

Table 4.1—Maintenance Program Specifications

The Operator's Maintenance Program shall contain the following information for each aircraft:

- (i) Maintenance tasks and the intervals at which these tasks are to be performed, taking into account the anticipated use of the aircraft;
- (ii) When applicable, a continuing structural integrity program;
- (iii) A system that identifies mandatory maintenance tasks, and their corresponding intervals, for tasks that have been specified as mandatory in the approval of the type design, (i.e. Certification Maintenance Requirements or CMRs);
- (iv) Procedures for changing or deviating from (i), (ii) and (iii) above;
- (v) The reliability program and descriptions of any required health monitoring for aircraft, engines, propellers and associated parts where the maintenance program was derived using the Maintenance Review Board process;
- (vi) The procedure for periodic review of the Maintenance Program to ensure it considers current Type Certificate Holder's recommendations, revisions to the Maintenance Review Board Report, mandatory requirements and other applicable requirements from the Authority.

Table 4.2–Maintenance Management and Control Functions

The Operator shall provide for facilities, workspace, equipment, personnel and supporting services, as well as work environment, as necessary to ensure the implementation of the following maintenance management and control functions:

- (i) The initial development of the maintenance schedule;
- (ii) Scheduling maintenance, elementary work and servicing to be performed within the time constraints specified in the approved maintenance schedule;
- (iii) Scheduling the accomplishment of Airworthiness Directives (ADs);
- (iv) Operation of an evaluation program to ensure that all required procedures and, in particular the maintenance schedule, continue to be effective and in compliance with the applicable regulations;
- (v) The proper dispatch of aircraft, with regard to:
 - (a) Control of defects;
 - (b) Availability of spare parts;
 - (c) Conformity with the type design;
 - (d) Requirements of other applicable operating rules.
- (vi) Liaison with approved maintenance organizations for the performance of maintenance;
- (vii) The development and update of the Maintenance Management Manual.

Table 4.3—Maintenance Management Manual Content Specifications

The MMM shall contain the following maintenance policies, procedures and information:

- (i) A description of the administrative arrangements between the operator and the approved maintenance organization;
- (ii) Names (or titles) and duties of the person or persons whose responsibilities are to ensure that maintenance is carried out in accordance with the MMM;
- (iii) A description of aircraft types and models to which the manual applies;
- (iv) A description of the maintenance procedures and the procedures for completing and signing a maintenance release when maintenance is based on a system other than that of an approved maintenance organization;
- (v) A reference to the approved maintenance program;
- (vi) A description of the methods used for the completion and retention of maintenance records, and including procedures for retaining backup records;
- (vii) A description of the procedures for monitoring, assessing and reporting maintenance and operational experience;
- (viii) A description of the procedures for complying with the service information reporting requirements;
- (ix) A description of procedures for assessing continuing airworthiness information and implementing any resulting actions;
- (x) A description of the procedures for implementing action resulting from mandatory continuing airworthiness information;
- (xi) A description of establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance program, in order to improve and correct any deficiency in that program;
- (xii) A description of procedures for ensuring that unserviceable items affecting airworthiness are recorded and rectified;
- (xiii) A description of the procedures for advising the Authority of significant in-service occurrences;
- (xiv) The scope, structure and functionality of the management system for maintenance operations, to include a description of departments, positions, authorities, duties, responsibilities and the interrelation of functions and activities within the system;
- (xv) A process to ensure all amendments to the MMM are approved by the Authority and/or Operator, as applicable;
- (xvi) A description of the procedures to ensure operational and emergency equipment necessary for flight is serviceable;
- (xvii) A description of the procedures to ensure the Certificate of Airworthiness of each aircraft remains valid;
- (xviii) A description of the duties, responsibilities and reporting relationships within the Quality Assurance Program, or a reference to a separate quality assurance manual, if such description is found in that manual.

