMENT LIST** *( MEL )*

The MEL for each aircraft type or variant operated and the type(s) / area(s) of operation. It should also contain procedures to be followed when an aircraft is being dispatched with one or more inoperative items, in accordance with the MEL.

**Subpart** **10. SURVIVAL and EMERGENCY EQUIPMENT INCLUDING OXYGEN**

**10. 1** A list of the survival equipment to be carried, taking into account the nature of the area of operation, such as a hostile or a non - hostile environment.

**10. 2** A Checklist for assessing the serviceability of the equipment and instructions for its use prior to Take - off.

**10. 3** The procedure for determining the amount of oxygen required and the quantity that is available.

**Subpart** **11. EMERGENCY EVACUATION PROCEDURES**

**11. 1** Emergency evacuation procedures, crew coordination and occupant handling in the event of a forced landing, ditching or other emergency.

**Subpart** 12. **AIRCRAFT SYSTEMS**

A description of the aircraft systems and all equipment specific to the tasks. Additional

equipment, systems or fitting, related special procedures including any supplements to

the AFM.

**PART C. TASKS and OPERATING AREAS INSTRUCTIONS and INFORMATION**

Specific instructions related to the specialized tasks and operating areas in accordance with *AMC 3* ORO. MLR. 100.

**PART D. TRAINING**

**Subpart** **1.** Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and / or conduct of a flight.

**Subpart** **2.** Training syllabi and checking programmes should include :

**2. 1** For Flight Crew, all relevant items prescribed in Annex **VIII** ( Part - SPO ), Annex **V** ( Part - SPA ) and this Annex **III** ( Part - ORO ) ;

**2. 2** For other crew members, all relevant items prescribed in Annex **VIII** ( Part - SPO ) and this Annex **III** ( Part - ORO ), as applicable ;

**2. 3** For in - flight and ground task specialists concerned, including crew members :

***a***. all relevant items prescribed in Annex **V** ( Part - SPA ) to SPA. DG ; *and*

***b.*** all relevant items prescribed in Annex **VIII** ( Part - SPO ) and this Annex **III** to ORO. SEC ; *and*

**2. 4** For operations personnel other than crew members, all other relevant items pertaining to their duties prescribed in Annex **VIII** ( Part - SPO ) and this Annex **III** ( Part - ORO ).

**Subpart** **3. Procedures :**

**3. 1** Procedures for training and checking.

**3. 2** Procedures to be applied in the event that personnel do not achieve or maintain

the required standards.

**3. 3** A system for tracking expiry dates for qualifications, checks, tests, recency and

licences.

**Subpart** **4.** Description of documentation to be stored and storage periods.

If there are sections that, because of the nature of the operation, do not apply, it is

recommended that Operators maintain the numbering system described in ORO. MLR. 101 and above and insert “ Not Applicable “ or “ Intentionally Blank “ where appropriate.

**GM 1. ORO. MLR. 100 ( k ) Operations Manual — General**

*HUMAN FACTORS PRINCIPLES*

Guidance Material on the application of Human Factors principles can be found in the ICAO

Human Factors Training Manual ( Doc. 9683 ).

**GM 1. ORO. MLR. 105 ( a ) Minimum Equipment List**

*GENERAL*

***a )*** The Minimum Equipment List ( MEL ) is a document that lists the equipment that may be temporarily inoperative, subject to certain conditions, at the commencement of flight. This document is prepared by the Operator for their own particular aircraft taking account of their aircraft configuration and all those individual variables that cannot be addressed at MMEL level, such as operating environment, route structure, geographic location, aerodromes where spare parts and maintenance capabilities are available, etc., in accordance with a procedure approved by the Competent Authority ;

***b )*** The MMEL, as defined in the mandatory part of the operational suitability data established in accordance with CR - EU No 748 / 2012, is developed in compliance with CS - MMEL or CS - GEN - MMEL. These certification specifications contain, among other, guidance intended to standardize the level of relief granted in MMEL’s, in particular for items that are subject to operational requirements. If a MMEL established as part of the operational suitability data is not available and items subject to operational requirements are listed in the available MMEL without specific relief or dispatch conditions but only with a reference to the operational requirements, the Operator may refer to CS -MMEL or CS - GEN - MMEL Guidance Material, as applicable, to develop the relevant MEL content for such items.

NON - SAFETY - RELATED EQUIPMENT

**a )** Most aircraft are designed and certified with a significant amount of equipment redundancy, such that the airworthiness requirements are satisfied by a substantial margin. In addition, aircraft are generally fitted with equipment that is not required for safe operation under all operating conditions, e. g. instrument lighting in day VMC ;

***b )*** All items related to the airworthiness, or required for the safe operation, of the aircraft and not included in the list are automatically required to be operative ;

***c )*** Equipment, such as entertainment systems or galley equipment, may be installed for passenger convenience. If this non - safety - related equipment does not affect the airworthiness or operation of the aircraft when inoperative, it does not require a rectification interval, and need not be listed in the Operator's MEL, if it is not addressed in the MMEL. The exceptions to this are as follows :

1 ) where non - safety - related equipment serves a second function, such as movie equipment being used for cabin safety briefings, Operators should develop and include operational contingency procedures in the MEL in case of an equipment malfunction ;

2 ) where non - safety - related equipment is part of another aircraft system, for example the electrical system, procedures should be developed and included in the MEL for deactivating and securing in case of malfunction. In these cases, the item should be listed in the MEL, with compensating provisions and deactivation instructions if applicable. The rectification interval will be dependent on the secondary function of the item and the extent of its effect on other systems.

***d )*** If the Operator chooses to list non - safety - related equipment in the MEL, not listed in the MMEL, they should include a rectification interval category. These items may be given a “ D “ Category Rectification Interval provided any applicable ( M ) procedure *( in the case of electrically supplied items )* is applied ;

***e )*** Operators should establish an effective decision making process for failures that are not listed to determine if they are related to airworthiness and required for safe operation. In order for inoperative installed equipment to be considered non - safety - related, the following criteria should be considered :

1 ) the operation of the aircraft is not adversely affected such that standard operating procedures related to ground personnel, and crew members are impeded ;

2 ) the condition of the aircraft is not adversely affected such that the safety of passengers and / or personnel is jeopardized ;

3 ) the condition of the aircraft is configured to minimize the probability of a subsequent failure that may cause injury to passengers / personnel and / or cause damage to the aircraft ;

4 ) the condition does not include the use of required emergency equipment and does not impact emergency procedures such that personnel could not perform them.

***AMC 1* ORO. MLR. 105 ( c ) Minimum Equipment List**

*AMENDMENTS to the MEL FOLLOWING CHANGES to the MMEL —*

*APPLICABLE CHANGES and ACCEPTABLE TIMESCALES*

( a ) The following are applicable changes to the MMEL that require amendment of the MEL:

1 ) a reduction of the rectification interval ;

2 ) change of an item, only when the change is applicable to the aircraft or type of operations and is more restrictive.

( b ) An acceptable timescale for submitting the amended MEL to the Competent Authority

*is* ***90***  *days* from the effective date specified in the approved change to the MMEL ;

( c ) Reduced timescales for the implementation of safety - related amendments may be required if the Competent Authority consider it necessary.

***AMC 1* ORO. MLR. 105 ( d ) Minimum Equipment List**

*MEL FORMAT*

( a ) The MEL format and the presentation of items and dispatch conditions should reflect

those of the MMEL ;

( b ) The ATA 100 / 2200 Specification Numbering System for MEL items is preferred ;

( c ) Other Formats and Item Numbering Systems may be used provided they are clear and

unambiguous.

***AMC 1* ORO. MLR. 105 ( d ) ( 1 ) Minimum Equipment List**

*MEL PREAMBLE*

The MEL preamble should :

( a ) reflect the content of the MMEL preamble as applicable to the MEL scope and extent ;

( b ) contain terms and definitions used in the MEL ;

( c ) contain any other relevant specific information for the MEL scope and use that is not

originally provided in the MMEL ;

( d ) provide guidance on how to identify the origin of a failure or malfunction to the extent

necessary for appropriate application of the MEL ;

( e ) contain guidance on the management of multiple unserviceabilities, based on the guidance given in the MMEL ; *and*

( f ) contain guidance on placarding of inoperative items to inform crew members of equipment condition, as appropriate. In particular, when such items are accessible to the crew during flight, the control(s) and indicator(s) related to inoperative unit(s) should be clearly placarded.

***AMC 1* ORO. MLR. 105 ( d ) ( 3 ) Minimum Equipment List**

*SCOPE of the MEL*

The MEL should include :

( a ) The dispatch conditions associated with flights conducted in accordance with special

approvals held by the Operator in accordance with Annex **V** ( Part - SPA ).

( b ) Specific provision for particular types of operations carried out by the Operator in

accordance with ORO. AOC. 125.

***AMC 2* ORO. MLR. 105 ( d ) ( 3 ) Minimum Equipment List**

*EXTENT of the MEL*

The Operator should include guidance in the MEL on how to deal with any failures that occur between the commencement of the flight and the start of the Take-off. If a failure occurs between the commencement of the flight and the start of the Take-off, any decision to continue the flight should be subject to pilot judgement and good airmanship. The Pilot - in - Command / Commander may refer to the MEL before any decision to continue the flight is taken.

**GM 1. ORO. MLR. 105 ( d ) ( 3 ) Minimum Equipment List**

*SCOPE of the MEL*

***a )*** Examples of special approvals in accordance with Annex **V** ( Part - SPA ) may be :

1 ) RVSM ;

2 ) ETOPS ;

3 ) LVO.

***b )*** Examples of operations carried out by the Operator in accordance with ORO. AOC. 125 may be :

* crew training ;
* positioning flights ;
* demonstration flights.

***c )*** When an aircraft has installed equipment which is not required for the operations conducted, the Operator may wish to delay rectification of such items for an indefinite period. Such cases are considered to be out of the scope of the MEL, therefore modification of the aircraft is appropriate and deactivation, inhibition or removal of the item should be accomplished by an appropriate approved modification procedure.

**GM 2. ORO. MLR. 105 ( d ) ( 3 ) Minimum Equipment List**

*PURPOSE of the MEL*

The MEL is an alleviating document having the purpose to identify the minimum equipment

and conditions to operate safely an aircraft having inoperative equipment. Its purpose is not, however, to encourage the operation of aircraft with inoperative equipment. It is undesirable for aircraft to be dispatched with inoperative equipment and such operations are permitted only as a result of careful analysis of each item to ensure that the acceptable level of safety, as intended in the applicable airworthiness and operational requirements is maintained. The continued operation of an aircraft in this condition should be minimized.

**GM 1. ORO. MLR. 105 ( e ) ; ( f ) Minimum Equipment List**

*RECTIFICATION INTERVAL ( RI )*

The definitions and categories of rectification intervals are provided in CS - MMEL.

***AMC 1* ORO. MLR. 105 ( f ) Minimum Equipment List**

*RECTIFICATION INTERVAL EXTENSION ( RIE ) — OPERATOR PROCEDURES*

*for the APPROVAL by the COMPETENT AUTHORITY and NOTIFICATION to*

*the COMPETENT AUTHORITY*

( a ) The Operator’s procedures to address the extension of rectification intervals and ongoing surveillance to ensure compliance should provide the Competent Authority with details of the name and position of the nominated personnel responsible for the control of the Operator’s Rectification Interval Extension ( RIE ) procedures and details of the specific duties and responsibilities established to control the use of RIE’s ;

( b ) Personnel authorizing RIE’s should be adequately trained in technical and / or operational disciplines to accomplish their duties. They should have necessary operational knowledge in terms of operational use of the MEL as alleviating documents by flight crew and maintenance personnel and engineering competence.

The authorizing personnel should be listed by appointment and name ;

( c ) The Operator should notify the Competent Authority *within* ***1***  *month* of the extension of

the applicable rectification interval or within the appropriated timescales specified by the approved procedure for the RIE ;

( d ) The notification should be made in a form determined by the Competent Authority and

should specify the original defect, all such uses, the reason for the RIE and the reasons why rectification was not carried out within the original rectification interval.

**GM 1. ORO. MLR. 105 ( f ) Minimum Equipment List**

*RECTIFICATION INTERVAL EXTENSION ( RIE )*

Procedures for the extension of rectification intervals should only be applied under certain conditions, such as a shortage of parts from manufacturers or other unforeseen situations

*( e. g. inability to obtain equipment necessary for proper troubleshooting and repair ),* in which case the Operator may be unable to comply with the specified rectification intervals.

***AMC 1* ORO. MLR. 105 ( g ) Minimum Equipment List**

*OPERATIONAL and MAINTENANCE PROCEDURES*

( a ) The operational and maintenance procedures referenced in the MEL should be based on the operational and maintenance procedures referenced in the MMEL. Modified procedures may, however, be developed by the Operator when they provide the same

level of safety, as required by the MMEL. Modified maintenance procedures should be developed in accordance with Commission Regulation ( EC ) No 2042 / 2003 ;

( b ) Providing appropriate operational and maintenance procedures referenced in the MEL,

regardless of who developed them, is the responsibility of the Operator ;

( c ) Any item in the MEL requiring an operational or maintenance procedure to ensure an

acceptable level of safety should be so identified in the “ remarks ‘ or “ exceptions “ column / part / section of the MEL. This will normally be “ ( O ) “ for an operational procedure, or “ ( M ) “ for a maintenance procedure. “ ( O ) ( M ) “ means both operational and maintenance procedures are required ;

( d ) The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the Operator.

**GM 1. ORO. MLR. 105 ( g ) Minimum Equipment List**

*OPERATIONAL and MAINTENANCE PROCEDURES*

***a )*** Operational and maintenance procedures are an integral part of the compensating conditions needed to maintain an acceptable level of safety, enabling the Competent Authority to approve the MEL. The Competent Authority may request presentation of fully developed ( O ) and / or ( M ) procedures in the course of the MEL approval process.

***b )*** Normally, operational procedures are accomplished by the flight crew ; however, other

personnel may be qualified and authorized to perform certain functions ;

***c )*** Normally, maintenance procedures are accomplished by the maintenance personnel ; however, other personnel may be qualified and authorized to perform certain functions in accordance with Commission Regulation ( EC ) No 2042 / 2003 ;

***d )*** Operator's Manuals may include the OM, the Continued Airworthiness Management Organization Manual ( CAME ) or other documents. Operational and maintenance procedures, regardless of the document where they are contained, should be readily available for use when needed for the application of the MEL ;

***e )*** Unless specifically permitted by a maintenance procedure, an inoperative item may not be removed from the aircraft.

***AMC 1* ORO. MLR. 105 ( h ) Minimum Equipment List**

*OPERATIONAL and MAINTENANCE PROCEDURES — APPLICABLE CHANGES*

( a ) Changes to the operational and maintenance procedures referenced in the MMEL are considered applicable and require the amendment of the maintenance and operating procedures referenced in the MEL when the :

1 ) modified procedure is applicable to the Operator’s MEL ; *and*

2 ) purpose of this change is to improve compliance with the intent of the associated MMEL dispatch condition.

( b ) An acceptable timescale for the amendments of maintenance and operating procedures, as defined in ( a ), should be 90 days from the date when the amended procedures referenced in the MMEL are made available. Reduced timescales for the implementation of safety related amendments may be required if the Competent Authority considers it necessary.

***AMC 1* ORO. MLR. 105 ( j ) Minimum Equipment List**

*OPERATION of an AIRCRAFT within the CONSTRAINTS of the MMEL —*

*OPERATOR’S PROCEDURES for the APPROVAL by the COMPETENT AUTHORITY*

( a ) The operator’s procedures to address the operation of an aircraft outside the constraints of the MEL but within the constraints of the MMEL and ongoing surveillance to ensure compliance should provide the competent authority with details of the name and position of the nominated personnel responsible for the control of the operations under such conditions and details of the specific duties and responsibilities established to control the use of the approval ;

( b ) Personnel authorizing operations under such approval should be adequately trained in technical and operational disciplines to accomplish their duties. They should have the necessary operational knowledge in terms of operational use of the MEL as alleviating documents by flight crew and maintenance personnel and engineering competence.

The authorizing personnel should be listed by appointment and name.

**GM 1. ORO. MLR. 105 ( j ) Minimum Equipment List**

*OPERATION of an AIRCRAFT within the CONSTRAINTS of the MMEL —*

*OPERATOR’S PROCEDURES for the APPROVAL by the COMPETENT AUTHORITY*

Procedures for the operation of an aircraft outside the constraints of the MEL but within the constraints of the MMEL should only be applied under certain conditions, such as a shortage of parts from manufacturers or other unforeseen *situations ( e. g. inability to obtain equipment necessary for proper troubleshooting and repair ),* in which case the Operator may be unable to comply with the constraints specified in the MEL.

***AMC 1* ORO. MLR. 110 Journey Log**

*GENERAL*

**a )** The aircraft journey log, or equivalent, should include the following items, where

applicable :

1 ) aircraft nationality and registration ;

2 ) date ;

3 ) name(s) of crew member(s) ;

4 ) duty assignments of crew member(s) ;

5 ) place of departure ;

6 ) place of arrival ;

7 ) time of departure ;

8 ) time of arrival ;

9 ) hours of flight ;

10 ) nature of flight *( scheduled or non - scheduled )* ;

11 ) incidents, observations, if any ;

12 ) signature of person in charge.

**b )** The information, or parts thereof, may be recorded in a form other than on printed paper. Accessibility, usability and reliability should be assured ;

**c )** “ Journey Log “, or equivalent means that the required information may be recorded in

documentation other than a log book, such as the Operational Flight Plan or the Aircraft

Technical Log.

d ) “ Series of Flights “ means consecutive flights, which begin and end :

1 ) within a 24 - hour period ;

2 ) at the same aerodrome or operating site or remain within a local area specified in the Operations Manual ; *and*

3 ) with the same Pilot - in - Command / Commander of the aircraft.

**GM 1. ORO. MLR. 110 Journey Log**

*SERIES of FLIGHTS*

The term “ Series of Flights “ is used to facilitate a single set of documentation.

***AMC 1* ORO. MLR. 115 Record - keeping**

*TRAINING RECORDS*

A summary of training should be maintained by the Operator to show every crew member’s

completion of each stage of training and checking.

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**SUBPART FC — FLIGHT CREW**

**SECTION I — Common Requirements**

***AMC 1*  ORO. FC. 100 ( c ) Composition of Flight Crew**

*OPERATIONAL MULTI - PILOT LIMITATION ( OML )*

The Operator should ensure that pilots with an OML on their medical certificate only operate

aircraft in multi - pilot operations when the other pilot is fully qualified on the relevant type of aircraft, is not subject to an OML and has not attained the age of 60 years.

***AMC 1* ORO. FC. 105 ( b ) ( 2 ) ; ( c ) Designation as Pilot - in - Command / Commander**

*ROUTE / AREA and AERODROME KNOWLEDGE for COMMERCIAL OPERATIONS*

For commercial operations, the experience of the route or area to be flown and of the aerodrome facilities and procedures to be used should include the following :

( a ) Area and Route knowledge.

1 ) Area and Route training should include knowledge of :

( i ) terrain and minimum safe altitudes ;

( ii ) seasonal meteorological conditions ;

( iii ) meteorological, communication and air traffic facilities, services and procedures ;

( iv ) search and rescue procedures where available ; *and*

( v ) navigational facilities associated with the area or route along which the flight is to take place.

2 ) Depending on the complexity of the area or route, as assessed by the Operator, the following methods of familiarization should be used :

( i ) for the less complex areas or routes, familiarization by self - briefing with route documentation, or by means of programmed instruction ; *and*

( ii ) in addition, for the more complex areas or routes, in - flight familiarization as a Pilot - in - Command / Commander or Co - pilot under supervision, observer, or familiarization in a Flight Simulation Training Device *( FSTD )* using a database appropriate to the route concerned.

( b ) Aerodrome knowledge.

