SUBPART MLR – MANUALS, LOGS AND RECORDS

AMC1 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 produced by the manufacturer of the aircraft.

(g) 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.

(h) 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.

(i) If the operator chooses to make use of material from another source (e.g. a route manual producer, an aircraft manufacturer or a training organisation) 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.

AMC2 ORO.MLR.100 Operations manual – General

CONTENTS – NON-COMMERCIAL OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT

Reserved.

AMC3 ORO.MLR.100 Operations manual – general

CONTENTS – COMMERCIAL AIR TRANSPORT OPERATIONS

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

A GENERAL/BASIC

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.

1 ORGANISATION AND RESPONSIBILITIES

1.1 Organisational structure. A description of the organisational structure, including the general organogram 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 pilot-in-command/commander.

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.

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.

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 pilot-in-command/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.

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 familiarisation 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).

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) immunisation,

(h) deep-sea diving,

(i) blood/bone marrow donation,

(j) meal precautions prior to and during flight,

(k) sleep and rest,

(l) surgical operations.

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.

8 OPERATING PROCEDURES

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.

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.

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 refuelling and defuelling including when an auxiliary power unit is in operation or when rotors are running or when an engine is or engines are running and the prop-brakes are on;

(b) refuelling and defuelling 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.

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, 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 recognising 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 refuelling/defuelling 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 autothrottle for aircraft fitted with these systems.

8.4 Low visibility operations (LVO). A description of the operational procedures associated with LVO.

8.5 Extended-range operations with two-engined aeroplanes (ETOPS). A description of the ETOPS operational procedures. (Refer to EASA AMC 20-6)

8.6 Use of the minimum equipment and configuration deviation list(s).

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.

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.

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, labelling, 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.

10 SECURITY

Security instructions, guidance, procedures, training and responsibilities, taking into account Regulation (EC) No 300/2008[7]. Some parts of the security instructions and guidance may be kept confidential.

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 organisations 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 (RAs), bird hazards, dangerous goods and hazardous conditions;

(e) procedures for submitting written reports on air traffic incidents, ACAS RAs, 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.

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 unauthorised 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

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[7] OJ L 97, 11.3.2008, p. 72.

(l) Distress and urgency signals.

13 LEASING / CODE-SHARE

A description of the operational arrangements for leasing and code-share, associated procedures and management responsibilities.

B AIRCRAFT OPERATING MATTERS – TYPE RELATED

Taking account of the differences between types/classes, and variants of types, under the following headings:

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.

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.

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.

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-pressurised and partially pressurised 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.

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). 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).

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).

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.

7 LOADING

Procedures and provisions for loading and unloading and securing the load in the aircraft.

8 CONFIGURATION DEVIATION LIST

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.

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.

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.

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.

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.

C ROUTE/ROLE/AREA AND AERODROME/OPERATING SITE INSTRUCTIONS AND INFORMATION

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 categorisation for flight crew competence qualification;

(l) special aerodrome/operating site limitations (performance limitations and operating procedures etc.).

D TRAINING

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.

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 IV (Part-CAT), Annex V (Part-CC) of Commission Regulation (EU) xxx/XXXX and ORO.CC;

2.3 for technical crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.TC;

2.4 for operations personnel concerned, including crew members:

(a) all relevant items prescribed in SPA.DG Subpart G of Annex IV (SPA.DG); and

(b) all relevant items prescribed in Annex IV (Part-CAT) and ORO.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 pertaining to their duties.

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.

4 Description of documentation to be stored and storage periods.

2 Notwithstanding 1, an OM that is compiled in accordance with JAR-OPS 3 amendment 5 may be considered to be compliant.

AMC4 ORO.MLR.100 Operations manual - General

CONTENTS – NON-COMMERCIAL SPECIALISED OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT AND COMMERCIAL SPECIALISED OPERATIONS

Reserved.

GM1 ORO.MLR.100 Operations manual – general

CONTENTS

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 AMC3 ORO.MLR.100 and insert 'Not applicable' or 'Intentionally blank' where appropriate.

GM1 ORO.MLR.100(h) 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).

GM1 ORO.MLR.105(a) Minimum equipment list

GENERAL

The 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 his/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.

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 jeopardised;

  (3) the condition of the aircraft is configured to minimise 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.

AMC1 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 date of applicability specified in the approved change to the MMEL.

(c) Reduced timescales for the implementation of safety related amendments may be required if the Agency and/or competent authority consider it necessary.

AMC1 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.

GM1 ORO.MLR.105(e);(f) Minimum equipment list

RECTIFICATION INTERVAL (RI)

The definitions and categories of rectification intervals are provided in CS-MMEL.

AMC1 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 RIEs.

(b) Personnel authorising RIEs 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 authorising 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.

GM1 OR.OPS.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.

AMC1 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.

(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.

GM1 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 authorised to perform certain functions.

(c) Normally, maintenance procedures are accomplished by the maintenance personnel; however, other personnel may be qualified and authorised to perform certain functions.

(d) Operator's manuals may include the OM, the continued airworthiness management organisation manual or other documents.

(e) Unless specifically permitted by a maintenance procedure, an inoperative item may not be removed from the aircraft.

AMC1 ORO.MLR.105(h) Minimum equipment list

OPERATIONAL AND MAINTENANCE PROCEDURES - APPLICABLE CHANGES

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:

(a) modified procedure is applicable to the operator's MEL; and

(b) purpose of this change is to improve compliance with the intent of the associated MMEL dispatch condition.

AMC1 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 authorising 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 authorising personnel should be listed by appointment and name.

GM1 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.

AMC1 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.

GM1 ORO.MLR.110 Journey log

SERIES OF FLIGHTS

The term 'series of flights' is used to facilitate a single set of documentation.

AMC1 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.