Table 4.4—Defect Reporting Specifications

△	<p>The Operator shall have a procedure for reporting, to the Authority the following defects or un-airworthy conditions:</p> <ul style="list-style-type: none"> (i) General <ul style="list-style-type: none"> (a) Any failure, malfunction or defect where the safety of operation was or could have been endangered or which could have led to an unsafe condition. (ii) Aircraft Structure <ul style="list-style-type: none"> (a) Any failure of aircraft primary structure or a principal structural element; (b) Cracks, permanent deformation or corrosion or defect or damage of aircraft primary structure or principal structural element that a repair scheme is not already provided in the manufacturer's repair manual, or that occur after repair; (c) Any part of the aircraft that would endanger the aircraft or any person by becoming detached in flight or during operations on the ground; (d) Major defect or damage to aircraft structure; (e) Defects or damage to aircraft structures, if more than allowed tolerances. (iii) Powerplant <ul style="list-style-type: none"> (a) Uncommanded loss of thrust/power, shutdown or failure of any engine; (b) Uncontained failure of engine compressor, turbines; (c) Inability to feather or un-feather a propeller. (iv) Aircraft Systems or Equipment <ul style="list-style-type: none"> (a) Fire or explosion; (b) Smoke, toxic or noxious fumes in the aircraft; (c) Fuel leakage that results in substantial loss, or is a fire hazard; (d) Fuel system malfunction that has significant effect on fuel supply and/or distribution; (e) Fire warnings, except those immediately confirmed as false; (f) Unwanted landing gear or gear doors extension/retraction; (g) Significant loss of braking action. (v) If applicable, additional requirements of the Authority.
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Table 4.5—ETOPS/EDTO Maintenance Requirements for Twin Turbine Engine Aircraft

The Operator shall ensure the following for twin turbine engine aircraft that are used for ETOPS/EDTO:

- △ (i) The titles and numbers of all airworthiness modifications, additions and changes that were made to qualify aircraft systems for ETOPS/EDTO are provided to the Authority;
- △ (ii) Any changes to maintenance and training procedures, practices or limitations previously proven or validated by the manufacturer and established in the qualification for ETOPS/EDTO are approved by the Authority before being adopted;
- △ (iii) A reliability monitoring and reporting program is developed and implemented prior to approval and continued after approval (i.e. new aircraft type);
- △ (iv) Prompt implementation of required modifications and inspections that could affect propulsion system reliability;
- △ (v) Procedures to prevent an aircraft from being dispatched for ETOPS/EDTO after an engine shutdown or ETOPS/EDTO-significant system failure on a previous flight until the cause of such failure has been positively identified and the necessary corrective action completed. Confirmation that such corrective action has been effective may, in some cases, require the successful completion of a subsequent flight prior to dispatch on an extended range operation;
- △ (vi) A procedure to ensure the airborne equipment will continue to be maintained at the level of performance and reliability required for ETOPS/EDTO;
- △ (vii) A process for monitoring in-flight shutdowns (IFSD);
- △ (viii) A procedure to assess and report to the Authority the following items concerning ETOPS/EDTO:
 - In-Flight Shutdown (IFSD);
 - Diversion or turn-back;
 - Un-commanded thrust/power changes or engine surges;
 - Inability to control the engine or obtain the desired thrust/power;
 - Failures or malfunctions of ETOPS/EDTO significant system having a detrimental effect to ETOPS/EDTO flight.
- △ (ix) A procedure to minimize scheduled or unscheduled maintenance during the same maintenance visit on more than one parallel or similar ETOPS/EDTO-significant system. Minimization can be accomplished by staggering maintenance tasks, performing and/or supervising maintenance by a different technician, or verifying maintenance correction actions prior to the aircraft entering an ETOPS/EDTO flight segment.
- (x) The list of ETOPS/EDTO Significant Systems/Sub-systems (i.e. the list including, for a given aircraft, any system/sub-system whose failure or degradation could adversely affect the safety of an ETOPS/EDTO flight or whose continued functioning is important to the safe flight and landing of an aircraft during an ETOPS/EDTO diversion).
- (xi) The list of maintenance program tasks identified as having ETOPS/EDTO significance (i.e. the list of maintenance tasks affecting any ETOPS/EDTO Significant System/Sub-system).
- (xii) The reliability program supplemented, as applicable, to take into account the ETOPS/EDTO requirements and specific analysis such as:
 - Engine Condition Monitoring Program (ECMP);
 - Oil Consumption Monitoring Program;
 - APU in-flight Start Program.
- (xiii) The list of ETOPS/EDTO Qualified Maintenance Personnel as well as the training program and qualification procedures of such personnel.
- (xiv) The procedure to integrate in the MMM all applicable Configuration, Maintenance and Procedures (CMP) provisions issued by the manufacturer of the aircraft.