1 ) Aerodrome training should include knowledge of obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, applicable operating minima and ground movement considerations ;

2 ) The operations manual should describe the method of categorization of aerodromes and, in the case of CAT operations, provide a list of those aerodrome categorized as B or C ;

3 ) All aerodromes to which an Operator operates should be categorized in one of these three categories :

( i ) Category **A** — an aerodrome that meets all of the following requirements :

( A ) an approved instrument approach procedure ;

( B ) at least one runway with no performance limited procedure for Take - off and / or landing ;

( C ) published circling minima not higher than 1 000 ft above aerodrome level ; *and*

( D ) night operations capability.

( ii ) Category **B** — an aerodrome that does not meet the category A requirements or which requires extra considerations such as :

( A ) non - standard approach aids and / or approach patterns ;

( B ) unusual local weather conditions ;

( C ) unusual characteristics or performance limitations ; *or*

( D ) any other relevant considerations, including obstructions, physical layout, lighting, etc.

( iii ) Category **C**  — an aerodrome that requires additional considerations to a Category B aerodrome ;

( iv ) offshore installations may be categorized as Category **B** *or* **C** aerodromes, taking into account the limitations determined in accordance with *AMC 2* CAT. OP. MPA. 105. Use of aerodromes and operating sites.

( c ) Prior to operating to a :

1 ) Category B aerodrome, the Pilot - in - Command / Commander should be briefed, or

self - briefed by means of programmed instruction, on the Category B aerodrome(s) concerned. The completion of the briefing should be recorded. This recording may be accomplished after completion or confirmed by the Pilot - in - Command / Commander before departure on a flight involving Category B aerodrome(s) as destination or alternate aerodromes.

2 ) Category C aerodrome, the PIC / Commander should be briefed and visit the aerodrome as an observer and / or undertake instruction in a suitable FSTD. The completion of the briefing, visit and / or instruction should be recorded.

***AMC 1* ORO. FC. 105 ( c ) Designation as Pilot - in - Command / Commander**

*ROUTE / AREA and AERODROME RECENCY*

( a ) The ***12*** *- month period* should be counted from the last day of the month :

1 ) when the familiarization training was undertaken ; *or*

2 ) of the latest operation on the route or area to be flown and of the aerodromes, facilities and procedures to be used.

( b ) When the operation is undertaken within the last 3 calendar months of that period, the

*new* ***12*** *- month period* should be counted from the original expiry date.

***AMC 2* ORO. FC. 105 ( c ) Designation as Pilot - in - Command / Commander**

*ROUTE / AREA and AERODROME RECENCY - PERFORMANCE CLASS* ***B***

*AEROPLANES OPERATED UNDER VFR by NIGHT or IFR in CAT*

*OPERATIONS and COMMERCIAL OPERATIONS other than CAT*

In the case of CAT operations with performance Class **B** Aeroplanes operating under Visual

Flight Rules *( VFR )* by night or Instrument Flight Rules *( IFR ),* or commercial operations other than CAT, the knowledge should be maintained as follows :

( a ) except for operations to the most demanding aerodromes, by completion of *at least* ***10*** *flight sectors*  within the area of operation *during the preceding* ***12*** *months* in addition to any required self - briefing ;

( b ) operations to the most demanding aerodromes may be performed only if :

1 ) the Pilot - in - Command / Commander has been qualified at the aerodrome *within the preceding* ***36***  *months* by a visit as an operating flight crew member or as an observer ;

2 ) the approach is performed in visual meteorological conditions ( VMC ) from the applicable minimum sector altitude ; *and*

3 ) an adequate self - briefing has been made prior to the flight.

**GM 1. ORO. FC. 105 ( d ) Designation as Pilot - in - Command / Commander**

*PERFORMANCE CLASS* ***B*** *AEROPLANES OPERATED UNDER VFR*

*by DAY in CAT OPERATIONS*

For CAT operations under VFR by day with performance Class **B** Aeroplanes, the Operator

should take account of any requirement that might be stipulated in specific cases by the

State of the aerodrome.

***AMC 1* ORO. FC. 125 Differences Training and Familiarization Training**

*GENERAL*

( a ) Differences Training requires additional knowledge and training on the aircraft or an

appropriate training device.

It should be carried out :

1 ) when introducing a significant change of equipment and / or procedures on types or variants currently operated ; *and*

2 ) in the case of aeroplanes, when operating another variant of an aeroplane of the same type or another type of the same class currently operated ; *or*

3 ) in the case of helicopters, when operating a variant of a helicopter currently operated.

( b ) Familiarization Training requires only the acquisition of additional knowledge.

It should be carried out when :

1 ) operating another helicopter or aeroplane of the same type ; *or*

2 ) when introducing a significant change of equipment and / or procedures on types or variants currently operated.

***AMC 1* ORO. FC. 145 ( b ) Provision of Training**

*NON - MANDATORY ( RECOMMENDATION ) ELEMENTS of*

*OPERATIONAL SUITABILITY DATA*

When developing the training programmes and syllabi, the Operator should consider the non -mandatory ( recommendation ) elements for the relevant type that are provided in the operational suitability data established in accordance with CR - EU No 748 / 2012.

***AMC 1* ORO. FC. 145 ( d ) Provision of Training**

*FULL FLIGHT SIMULATORS ( FFS )*

The Operator should classify any differences between the aircraft and FFS in accordance with the Air Transport Association ( ATA ) Chapters as follows :

Compliance Levels

( a ) Level **A** differences :

1 ) no influence on flight characteristics ;

2 ) no influence on procedures *( normal and / or abnormal )* ;

3 ) differences in presentation ; *and*

4 ) differences in operation.

Method : self - instruction via the operations manual or flight crew information.

( b ) Level **B** differences :

1 ) no influence on flight characteristics ;

2 ) influence on procedures *( normal and / or abnormal )* ; *and*

3 ) possible differences in presentation and operation.

Method : Flight Crew information, Computer - Based Training, System Device Training or special instruction by instructor.

( c ) Level **C**  differences :

1 ) influence on flight characteristics ;

2 ) influence on procedures ( normal and / or abnormal ) ; *and*

3 ) eventually differences in presentation and operation.

Method : special instruction by instructor, a selected partial training on another FSTD or aircraft or a waiver because of previous experience, special instruction or training programme.

( d ) Level **D** differences :

1 ) influence on flight characteristics ; *and / or*

2 ) influence on procedures ( normal and / or abnormal ) ; *and / or*

3 ) differences in presentation and / or operation ; *and*

4 ) FSTD is level D qualified and is used for Zero Flight - Time Training *( ZFTT ).*

Method : a specified partial training on another FSTD or aircraft or a waiver because of previous experience, special instruction or training programme.

**SECTION II — ADDITIONAL REQUIREMENTS for COMMERCIAL AIR**

**TRANSPORT OPERATIONS**

***AMC 1* ORO. FC. 200 ( a ) Composition of Flight Crew**

*CREWING of INEXPERIENCED FLIGHT CREW MEMBERS*

The Operator should establish procedures in the Operations Manual taking into account the

following elements :

**Aeroplanes**

( a ) The Operator should consider that a flight crew member is inexperienced, following

completion of a Type Rating or Command Course, and the associated Line Flying Under

Supervision, until he / she has achieved on the type either :

1 ) ***100***  *flight hours and flown* ***10***  *sectors* within a consolidation period of ***120*** *consecutive days ; or*

2 ) ***150***  *flight hours* and *flown* ***20*** *sectors ( no time limit ).*

( b ) A lesser number of flight hours or sectors, subject to any other conditions that the Competent Authority may impose, may be acceptable to the Competent Authority when one of the following applies :

1 ) a new Operator is commencing operations ;

2 ) an Operator introduces a new aeroplane type ;

3 ) flight crew members have previously completed a type conversion course with the same Operator ;

4 ) credits are defined in the operational suitability data established in accordance with Commission Regulation ( EU ) No 748 / 2012 ; *or*

5 ) the aeroplane has a maximum Take - off mass *of less than* ***10*** *tonnes* or a maximum operational passenger seating configuration ( MOPSC ) *of less than* ***20.***

**Helicopters**

( c ) The Operator should consider that, when two flight crew members are required, a Flight Crew member, following completion of a Type Rating or Command Course, and the associated Line Flying Under Supervision, is inexperienced until either :

1 ) he / she has achieved ***50*** *flight hours* on the type and / or in the role within a *period of* ***60*** *days ; or*

2 ) he / she has achieved ***100*** *flight hours* on the type and / or in the role *( no time limit ).*

( d ) A lesser number of flight hours, on the type and / or in the role, and subject to any other conditions which the Competent Authority may impose, may be acceptable to the Competent Authority when one of the following applies :

1 ) a new Operator is commencing operations ;

2 ) an operator introduces a new helicopter type ;

3 ) flight crew members have previously completed a type conversion course with the same Operator *( reconversion )* ; *or*

4 ) credits are defined in the operational suitability data established in accordance with CR - EU No 748 / 2012.

***AMC 1* ORO. FC. 205 Command Course**

*COMBINED UPGRADING and CONVERSION COURSE — HELICOPTER*

If a pilot is converting from one helicopter type or variant to another when upgrading to Commander :

( a ) the Command Course should also include a Conversion Course in accordance with *ORO. FC. 220 ; and*

( b ) additional flight sectors should be required for a pilot transitioning onto a new type of

helicopter.

***AMC 1* ORO. FC. 115 & 215 Crew Resource Management ( CRM ) Training**

*CRM TRAINING — CAT OPERATIONS*

( a ) General

1 ) CRM Training should reflect the culture of the Operator as well as type of operation and be conducted by means of both classroom training and practical exercises including group discussions and accident and serious incident reviews to analyze communication problems and instances or examples of a lack of information or crew management ;

2 ) Whenever it is practicable to do so, consideration should be given to conducting relevant parts of CRM training in FSTD’s that reproduce, in an acceptable way, a realistic operational environment and permit interaction. This includes, but is not limited to, appropriate Line -Oriented Flight Training *( LOFT )* scenarios conducted in FSTD’s ;

3 ) It is recommended that, whenever possible, initial CRM training be conducted in a group session away from the pressures of the usual working environment so that the opportunity is provided for flight crew members to interact and communicate in an environment conducive to learning.

( b ) Initial CRM Training

1 ) Initial CRM Training Programmes are designed to provide knowledge of, and familiarity with, human factors relevant to flight operations. The course duration should be *a minimum of* ***1*** *day for single - pilot operations* and***2*** *days for all other types of operations*. It should cover all the elements indicated in *( f )* ;

2 ) The CRM trainer should :

( i ) possess group facilitation skills ;

( ii ) have and maintain adequate knowledge of the operation and the aircraft type, preferably through current CAT experience as a flight crew member ;

( iii ) have successfully passed the Human Performance and Limitations ( HPL ) examination whilst recently obtaining the Airline Transport Pilot Licence ( ATPL ) in accordance with CR - EU No 1178 / 2011 ; or followed a theoretical HPL course covering the whole syllabus of the HPL examination ;

( iv ) have completed Initial CRM Training ;

( v ) have received additional education in the fields of group management, group dynamics and personal awareness ; *and*

( vi ) be supervised by suitably qualified CRM training personnel when conducting his / her first initial CRM training session.

3 ) The Operator should ensure that initial CRM training addresses the nature of the operations of the operator concerned, as well as the associated procedures and the culture of the Operator. This will include areas of operations that produce particular difficulties or involve adverse climatic conditions and any unusual hazards ;

4 ) If the Operator does not have sufficient means to establish initial CRM training, use may be made of a course provided by another Operator, or a third party or training organization. In this event, the Operator should ensure that the content of the course meets his / her operational requirements. When crew members from several companies follow the same course, CRM core elements should be specific to the nature of operations of the companies and the trainees concerned ;

5 ) The flight crew member’s CRM skills should not be assessed during initial CRM training.

( c ) Operator Conversion Course — CRM Training

1 ) If the flight crew member undergoes a conversion course with a change of aircraft type, elements of CRM should be integrated into all appropriate phases of the Operator’s conversion course, in accordance with *( f )* ;

2 ) If the flight crew member undergoes a conversion course with a change of Operator, elements of CRM should be integrated into all appropriate phases of the Operator’s conversion course, in accordance with *( f )* ;

3 ) The flight crew member should not be assessed when completing elements of CRM training that are included in the Operator conversion course.

( d ) Command Course — CRM Training

1 ) The Operator should ensure that elements of CRM are integrated into the command course in accordance with *( f ) ;*

2 ) The flight crew member should not be assessed when completing elements of CRM training that are included in the command course, although feedback should be given.

( e ) Recurrent CRM Training

1 ) The Operator should ensure that :

( i ) elements of CRM are integrated into all appropriate phases of recurrent training every year, in accordance with *( f ),* and that modular CRM training covers the same areas over a maximum period of 3 years ; *and*

( ii ) relevant modular CRM training is conducted by CRM trainers qualified according to *( b ) ( 2 ).*

2 ) The flight crew member should not be assessed when completing elements of CRM training that are included in the recurrent training.

( f ) Implementation of CRM

1 ) Table 1 indicates which elements of CRM should be included in each type of training.

***Table 1 :*** **Elements of CRM to be included in Training**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Core Elements** | **Initial CRM Training** | **Operator Conversion**  **Course when**  **changing Type** | **Operator**  **Conversion Course when changing Operator** | **Command**  **Course** | **Recurrent Training** |
| Human error and  reliability, error chain, error prevention and detection | In - depth | In - depth | Overview | Overview | Overview |
| Operator safety culture, standard operating  procedures ( SOP’s ),  organizational factors | Not required | In - depth | In - depth |
| Stress, stress management,  fatigue & vigilance | Not required |
| Information acquisition and processing situation awareness, workload management | Overview |
| Decision making |
| Communication  and coordination inside and outside the flight crew  compartment | Overview |
| Leadership and team behaviour synergy |
| Automation, philosophy of the use of automation  *( if relevant to the type )* | As required | In - depth | In - depth | As required | As required |
| Specific type - related  differences | Not required |
| Case studies | In - depth | In - depth | In - depth | In - depth | In - depth |

( g ) Coordination between Flight Crew and Cabin / Technical Crew Training

1 ) Operators should, as far as practicable, provide combined training for flight crew and cabin / technical crew, including briefing and debriefing ;

2 ) There should be an effective liaison between flight crew and cabin / technical crew training departments. Provision should be made for transfer of relevant knowledge and skills between flight and cabin / technical crew Instructors.

( h ) Assessment of CRM Skills

1 ) Assessment of CRM skills is the process of observing, recording, interpreting and debriefing crews and crew member’s performance and knowledge using an acceptable methodology in the context of overall performance. It includes the concept of self-critique, and feedback which can be given continuously during training or in summary following a check. In order to enhance the effectiveness of the programme, this methodology should, where possible, be agreed with flight crew representatives ;

2 ) NOTECHS *( Non - Technical Skills Evaluation )* or other acceptable methods of

assessment should be used. The selection criteria and training requirements of the assessors and their relevant qualifications, knowledge and skills should be established ;

3 ) Assessment of CRM skills should :

( i ) provide feedback to the crew and the individual and serve to identify retraining where needed ; *and*

( ii ) be used to improve the CRM training system.

4 ) Prior to the introduction of CRM skills assessment, a detailed description of the CRM methodology, including terminology used, should be published in the Operations Manual ;

5 ) Methodology of CRM skills assessment.

( i ) the Operator should establish the CRM training programme, including an agreed terminology. This should be evaluated with regard to methods, length of training, depth of subjects and effectiveness ;

( ii ) a training and standardization programme for training personnel should then be established ;

( iii ) the assessment should be based on the following principles :

( A ) only observable, repetitive behaviours are assessed ;

( B ) the assessment should positively reflect any CRM skills that result in enhanced safety ;

( C ) assessments should include behaviour that contributes to a technical failure, such a technical failure being errors leading to an event that requires debriefing by the person conducting the Line Check ; *and*

( D ) the crew and, where needed, the individual are verbally debriefed.

6 ) De - identified summaries of all CRM assessments by the Operator should be used to provide feedback and such feedback should be used to update and improve the operator’s CRM training ;

7 ) Operators should establish procedures, including retraining, to be applied in the event that personnel do not achieve or maintain the required standards ;

8 ) If the Operator Proficiency Check is combined with the Type Rating Revalidation / Renewal Check, the assessment of CRM Skills should satisfy the Multi - Crew Cooperation requirements of the Type Rating Revalidation / Renewal.

This assessment should not affect the validity of the Type Rating.

( i ) Levels of Training :

1 ) **Overview.** When overview training is required, it should normally be instructional in style. Such training should refresh knowledge gained in earlier training ;

2 ) **In - Depth.** When in - depth training is required, it should normally be interactive in style and should include, as appropriate, case studies, group discussions, role play and consolidation of knowledge and skills. Core elements should be tailored to the specific needs of the training phase being undertaken.

( j ) Use of Automation

1 ) The Operator Conversion Course should include training in the use and knowledge of automation and in the recognition of systems and human limitations associated with the use of automation. The Operator should therefore ensure that the flight crew member receives training on :

( i ) the application of the operations policy concerning the use of automation as stated in the Operations Manual ; *and*

( ii ) system and human limitations associated with the use of automation.

2 ) The objective of this training should be to provide appropriate knowledge, skills and behavioural patterns for managing and operating automated systems. Special attention should be given to how automation increases the need for crews to have a common understanding of the way in which the system performs, and any features of automation that make this understanding difficult.

***AMC 1.* ORO. FC. 115 & 215 Crew Resource Management ( CRM ) Training**

*CRM TRAINER*

The Acceptable Means of Compliance are as set out in *AMC 1 ORO. FC. 115 & 215*, except for *( b ) ( 2 )* of that AMC, for which the following qualifications and experience are also acceptable for a CRM Trainer :

( a ) a flight crew member holding a recent qualification as a CRM trainer may continue to be a CRM Trainer even after the cessation of active flying duties ;

( b ) an experienced non - flight crew CRM Trainer having a knowledge of HPL ; *and*

( c ) a former flight crew member having knowledge of Human Performance and Limitations ( HPL ) may become a CRM Trainer if he / she maintains adequate knowledge of the operation and aircraft type and meets the provisions of *AMC 1 ORO. FC. 115 & 215, ( b ) ( 2 )( i ), ( iv ), ( v ) and ( vi ).*

**GM 1. ORO. FC. 115 & 215 Crew Resource Management ( CRM ) Training**

*GENERAL*

***a )*** Crew Resource Management *( CRM )* is the effective utilization of all available resources *( e. g. crew members, aircraft systems, supporting facilities and persons )* to achieve safe and efficient operation ;

***b )*** The objective of CRM is to enhance the communication and management skills of the flight crew member concerned. The emphasis is placed on the non - technical aspects of flight crew performance.

***AMC 1* ORO. FC. 220 Operator Conversion Training and Checking**

*OPERATOR CONVERSION TRAINING SYLLABUS*

( **a** ) General

1 ) The Operator Conversion Training should include, in the following order :

( i ) Ground Training and Checking, including aircraft systems, and normal, abnormal and emergency procedures ;

( ii ) Emergency and Safety Equipment Training and Checking, *( completed before any flight training in an aircraft commences ) ;*

( iii ) Flight Training and Checking *( aircraft and / or FSTD ) ;* *and*

( iv ) Line Flying Under Supervision and Line Check.

2 ) When the flight crew member has not previously completed an Operator’s Conversion Course, he / she should undergo General First - Aid Training and, if applicable, Ditching Procedures Training using the equipment in water.

3 ) Where the emergency drills require action by the non - handling pilot, the check should additionally cover knowledge of these drills.

4 ) The Operator’s Conversion may be combined with a new Type / Class Rating Training, as required by CR - EU No 1178 / 2011 ;

5 ) The Operator should ensure that the personnel integrating elements of CRM into Conversion Training are suitably qualified.

( **b** ) Ground Training

1 ) Ground Training should comprise a properly organized programme of ground instruction supervised by training staff with adequate facilities, including any necessary audio, mechanical and visual aids. Self - study using appropriate electronic learning aids, computer - based training *( CBT ),* etc., may be used with adequate supervision of the standards achieved. However, if the aircraft concerned is relatively simple, unsupervised private study may be adequate if the Operator provides suitable manuals and / or study notes ;

2 ) The course of ground instruction should incorporate formal tests on such matters as aircraft systems, performance and flight planning, where applicable.

( **c** ) Emergency and Safety Equipment Training and Checking

1 ) Emergency and Safety Equipment Training should take place in conjunction with cabin / technical crew undergoing similar training with emphasis on coordinated procedures and two -way communication between the flight crew compartment and the cabin ;

2 ) On the Initial Conversion Course and on subsequent Conversion Courses as applicable, the following should be addressed :

( i ) instruction on First - Aid in General *( Initial Conversion Course only )* ; instruction on first-aid as relevant to the aircraft type of operation and crew complement, including those situations where no cabin crew is required to be carried *( initial and subsequent )* ;

( ii ) Aero - Medical topics, including :

( A ) hypoxia ;

( B ) hyperventilation ;

( C ) contamination of the skin / eyes by aviation fuel or hydraulic or other fluids ;

( D ) hygiene and food poisoning ; *and*

( E ) malaria.

( iii ) the effect of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke - filled environment ;

( iv ) actual fire fighting, using equipment representative of that carried in the aircraft on an actual or simulated fire except that, with Halon extinguishers, an alternative extinguisher may be used ;

( v ) the operational procedures of security, rescue and emergency services ;

( vi ) survival information appropriate to their areas of operation *( e. g. polar, desert, jungle or sea )*  and training in the use of any survival equipment required to be carried ;

( vii ) a comprehensive drill to cover all ditching procedures where flotation equipment is carried. This should include practice of the actual donning and inflation of a life - jacket, together with a demonstration or audiovisual presentation of the inflation of life - rafts and / or slide - rafts and associated equipment. This practice should, on an Initial Conversion Course, be conducted using the equipment in water, although previous certified training with another Operator or the use of similar equipment will be accepted in lieu of further wet - drill training ;

( viii ) instruction on the location of Emergency and Safety Equipment, correct use of all appropriate drills, and procedures that could be required of flight crew in different emergency situations. Evacuation of the aircraft *( or a representative training device )*  by use of a slide where fitted should be included when the operations manual procedure requires the early evacuation of flight crew to assist on the ground.

( **d** ) Flight Training

1 ) Flight Training should be conducted to familiarize the flight crew member thoroughly with all aspects of limitations and normal, abnormal and emergency procedures associated with the aircraft and should be carried out by suitably qualified class and Type Rating Instructors and / or Examiners. For specific operations, such as steep approaches, ETOPS, or operations based on QFE, additional training should be carried out, based on any additional elements of training defined for the aircraft type in the operational suitability data in accordance with CR - EU No 748 / 2012, where they exist ;

2 ) In planning flight training on aircraft with a flight crew of two or more, particular emphasis should be placed on the practice of LOFT with emphasis on CRM, and the use of crew coordination procedures, including coping with incapacitation ;

3 ) Normally, the same training and practice in the flying of the aircraft should be given to Co - pilots as well as Commanders. The “ flight handling “ sections of the syllabus for Commanders and Co - pilots alike should include all the requirements of the Operator Proficiency check required by *ORO. FC. 230* ;

4 ) Unless the Type Rating Training Programme has been carried out in an FSTD usable for ZFTT, the training should include at least ***3***  *( three )* Take - off’s and Landings in the aircraft.

( **e** ) Line Flying Under Supervision *( LIFUS )*

1 ) Following completion of flight training and checking as part of the Operator’s Conversion Course, each flight crew member should operate a minimum number of sectors and / or flight hours under the supervision of a flight crew member *( LTC / TRI / TRE )* nominated by the Operator ;

2 ) The minimum flight sectors / hours should be specified in the Operations Manual and should be determined by the following :

( i ) previous experience of the flight crew member ;

( ii ) complexity of the aircraft ; *and*

( iii ) the type and area of operation.

3 ) For performance Class B Aeroplanes, the amount of LIFUS required is dependent on the complexity of the operations to be performed.

( **f** ) Passenger Handling for Operations where no Cabin Crew is Required

Other than general training on dealing with people, emphasis should be placed on the following :

1 ) advice on the recognition and management of passengers who appear or are intoxicated with alcohol, under the influence of drugs or aggressive ;

2 ) methods used to motivate passengers and the crowd control necessary to expedite an aircraft evacuation ; *and*

3 ) the importance of correct seat allocation with reference to aircraft mass and balance. Particular emphasis should also be given on the seating of special categories of passengers.

( **g** ) Discipline and Responsibilities, for Operations where no Cabin Crew is Required

Emphasis should be placed on discipline and an individual's responsibilities in relation to :

1 ) his / her ongoing competence and fitness to operate as a crew member with special regard to Flight and Duty Time Limitation *( FTL )* requirements ; *and*

2 ) security procedures.

( **h** ) Passenger Briefing / Safety Demonstrations, for Operations where no Cabin Crew

is Required

Training should be given in the preparation of passengers for normal and emergency situations.

***AMC 2* ORO. FC. 220 Operator Conversion Training and Checking**

*OPERATOR CONVERSION TRAINING SYLLABUS - FLIGHT ENGINEERS*

( a ) Operator conversion training for flight engineers should approximate to that of pilots ;

( b ) If the flight crew includes a pilot with the duties of a flight engineer, he / she should,

after training and the initial check in these duties, operate a minimum number of flight sectors under the supervision of a nominated additional flight crew member. The minimum figures should be specified in the operations manual and should be selected after due note has been taken of the complexity of the aircraft and the experience of the flight crew member.

**GM 1. ORO. FC. 220 ( b ) Operator Conversion Training and Checking**

*COMPLETION of an OPERATOR’s CONVERSION COURSE*

***a )*** The Operator Conversion Course is deemed to have started when the flight training has

begun. The theoretical element of the course may be undertaken ahead of the practical element ;

***b )*** Under certain circumstances the course may have started and reached a stage where, for unforeseen reasons, it is not possible to complete it without a delay. In these circumstances, the Operator may allow the pilot to revert to the original type ;

***c )*** Before the resumption of the Operator Conversion Course, the Operator should evaluate

how much of the course needs to be repeated before continuing with the remainder of the course.

**GM 1. ORO. FC. 220 ( d ) Operator Conversion Training and Checking**

*LINE FLYING UNDER SUPERVISION ( LIFUS )*

***a )*** Line Flying Under Supervision provides the opportunity for a flight crew member to

carry into practice the procedures and techniques he / she has been made familiar with

during the ground and flight training of an Operator conversion course. This is accomplished under the supervision of a flight crew member specifically nominated and trained for the task. At the end of Line Flying Under Supervision the respective crew member should be able to perform a safe and efficient flight conducted within the tasks of his /her crew member station ;

***b )*** A variety of reasonable combinations may exist with respect to :

1 ) a flight crew member's previous experience ;

2 ) the complexity of the aircraft concerned ; *and*

3 ) the type of route / role / area operations.

***c )*** Aeroplanes.

The following minimum figures for details to be flown under supervision are guidelines for Operators to use when establishing their individual requirements :

1 ) turbo - jet aircraft :

( i ) Co - pilot undertaking First Operator Conversion Course :

( A ) total accumulated ***100***  *hours* or minimum ***40*** *flight sectors* ;

( ii ) Co - pilot Up - grading to Commander :

( A ) minimum ***20***  *flight sectors* when converting to a new type ;

( B ) minimum ***10***  *flight sectors* when already qualified on the aeroplane type.

***AMC 1* ORO. FC. 230 Recurrent Training and Checking**

*RECURRENT TRAINING SYLLABUS*

( **a** ) **Recurrent Training**.

Recurrent Training should comprise the following :

***1*** *) Ground Training*

( i ) the Ground Training Programme should include :

( A ) aircraft systems ;

( B ) operational procedures and requirements, including ground de - icing / anti - icing and pilot incapacitation ; *and*

( C ) Accident / Incident and Occurrence review.

( ii ) knowledge of the Ground Training should be verified by a questionnaire or other suitable methods ;

( iii ) when the Ground Training is conducted *within* ***3***  *calendar months prior to the expiry* of the ***12*** *calendar months period*, the next Ground and Refresher Training should be completed *within* ***12*** *calendar months of* the original expiry date of the previous training.

***2*** *) Emergency and Safety Equipment Training.*

( i ) Emergency and Safety Equipment Training may be combined with Emergency and Safety Equipment Checking and should be conducted in an aircraft or a suitable alternative training device ;

( ii ) **Every year** the Emergency and Safety Equipment Training Programme should include the following :

( A ) actual donning of a life - jacket, where fitted ;

( B ) actual donning of protective breathing equipment, where fitted ;

( C ) actual handling of fire extinguishers of the type used ;

( D ) instruction on the location and use of all Emergency and Safety Equipment carried on the aircraft ;

( E ) instruction on the location and use of all types of exits ;

( F ) security procedures.

( iii ) **Every 3 years** the Programme of Training should include the following :

( A ) actual operation of all types of exits ;

( B ) demonstration of the method used to operate a slide where fitted ;

( C ) actual fire - fighting using equipment representative of that carried in the aircraft on an actual or simulated fire except that, with Halon extinguishers, an alternative extinguisher may be used ;

( D ) the effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke - filled environment ;

( E ) actual handling of pyrotechnics, real or simulated, where applicable ;

( F ) demonstration in the use of the life - rafts where fitted. In the case of helicopters involved in extended over water operations, demonstration and use of the life - rafts.

*Helicopter Water Survival Training*

Where life - rafts are fitted for helicopter extended overwater operations ( such as sea pilot transfer, offshore operations, regular, or scheduled, coast - to - coast overwater operations ), a comprehensive wet drill to cover all ditching procedures should be practiced by aircraft crew. This wet drill should include, as appropriate, practice of the actual donning and inflation of a life - jacket, together with a demonstration or audio - visual presentation of the inflation of life - rafts. Crews should board the same ( or similar ) life - rafts from the water whilst wearing a life - jacket. Training should include the use of all survival equipment carried on board life -rafts and any additional survival equipment carried separately on board the aircraft .

— consideration should be given to the provision of further specialist training such as underwater escape training. Where operations are predominately conducted offshore, Operators should conduct ***3*** *- yearly* helicopter underwater escape training at an appropriate facility ;

— wet practice drill should always be given in initial training unless the crew member concerned has received similar training provided by another Operator ;

( G ) particularly in the case where no cabin crew is required, first - aid, appropriate to the aircraft type, the kind of operation and crew complement.

( iv ) the successful resolution of aircraft emergencies requires interaction between flight crew and cabin / technical crew and emphasis should be placed on the importance of effective coordination and two - way communication between all crew members in various emergency

situations ;

( v ) Emergency and Safety Equipment Training should include joint practice in aircraft evacuations so that all who are involved are aware of the duties other crew members should perform. When such practice is not possible, combined flight crew and cabin / technical crew training should include joint discussion of emergency scenarios ;

( vi ) Emergency and Safety Equipment Training should, as far as practicable, take place in conjunction with cabin / technical crew undergoing similar training with emphasis on coordinated procedures and two - way communication between the flight crew compartment and the cabin.

***3*** *) CRM*

( i ) elements of CRM should be integrated into all appropriate phases of Recurrent Training;

( ii ) a specific modular CRM training programme should be established such that all major topics of CRM training are covered over *a period not exceeding* ***3*** *years*, as follows :

( A ) human error and reliability, error chain, error prevention and detection ;

( B ) operator safety culture, Standard Operating Procedures *( SOP’s ),* organizational factors ;

( C ) stress, stress management, fatigue and vigilance ;

( D ) information acquisition and processing, situation awareness, workload management ;

( E ) decision making ;

( F ) communication and coordination inside and outside the flight crew compartment ;

( G ) leadership and team behaviour, synergy ;

( H ) automation and philosophy of the use of automation *( if relevant to the type )* ;

( I ) specific type - related differences ;

( J ) case studies ;

( K ) additional areas which warrant extra attention, as identified by the safety management system.

( iii ) Operators should establish procedures to update their CRM Recurrent Training Programme. Revision of the programme should be conducted over a period not exceeding 3 years. The revision of the programme should take into account the de-identified results of the CRM assessments of crews, and information identified by the Safety Management System.

***4*** *) Flight Crew Incapacitation Training ( except single - pilot operations )*

***a*** *) Procedures should be established to train flight crew to recognize and handle flight crew incapacitation.* This training should be conducted every year and can form part of other Recurrent Training. It should take the form of classroom instruction, discussion, audio - visual presentation or other similar means ;

***b*** *) If an FSTD is available* for the type of aircraft operated, practical training on flight crew incapacitation should be carried out *at intervals not exceeding* ***3*** *years.*

***5*** *) Aircraft / FSTD Training*

( i ) General

( A ) the aircraft / FSTD Training Programme should be established in a way that all major failures of aircraft systems and associated procedures will have been covered *in the preceding* ***3*** *year period ;*

( B ) when Engine - out manoeuvres are carried out in an aircraft, the engine failure should be simulated ;

( C ) aircraft / FSTD Training may be combined with the Operator Proficiency Check ;

( D ) when the aircraft / FSTD Training *is conducted within* ***3*** *calendar months prior* to the expiry of the ***12*** *calendar months period*, the next aircraft / FSTD Training should be completed *within* ***12*** *calendar months of the original expiry date* of the previous training.

( ii ) Helicopters

( A ) where a suitable FSTD is available, it should be used for the aircraft / FSTD Training Programme. If the Operator is able to demonstrate, on the basis of a compliance and risk assessment, that using an aircraft for this training provides equivalent standards of training with safety levels similar to those achieved using an FSTD, the aircraft may be used for this training to the extent necessary ;

( B ) the Recurrent Training should include the following additional items, which should be completed in an FSTD :

- settling with power and vortex ring ;

- loss of tail rotor effectiveness.

***6*** *) For operations with other - than - complex motor - powered aeroplanes*, all training and checking should be relevant to the type of operation and class of aeroplane on which the flight crew member operates with due account taken of any specialized equipment used.

( **b** ) **Recurrent Checking**

Recurrent Checking should comprise the following :

***1*** *)* *Operator Proficiency Checks.*

( i ) Aeroplanes.

Where applicable, Operator Proficiency Checks should include the following manoeuvres as Pilot Flying *( PF )* :

( A ) rejected Take-off when an FSTD is available to represent that specific aeroplane,

otherwise touch drills only ;

( B ) Take-off with engine failure between **V1**  and ***V2*** *( Take-off Safety Speed )* *or,*

if carried out in an aeroplane, at a safe speed above **V2**  ;

( C ) precision instrument approach to minima with, in the case of multi - engine aeroplanes, One - Engine - Inoperative ;

( D ) non - precision approach to minima ;

( E ) missed approach on instruments from minima with, in the case of multi - engined aeroplanes, one - engine - inoperative ;

( F ) landing with One - Engine - Inoperative. For Single - Engine aeroplanes a practice forced landing is required.

(ii) Helicopters.

( A ) where applicable, Operator Proficiency Checks should include the following Abnormal / Emergency Procedures :

- engine fire ;

- fuselage fire ;

- emergency operation of under carriage ;

- fuel dumping ;

- engine failure and relight ;

- hydraulic failure ;

- electrical failure ;

- engine failure during take-off before decision point ;

- engine failure during take-off after decision point ;

- engine failure during landing before decision point ;

- engine failure during landing after decision point ;

- flight and engine control system malfunctions ;

- recovery from unusual attitudes ;

- landing with one or more engine(s) inoperative ;

- instrument meteorological conditions ( IMC ) autorotation techniques ;

- autorotation to a designated area ;

- pilot incapacitation ;

- directional control failures and malfunctions.

( B ) for pilots required to engage in IFR Operations, Proficiency Checks include the following additional Abnormal / Emergency Procedures :

- precision instrument approach to minima ;

- go - around on instruments from minima with, in the case of multi - engined helicopters, a simulated failure of one engine ;

- non - precision approach to minima ;

- in the case of multi - engined helicopters, a simulated failure of one engine to be included in either the precision or non - precision approach to minima ;

- landing with a simulated failure of one or more engines ;

- where appropriate to the helicopter type, approach with flight control system / flight director system malfunctions, flight instrument and navigation equipment failures.

( C ) before a flight crew member without a valid Instrument Rating is allowed to operate in VMC at Night, he / she should be required to undergo a Proficiency Check at Night. Thereafter, each second Proficiency Check should be conducted at Night.

( iii ) *once every* ***12*** *months* the checks prescribed in *( b ) ( 1 ) ( ii ) ( A )* may be combined with the Proficiency Check for revalidation or renewal of the aircraft ( H ) Type Rating ;

( iv ) Operator Proficiency Checks should be conducted by a Type Rating Examiner *( TRE )* or a Synthetic Flight Examiner *( SFE ),* as applicable.

***2*** *) Emergency and Safety Equipment Checks.*

The items to be Checked should be those for which training has been carried out in accordance with *( a ) ( 2 ) - ( Emergency and Safety Equipment Training ) .*

***3*** *) Line Checks*

( i ) The Line Check should be performed in the aircraft. Line Checks should establish the ability to perform satisfactorily a complete line operation, including pre - flight and post - flight procedures and use of the equipment provided, as specified in the Operations Manual.

The route chosen should be such as to give adequate representation of the scope of a pilot’s normal operations. When weather conditions preclude a manual landing, an automatic landing is acceptable. The Commander, or any pilot who may be required to relieve the Commander, should also demonstrate his / her ability to ” manage “ the operation and take appropriate command decisions ;

( ii ) the flight crew should be assessed on their CRM skills in accordance with a methodology described in the Operations Manual. The purpose of such assessment is to :

( A ) provide feedback to the crew collectively and individually and serve to identify retraining ; *and*

( B ) be used to improve the CRM Training System.

( iii ) CRM assessment alone should not be used as a reason for a failure of the line check ;

( iv ) when pilots are assigned duties as Pilot Flying ( PF ) and Pilot Monitoring / PNF , they

should be checked in both functions ;

( v ) Line Checks should be conducted by a TRI. Line Checks should be conducted by LTC nominated by the Operator only for Co - pilot Check. The Operator should inform the GDCA of RA about the persons nominated as LTC. The person conducting the Line Check should occupy an observer’s seat where installed. His / her CRM assessments should solely be based on observations made during the initial briefing, cabin briefing, flight crew compartment briefing and those phases where he / she occupies the observer’s seat.

( A ) for aeroplanes, in the case of long haul operations where additional operating flight crew are carried, the person may fulfill the function of a cruise relief pilot and should not occupy either pilot’s seat during take-off, departure, initial cruise, descent, approach and landing.

( vi ) where a pilot is required to operate as Pilot Flying ( PF ) and Pilot Monitoring / PNF he / she should be Checked on one flight sector as PF and on another flight sector as PM / PNF. However, where the Operator’s procedures require integrated flight preparation, integrated cockpit initialization and that each pilot performs both flying and monitoring duties on the same sector, then the Line Check may be performed on a single flight sector.

***4*** *)* *when the Operator Proficiency Check, Line Check or Emergency and Safety Equipment Check* are undertaken *months* *within the final* ***3***  *calendar of validity* of a previous Check, the period of validity of the subsequent check should be counted from the expiry date of the previous Check ;

***5*** *) in the case of single - pilot operations with Helicopters*, the Recurrent Checks referred to in *( b ) ( 1 ), ( 2 )* and *( 3 )* should be performed in the single - pilot role on a particular helicopter type in an environment representative of the operation.