Table 4.6—Aircraft Technical Log (ATL) Specifications

The Operator shall have a process to ensure all aircraft have an aircraft technical log (ATL) or approved equivalent that comprises the following elements:

- (i) Aircraft nationality and registration;
- (ii) Date;
- (iii) Place of departure;
- (iv) Place of arrival;
- (v) Time of departure;
- (vi) Time of arrival;
- (vii) Hours of flight;
- (viii) Incidents, observations, as applicable;
- (ix) Details of defects and rectifications/actions taken;
- (x) Signature or identity of the person recording the defect;
- (xi) Signature and identity of the person signing the release following maintenance. **

** The signature and identity shall: (1) be traceable to the individual making the entry; and (2) satisfy the requirements specified in the aircraft release to service procedure of the MMM (i.e. be either a handwritten or electronic signature system or company-controlled stamp identity system, as approved by the Authority).

Table 4.7–Quality Assurance Program Specifications and Control Processes

The Operator shall ensure each maintenance organization that performs maintenance for the Operator has an independent Quality Assurance Program that includes the following elements:

- (i) An internal audit/evaluation program;
- (ii) An established audit schedule that ensures all applicable regulations, requirements and technical activities described within the MPM of the AMO are checked on established intervals, as described in the MPM;
- (iii) A record of audit findings and corrective and/or preventive actions;
- (iv) Follow-up procedures to ensure necessary corrective/preventive actions (both immediate and long-term) implemented by the Maintenance Organization are effective;
- (v) A record-keeping system to ensure details of evaluation findings, corrective actions, preventive actions and follow-up are recorded, and that the records are retained for two complete evaluation cycles.

Table 4.8–ESD Program Specifications

The Operator shall ensure each maintenance organization that handles or performs maintenance on electrostatic sensitive devices (ESD) for the Operator has an ESD Program that addresses the following:

- (i) Removal and installation on the aircraft;
- (ii) Appropriate warning and caution signs, as well as decals, are placed in areas where ESDs are handled;
- (iii) Devices are contained in ESD-approved packaging are sealed and properly labeled;
- (iv) Devices not contained in ESD-approved sealed packaging are handled by personnel using, as applicable, approved earthing (i.e. grounding) straps and/or mats, and:
 - (a) For maintenance activities that require floor grids where ESDs are handled, the floor grids are grounded;
 - (b) Are not stored on shelving covered with carpet, foam, vinyl or any other material that can store or produce an electrical charge;
 - (c) Earthing straps and mats are tested to ensure conductivity at regular intervals or prior to use and such test results are recorded.

Table 4.9—Maintenance Procedures Manual Content Specifications

The Operator shall ensure each maintenance organization that performs maintenance for the Operator provides for the use and guidance of relevant maintenance personnel a Maintenance Procedures Manual (MPM), which may be issued in separate parts, that contains the following information:

- (i) A brief description of the organization that includes:
 - (a) A general description of the scope of work authorized under the organization's terms of approval;
 - (b) A general description of the organization's facilities.
- (ii) A description of the procedures for implementing changes affecting the approval of the maintenance organization;
- (iii) A description of the organization procedures and quality or inspection system;
- (iv) Names and duties of the responsible personnel;
- (v) Names and duties of the person or persons whose responsibilities are to ensure that maintenance is carried out in accordance with the MPM;
- (vi) A description of the procedures used to establish the competence of maintenance personnel;
- (vii) A description of the methods used for the completion and retention of the Operator's maintenance records, including procedures for retaining backup records;
- (viii) A description of the procedure for preparing the maintenance release and the circumstances under which the release is to be signed;
- (ix) The process for authorizing personnel to sign the maintenance release and the scope of their authorization;
- (x) A description of any additional procedures for complying with the Operator's maintenance procedures and requirements;
- (xi) A description of the procedures for complying with the service information reporting requirements;
- (xii) A description of the procedure for receiving, amending and distributing within the maintenance organization, all necessary airworthiness data from the type certificate holder or aircraft Type Design Organization;
- (xiii) A description, when applicable, of contracted activities.