*(* ***c*** *)* ***Personnel Providing Training and Checking***

Training and Checking should be provided by the following personnel :

***1*** *)* *Ground and Refresher Training* by suitably qualified personnel ;

***2*** *) Flight Training* by a Flight Instructor *( FI ),* Type Rating Instructor *( TRI )* or Class Rating Instructor *( CRI )* or, in the case of the FSTD content, a Synthetic Flight Instructor *( SFI ),* providing that the FI, TRI, CRI or SFI satisfies the Operator's experience and knowledge requirements sufficient to instruct on the items specified in paragraphs *( a )( 1 ) ( i )( A )* and *( B )* ;

***3*** *) Emergency and Safety Equipment Training* by suitably qualified personnel ;

***4*** *) CRM :*

( i ) integration of CRM elements into all the phases of the Recurrent Training by all the personnel conducting Recurrent Training. The Operator should ensure that all personnel conducting Recurrent Training are suitably qualified to integrate elements of CRM into this training ;

( ii ) modular CRM Training by at least one CRM Trainer, who may be assisted by experts in order to address specific areas.

***5*** *) Recurrent Checking* by the following personnel :

( i ) Operator Proficiency Check by a Type Rating Examiner *( TRE )*, Class Rating Examiner *( CRE )* or, if the check is conducted in an FSTD, a TRE, CRE or a Synthetic Flight Examiner *( SFE ),* trained in CRM concepts and the assessment of CRM skills ;

( ii ) Emergency and Safety Equipment Checking by suitably qualified personnel.

*(* ***d*** *)* ***Use of FSTD***

1 ) Training and Checking provide an opportunity to practice Abnormal / Emergency Procedures that rarely arise in normal operations and should be part of a structured programme of Recurrent Training. This should be carried out in an FSTD whenever possible ;

2 ) All other Training and Checking should be performed in an FSTD, or, if it is not reasonably practicable to gain access to such devices, in an aircraft of the same type or in the case of Emergency and Safety Equipment Training, in a representative training device.

The type of equipment used for training and checking should be representative of the instrumentation, equipment and layout of the aircraft type operated by the flight crew member.

3 ) Because of the unacceptable risk when simulating emergencies such as engine failure, icing problems, certain types of engine(s) *( e. g. during continued Take - off or Go - around, total hydraulic failure )*, or because of environmental considerations associated with some emergencies *( e. g. fuel dumping )* these emergencies should preferably be covered in an FSTD. If no FSTD is available, these emergencies may be covered in the aircraft using a safe airborne simulation, bearing in mind the effect of any subsequent failure, and the exercise must be preceded by a comprehensive briefing.

***AMC 2* ORO. FC. 230 Recurrent Training and Checking**

*FLIGHT ENGINEERS*

( a ) The Recurrent Training and Checking for Flight Engineers should meet the requirements for pilots and any additional specific duties, omitting those items that do not apply to flight engineers ;

( b ) Recurrent Training and Checking for flight engineers should, whenever possible, take

place concurrently with a pilot undergoing Recurrent Training and Checking ;

( c ) The Line Check should be conducted by a Commander or by a flight engineer nominated by the Operator, in accordance with national rules, if applicable.

**GM 1. ORO. FC. 230 Recurrent Training and Checking**

*LINE CHECK and PROFICIENCY TRAINING and CHECKING*

***a )*** Line Checks, Route and Aerodrome knowledge and Recent Experience requirements are

intended to ensure the crew member’s ability to operate efficiently under normal conditions, whereas other Checks and Emergency and Safety Equipment Training are primarily intended to prepare the crew member for abnormal / emergency procedures ;

***b )*** The Line Check is considered a particularly important factor in the development, maintenance and refinement of high operating standards, and can provide the Operator with a valuable indication of the usefulness of his / her training policy and methods. Line Checks are a test of a flight crew member’s ability to perform a complete line operation, including pre -flight and post - flight procedures and use of the equipment provided, and an opportunity for an overall assessment of his / her ability to perform the duties required as specified in the Operations Manual. The Line Check is not intended to determine knowledge on any particular route.

***c )*** Proficiency Training and Checking.

When an FSTD is used, the opportunity should be taken, where possible, to use LOFT.

***AMC 1* ORO. FC. 235 ( d ) Pilot Qualification to Operate in Either Pilot’s Seat**

*SINGLE - ENGINE HELICOPTERS — AUTOROTATIVE LANDING*

In the case of single - engined helicopters, the autorotative landing should be carried out from left - and right - hand seats on Alternate Proficiency Checks.

**GM 1. ORO. FC. 235 ( f ); ( g ) Pilot Qualification to Operate in Either Pilot’s Seat**

*DIFFERENCES BETWEEN LEFT and RIGHT - HAND SEATS*

The differences between left - and right - hand seats may not be significant in cases where,

for example, the autopilot is used.

***AMC 1* ORO. FC. 240 Operation on More Than One Type or Variant**

*GENERAL*

*(* ***a*** *)* ***Aeroplanes***

1 ) When a flight crew member operates more than one aeroplane class, type or variant, as determined by the operational suitability data established in accordance with Commission Regulation ( CR - EU ) No 748 / 2012 for class - single pilot or type - single pilot, but not within a single licence endorsement, the operator should ensure that the flight crew member does not operate more than :

( i ) ***3***  *( three )* reciprocating engine aeroplane types or variants ;

( ii ) ***3***  *( three )* turbo - propeller aeroplane types or variants ;

( iii ) ***1*** *( one )* turbo - propeller aeroplane type or variant and ***1*** *( one )* reciprocating engine aeroplane type or variant ; *or*

( iv ) ***1*** *( one )* turbo - propeller aeroplane type or variant and any aeroplane within a particular class.

2 ) When a flight crew member operates more than ***1*** *( one )* aeroplane type or variant within ***1*** *( one )* or more licence endorsement, as determined by the operational suitability data established in accordance with CR - EU No 748 / 2012, the Operator should ensure that :

( i ) the minimum flight crew complement specified in the Operations Manual is the same for each type or variant to be operated ;

( ii ) the flight crew member does not operate more than ***2***  *( two )* aeroplane types or variants for which a separate licence endorsement is required, unless credits related to the training, checking, and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants ; *and*

( iii ) only aeroplanes within ***1*** *( one )* licence endorsement are flown in any one flight duty period, unless the Operator has established procedures to ensure adequate time for preparation.

3 ) When a flight crew member operates more than one aeroplane type or variant as determined by the operational suitability data established in accordance with CR - EU No 748 / 2012 for type - single pilot and type - multi pilot, but not within a single licence endorsement, the Operator should comply with points *( a )( 2 )* and *( 4 )* ;

4 ) When a flight crew member operates more than ***1*** *( one )* aeroplane type or variant as

determined by the operational suitability data established in accordance with CR - EU No 748 / 2012 for type multi - pilot, but not within a single licence endorsement, or combinations of aeroplane types or variants as determined by the operational suitability data established in accordance with CR - EU No 748 / 2012 for class single - pilot and type multi - pilot, the operator should comply with the following :

( i ) point ( a )( 2 ) ;

( ii ) before exercising the privileges of more than one licence endorsement :

( A ) flight crew members should have completed two consecutive Operator Proficiency Checks and should have :

— 500 hours in the relevant crew position in CAT operations with the same Operator ; *or*

— for IFR and VFR night operations with Performance Class B aeroplanes, 100 hours or flight sectors in the relevant crew position in CAT operations with the same Operator, if at least one licence endorsement is related to a class. A check flight should be completed before the pilot is released for duties as Commander ;

( B ) in the case of a pilot having experience with an Operator and exercising the privileges of more than one licence endorsement, and then being promoted to command with the same Operator on one of those types, the required minimum experience as Commander *is* ***6***  *months and* ***300*** *hours*, and the pilot should have completed ***2***  *( two )* consecutive Operator Proficiency Checks before again being eligible to exercise more than one licence endorsement ;

( iii ) before commencing training for and operation of another type or variant, flight crew members should have completed ***3*** *months and* ***150*** *hours flying* on the base aeroplane, which should include at least one proficiency check, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No  748 / 2012 for the relevant types or variants ;

( iv ) after completion of the initial Line Check on the new type, ***50*** *hours flying or* ***20*** *sectors* should be achieved solely on aeroplanes of the new Type Rating, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants ;

( v ) recent experience requirements established in CR - EU No 1178 / 2011 for each type operated ;

( vi ) the period within which line flying experience is required on each type should be specified in the Operations Manual ;

( vii ) when credits are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant type or variant, this should be reflected in the training required in ORO. FC. 230 and :

( A ) ORO. FC. 230 ( b ) *requires* ***2*** *( two )* Operator Proficiency Checks every year.

When credits are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for Operator Proficiency Checks to alternate between the types, each Operator Proficiency Check should revalidate the Operator Proficiency Check for the other type(s). The Operator Proficiency Check may be combined with the Proficiency Checks for Revalidation or Renewal of the aeroplane Type Rating or the Instrument Rating in accordance with CR - EU No 1178 / 2011.

( B ) ORO. FC. 230 ( c ) requires one Line Check every year. When credits are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for Line Checks to alternate between types or variants, each Line Check should revalidate the Line Check for the other type or variant ;

( C ) Annual Emergency and Safety Equipment Training and Checking should cover all requirements for each type.

*(* ***b*** *)* ***Helicopters***

1 ) If a flight crew member operates more than one type or variant, the following provisions should be met :

( i ) the Recency requirements and the requirements for Recurrent Training and Checking should be met and confirmed prior to CAT operations on any type, and the minimum number of flights *on each type within a* ***3*** *- month period* specified in the Operations Manual ;

( ii ) ORO. FC. 230 requirements with regard to Recurrent Training ;

( iii ) When credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants, the requirements of ORO. FC. 230 with regard to Proficiency Checks may be met by a ***6***  *monthly* check on any one type or variant operated. However, a Proficiency Check on each type or variant operated *should be completed every* ***12*** *months*.

( iv ) For helicopters with a Maximum Certified Take-Off Mass *( MCTOM )* of more than 5 700 kg, or with a Maximum Operational Passenger Seating Configuration *( MOPSC )* of more than 19 :

( A ) the flight crew member should not fly more than two helicopter types, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants ;

( B ) a *minimum of* ***3*** *- months and* ***150***  *hours experience* on the type or variant should be achieved before the flight crew member should commence the Conversion Course onto the new type or variant, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants ;

( C ) 28 days and / or 50 hours flying should then be achieved exclusively on the new type or variant, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data established in accordance with CR - EU No 748 / 2012 for the relevant types or variants ; *and*

( D ) a flight crew member should not be rostered to fly more than one type or significantly different variant of a type during a single duty period.

( v ) In the case of all other helicopters, the flight crew member should *not operate more than* ***3***  *( three )* helicopter types or significantly different variants, unless credits related to the training, checking and recent experience requirements are defined in operational suitability data

established in accordance with CR - EU No 748 / 2012 for the relevant types or variants.

*(* ***c*** *)* ***Combination of Helicopter and Aeroplane***

1 ) The flight crew member may fly ***1*** *( one* ) helicopter type or variant and ***1*** *( one* ) aeroplane type irrespective of their MCTOM or MOPSC ;

2 ) If the helicopter type is covered by paragraph *( b )( 1 )( iv )* then *( b )( 1 )( iv )( B ), ( C )*

and *( D )* should also apply in this case.

***AMC 2* ORO. FC. 240 Operation on More Than One Type or Variant**

*GENERAL*

*(* ***a*** *)* ***Terminology****.*

The terms used in the context of the operation of more than one type or variant have the following meaning :

1 ) Base aircraft - means an aircraft used as a reference to compare differences with another aircraft ;

2 ) Variant - means an aircraft or a group of aircraft within the same pilot Type Rating that has differences to the base aircraft requiring Difference or Familiarization Training ;

3 ) Credit - means the recognition of Training, Checking or Recent Experience based on

commonalities between aircraft. For substantiation of the credits Operator Difference Requirements *( ODR )* Tables or other appropriate documentation for comparison of the relevant aircraft characteristics may be provided ;

4 ) Operator Difference Requirements ( ODR’s ) - mean a formal description of differences between types or variants flown by a particular Operator.

*(* ***b*** *)* ***Philosophy.***

The concept of operating more than one type or variant depends upon the experience, knowledge and ability of the Operator and the flight crew concerned.

The first consideration is whether or not aircraft types or variants are sufficiently similar to allow the safe operation of both.

The second consideration is whether or not the types or variants are sufficiently similar for the training, checking and recent experience. Unless credits have been established by the operational suitability data in accordance with CR - EU 1702 / 2003, all training, checking and recent experience requirements should be completed independently for each type or variant.

*(* ***c*** *)* ***Methodology – Use of Operator Difference Requirement ( ODR ) Tables***

1 ) Before assigning flight crew members to operate more than one type or variant of aircraft, the Operator should conduct a detailed evaluation of the differences or similarities of the aircraft concerned in order to establish appropriate procedures or operational restrictions. This evaluation should be based on the data established in accordance with CR - EU No 1702 / 2003

for the relevant types or variants, and should be adapted to the Operator’s specific aircraft configurations.

This evaluation should take into account of the following :

( i ) the level of technology ;

( ii ) operational procedures ; *and*

( iii ) handling characteristics.

The methodology described below should be used as a means of evaluating aeroplane differences and similarities to justify the operation of more than one type or variant, and when credit is sought ;

2 ) ODR Tables.

Before requiring flight crew members to operate more than one type or variant, operators should first nominate one aircraft as the base aircraft from which to show differences with the second aircraft type or variant, the “ Difference Aircraft “, in terms of technology ( systems ), procedures, pilot handling and aircraft management.

These differences, known as Operator Difference Requirements ( ODR ), preferably presented in tabular format, constitute part of the justification for operating more than one type or variant and also the basis for the associated\ differences / familiarization or reduced type rating training for the flight crew.

3 ) The ODR Tables should be presented as follows :

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **GENERAL OPERATOR DIFFERENCES REQUIREMENTS TABLE** | | | | | | | | | | |
| **DIFFERENCE AIRCRAFT :**  **BASE AIRCRAFT :** | | | | **COMPLIANCE METHOD** | | | | | | |
| **TRAINING** | | | | | **CHKG /**  **CURR** | |
| **GENERAL** | **DIFFERENCES** | **Flt. char** | **Proc. chg** | **A** | **B** | **C** | **D** | **E** | **FLT CHK** | **REC EXP** |
| General | Range  ETOPS Certified | *No* | *Yes* |  | *CBT* |  |  |  |  |  |
| Dimensions | Configuration per AFM, FCOM | *Yes* | *No* |  | *CBT* |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE** | | | | | | | | | | |
| **DIFFERENCE AIRCRAFT :**  **BASE AIRCRAFT :** | | | | **COMPLIANCE METHOD** | | | | | | |
| **TRAINING** | | | | | **CHKG /**  **CURR** | |
| **SYSTEM** | **DIFFERENCES** | **Flt. char** | **Proc. chg** | **A** | **B** | **C** | **D** | **E** | **FLT CHK** | **REC EXP** |
| **21**  – AIR CONDITI - - ONING | CONTROLS and INDICATORS :  - Panel layout | *No* | *Yes* | *HO* |  |  |  |  |  |  |
| **21**  – AIR  CONDITI -  - ONING | PACKS :  *- Switch type*  *- Automatically controlled*  *- Reset switch for both packs* | *No* | *Yes* |  | *CBT* |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MANEUVER OPERATOR DIFFERENCES REQUIREMENTS TABLE** | | | | | | | | | | |
| **DIFFERENCE AIRCRAFT :**  **BASE AIRCRAFT :** | | | | **COMPLIANCE METHOD** | | | | | | |
| **TRAINING** | | | | | **CHKG /**  **CURR** | |
| **MANEUVER** | **DIFFERENCES** | **Flt. char** | **Proc. chg** | **A** | **B** | **C** | **D** | **E** | **FLT CHK** | **REC EXP** |
| EXTERIOR PRE - FLIGYHT | Minor Differences | *No* | *No* | *HO* |  |  |  |  |  |  |
| PRE - FLIGYHT | Differences due to Systems, ECL | *No* | *Yes* |  | *CBT* | *FTD* |  |  |  |  |
| NORMAL  TAKE - OFF | FBW handling vs Conventional :  AFDS Take - off :  - Auto-throttle engagement,  FMA indications | *No* | *Yes* |  | *CBT* |  |  | *FFS* |  |  |

4 ) Compilation of ODR Tables.

( i ) ODR 1 : General.

The general characteristics of the candidate aircraft are compared with the base aircraft with regard to :

( A ) general dimensions and aircraft design *( number and type of rotors, wing span or category ) ;*

( B ) flight deck general design ;

( C ) cabin layout ;

( D ) engines ( number, type and position ) ;

( E ) limitations ( flight envelope ).

( ii ) ODR 2 : Systems.

Consideration is given to differences in design between the candidate aircraft and the base aircraft. For this comparison the Air Transport Association ( ATA ) 100 index is used. This index establishes a system and subsystem classification and then an analysis performed for each index item with respect to the main architectural, functional and operations elements, including controls and indications on the systems control panel.

( iii ) ODR 3 : Maneuvres.

Operational differences encompass normal, abnormal and emergency situations and include any change in aircraft handling and flight management. It is necessary to establish a list of operational items for consideration on which an analysis of differences can be made.

The operational analysis should take the following into account :

( A ) flight deck dimensions *( size, cut-off angle and pilot eye height ) ;*

( B ) differences in controls *( design, shape, location and function ) ;*

( C ) additional or altered function *( flight controls )* in normal or abnormal conditions ;

( D ) handling qualities *( including inertia )* in normal and in abnormal configurations ;

( E ) aircraft performance in specific manoeuvres ;

( F ) aircraft status following failure ;

( G ) management ( e. g. ECAM, EICAS, Navaid selection, automatic Checklists ).

( iv ) Once the Differences for ODR 1, ODR 2 and ODR 3

have been established, the consequences of differences evaluated in terms of flight characteristic ( FLT CHAR ) and change of procedures ( PROC CHNG ) should be entered into the appropriate columns.

( v ) Difference Levels - Crew Training, Checking and Currency

( A ) The final stage of an Operator’s proposal to operate more than one type or variant is to establish crew training, checking and currency requirements. This may be established by applying the coded difference levels from Table 4 to the compliance method column of the ODR Tables ;

( B ) Differences items identified in the ODR Tables as impacting flight characteristics, or procedures, should be analyzed in the corresponding ATA section of the ODR manoeuvres. Normal, abnormal and emergency situations should be addressed accordingly.

*(* ***d*** *)* ***Difference Levels***

***1 )*** *Difference Levels — General*

Difference levels are used to identify the extent of difference between a base and a candidate aircraft with reference to the elements described in the ODR Tables.

These levels are proportionate to the differences between a base and a candidate aircraft. A range of five difference levels in order of increasing requirements, identified as ***A*** *through* ***E****,* are each specified for training, checking, and currency.

Difference levels apply when a difference with the potential to affect flight safety exists between a base and a candidate aircraft. Differences may also affect the knowledge, skills, or abilities required from a pilot. If no differences exist, or if differences exist but do not affect flight safety, or if differences exist but do not affect knowledge, skills, or abilities, then difference levels are neither assigned nor applicable to pilot qualification. When difference levels apply, each level is based on a scale of differences related to design features, systems, or maneuvres. In assessing the effects of differences, both flight characteristics and procedures are considered since flight characteristics address handling qualities and performance, while procedures include normal, non - normal and emergency items.

Levels for training, checking, and currency are assigned independently, but are linked depending on the differences between a base and candidate aircraft.

Training at level E usually identifies that the candidate aircraft is a different type to the base aircraft.

***2 )*** *Difference Levels are* summarized in the Table below regarding training, checking, and currency.

|  |  |  |  |
| --- | --- | --- | --- |
| **DIFFERENCE**  **LEVEL** | **TRAINING** | **CHECKING** | **CURRENCY** |
| **A** |  Self - instruction | Not applicable or integrated with next Proficiency Check | Not applicable |
| **B** |  Aided instruction | Task or System Check | Self - review |
| **C** |  System devices | Partial Proficiency Check using qualified device | Designated System |
| **D** | Maneuver Training Devices **1** or aircraft to  accomplish specific  maneuvres | Partial Proficiency Check using qualified device | Designated maneuvre(s) **1** |
| **E** | FSTD’s **2** or Aircraft | Proficiency Check using FSTD’s **2** or aircraft | As per regulation, using FSTD’s or aircraft |

*Footnote (* ***1*** *) :*

 *Aeroplane : FTD Level* ***2****, or FFS, or aeroplane*

  *Helicopter : FTD Level* ***2*** *and* ***3****, or FFS, or helicopter*

*Footnote (* ***2*** *) :*

 *Aeroplane : FFS Level* ***C*** *or* ***D****, or aeroplane*

 *Helicopter : FSTD’s having dual qualification : FFS Level* ***B*** *and FTD Level* ***3****,*

*or FFS Level* ***C***  *or*  ***D****, or helicopter.*

*Training Levels* ***A***  *and* ***B***  *require Familiarization Training,*

*Levels* ***C*** *and* ***D*** *require Differences Training.*

*Training Level* ***E*** *means that differences are such that Type Rating Training is required.*

***3 )*** *Difference Level — Training*

The training differences levels specified represent the minimum requirements.

Devices associated with a higher difference level may be used to satisfy a training differences requirement ;

( i ) Level **A**  Training

Level A differences training is applicable to aircraft with differences that can adequately be addressed through self-instruction. Level A training represents a knowledge requirement such that once appropriate information is provided, understanding and compliance can be assumed

to be demonstrated. Training needs not covered by level A training may require level B training, or higher, depending on the outcome of the evaluations described in the aircraft evaluation process ( CS FCD. 420 ).

( ii ) Level **B**  Training

Level B differences training is applicable to aircraft with system or procedure differences that can adequately be addressed through aided instruction.

At Level B aided instruction it is appropriate to ensure pilot understanding, emphasize issues, provide a standardized method of presentation of material, or to aid retention of material following training.

( iii ) Level **C**  Training

Level C differences training can only be accomplished through the use of devices capable of systems training.

Level C differences training is applicable to variants having “ part task “ differences that affect skills or abilities as well as knowledge. Training objectives focus on mastering individual systems, procedures, or tasks, as opposed to performing highly integrated flight operations and manoeuvres in “ real time “. Level C may also require self - instruction or aided instruction of a pilot, but cannot be adequately addressed by a knowledge requirement alone. Training devices are required to supplement instruction to ensure attainment or retention of pilot skills and abilities to accomplish the more complex tasks, usually related to operation of particular aircraft systems. The minimum acceptable training media for level C is interactive Computer - Based Training, cockpit systems simulators, cockpit procedure trainers, part task trainers [ such as Inertial Navigation System ( INS ), Flight Management System ( FMS ), or Traffic Collision Avoidance System ( TCAS ) trainers], or similar devices.

( iv ) Level **D** Training

Level D differences training can only be accomplished with devices capable of performing flight manoeuvres and addressing full task differences affecting knowledge, skills, or abilities.

Devices capable of flight manoeuvres address full task performance in a dynamic “ real time “ environment and enable integration of knowledge, skills and abilities in a simulated flight environment, involving combinations of operationally oriented tasks and realistic task loading for each relevant phase of flight. At Level D, knowledge and skills to complete necessary normal, non-normal and emergency procedures are fully addressed for each variant.

Level D differences training requires mastery of interrelated skills t hat cannot be adequately addressed by separate acquisition of a series of knowledge areas or skills that are interrelated. However, the differences are not so significant, that a full Type Rating Training course is required. If demonstration of interrelationships between the systems was important, the use of a series of separate devices for systems training would not suffice. Training for level D differences requires a training device that has accurate, high fidelity integration of systems and controls and realistic instrument indications. Level D Training may also require manoeuvre visual cues, motion cues, dynamics, control loading or specific environmental conditions. Weather phenomena such as low visibility operations or wind shear may or may not be incorporated. Where simplified or generic characteristics of an aircraft type are used in devices to satisfy level D difference training, significant negative training cannot occur as a result of the simplification. Appropriate devices as described in CS FCD. 420 ( a ), satisfying Level D

differences training range from t hose where relevant elements of aircraft flight manoeuvring, performance, and handling qualities are incorporated. The use of a Manoeuvre Training Device or aircraft is limited for the conduct of specific manoeuvres or handling differences, or for specific equipment or procedures.

( v ) Level **E**  Training

Level E differences training is applicable to candidate aircraft having such

a significant ‘full task’ differences that a full type rating training course or

a type rating training course with credit for previous experience on similar

aircraft types is required to meet the training objectives.

The training requires a ‘high fidelity’ environment to attain or maintain

knowledge, skills, or abilities that can only be satisfied by the use of

FSTDs or the aircraft itself as mentioned in CS FCD.415(a). Level E

training, if done in an aircraft, should be modified for safety reasons

where manoeuvres can result in a high degree of risk.

When level E differences training is assigned, suitable credit or constraints

may be applied for knowledge, skills or abilities related to other pertinent

aircraft types and specifies the relevant subjects, procedures or

manoeuvres.

***4 )*** *Difference Level — Checking*

Differences Checking addresses any pertinent Pilot Testing or Checking. Initial and Recurrent Checking levels are the same unless otherwise specified. It may be possible to satisfactorily accomplish Recurrent Checking objectives in devices not meeting initial checking requirements. In such instances the applicant may propose for revalidation checks the use of certain devices not meeting the initial check requirements.

*( i ) Level* ***A***  *Checking*

Level A differences checking indicates that no check related to differences is required at the time of differences training. However, a pilot is responsible for knowledge of each variant flown.

*( ii ) Level* ***B*** *Checking*

Level B differences checking indicates that a “ task “ or “ systems “ check is required following initial and recurring training.

*( iii ) Level* ***C***  *Checking*

Level C differences checking requires a partial check using a suitable qualified device. A partial check is conducted relative to particular manoeuvres or systems.

*( iv ) Level* ***D***  *Checking*

Level D differences checking indicates that a partial proficiency check is required following both initial and recurrent training. In conducting the partial proficiency check, manoeuvres common to each variant may be credited and need not be repeated. The partial proficiency check covers the specified particular manoeuvres, systems, or devices. Level D checking is performed using scenarios representing a “ real time “ flight environment and uses qualified devices permitted for Level D Training or higher.

*( v ) Level* ***E***  *Checking*

Level E differences checking requires that a full proficiency check be conducted in FSTD’s or in an aircraft as mentioned in CS FCD. 415 ( a ), following both initial and recurrent training. If appropriate, alternating Level E checking between relevant aircraft is possible and credit may be defined for procedures or manoeuvres based on commonality. Assignment of level E checking requirements alone, or in conjunction with level E currency, does not necessarily result in assignment of a separate Type Rating.

***5 )*** *Difference Level — Currency*

Differences currency addresses any currency and re-currency levels. Initial and recurrent currency levels are the same unless otherwise specified.

*( i ) Level* ***A***  *Currency*

Level A currency is common to each aircraft and does not require separate tracking. Maintenance of currency in any aircraft suffices for any other variant within the same Type Rating.

*( ii ) Level* ***B***  *Currency*

Level B currency is “ knowledge - related “ currency, typically achieved through self - review by individual pilots.

*( iii ) Level C Currency*

( A ) Level C currency is applicable to one or more designated systems or procedures, and relates to both skill and knowledge requirements. When level C currency applies, any pertinent lower level currency is also to be addressed.

( B ) Re - establishing level C currency.

When currency is lost, it may be re-established by completing required items using a device equal to or higher than that specified for level C training and checking.

*( iv ) Level D Currency*

(A) Level D currency is related to designated manoeuvres and addresses knowledge and skills required for performing aircraft control tasks in real time with integrated use of associated systems and procedures. Level D currency may also address certain differences in flight characteristics including performance of any required manoeuvres and related normal, non normal and emergency procedures. When level D is necessary, any pertinent lower level currency is also to be addressed.

(B) Re - establishing Level D Currency.

When currency is lost, currency may be re - established by completing pertinent manoeuvres using a device equal to or higher than that specified for level D differences training and checking.

*( v ) Level* ***E*** *Currency*

( A ) Level E currency requires that recent experience requirements of Part - FCL and operational requirements be complied with in each aircraft separately. Level E currency may also specify other system, procedure, or manoeuvre currency item(s) necessary for safe operations, and requires procedures or manoeuvres to be accomplished in FSTD’s or in an aircraft as mentioned in CS FCD. 415 ( a ). Provisions are applied in a way which addresses the required system or manoeuvre experience. When level E is assigned between aircraft of common characteristics, credit may be permitted. Assignment of level E currency requirements does not automatically lead to a determination on same or separate Type Rating. Level E currency is tracked by a means that is acceptable to the Competent Authority. When CTLC is permitted, any credit or constraints applicable to using FSTD’s, as mentioned in CS. FCD. 415 ( a ), are also to be determined.

( B ) Re - establishing Level E Currency

When currency is lost, currency may be re - established by completing pertinent manoeuvres using a device specified for level E differences training and checking.

***6 )*** *Competency regarding non - normal and emergency procedures — Currency Competency* for non - normal and emergency manoeuvres or procedures is generally addressed by checking requirements. Particular non - normal and emergency manoeuvres or procedures may not be considered mandatory for checking or training. In this situation it may be necessary to periodically practice or demonstrate those manoeuvres or procedures specifying currency

requirements for those manoeuvres or procedures.

***AMC 1* ORO. FC. A. 245 Alternative Training and Qualification Programme**

*COMPONENTS and IMPLEMENTATION*

***a )*** Alternative Training and Qualification Programme ( ATQP ) Components.

The ATQP should comprise the following :

***1 )*** Documentation that Details the Scope and Requirements of the Programme, including the

following :

( i ) the programme should demonstrate that the Operator is able to improve the training and qualification standards of flight crew to a level that exceeds the standards prescribed in Annex **II** ( Part - ORO ) ORO. FC and Subpart E of Annex **V** ( Part - SPA ) SPA. LVO ;

( ii ) the Operator’s training needs and established operational and training objectives ;

( iii ) a description of the process for designing and gaining approval for the Operator’s flight crew qualification programmes. This should include quantified operational and training objectives identified by the Operator’s internal monitoring programmes. External sources may also be used ;

( iv ) a description of how the programme will :

( A ) enhance safety ;

( B ) improve training and qualification standards of flight crew ;

( C ) establish attainable training objectives ;

( D ) integrate CRM in all aspects of training ;

( E ) develop a support and feedback process to form a self - correcting training system ;

( F ) institute a system of progressive evaluations of all training to enable consistent and uniform monitoring of the training undertaken by flight crew ;

( G ) enable the Operator to be able to respond to new aeroplane technologies and changes in the operational environment ;

( H ) foster the use of innovative training methods and technology for flight crew instruction and the evaluation of training systems ; *and*

( I ) make efficient use of training resources, specifically to match the use of training media to the training needs.

***2 )*** A Task Analysis to Determine the :

( i ) knowledge ;

( ii ) required skills ;

( iii ) associated skill - based training ; *and*

( iv ) validated behavioral markers, where appropriate.

For each aeroplane type / class to be included within the ATQP the Operator should establish a systematic review that determines and defines the various tasks to be undertaken by the flight crew when operating that type / class. Data from other types / classes may also be used. The analysis should determine and describe the knowledge and skills required to complete the various tasks specific to the aeroplane type / class and / or type of operation. In addition, the analysis should identify the appropriate behavioral markers that should be exhibited. The task analysis should be suitably validated in accordance with *( b )( 3 ).* The task analysis, in conjunction with the data gathering programme(s), permit the Operator to establish a programme of targeted training together with the associated training objectives.

***3 )*** Curricula. The curriculum structure and content should be determined by task analysis, and should include proficiency objectives, including when and how these objectives should be met. The training programme should have the following structure :

( A ) Curriculum, specifying the following elements :

( a ) entry requirements : a list of topics and content, describing what training level will be required before start or continuation of training ;

( b ) topics : a description of what will be trained during the lesson ;

( c ) targets / objectives :

( 1 ) specific target or set of targets that have to be reached and fulfilled before the training course can be continued ;

( 2 ) each specified target should have an associated objective that is identifiable both by the flight crew and the trainers.

( 3 ) each qualification event that is required by the programme should specify the training that is required to be undertaken and the required standard to be achieved.

( B ) Daily lesson plan :

( a ) each lesson / course / training or qualification event should have the same basic structure. The topics related to the lesson should be listed and the lesson targets should be unambiguous.

( b ) each lesson / course or training event whether classroom, CBT or simulator should specify the required topics with the relevant targets to be achieved.

***4 )*** A Specific Training Programme for :

( i ) each aeroplane type / class within the ATQP ;

( ii ) instructors *( Class Rating Instructor rating / Synthetic Flight Instructor authorization / Type Rating Instructor rating — CRI / SFI / TRI ),* and other personnel undertaking flight crew instruction ; *and*

( iii ) examiners *( Class Rating Examiner / Synthetic Flight Examiner / Type Rating Examiner — CRE / SFE / TRE ).*

This should include a method for the standardization of instructors and examiners.

Personnel who perform training and checking of flight crew in an Operator’s ATQP should receive the following additional training on :

( A ) ATQP principles and goals ;

( B ) knowledge / skills / behavior as learnt from task analysis ;

( C ) line - oriented evaluation ( LOE ) / LOFT scenarios to include triggers / markers / event sets / observable behavior ;

( D ) qualification standards ;

( E ) harmonization of assessment standards ;

( F ) behavioral markers and the systemic assessment of CRM ;

( G ) event sets and the corresponding desired knowledge / skills and behavior of the flight crew ;

( H ) the processes that the Operator has implemented to validate the training and qualification standards and the instructors part in the ATQP quality control ; *and*

( I ) line - oriented quality evaluation ( LOQE ).

***5 )*** A feedback loop for the purpose of curriculum validation and refinement, and to ascertain that the programme meets its proficiency objectives :

( i ) the feedback should be used as a tool to validate that the curricula are implemented as specified by the ATQP ; this enables substantiation of the curriculum, and that proficiency and training objectives have been met. The feedback loop should include data from operations flight data monitoring, the advanced Flight Data Monitoring *(FDM)* programme and LOE / LOQE programmes. In addition, the evaluation process should describe whether the overall targets / objectives of training are being achieved and should prescribe any corrective action that needs to be undertaken.

( ii ) the programmes established quality control mechanisms should at least review the following :

( A ) procedures for approval of recurrent training ;

( B ) ATQP instructor training approvals ;

( C ) approval of event set(s) for LOE / LOFT ;

( D ) procedures for conducting LOE and LOQE.

***6 )*** A method for the assessment of flight crew during conversion and recurrent training and checking. The assessment process should include event - based assessment as part of the LOE. The assessment method should comply with ORO. FC. 230.

( i ) the qualification and checking programmes should include at least the following elements

( A ) a specified structure ;

( B ) elements to be tested / examined ;

( C ) targets and / or standards to be attained ;

( D ) the specified technical and procedural knowledge and skills, and behavioral markers to be exhibited.

( ii ) an LOE event should comprise tasks and sub-tasks performed by the crew under a speci-fied set of conditions. Each event has one or more specific training targets / objectives, which require the performance of a specific manoeuvre, the application of procedures, or the opportunity to practice cognitive, communication or other complex skills.

For each event the proficiency that is required to be achieved should be established. Each event should include a range of circumstances under which the crews performance is to be measured and evaluated. The conditions pertaining to each event should also be established and they may include the prevailing meteorological conditions *( ceiling, visibility, wind, turbulence, etc.),* the operational environment *( navigation aid inoperable, etc. ),* and the operational contingencies *( non - normal operation, etc. ) ;*

( iii ) the markers specified under the Operator’s ATQP should form one of the core elements in determining the required qualification standard. A typical set of markers is shown in the Table below:

|  |  |
| --- | --- |
| **EVENT** | **MARKER** |
| Awareness of aeroplane systems | *Monitors and reports changes in automation status* |
| *Applies closed loop principle in all relevant situations* |
| *Uses all channels for updates* |
| *Is aware of remaining technical resources* |

( iv ) the topics / targets integrated into the curriculum should be measurable and progression on any training / course is only allowed if the targets are fulfilled.

***7 )*** A data monitoring / analysis programme consisting of the following :

( i ) a Flight Data Monitoring ( FDM ) Programme, as described in *AMC 1* ORO. AOC. 130. Data collection should reach a minimum of 60 % of all relevant flights conducted by the Operator before ATQP approval is granted. This proportion may be increased as determined by the Competent Authority ;

( ii ) an advanced FDM when an extension to the ATQP is requested : an advanced FDM programme is determined by the level of integration with other safety initiatives implemented by the Operator, such as the Operator’s Safety Management System. The programme should include both systematic evaluations of data from an FDM programme and flight crew training events for the relevant crews. Data collection should reach a minimum of 80 % of all relevant flights and training conducted by the Operator. This proportion may be varied as determined by the Competent Authority. The purpose of an FDM or advanced FDM Programme for ATQP is to enable the Operator to :

( A ) provide data to support the programmes implementation and justify any changes to the ATQP ;

( B ) establish operational and training objectives based upon an analysis of the operational environment ; *and*

( C ) monitor the effectiveness of flight crew training and qualification.

( iii ) data gathering : the data analysis should be made available to the person responsible for ATQP within the organization. The data gathered should :

( A ) include all fleets that are planned to be operated under the ATQP ;

( B ) include all crews trained and qualified under the ATQP ;

( C ) be established during the implementation phase of ATQP ; *and*

( D ) continue throughout the life of the ATQP.

( iv ) data handling : the Operator should establish a procedure to ensure the confidentiality of individual flight crew members, as described by *AMC 1* ORO. AOC. 130.

( v ) the Operator that has a Flight Data Monitoring Programme prior to the proposed introduction of ATQP may use relevant data from other fleets not part of the proposed ATQP.

***b )*** Implementation.

The Operator should develop an evaluation and implementation process, including the following stages :

***1 )*** A safety case that demonstrates equivalency of :

( i ) the revised training and qualification standards compared to the standards of ORO. FC and / or Subpart E of Annex **V**  ( Part - SPA ) to SPA. LVO prior to the introduction of ATQP ; *and*

( ii ) any new training methods implemented as part of ATQP.

The safety case should encompass each phase of implementation of the programme and be applicable over the lifetime of the programme that is to be overseen.

The safety case should :

— demonstrate the required level of safety ;

— ensure the required safety is maintained throughout the lifetime of the programme ; and

— minimize risk during all phases of the programmes implementation and operation.

The elements of a safety case include :

— planning : integrated and planned with the operation ( ATQP ) that is to be justified ;

— criteria ;

— safety - related documentation, including a safety Checklist ;

— programme of implementation to include controls and validity checks ; *and*

— oversight, including review and audits.

Criteria for the establishment of a safety case.

The safety case should :

— be able to demonstrate that the required or equivalent level of safety is maintained throughout all phases of the programme ;

— be valid to the application and the proposed operation ;

— be adequately safe and ensure the required regulatory safety standards or approved

equivalent safety standards are achieved ;

— be applicable over the entire lifetime of the programme ;

— demonstrate completeness and credibility of the programme ;

— be fully documented ;

— ensure integrity of the operation and the maintenance of the operations and training

infrastructure ;

— ensure robustness to system change ;

— address the impact of technological advance, obsolescence and change ; *and*

— address the impact of regulatory change.