Table 4.10—Tooling and Calibration Program Specifications

The Operator shall ensure each maintenance organization that performs maintenance for the Operator has procedures to control and document the calibration and records of all tools, including personnel-owned tools, and preventing out-of-service and due-for-calibration tools and equipment from being used. The procedures shall include the following elements:

- (i) Calibration date;
- (ii) Identity of individual or vendor that performed calibration or check;
- (iii) Calibration due date;
- (iv) A calibration certificate for each item calibrated by an outside agency;
- (v) Details of adjustments and repairs;
- (vi) Repair history of the tool;
- (vii) The part number and serial number of the standard used to perform the calibration.

Table 4.11—Required Aircraft Systems and Equipment

As specified in [MNT 1.9.1](#), aircraft in the Operator's fleet shall be equipped with, in accordance with conditions of applicability, the systems and equipment specified in this table. Where referenced, refer to guidance material in [Table 4.12](#) or [Table 4.13](#).

	Equipment	Applicability	Requirement	Notes
(i)	Quick-donning oxygen mask	Aircraft operated at flight altitudes above 25000 feet.	A quick-donning oxygen mask for each flight crew member.	
(ii)	Dangerous loss of pressurization device	Aircraft intended to be operated at flight altitudes above 25000 feet for which the individual certificate of airworthiness is first issued on or after 1 July 1962.	A device that provides positive warning to the pilot of any dangerous loss of pressurization.	
(iii)	Protective Breathing Equipment (PBE)	All aircraft.	PBE that: (a) Protects the eyes, nose and mouth of each crew member while on flight duty; provides oxygen for a period of not less than 15 minutes. (b) Allows the flight crew to communicate using the aircraft radio equipment and to communicate by interphone with each other while at their assigned duty stations.	<p>Note: The specifications for PBE shall be satisfied by equipment that protects the eyes, nose and mouth (e.g. smoke hood, full face oxygen mask or combination of smoke goggles and oxygen mask) and has an oxygen supply that is portable or provided by the aircraft supplemental oxygen system.</p> <p>Note: PBE intended for flight crew use shall be conveniently located on the flight deck and be easily accessible for immediate use by each required flight crew at their assigned duty station.</p>
		Passenger aircraft required to be operated with cabin crew.	(c) A unit of PBE located in the cabin adjacent to each required cabin crew station.	
		Passenger aircraft not required to be operated with cabin crew.	(d) A unit of portable PBE located in the cabin adjacent to each hand-held fire extinguisher.	
		Cargo aircraft and passenger aircraft operated without cabin crew.	(e) An additional unit of portable PBE located adjacent to the flight deck hand-held fire extinguisher.	

Table 4.11—Required Aircraft Systems and Equipment

		Cargo aircraft with a cargo compartment accessible to crew member in flight.	(f) An additional unit of portable PBE located outside but adjacent to the entrance of the accessible cargo compartment.	
		Cargo aircraft with a hand-held fire extinguisher in a supernumerary compartment.	(g) An additional unit of portable PBE located adjacent to the hand-held fire extinguisher. GM See Table 4.12 (iii)	
(iv)	Hand-held fire extinguishers	All aircraft.	(a) A minimum of one hand-held fire extinguisher located on the flight deck.	Note: <i>Hand-held fire extinguishers shall be of a type that will minimize the hazard of toxic gas concentration.</i>
		Passenger aircraft	(b) Hand-held fire extinguishers uniformly distributed throughout the cabin of passenger aircraft (when two or more extinguishers are required) to be readily accessible at each galley not located on a main passenger deck and, if applicable, to be available for use in each cargo compartment that is accessible to the crew. (GM) See Table 4.12 (iv)	
(v)	Crash axe or crowbar	All aircraft.	A minimum of one crash axe or crowbar located on the flight deck and/or the passenger cabin. (GM) See Table 4.12 (v)	Note: <i>Unless constrained by certification or security requirements of the Authority and/or State.</i>
(vi)	Flashlight (torch)	All aircraft intended to be operated at night.	A flashlight (torch) at each flight crew station. (GM) See Table 4.12 (vi)	