***2 )*** A task analysis, as required by ( a )( 2 ), to establish the Operator’s programme of

targeted training and the associated training objectives ;

***3 )*** A period of operation whilst data is collected and analyzed to validate the safety case

and task analysis. During this period the Operator should continue to operate in accordance with ORO. FC and / or Subpart E of Annex **V** ( SPA. LVO ), as applicable. The length of this period should be determined by the Competent Authority.

**GM 1. ORO. FC. A. 245 Alternative Training and Qualification Programme**

*TERMINOLOGY*

***a )*** “ ***Line - Oriented Evaluation*** *( LOE )* “ is an evaluation methodology used in the ATQP to evaluate trainee performance, and to validate trainee proficiency. LOE’s consist of flight simulator scenarios that are developed by the Operator in accordance with a methodology approved as part of the ATQP. The LOE should be realistic and include appropriate weather scenarios and, in addition, should fall within an acceptable range of difficulty. The LOE should include the use of validated event sets to provide the basis for event-based assessment ;

b ) “ ***Line - Oriented Quality Evaluation*** *( LOQE )* “ is one of the tools used to help evaluate the overall performance of an operation. LOQE’s consist of line flights that are observed by

appropriately qualified operator personnel to provide feedback to validate the ATQP.

The LOQE should be designed to look at those elements of the operation that are unable to be monitored by FDM or Advanced FDM programmes ;

***c )*** “ ***Skill - Based Training*** “ requires the identification of specific knowledge and skills. The

required knowledge and skills are identified within an ATQP as part of a task analysis and are used to provide targeted training ;

***d ) “ Event - Based Assessment “*** is the assessment of flight crew to provide assurance that the required knowledge and skills have been acquired. This is achieved within an LOE.

Feedback to the flight crew is an integral part of event - based assessment.

***e ) “ Safety Case “*** means a documented body of evidence that provides a demonstrable and valid justification that the ATQP is adequately safe for the given type of operation.

***AMC 1* ORO. FC. A. 245 ( a ) Alternative Training and Qualification Programme**

*OPERATOR EXPERIENCE*

The appropriate experience should be at least 2 years continuous operation.

***AMC 1* ORO. FC. A. 245 ( d ) ( e )( 2 ) Alternative Training and Qualification Programme**

*COMBINATION of CHECKS*

( a ) The Line - Orientated Evaluation *( LOE )* may be undertaken with other ATQP training ;

( b ) The Line Check may be combined with a Line - Oriented Quality Evaluation *( LOQE ).*

**SUBPART CC — CABIN CREW**

**Section I — Common Requirements**

***AMC 1* ORO. CC. 100 Number and Composition of Cabin Crew**

*DETERMINATION of the NUMBER and COMPOSITION of CABIN CREW*

( a ) When determining the minimum number of Cabin Crew required to operate aircraft engaged in Commercial Air Transport Operations, factors to be taken into account should include :

1 ) the number of doors / exits ;

2 ) the type(s) of doors / exits and the associated assisting evacuation means ;

3 ) the location of doors / exits in relation to cabin crew stations and the cabin layout ;

4 ) the location of cabin crew stations taking into account direct view requirements and cabin crew duties in an emergency evacuation including :

( i ) opening floor level doors / exits and initiating stair or slide deployment ;

( ii ) assisting passengers to pass through doors / exits ; *and*

( iii ) directing passengers away from inoperative doors / exits, crowd control and passenger flow management ;

5 ) actions required to be performed by cabin crew in ditching, including the deployment of slide - rafts and the launching of life - rafts ;

6 ) additional actions required to be performed by cabin crew members when responsible for a pair of doors / exits ; *and*

7 ) the type and duration of the flight to be operated.

( b ) When scheduling cabin crew for a flight, the Operator should establish procedures that take account of the experience of each cabin crew member. The procedures should specify that the required cabin crew includes some cabin crew members who have at least 3 months experience as an operating cabin crew member.

**GM 1. ORO. CC. 100 Number and Composition of Cabin Crew**

*MINIMUM NUMBER of CABIN CREW*

***a )*** When determining the minimum required cabin crew for its specific aircraft cabin configuration, the Operator should :

1 ) request information regarding the minimum number of cabin crew established by the aircraft Type Certificate *( TC )* holder or other design organization responsible for showing compliance with the evacuation requirements of the applicable certification specifications ; *and*

2 ) take into account the factors specified in *AMC 1* ORO. CC. 100, as applicable.

***b )*** The number of cabin crew referred to in ORO. CC. 100 ( b )( 1 ) means either :

1 ) the number of cabin crew who actively participated in the aircraft cabin during the relevant emergency evacuation demonstration, or who were assumed to have taken part in the relevant analysis, carried out by the aircraft TC Holder when demonstrating the maximum passenger seating capacity ( MPSC ) of the aircraft type at the time of initial type certification ; *or*

2 ) a lower number of cabin crew who actively participated in a subsequent emergency evacuation demonstration, or who were assumed to have taken part in the relevant analysis, and for which approval has been obtained for a cabin configuration other than the MPSC, either by the TC holder or by another design organization. The Operator should obtain a clear indication of that number which is specified in the related documentation. If a lower number is not specified, the number of cabin crew established at the time of initial type certification applies.

**GM 1. ORO. CC. 115 Conduct of Training Courses and Associated Checking**

*EQUIPMENT and PROCEDURES*

The following definitions apply for the purpose of training programmes, syllabi and the conduct of training and checking on equipment and procedures :

***a ) “ Safety Equipment “*** means equipment installed / carried to be used during day - to - day

normal operations for the safe conduct of the flight and protection of occupants *( e. g. seat belts, child restraint devices, safety card, safety demonstration kit )* ;

***b ) “ Emergency Equipment “*** means equipment installed / carried to be used in case of abnormal and emergency situations that demand immediate action for the safe conduct of the flight and protection of occupants, including life preservation *( e. g. drop - out oxygen, crash axe, fire extinguisher, protective breathing equipment, manual release tool, slide - raft ) ;*

***c ) “ Normal Procedures “*** means all procedures established by the Operator in the Operations Manual for day - to - day normal operations *( e. g. pre - flight briefing of cabin crew, pre - flight checks, passenger briefing, securing of galleys and cabin, cabin surveillance during flight ) ;*

***d ) “ Emergency Procedures “*** means all procedures established by the Operator in the Operations Manual for abnormal and emergency situations. For this purpose, “ abnormal “ refers to a situation that is not typical or usual, deviates from normal operation and may result in an emergency.

**AMC 1 ORO. CC. 115 ( c ) Conduct of Training Courses and Associated Checking**

*TRAINING METHODS and TRAINING DEVICES*

( a ) The Operator should establish training methods that take into account the following :

1 ) training should include the use of Cabin Training Devices, audio - visual presentations,

Computer - Based Training and other types of training, as most appropriate to the training element ; *and*

2 ) a reasonable balance between the different training methods should be ensured so that the cabin crew member achieves the level of proficiency necessary for a safe performance of all related cabin crew duties and responsibilities.

( b ) When assessing the representative training devices to be used, the Operator should :

1 ) take into account that a representative training device may be used to train cabin crew as an alternative to the use of the actual aircraft or required equipment ;

2 ) ensure that those items relevant to the training and checking intended to be given accurately represent the aircraft or equipment in the following particulars :

( i ) layout of the cabin in relation to doors / exits, galley areas and safety and emergency equipment stowage as relevant ;

( ii ) type and location of passenger seats and cabin crew stations ;

( iii ) doors / exits in all modes of operation, particularly in relation to the method of operation, mass and balance and operating forces, including failure of power - assist systems where fitted ; *and*

( iv ) safety and emergency equipment of the type provided in the aircraft *( such equipment may be “ training use only “ items and, for oxygen and protective breathing equipment, units charged with or without oxygen may be used ) ;*  *and*

3 ) assess the following factors when determining whether a door / exit can be considered to be a variant of another type :

( i ) door / exit arming / disarming ;

( ii ) direction of movement of the operating handle ;

( iii ) direction of door / exit opening ;

( iv ) power - assist mechanisms ; *and*

( v ) assisting evacuation means such as slides and ropes.

***AMC 1* ORO. CC. 115 ( d ) Conduct of Training Courses and Associated Checking**

*CHECKING*

( a ) Checking required for each training course should be accomplished by the method

appropriate to the training element to be checked. These methods include :

1 ) practical demonstration ;

2 ) computer - based assessment ;

3 ) in - flight checks ;

4 ) oral or written tests.

( b ) Training elements that require individual practical participation may be combined with

practical checks.

***AMC 1* ORO. CC. 115 ( e ) Conduct of Training Courses and Associated Checking**

*CREW RESOURCE MANAGEMENT – TRAINING PROGRAMMES and CRM INSTRUCTORS*

( a ) Implementation of CRM Training.

Table 1. below indicates which CRM training elements should be covered in each type of training.

***Table 1.*** — **Cabin Crew CRM Training**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CRM TRAINING ELEMENTS**  **to be covered** | **Operator’s**  **CRM Training** | **Operator**  **Aircraft Type**  **Conversion**  **Training** | **Annual**  **Recurrent**  **Training** | **Senior Cabin Crew ( SCC )**  **Course** |
| ***General Principles*** | | | | |
| Human factors in aviation.  General instructions on CRM principles and objectives.  Human performance and limitations | Not Required  *( as covered under initial training required by Part - CC )* | Not Required | Not Required | Overview |
| ***Relevant to the individual Cabin Crew member*** | | | | |
| Personality awareness, human error and reliability, attitudes and behaviors, self - assessment.  Stress and stress management.  Fatigue and vigilance.  Assertiveness, situation awareness,  information acquisition and processing . | Not Required *( as covered under initial training required by Part - CC )* | Not Required | Overview  *( 3 year cycle )* | Not Required |
| ***Relevant to the entire aircraft crew*** | | | | |
| Error prevention and detection | In - depth | Relevant  to the type(s) | Overview *( 3 year cycle )* | Reinforce-- ment  *( relevant to the*  *SCC duties )* |
| Shared situation awareness, information  acquisition and processing. |
| Workload management. |
| Effective communication and coordination  between all crew members including the  flight crew as well as inexperienced cabin  crew members, cultural differences. |
| Leadership, cooperation, synergy,  decision - making, delegation. |
| Individual and team responsibilities,  decision making, and actions. |
| Identification and management of the  passenger human factors : crowd control,  passenger stress, conflict management,  medical factors. |
| Specifics related to aircraft types  *( narrow / wide bodied, single / multi deck ),*  flight crew and cabin crew composition  and number of passengers. | Not  Required | In - depth |
| ***Relevant to the Operator and the organization*** | | | | |
| Company safety culture, SOP’s,  organizational factors, factors linked to  the type of operations. | In - depth | Relevant  to the  type(s) | Overview *( 3 year cycle )* | Reinforce-- ment  *( relevant to the*  *SCC duties )* |
| Effective communication and coordination  with other operational personnel and  ground services.  Participation in cabin safety Incident and  Accident Reporting. |
| Case - studies | Required | Required |

( b ) CRM Training Programmes for Commercial Air Transport Operations :

1 ) There should be an effective liaison between flight crew and cabin crew training departments. Provision should be made to allow, whenever practicable, flight and cabin crew instructors to observe and comment on each other’s training. Consideration should be given to creating films of flight crew compartment scenarios for playback to all cabin crew during recurrent training, and to providing the opportunity for cabin crew members, particularly Senior Cabin Crew members, to participate in flight crew Line - Oriented Flying Training *( LOFT )* exercises ;

2 ) The programme of each CRM Training Course, its content and the level to be achieved should comply with the relevant elements specified in Table 2 below, as applicable to the appropriate training course to be completed ;

3 ) CRM Training for Senior Cabin Crew members :

( i ) CRM Training for Senior Cabin Crew members should be the application of knowledge gained in previous CRM training and operational experience relevant to the specific duties and responsibilities of a senior cabin crew member ;

( ii ) the Senior Cabin Crew member should demonstrate the ability to manage the operation and take appropriate leadership / management decisions.

( c ) CRM Instructor qualifications for commercial air transport operations :

1 ) All personnel conducting training should be appropriately qualified to integrate elements of CRM into all appropriate training programmes ;

2 ) A training and standardization programme for CRM Instructors should be established ;

3 ) The Cabin Crew CRM Instructor should :

( i ) have suitable experience of commercial air transport operations as a cabin crew member ;

( ii ) have received instruction on human factors performance limitations ( HPL ) ;

( iii ) have completed an introductory CRM course, as required by Part - CC, and all cabin crew CRM training required by Annex **III** ( Part - ORO ) ;

( iv ) have received instruction in training skills in order to conduct CRM courses ; *and*

( v ) be supervised by an appropriately qualified CRM Instructor when conducting their first CRM training course.

4 ) An experienced non - cabin crew CRM Instructor may continue to be a cabin crew CRM Instructor, provided that the provisions specified in *( 3 )( ii )* *to ( 3 )( v )* are satisfied and that the instructor demonstrates a satisfactory knowledge of the nature of the operation, the relevant specific aircraft types and the cabin crew working environment ;

5 ) Instructors integrating elements of CRM into aircraft type training, recurrent training, or senior cabin crew training should have acquired relevant knowledge of human factors and have completed appropriate CRM training.

**GM 1. ORO. CC. 115 ( e ) Conduct of Training Courses and Associated Checking**

*CREW RESOURCE MANAGEMENT ( CRM )*

***a )*** CRM — General

1 ) CRM should be the effective utilization of all available resources *( e. g. crew members, aircraft systems, and supporting facilities )* to achieve safe and efficient operation ;

2 ) The objective of CRM should be to enhance the communication and management skills of the crew member, as well as the importance of effective coordination and two - way communication between all crew members ;

3 ) Operator’s CRM Training should reflect the culture of the Operator, the scale and scope of the operation together with associated operating procedures and areas of operation that produce particular difficulties ;

4 ) Accordingly, where required during CRM training, if relevant aircraft type - specific case studies are not available, then other case studies relevant to the scale and scope of the operation should be considered ;

***b )*** General Principles for CRM Training for Cabin Crew.

1 ) Whenever practicable, combined training should be provided to flight crew and cabin crew, particularly Senior Cabin Crew members. This should include feedback ;

2 ) Where appropriate, CRM principles should be integrated into relevant parts of cabin crew training ;

3 ) CRM Training should include group discussions and the review of accidents and incidents *( case studies ) ;*

4 ) Whenever it is practicable to do so, relevant parts of CRM Training should form part of the training conducted in cabin training devices or in the aircraft ;

5 ) CRM Training Courses should be conducted in a structured and realistic manner ;

6 ) There should be no assessment of CRM skills. Feedback from Instructors or members of the group on individual performance should be given during training to the individuals concerned ;

7 ) For Commercial Air Transport Operations, Cabin Crew CRM Training should focus on issues related to cabin crew duties and, therefore, should be different from flight crew CRM training. However, the coordination of the tasks and functions of flight crew and cabin crew should be addressed.

***AMC 1*  ORO. CC. 120 ( a )( 1 ) Initial Training Course**

*NEW ENTRANTS in OPERATIONS other than COMMERCIAL AIR TRANSPORT*

*OPERATIONS*

( a ) When a new entrant to an Operator conducting operations other than Commercial Air Transport is a Cabin Crew member, not holding a valid cabin crew attestation, who has already acquired experience as cabin crew in operations other than commercial air transport, credit may be granted to the elements of the initial training programme he / she has previously completed if such training elements are documented in his / her training records ;

( b ) In such a case, the Operator should ensure that :

1 ) the full training programme, as specified in Appendix **1** to Annex **V** ( Part - CC ), has been covered ; *and*

2 ) the new entrant successfully undergoes the examination required by ORO. CC. 120 (a) (2).

***AMC 1* ORO. CC. 125 ( c ) Aircraft Type Specific Training and Operator Conversion**

**Training**

*TRAINING PROGRAMME — AIRCRAFT TYPE SPECIFIC TRAINING*

The following aircraft type specific training elements should be covered as relevant to the

aircraft type :

*( a ) Aircraft Description*

1 ) type of aircraft, principal dimensions, narrow or wide bodied, single or double deck ;

2 ) speed, altitude, range ;

3 ) passenger seating capacity ;

4 ) flight crew number and minimum number of required cabin crew ;

5 ) cabin doors / exits location and sill height ;

6 ) cargo and unpressurised areas as relevant ;

7 ) aircraft systems relevant to cabin crew duties ;

8 ) flight crew compartment - general presentation, pilot seats and their mechanism, emergency exits, storage ;

9 ) required cabin crew stations ;

10 ) flight crew compartment security - general : door components and use ;

11 ) access to avionics bay where relevant ;

12 ) lavatories - general : doors, systems, calls and signs ; *and*

13 ) least risk bomb location.

*( b ) Safety and Emergency Equipment and Aircraft Systems Installed*

Each cabin crew member should receive realistic training on, and demonstration of,

the location and use of all aircraft type specific safety and emergency equipment and

aircraft systems installed, with emphasis on the following :

1 ) slides, and where non - self - supporting slides are carried, the use of any associated assisting evacuation means ;

2 ) life - rafts and slide - rafts, including the equipment attached to, and / or carried in, the raft ;

3 ) drop - out oxygen system ; *and*

4 ) communication equipment.

*( c ) Operation of Doors and Exits*

This training should be conducted in a representative training device or in the actual

aircraft and should include failure of power assist systems where fitted and the action and forces required to operate and deploy evacuation slides. Training should also include operation and actual opening of the flight crew compartment security doo when installed ;

*( d ) Fire and Smoke Protection Equipment*

Each cabin crew member should be trained in using fire and / or smoke protection equipment where fitted ;

*( e ) Evacuation Slide Training*

1 ) Each cabin crew member should descend an evacuation slide from a height representative of the aircraft main deck sill height ;

2 ) The slide should be fitted to a representative training device or to the actual aircraft ;

3 ) A further descent should be made when the cabin crew member qualifies on an aircraft type in which the main deck exit sill height differs significantly from any aircraft type previously operated ;

*( f ) Operation of Equipment related to Pilot Incapacitation*

The training should cover any type specific elements or conditions relevant to cabin crew actions to be taken in case of pilot incapacitation. Each cabin crew member should be trained to operate all equipment that must be used in case of pilot incapacitation.

***AMC 1* ORO. CC. 125 ( d ) Aircraft Type Specific Training and Operator Conversion**

**Training**

*TRAINING PROGRAMME — OPERATOR CONVERSION TRAINING*

The following training elements should be covered as relevant to the aircraft type and the related Operator’s specifics :

*(* ***a*** *) Description of the Cabin Configuration*

The description should cover all elements specific to the operator’s cabin configuration and any differences with those previously covered in accordance with *AMC 1* ORO. CC. 125 ( c ), including :

1 ) required and additional cabin crew stations — location *( including direct view ),* restraint systems, control panels ;

2 ) passenger seats — general presentation and associated operator’s specific features and equipment ;

3 ) designated stowage areas ;

4 ) lavatories — Operator’s specific features, equipment and systems additional to the aircraft type specific elements ;

5 ) galley — location, appliances, water and waste system, including shut-off, sinks, drains, stowage, control panels, calls and signs ; *and where applicable*

6 ) crew rest areas — location, systems, controls, safety and emergency equipment ;

7 ) cabin dividers, curtains, partitions ;

8 ) lift location, use, controls ;

9 ) stowage for the containment of waste ; *and*

10 ) passenger hand rail system or alternative means.

*(* ***b*** *) Safety and Emergency Equipment*

Each cabin crew member should receive realistic training on and demonstration of the location and use of all safety and emergency equipment carried, including :

1 ) life jackets, infant life jackets and flotation devices ;

2 ) first - aid and drop - out oxygen, including supplementary systems ;

3 ) fire extinguishers and Protective Breathing Equipment *( PBE )* ;

4 ) crash axe or crowbar ;

5 ) emergency lights including torches ;

6 ) communication equipment, including megaphones ;

7 ) slide rafts and life rafts survival packs and their contents ;

8 ) pyrotechnics *( actual or representative devices ) ;*

9 ) first - aid kits, emergency medical kits and their contents ; *and*

10 ) other portable safety and emergency equipment, where applicable.

*(* ***c*** *) Normal and Emergency Procedures*

Each cabin crew member should be trained on the Operator’s normal and emergency procedures as applicable, with emphasis on the following :

1 ) passenger briefing, safety demonstration and cabin surveillance ;

2 ) severe air turbulence ;

3 ) non – pressurization, slow and sudden decompression, including the donning of portable oxygen equipment by each cabin crew member ; *and*

4 ) other in - flight emergencies.

*(* ***d*** *) Passenger Handling and Crowd Control*

Training should be provided on the practical aspects of passenger preparation and

handling, as well as crowd control, in various emergency situations as applicable to the Operator’s specific aircraft cabin configuration, and should cover the following :

1 ) communications between flight crew and cabin crew and use of all communications equipment, including the difficulties of coordination in a smoke-filled environment ;

2 ) verbal commands ;

3 ) the physical contact that may be needed to encourage people out of a door / exit

and onto a slide ;

4 ) redirection of passengers away from unusable doors / exits ;

5 ) marshalling of passengers away from the aircraft ;

6 ) evacuation of special categories of passengers with emphasis on passengers with

disabilities or reduced mobility ;

7 ) authority and leadership. *and*

*(* ***e*** *) Fire and Smoke Training*

1 ) Each cabin crew member should receive realistic and practical training in the use of all fire - fighting equipment, including protective clothing representative of that carried in the aircraft ;

2 ) Each cabin crew member should :

( i ) extinguish an actual fire characteristic of an aircraft interior fire except that, in the case of halon extinguishers, an alternative extinguishing agent may be used ; *and*

( ii ) exercise the donning and use of PBE in an enclosed simulated smoke filled environment with particular emphasis on identifying the actual source of fire and smoke.

*(* ***f*** *) Evacuation Procedures*

Training should include all the Operator’s procedures that are applicable to planned or unplanned evacuations on land and water. It should also include, where relevant, the

additional actions required from cabin crew members responsible for a pair of doors / exits and the recognition of when doors / exits are unusable or when evacuation equipment is unserviceable ;

*(* ***g*** *) Pilot Incapacitation Procedures*

Unless the minimum flight crew is more than ***2*** *( two ),* each cabin crew member should be

trained in the procedure for pilot incapacitation. Training in the use of flight crew Checklists, where required by the Operator's standard operating procedures *( SOP’s ),* should be conducted by a practical demonstration ;

*(* ***h*** *) Crew Resource Management*

1 ) Each cabin crew member should complete the Operator's CRM Training covering the applicable training elements to the level specified in the relevant column of Table 1 of *AMC 1* *ORO. CC. 115 ( e )* ;

2 ) When a cabin crew member undertakes the Operator’s Conversion Training on an aircraft type, the applicable training elements specified in Table 1 of *AMC 1 ORO. CC. 115 ( e )* should be covered to the level specified in column “ Operator’s Aircraft Type Conversion Training “.

3 ) The Operator's CRM Training and CRM Training covered during operator aircraft type Conversion Training should be conducted by at least ***one*** cabin crew CRM Instructor.

***AMC 1* ORO. CC. 125 & ORO. CC. 130 Aircraft Type Specific Training and Operator**

**Conversion Training & Differences Training**

*TRAINING PROGRAMMES*

The programmes and syllabi of aircraft type specific training, operator conversion training and differences training should take into account the cabin crew member's previous training as documented in his / her training records.

***AMC 1* ORO. CC. 125 ( b ) & ORO. CC. 130 ( c )** **Aircraft Type Specific Training and**

**Operator Conversion Training & Differences Training**

*NON - MANDATORY ( RECOMMENDATIONS ) ELEMENTS of*

*OPERATIONAL SUITABILITY DATA*

When developing the training programmes and syllabi for aircraft - type specific training and for differences training, the Operator should consider the non - mandatory *( recommendations )* elements for the relevant type that are provided in the operational suitability data established in accordance with CR - EU No 748 / 2012.

***AMC 1* ORO. CC. 135 Familiarization**

*FAMILIARIZATION FLIGHTS and AIRCRAFT FAMILIARIZATION VISITS*

( **a** ) For Commercial Air Transport Operations, familiarization of cabin crew to a new aircraft type or variant should be completed in accordance with the following, as relevant :

1 ) New entrant cabin crew.

Each new entrant cabin crew member having no previous comparable operating experience should participate in :

( i ) a familiarization visit, as described in *( c ),* to the aircraft to be operated ; *and*

( ii ) familiarization flights, as described in *( b ).*

2 ) Cabin crew operating on a subsequent aircraft type.

A cabin crew member assigned to operate on a subsequent aircraft type with the same operator should participate either in :

( i ) a familiarization flight, as described in *( b )* ; *or*

( ii ) a familiarization visit, as described in *( c ),* to the aircraft type to be operated.

( **b** ) Familiarization Flights.

1 ) During familiarization flights, the cabin crew member should be assigned in addition to the minimum number of cabin crew required in accordance with ORO. CC. 100 and if applicable ORO. CC. 200.

2 ) Familiarization flights should be :

( i ) conducted under the supervision of the senior cabin crew member ;

( ii ) structured and conducted with the cabin crew member participating in pre - flight, in - flight and post - flight safety duties ;

( iii ) operated with the cabin crew member wearing the operator’s cabin crew uniform ; *and*

( iv ) recorded in the training record of the cabin crew member.

( **c** ) Aircraft Familiarization Visits.

1 ) Aircraft visits should enable the cabin crew member to become familiar with the aircraft environment and its equipment. Accordingly, aircraft visits should be conducted by appropriately qualified persons. The aircraft visit should provide an overview of the aircraft’s exterior, interior and aircraft systems with emphasis on the following :

( i ) interphone and public address systems ;

( ii ) evacuation alarm systems ;

( iii ) emergency lighting ;

( iv ) smoke detection systems ;

( v ) safety and emergency equipment ;

( vi ) flight crew compartment ;

( vii ) cabin crew stations ;

( viii ) lavatories ;

( ix ) galleys, galley security and water shut - off ;

( x ) cargo areas if accessible from the passenger compartment during flight ;

( xi ) circuit breaker panels located in the passenger compartment ;

( xii ) crew rest areas ; *and*

( xiii ) doors / exits location and environment.

2 ) An aircraft familiarization visit may be combined with the aircraft type specific training or

operator conversion training required by ORO. CC. 125.

( **d** ) For cabin crew members assigned to operations other than commercial air transport,

familiarization should be completed by means of an aircraft familiarization visit, or a familiarization flight, as appropriate taking into account the aircraft type to be operated by the cabin crew member.

***AMC 1* ORO. CC. 140 Recurrent Training**

*TRAINING PROGRAMMES*

( **a** ) Elements of the ***annual*** Recurrent Training Programme.

1 ) Training on the location and handling of safety and emergency equipment should include all relevant oxygen systems, and any equipment such as defibrillators if carried on board ;

2 ) Training on emergency procedures should cover pilot incapacitation procedures and crowd control techniques ;

3 ) CRM Training should satisfy the following :

( i ) the applicable training elements specified in Table 1 of *AMC 1* *ORO. CC. 115 ( e )* should be covered *within a* ***3*** *- year cycle* to the level required by Column “ Annual Recurrent Training “ ;

( ii ) the definition and implementation of the programme should be managed by a cabin crew CRM Instructor ; *and*

( iii ) when CRM Training is provided by stand - alone modules, it should be conducted by at least one cabin crew CRM Instructor.

( **b** ) Additional ***3*** *( triennial )* elements of Recurrent Training Programme.

1 ) Training on the operation of normal and emergency doors / exits should cover failure of power assist systems where fitted. This should include the actions and forces required to operate and deploy evacuation slides, and additional training when relevant for cabin crew members responsible for a pair of doors / exits ;

2 ) Training in the use of all firefighting equipment, including protective clothing, representative of that carried in the aircraft should include individual practice by each cabin crew member to extinguish a fire characteristic of an aircraft interior fire except that, in the case of halon extinguishers, an alternative extinguishing agent may be used. Training should place particular emphasis on identifying the actual source of fire or smoke.

***AMC 1* ORO. CC. 145 Refresher Training**

*TRAINING PROGRAMME*

( a ) Training on Emergency Procedures should include pilot incapacitation procedures and crowd control techniques as applicable to the aircraft type ; *and*

( b ) Operation of doors and exits by each cabin crew member should include failure of power assist systems where fitted as well as the action and forces required to operate and deploy evacuation slides.

**GM 1. ORO. CC. 145 Refresher Training**

*FREQUENCY of REFRESHER TRAINING*

For aircraft with complex equipment or procedures, the Operator should consider the need for Refresher Training to be completed by cabin crew members who have been absent from flying duties *for less than* ***6*** *months.*

***AMC 1* ORO. CC. 200 ( c ) Senior Cabin Crew Member**

*TRAINING PROGRAMME*

The Senior Cabin Crew member Training Course should at least cover the following elements:

*(* ***a*** *) Pre - flight Briefing :*

1 ) operating as a crew ;

2 ) allocation of cabin crew stations and responsibilities ; *and*

3 ) consideration of the particular flight, aircraft type, equipment, area and type of operation, including extended range operations with two - engine aeroplanes ( ETOPS ) and special categories of passengers with emphasis on passengers with disabilities or reduced mobility, infants and stretcher cases.

*(* ***b*** *) Cooperation within the Crew :*

1 ) discipline, responsibilities and chain of command ;

2 ) importance of coordination and communication ; *and*

3 ) pilot incapacitation.

*(* ***c*** *) Review of Operator Requirements and Legal Requirements :*

1 ) passenger briefing, safety briefing cards ;

2 ) securing of galleys ;

3 ) stowage of cabin baggage ;

4 ) electronic equipment ;

5 ) procedures when fuelling with passengers on board ;

6 ) turbulence ; *and*

7 ) documentation.

*(* ***d*** *) Accident and Incident Reporting ;*

*(* ***e*** *) Human factors and CRM :*

The Operator should ensure that all applicable elements specified in Table 1 of AMC 1

ORO. CC. 115 ( e ) are integrated into the training and covered to the level required by

Column “ Senior Cabin Crew Course “ ;

*(* ***f*** *) Flight and Duty Time Limitations and Rest Requirements ( FTL ).*

***AMC 1* ORO. CC. 200 ( d ) Senior Cabin Crew Member**

*RESPONSIBILITY to the COMMANDER*

When the level of turbulence so requires, and in the absence of any instructions from the

flight crew, the Senior Cabin Crew member should be entitled to discontinue non - safety related duties and advise the flight crew of the level of turbulence being experienced and

the need for the *“ Fasten Seat Belt “* signs to be switched *“ ON “.* This should be followed by the cabin crew securing the passenger cabin and other relevant areas.

***AMC 1* ORO. CC. 205 ( c )( 1 ) Reduction of the Number of Cabin Crew during Ground**

**Operations and in Unforeseen Circumstances**

*PROCEDURES with REDUCED NUMBER of CABIN CREW*

( **a** ) During ground operations, if reducing the applicable minimum required number of cabin crew, the Operator should ensure that the procedures required by ORO. CC. 205 ( c )( 1 ) specify that :

1 ) electrical power is available on the aircraft ;

2 ) a means of initiating an evacuation is available to the Senior Cabin Crew member or at least one member of the flight crew is in the flight crew compartment ;

3 ) cabin crew stations and associated duties are specified in the Operations Manual ; *and*

4 ) cabin crew remain aware of the position of servicing and loading vehicles at and near the exits ;

*Additionally, in the case of passengers embarkation :*

5 ) the Senior Cabin Crew member should have performed the pre - boarding safety briefing to the cabin crew ; *and*

6 ) the pre - boarding cabin checks should have been completed.

( **b** ) If, in unforeseen circumstances, the number of cabin crew members is reduced below the applicable minimum required number, for example in the event of incapacitation or unavailability of cabin crew, the procedures established for this purpose in the Operations Manual should take into consideration at least the following :

1 ) reduction of passenger numbers ;

2 ) reseating of passengers with due regard to doors / exits and other applicable limitations ; *and*

3 ) relocation of cabin crew taking into account the factors specified in *AMC 1* ORO. CC. 100 and any change of procedures.

**GM 1. ORO. CC. 210 ( d ) Additional Conditions for Assignment to Duties**

*OPERATOR’s CABIN CREW UNIFORM*

The uniform to be worn by operating Cabin Crew should be such as not to impede the

performance of their duties, as required for the safety of passengers and flight during operations, and should allow passengers to identify the operating cabin crew including in an

emergency situation.

***GM 1.*  ORO. CC. 215 ( b )( 2 ) Training and Checking Programmes and Related**

**Documentation**

*LIST of AIRCRAFT TYPE / VARIANT QUALIFICATION(s)*

When providing the updated validity list of aircraft type / variant qualifications to cabin crew

members having successfully completed a training course and the associated checking, the Operator may use the following format. If using another format, at least the elements in *( a ) to ( d )* and in columns *( 1 ) and ( 2 )* should be indicated to show validity of qualification(s).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CABIN CREW AIRCRAFT TYPE / VARIANT QUALIFICATION ( s )** | | | | | | | |
| **a** | Reference number of the Cabin Crew Attestation : | | | | | | |
| **b** | Cabin Crew Attestation holder’s full name :  *The above - mentioned person may act as an operating cabin crew member during flight operations only if his / her aircraft type and / or variant qualification(s) listed below, and dated DD / MM / YYYY, comply with the applicable validity period(s) specified in Part - ORO.* | | | | | | |
| **c** | Issuing Organization :  *( Name, Postal address, AOC and / or approval reference number and stamp*  *or logo )* | | | | | | |
| **d** | Date of issue : ( DD / MM / YYYY ) | | | | | | |
| **( 1 )** | ( **2** ) | ( **3** ) | ( **4** ) | ( **5** ) | ( **6** ) | ( **7** ) | ( **8** ) |
|  | Qualifica - tion  valid  until | Aircraft  Type  Specific  Taining | Operator  Conversion  Training | Differences  Training  *If relevant* | Familiari - - zation | Last  Recurrent Training | Refresh Training  *If relevant* |
| A/C Type 1 |  |  |  |  |  |  |  |
| Variant … |  |  |  |  |  |  |  |
| A/C Type 2 |  |  |  |  |  |  |  |
| Variant … |  |  |  |  |  |  |  |
| A/C Type 3 |  |  |  |  |  |  |  |
| Variant … |  |  |  |  |  |  |  |
| *If approved*  A/C Type 4 |  |  |  |  |  |  |  |

***AMC 1* ORO. CC. 250 ( b ) Operation on More than One Aircraft Type or Variant**

*DETERMINATION of AIRCRAFT TYPES and VARIANTS*

( **a** ) When determining similarity of location and type of portable safety and emergency

equipment, the following factors should be assessed :

1 ) all portable safety and emergency equipment is stowed in the same, or in exceptional circumstances, in substantially the same location ;

2 ) all portable safety and emergency equipment requires the same method of operation ;

3 ) portable safety and emergency equipment includes :

( i ) fire - fighting equipment ;

( ii ) protective breathing equipment *( PBE ) ;*

( iii ) oxygen equipment ;

( iv ) crew life - jackets ;

( v ) torches ;

( vi ) megaphones ;

( vii ) first - aid equipment ;

( viii ) survival and signaling equipment ; *and*

( ix ) other safety and emergency equipment, where applicable.

( **b** ) The type - specific emergency procedures to be considered should include at least the

following :

1 ) land and water evacuation ;

2 ) in - flight fire ;

3 ) non - pressurization, slow and sudden decompression ; *and*

4 ) pilot incapacitation.

( **c** ) When determining similarity of doors / exits in the absence of operational suitability

data established in accordance with CR - EU No 748 / 2012 for the relevant aircraft type(s) or variant(s), the following factors should be assessed, except for self - help exits, such as Type III and Type IV exits, that need not be included in the assessment :

1 ) door / exit arming and disarming ;

2 ) direction of movement of the operating handle ;

3 ) direction of door / exit opening ;

4 ) power assist mechanisms ; *and*

5 ) assisting evacuation means.

**GM 1. ORO. CC. 250 Operation on more than One Aircraft Type or Variant**

*SAFETY BRIEFING for CABIN CREW*

When changing aircraft type or variant during a series of flight sectors, the Cabin Crew *Safety Briefing* should include a representative sample of type - specific normal and emergency procedures and safety and emergency equipment applicable to the actual aircraft to be operated for the immediately subsequent flight sector.

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**SUBPART TC — TECHNICAL CREW MEMBER in HEMS, HHO or NVIS**

**OPERATIONS**

**GM 1. ORO. TC. 105 Conditions for Assignment to Duties**

*GENERAL*

( **a** ) The technical crew member in HEMS, HHO or NVIS operations should undergo an

initial medical examination or assessment and, if applicable, a re - assessment before

undertaking duties ;

( **b** ) Any medical assessment or re - assessment should be carried out according to best aero -medical practice by a medical practitioner who has sufficiently detailed knowledge of the applicant’s medical history ;

( **c** ) The Operator should maintain a record of medical fitness for each technical crew member ;

( **d** ) Technical crew members should :

1 ) be in good health ;

2 ) be free from any physical or mental illness that might lead to incapacitation or inability to perform crew duties ;

3 ) have normal cardio - respiratory function ;

4 ) have normal central nervous system ;

5 ) have adequate visual acuity 6 / 9 with or without glasses ;

6 ) have adequate hearing ; *and*

7 ) have normal function of ear, nose and throat.

***AMC 1* ORO. TC. 110 Training and Checking**

*GENERAL*

( a ) Elements of training that require individual practice may be combined with practical checks ;

( b ) The checks should be accomplished by the method appropriate to the type of training

including :

1 ) practical demonstration ;

2 ) computer - based assessment ;

3 ) in - flight checks ; *and / or*

4 ) oral or written tests.

***AMC 1* ORO. TC. 115 Initial Training**

*ELEMENTS*

( **a** ) The elements of initial training mentioned in ORO. TC. 115 should include in particular :

1 ) General Theoretical Knowledge on aviation and aviation regulations relevant to duties and responsibilities :

( i ) the importance of crew members performing their duties in accordance with the Operations Manual ;

( ii ) continuing competence and fitness to operate as a crew member with special regard to flight and duty time limitations and rest requirements ;

( iii ) an awareness of the aviation regulations relating to crew members and the role of the competent and inspecting authority ;

( iv ) general knowledge of relevant aviation terminology, theory of flight, passenger distribution, meteorology and areas of operation ;

( v ) pre - flight briefing of the crew members and the provision of necessary safety information with regard to their specific duties ;

( vi ) the importance of ensuring that relevant documents and manuals are kept up-to-date with amendments provided by the Operator ;

( vii ) the importance of identifying when crew members have the authority and responsibility to initiate an evacuation and other emergency procedures ; *and*

( viii ) the importance of safety duties and responsibilities and the need to respond promptly and effectively to emergency situations.

2 ) Fire and Smoke Training :

( i ) reactions to emergencies involving fire and smoke and identification of the fire sources ;

( ii ) the classification of fires and the appropriate type and techniques of application of extinguishing agents, the consequences of misapplication, and of use in a confined space ; *and*

( iii ) the general procedures of ground - based emergency services at aerodromes.

3 ) When conducting *Extended Overwater Operations*, water survival training, including the use of personal flotation equipment ;

4 ) Before first operating on an aircraft fitted with life - rafts or other similar equipment, training on the use of this equipment, including practice in water ;

5 ) Survival training appropriate to the areas of operation *( e. g. polar, desert, jungle, sea or mountain ) ;*

6 ) Aero - medical aspects and first aid, including :

( i ) instruction on first aid and the use of first - aid kits ; *and*

( ii ) the physiological effects of flying.