Table 4.11–Required Aircraft Systems and Equipment

(vii)	Emergency Locator Transmitters (ELTs)	Aircraft used for international flights with more than 19 passenger seats for which the individual certificate of airworthiness was first issued before 1 July 2008.	One automatic ELT or two ELTs of any type or, if approved by the Authority, a robust and automatic means to accurately determine, following an accident during which the aircraft is severely damaged, the location of the point of end of flight.	<p>Note: These specifications are applicable to all aircraft used to conduct international flights unless an agreement exists between all states transited by the aircraft. In such cases, ELT equipage is in accordance with the requirements as set forth by the applicable Authorities.</p> <p>Note: All ELTs except those specified in the previous note must be capable of broadcasting simultaneously on 406 and 121.5 MHz.</p>
		Aircraft used for international flights with more than 19 passenger seats for which the individual certificate of airworthiness was first issued on or after 1 July 2008.	Two ELT of any type one of which shall be automatic or, if approved by the Authority one ELT and a robust and automatic means to accurately determine, following an accident during which the aircraft is severely damaged, the location of the point of end of flight.	
		Aircraft used for international flights with 19 or less passenger seats for which the individual certificate of airworthiness was first issued before 1 July 2008.	One ELT of any type or, if approved by the Authority, a robust and automatic means to accurately determine, following an accident during which the aircraft is severely damaged, the location of the point of end of flight.	
		Aircraft used for international flights with 19 or less passenger seats for which the individual certificate of airworthiness was first issued after 1 July 2008.	One automatic ELT or, if approved by the Authority, a robust and automatic means to accurately determine, following an accident during which the aircraft is severely damaged, the location of the point of end of flight.	
(viii)	Underwater Locator Beacon (ULB) attached to aircraft fuselage	Aircraft applicability as defined by the State.	ULB installation in accordance with requirements of the State.	
(ix)	Underwater Locator Beacon (ULB) attached to non-deployable FDR container	Aircraft applicability as defined by the State.	ULB installation in accordance with requirements of the State.	

Table 4.11—Required Aircraft Systems and Equipment

(x)	Airborne Collision Avoidance System II (ACAS II)	All aircraft.	An ACAS II. (GM) See Table 4.12 (x)	Note: Such system shall use a software version approved or accepted by the applicable authorities as appropriate for the airspace or area of operation.
(xi)	Airborne weather radar system	All aircraft.	An airborne weather radar system capable of detecting thunderstorms and other potentially hazardous weather conditions when operating in areas where such weather conditions could be expected to exist along the route either at night or under instrument meteorological conditions.	
(xii)	Ground Proximity Warning System (GPWS)	All aircraft.	A GPWS that: (a) Automatically provides a warning to the flight crew when the aircraft is in close proximity to the earth's surface; and (b) Has a forward-looking terrain-avoidance function. (GM) See Table 4.12 (xii)	
(xiii)	Flight Data Recorder (FDR)	All aircraft.	A digital FDR that (a) Uses solid state digital recording; (b) Is capable of recording, as a minimum, the last 25 hours of aircraft operation; (c) Records time, altitude, airspeed, normal acceleration and heading; (d) Is of a type that is in accordance with requirements of the Authority.	

Table 4.11—Required Aircraft Systems and Equipment

△	(xiv)	Cockpit Voice Recorder (CVR)	All aircraft	A CVR capable of retaining the information recorded during at least the last two hours of its operation.	Note: The CVR must not use magnetic tape or wire.
			All aircraft of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness was first issued on or after 1 January 2022	A CVR capable of retaining the information recorded during at least the last twenty five hours of its operation (GM) See Table 4.12 (xiv)	Note: An operator may conform to the twenty five hours requirement of Table 4.11 (xiv) through Active Implementation (AI) as long as the Implementation Action Plan (IAP) projects conformance on or before 31 August 2026.
△	(xv)	Data Link Recorder (DLR)	Aircraft using datalink communications for the authorization and/or control of the aircraft flight path and for which the individual certificate of airworthiness was first issued on or after 1 January 2016.	A DLR that records the applicable data link messages is integrated with a CVR or an FDR, or with a combination FDR/CVR unit. (GM) See Table 4.12 (xv)	
□			Aircraft using datalink communications for the authorization and/or control of the aircraft flight path, that: <ul style="list-style-type: none"> Have the individual aircraft certificate of airworthiness first issued before 1 Jan 2016, and Had no approved modification available for DLR on the aircraft type (make/ model/ series) prior to 1 January 2016, and Were modified on or after 1 Jan 2016 for such use. 		Note: Effective 1 September 2023, the previous recommended practice is upgraded to this standard; IOSA registration will require conformance by the Operator. Note: An operator may conform to Table 4.11 (xv) requirements, for aircraft with individual aircraft certificate of airworthiness first issued before 1 Jan 2016, through Active Implementation (AI) as long as the Implementation Action Plan (IAP) projects conformance on or before 31 August 2026.