7 ) Effective communication between technical crew members and flight crew members, including common language and terminology ;

8 ) Relevant CRM elements of and *AMC 1. ORO. FC. 115 & 215.*

***AMC 1* ORO. TC. 120 & 125 Operator Conversion and Differences Training**

*ELEMENTS*

( a ) Operator Conversion Training mentioned in *ORO. TC. 120 ( b )* and Differences Training mentioned in *ORO. TC. 125 ( a )* should include the following :

1 ) Fire and Smoke Training, including practical training in the use of all fire fighting equipment as well as protective clothing representative of that carried in the aircraft. Each technical crew member should :

( i ) extinguish a fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used ; *and*

( ii ) practice the donning and use of protective breathing equipment ( when fitted ) in an enclosed, simulated smoke - filled environment.

2) Practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits ;

3 ) Evacuation procedures and other emergency situations, including :

( i ) recognition of planned or unplanned evacuations on land or water - this training should include recognition of unusable exits or unserviceable evacuation equipment ;

( ii ) in - flight fire and identification of fire source ; *and*

( iii ) other in - flight emergencies.

4 ) When the flight crew is more than one, training on assisting if a pilot becomes incapacitated, including a demonstration of :

( i ) the pilot's seat mechanism ;

( ii ) fastening and unfastening the pilot's seat restraint system ;

( iii ) use of the pilot's oxygen equipment, when applicable ; *and*

( iv ) use of pilots' Checklists.

5 ) Training on, and demonstration of, the location and use of safety equipment, including the following :

( i ) life rafts, including the equipment attached to, and / or carried in, the raft, where applicable ;

( ii ) life jackets, infant life jackets and flotation devices, where applicable ;

( iii ) fire extinguishers ;

( iv ) crash axe or crow bar ;

( v ) emergency lights, including portable lights ;

( vi ) communication equipment, including megaphones ;

( vii ) survival packs, including their contents ;

( viii ) pyrotechnics ( actual or representative devices ) ;

( ix ) first - aid kits, their contents and emergency medical equipment ; *and*

( x ) other safety equipment or systems, where applicable.

6 ) Training on passenger briefing / safety demonstrations and preparation of passengers for normal and emergency situations ;

7 ) Training on the use of Dangerous Goods, *if applicable* ;

8 ) Task - specific training.

***AMC 2* ORO. TC. 120 & 125 Operator Conversion and Differences Training**

*GENERAL*

( a ) The Operator should determine the content of the conversion or differences training

taking account of the technical crew member's previous training as documented in the

technical crew member's training records ;

( b ) Aircraft Conversion or Differences Training should be conducted according to a syllabus

and include the use of relevant equipment and emergency procedures and practice on a representative training device or on the actual aircraft ;

( c ) The Operator should specify in the Operations Manual the maximum number of types

or variants that can be operated by a technical crew member.

***AMC 1* ORO. TC. 135 Recurrent Training**

*ELEMENTS*

( **a** ) The ***12*** *- month period* mentioned in *ORO. TC. 135 ( a )* should be counted from the last day of the month when the first checking was made. Further training and checking should be undertaken within the last 3 calendar months of that period. The new 12 month period should be counted from the original expiry date.

( **b** ) The Recurrent Practical Training should include every year :

1 ) emergency procedures, including pilot incapacitation ;

2 ) evacuation procedures ;

3 ) touch - drills by e ach technical crew member for opening normal and emergency exits for *( passenger )* evacuation ;

4 ) the location and handling of emergency equipment and the donning by each technical crew member of life jackets and protective breathing equipment ( PBE ), when applicable ;

5 ) first aid and the contents of the first - aid kit(s) ;

6 ) stowage of articles in the cabin ;

7 ) use of Dangerous Goods, if applicable ;

8 ) Incident and Accident review ; *and*

9 ) Crew Resource Management : all major topics of the initial CRM Training should be covered over a period not exceeding 3 years.

( **c** ) Recurrent Training should *include every* ***3***  *years* :

1 ) practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits ;

2 ) practical training in the use of all firefighting equipment as well as protective clothing representative of that carried in the aircraft. Each technical crew member should :

( i ) extinguish a fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used ; *and*

( ii ) practice the donning and use of protective breathing equipment ( when fitted ) in an enclosed, simulated smoke - filled environment ;

3 ) use of pyrotechnics ( actual or representative devices ) ; *and*

4 ) demonstration of the use of the life raft, where fitted.

***AMC 1* ORO. TC. 140 Refresher Training**

*ELEMENTS*

( a ) Refresher Training may include familiarization flights ;

( b ) Refresher Training should include at least the following :

1 ) emergency procedures, including pilot incapacitation ;

2 ) evacuation procedures ;

3 ) practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits ; *and*

4 ) the location and handling of emergency equipment, and the donning of life - jackets and protective breathing equipment, when applicable.

**SUBPART FTL. — FLIGHT TIME LIMITATIONS**

**GM 1. ORO. FTL. 105 ( 1 ) Definitions**

*ACCLIMATIZED*

***a )*** A crew member remains acclimatized to the local time of his / her reference time during

47 hours 59 minutes after reporting no matter how many time zones he / she has crossed ;

***b )*** The maximum daily FDP for acclimatized crew members is determined by using Table 1

of ORO. FTL. 205 ( b ) ( 1 ) with the reference time of the point of departure. As soon as 48 hours have elapsed, the state of acclimatization is derived from the time elapsed since reporting at reference time and the number of time zones crossed.

**GM 2. ORO. FTL. 105 ( 1 ) Definitions**

*ACCLIMATISED “ POINT of DEPARTURE “*

The point of departure refers to the reporting point for a flight duty period or positioning

duty after a rest period.

**GM 3. ORO. FTL. 105 ( 1 ) Definitions**

*ACCLIMATISED “ TIME ELAPSED SINCE REPORTING at REFERENCE TIME “*

The time elapsed since reporting at reference time for operations applying CS. FTL. 1. 235 ( b ) ( 3 ) ( ii ) at home base refers to the time elapsed since reporting for the first time at home base for a rotation.

**GM 1. ORO. FTL. 105 ( 2 ) Definitions**

*REFERENCE TIME*

***a )*** Reference time refers to reporting points in a 2 - hour wide time zone band around the

local time where a crew member is acclimatized ;

***b )*** Example : a crew member is acclimatized to the local time in Helsinki and reports for

duty in London. The reference time is the local time in London.

**GM 1. ORO. FTL. 105 ( 3 ) Definitions**

*ADEQUATE FURNITURE for “ ACCOMMODATION “*

Adequate furniture for crew member accommodation should include a seat that reclines *at*

*least* ***45°*** *back angle* to the vertical, has a seat width of *at least* ***20***  *inches (* ***50*** *cm )* and

provides leg and foot support.

**GM 1. ORO. FTL. 105 ( 8 ) Definitions**

*DETERMINATION of DISRUPTIVE SCHEDULES*

If a crew member is acclimatized to the local time at his / her home base, the local time at

the home base should be used to consider an FDP as “ disruptive schedule “. This applies to operations within the 2 - hour wide time zone surrounding the local time at the home base, if

a crew member is acclimatized to the local time at his / her home base.

**GM 1. ORO. FTL. 105 ( 10 ) Definitions**

*ELEMENTS of STANDBY for DUTY*

ORO. FTL. 225 ( c ) and ( d ) and CS. FTL. 1.225 ( b )( 2 ) determine which elements of standby

count as duty.

**GM 1. ORO. FTL. 105 ( 17 ) Definitions**

*OPERATING CREW MEMBER*

A person on board an aircraft is either a crew member or a passenger. If a crew member is

not a passenger on board an aircraft he / she should be considered as “ carrying out duties “.

The crew member remains an operating crew member during in - flight rest. In - flight rest counts in full as FDP, and for the purpose of *ORO. FTL. 210*.

***AMC 1* ORO. FTL. 110 Operator Responsibilities**

*SCHEDULING*

( **a** ) Scheduling has an important impact on a crew member’s ability to sleep and to maintain a proper level of alertness. When developing a workable roster, the Operator should strike a fair balance between the commercial needs and the capacity of individual crew members to work effectively. Rosters should be developed in such a way that they distribute the amount of work evenly among those that are involved ;

( **b** ) Schedules should allow for flights to be completed within the maximum permitted flight duty period and flight rosters should take into account the time needed for preflight duties, taxiing, the flight - and turnaround times. Other factors to be considered when planning duty periods should include :

1 ) the allocation of work patterns which avoid undesirable practices such as alternating day / night duties, alternating eastward - westward or westward eastward time zone transitions, positioning of crew members so that a serious disruption of established sleep / work patterns occurs ;

2 ) scheduling sufficient rest periods especially after long flights crossing many time zones ; *and*

3 ) preparation of duty rosters sufficiently in advance with planning of recurrent extended recovery rest periods and notification of the crew members well in advance to plan adequate pre - duty rest.

***AMC 1* ORO. FTL. 110 ( a ) Operator Responsibilities**

*PUBLICATION of ROSTERS*

Rosters should be published 14 days in advance.

***AMC 1* ORO. FTL. 110 ( j ) Operator Responsibilities**

*OPERATIONAL ROBUSTNESS of ROSTERS*

The Operator should establish and monitor performance indicators for operational robustness of rosters.

**GM 1. ORO. FTL. 110 ( j ) Operator Responsibilities**

*OPERATIONAL ROBUSTNESS of ROSTERS*

Performance indicators for operational robustness of rosters should support the Operator in the assessment of the stability of its rostering system. Performance indicators for operational robustness of rosters should at least measure how often a rostered crew pairing for a duty period is achieved within the planned duration of that duty period. Crew pairing means rostered positioning and flights for crew members in one duty period.

***AMC 1.* ORO. FTL. 120 ( b )( 1 ) Fatigue Risk Management *( FRM )***

*COMMERCIAL AIR TRANSPORT OPERATORS FRM POLICY*

( a ) The Operator’s FRM policy should identify all the elements of FRM ;

( b ) The FRM policy should define to which operations FRM applies.

( c ) The FRM policy should :

1 ) reflect the shared responsibility of management, flight and cabin crew , and

other involved personnel ;

2 ) state the safety objectives of FRM ;

3 ) be signed by the Accountable Manager ;

4 ) be communicated, with visible endorsement, to all the relevant areas and levels

of the organization ;

5 ) declare management commitment to effective safety reporting ;

6 ) declare management commitment to the provision of adequate resources for

FRM ;

7 ) declare management commitment to continuous improvement of FRM ;

8 ) require that clear lines of accountability for management, flight and cabin crew , and all other involved personnel are identified ; *and*

9 ) require periodic reviews to ensure it remains relevant and appropriate.

***AMC 2* ORO. FTL. 120 ( b )( 2 ) Fatigue risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS FRM DOCUMENTATION*

The Operator should develop and keep current FRM documentation that describes and

records :

( a ) FRM policy and objectives ;

( b ) FRM processes and procedures ;

( c ) accountabilities, responsibilities and authorities for these processes and procedures ;

( d ) mechanisms for on - going involvement of management, flight and cabin crew members, and all other involved personnel ;

( e ) FRM training programmes, training requirements and attendance records ;

( f ) scheduled and actual flight times, duty periods and rest periods with deviations and

reasons for deviations ; *and*

( g ) FRM outputs including findings from collected data, recommendations, and actions taken.

***AMC 1* ORO. FTL. 120 ( b )( 4 ) Fatigue Risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS IDENTIFICATION of HAZARDS*

The Operator should develop and maintain ***3***  *( three )* documented processes for fatigue hazard identification :

*(* ***a*** *) Predictive.*

The predictive process should identify fatigue hazards by examining crew scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include, but are not limited to :

1 ) Operator or industry operational experience and data collected on similar types of operations ;

2 ) evidence - based scheduling practices ; *and*

3 ) bio - mathematical models.

*(* ***b*** *) Proactive.*

The proactive process should identify fatigue hazards within current flight operations.

Methods of examination may include, but are not limited to :

1 ) self - reporting of fatigue risks ;

2 ) crew fatigue surveys ;

3 ) relevant flight and cabin crew performance data ;

4 ) available safety databases and scientific studies ; *and*

5 ) analysis of planned versus actual time worked.

*(* ***c*** *) Reactive.*

The reactive process should identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following :

1 ) fatigue reports ;

2 ) confidential reports ;

3 ) audit reports ;

4 ) incidents ; *or*

5 ) Flight Data Monitoring *( FDM )* events.

***AMC 2* ORO. FTL. 120 ( b )( 4 ) Fatigue Risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS RISK ASSESSMENT*

An Operator should develop and implement risk assessment procedures that determine the

probability and potential severity of fatigue - related events and identify when the associated

risks require mitigation. The risk assessment procedures should review identified hazards and link them to :

( a ) operational processes ;

( b ) their probability ;

( c ) possible consequences ; *and*

( d ) the effectiveness of existing safety barriers and controls.

***AMC 1* ORO. FTL. 120 ( b )( 5 ) Fatigue Risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS RISK MITIGATION*

An Operator should develop and implement risk mitigation procedures that :

( a ) select the appropriate mitigation strategies ;

( b ) implement the mitigation strategies ; *and*

( c ) monitor the strategies’ implementation and effectiveness.

***AMC 1* ORO. FTL. 120 ( b )( 8 ) Fatigue Risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS FRM SAFETY*

*ASSURANCE PROCESSES*

The Operator should develop and maintain FRM safety assurance processes to :

( **a** ) provide for continuous FRM performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to :

1 ) hazard reporting and investigations ;

2 ) audits and surveys ; *and*

3 ) reviews and fatigue studies ;

( **b** ) provide a formal process for the management of change which should include, but is

not limited to :

1 ) identification of changes in the operational environment that may affect FRM ;

2 ) identification of changes within the organization that may affect FRM ; *and*

3 ) consideration of available tools which could be used to maintain or improve FRM

performance prior to implementing changes ; *and*

( **c** ) provide for the continuous improvement of FRM. This should include, but is not limited to :

1 ) the elimination and / or modification of risk controls have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment ;

2 ) routine evaluations of facilities, equipment, documentation and procedures ; *and*

3 ) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue - related risks.

***AMC 1* ORO. FTL. 120 ( b )( 9 ) Fatigue Risk Management** *( FRM )*

*COMMERCIAL AIR TRANSPORT OPERATORS FRM PROMOTION PROCESS*

FRM promotion processes should support the on - going development of FRM, the continuous

improvement of its overall performance, and attainment of optimum safety levels.

The following should be established and implemented by the Operator as part of its FRM :

( **a** ) training programmes to ensure competency commensurate with the roles and responsibilities of management, flight and cabin crew , and all other involved personnel under the planned FRM ; *and*

( **b** ) an effective FRM communication plan that :

1 ) explains FRM policies, procedures and responsibilities to all relevant stakeholders ; *and*

2 ) describes communication channels used to gather and disseminate FRM - related

information.

**GM 1. ORO. FTL. 205 ( a )( 1 ) Flight Duty Period** *( FDP )*

*REPORTING TIMES*

The Operator should specify reporting times taking into account the type of operation, the size and type of aircraft and the reporting airport conditions.

**GM 1. ORO. FTL. 205 ( b )( 1 ) Flight Duty Period** *( FDP )*

*REFERENCE TIME*

The start time of the FDP in the table refers to the “ reference time “. That means, to the local time of the point of departure, if this point of departure is within a 2 - hour wide time zone band around the local time where a crew member is acclimatized.

***AMC 1* ORO. FTL. 205 ( f ) Flight Duty Period** *( FDP )*

*UNFORESEEN CIRCUMSTANCES in ACTUAL FLIGHT OPERATIONS —*

*COMMANDER’s DISCRETION*

( **a** ) As general guidance when developing a Commander’s Discretion Policy, the Operator should take into consideration the shared responsibility of management, flight and cabin crew in the case of unforeseen circumstances. The exercise of Commander’s discretion should be considered exceptional and should be avoided at home base and / or company hubs where standby or reserve crew members should be available. Operators should asses on a regular basis the series of pairings where Commander’s discretion has been exercised in order to be aware of possible inconsistencies in their rostering ;

( **b** ) The Operator’s policy on Commander’s discretion should state the safety objectives, especially in the case of an extended FDP or reduced rest and should take due consideration of additional factors that might decrease a crew member’s alertness levels, such as :

1 ) WOCL encroachment ;

2 ) weather conditions ;

3 ) complexity of the operation and / or airport environment ;

4 ) aeroplane malfunctions or specifications ;

5 ) flight with training or supervisory duties ;

6 ) increased number of sectors ;

7 ) circadian disruption ; *and*

8 ) individual conditions of affected crew members *( time since awake, sleep - related factor, workload, etc. ).*

**GM 1. ORO. FTL. 205 ( f )( 1 )( i ) Flight Duty Period** *( FDP )*

*COMMANDER’s DISCRETION*

The maximum basic daily FDP that results after applying *ORO. FTL. 205 ( b )* should be used to calculate the limits of Commander’s discretion, if Commander’s discretion is applied to an FDP which has been extended under the provisions of *ORO. FTL. 205 ( d ).*

***AMC 1* ORO. FTL. 210 ( c ) Flight Times and Duty Periods**

*POST - FLIGHT DUTIES*

The Operator should specify post - flight duty times taking into account the type of operation,

the size and type of aircraft and the airport conditions.

**GM 1. ORO. FTL. 230 ( a ) Reserve**

*ROSTERING of RESERVE*

Including reserve in a roster , also referred to as ‘ rostering “, implies that a reserve period that does not result in a duty period may not retrospectively be considered as part of a

recurrent extended recovery rest period.

**GM 1. ORO. FTL. 235 ( a )( 2 ) Rest Periods**

*MINIMUM REST PERIOD at HOME BASE if SUITABLE*

*ACCOMMODATION is PROVIDED*

An Operator may apply the minimum rest period away from home base during a rotation

which includes a rest period at a crew member’s home base. This applies only if the crew member does not rest at his / her residence, or temporary accommodation, because the Operator provides suitable accommodation. This type of roster is known as “ back - to - back operation “.

***AMC 1* ORO. FTL. 235 ( b ) Rest Periods**

*MINIMUM REST PERIOD away from HOME BASE*

The time allowed for physiological needs should be 1 hour. Consequently, if the travelling

time to the suitable accommodation is more than 30 minutes, the Operator should increase

the rest period by twice the amount of difference of travelling time above 30 minutes.

***AMC 1* ORO. FTL. 240 Nutrition**

*MEAL OPPORTUNITY*

( **a** ) The Operations Manual should specify the minimum duration of the meal opportunity, when a meal opportunity is provided, in particular when the FDP encompasses the

regular meal windows *( e. g. if the FDP starts at 11 : 00 hours and ends at 22 : 00 hours*

*meal opportunities for two meals should be given ).*

( **b** ) It should define the time frames in which a regular meal should be consumed in order

not to alter the human needs for nutrition without affecting the crew member’s body rhythms.

***AMC 1* ORO. FTL. 250 Fatigue Management Training**

*TRAINING SYLLABUS FATIGUE MANAGEMENT TRAINING*

The training syllabus should contain the following :

( a ) applicable regulatory requirements for flight, duty and rest ;

( b ) the basics of fatigue including sleep fundamentals and the effects of disturbing the circadian rhythms ;

( c ) the causes of fatigue, including medical conditions that may lead to fatigue ;

( d ) the effect of fatigue on performance ;

( e ) fatigue countermeasures ;

( f ) the influence of lifestyle, including nutrition, exercise, and family life, on fatigue ;

( g ) familiarity with sleep disorders and their possible treatments ;

( h ) where applicable, the effects of long range operations and heavy short range schedules on individuals ;

( i ) the effect of operating through and within multiple time zones ; *and*

( j ) the crew member responsibility for ensuring adequate rest and fitness for flight duty.