Table 4.11—Required Aircraft Systems and Equipment

(xvi)	First aid kits	All aircraft.	One or more first aid kits located to be readily accessible for use by the flight crew and, if applicable, supernumeraries. (GM) See Table 4.13	Note: This specification is applicable to commercial and/or non-commercial operations.
		Passenger aircraft	First aid kits distributed as evenly as practicable throughout the cabin to be readily accessible for use by crew members in the cabin. (GM) See Table 4.13	
(xvii)	Seats and associated restraint devices	All aircraft.	Flight crew seats fitted with a safety harness for each flight crew member. (GM) See Table 4.12 (xvii)	Note: This specification is applicable to commercial and/or non-commercial operations.
		Passenger aircraft	A seat (or berth) for each person over a specific age as determined by the State, with each seat (or berth) fitted with a safety harness, seat belt or restraining device. (GM) See Table 4.12 (xvii)	
		Aircraft that transport supernumeraries	A seat fitted with a seat belt (or safety harness) for each supernumerary. (GM) See Table 4.12 (xvii)	
(xviii)	Cabin crew seats	Passenger aircraft operated with cabin crew.	Forward or rearward facing seats at each emergency evacuation station for use by cabin crew members. Such seats are located near floor level exits and fitted with a safety harness.	

Table 4.11—Required Aircraft Systems and Equipment

(xix)	Megaphones	Passenger aircraft with a seating capacity of more than 60 passengers operated with cabin crew.	<p>Portable battery-operated megaphones, stowed in a manner to be readily accessible for use by crew members.</p> <p>A number of megaphones in accordance with requirements of the Authority but not less than:</p> <ul style="list-style-type: none"> (a) One megaphone for aircraft with more than 60 and less than 100 passenger seats; (b) Two megaphones for aircraft with 100 or more passenger seats. <p>(GM) Table 4.12 (xix)</p>	
(xx)	Life jacket or equivalent individual flotation device	Aircraft used for over-water flights with or without cabin crew.	<p>A minimum of one life jacket or equivalent individual flotation device for each person on board, with each life jacket or flotation device fitted with a means for electric illumination and stowed for easy accessibility from individual seating positions.</p> <p>(GM) See Table 4.12 (xx)</p>	
(xxi)	Lifesaving rafts	Aircraft used for long-range over-water flights.	<p>Lifesaving rafts with sufficient capacity to accommodate all persons on board, with each raft stowed in a manner to facilitate ready use during a ditching emergency. Lifesaving rafts contain:</p> <ul style="list-style-type: none"> (a) Life-sustaining equipment as appropriate to the flight to be undertaken; (b) Equipment for making pyrotechnical distress signals. 	<p>Note: This specification is applicable to all aircraft, except cargo aircraft that have been granted a specific exemption by the Authority.</p>

Table 4.11—Required Aircraft Systems and Equipment

(xxii)	Signaling devices and lifesaving equipment	Aircraft used for flights across land areas that have been designated by the state(s) concerned as areas in which search and rescue would be especially difficult.	Equipped with signaling devices and lifesaving equipment (including, means of sustaining life) in accordance with requirements of the applicable state(s).	
(xxiii)	Fire suppression system	Passenger aircraft with a cargo compartment that is accessible to crew members in flight.	Such compartments are equipped with, as applicable, either: (a) A built-in cargo compartment fire suppression system, or (b) A portable fire suppression system is available for use in such compartments by a crew member and/or appropriately qualified supernumeraries. (GM) Table 4.12 (xxiii)	
		Aircraft that have a cargo compartment not accessible to a crew member in flight, for which the application for certification was submitted on or after 2 March 2004.	Each cargo compartment is equipped with a built-in fire detection system and a built-in fire starvation or suppression system. (GM) See Table 4.12 (xxiii)	
(xxiv)	Cargo restraint system	All aircraft transporting cargo.	A cargo restraint system, which may include barriers, ULDs, nets, straps, chains, tie-downs and/or floor locks that prevent cargo from shifting and: (a) Blocking or reducing access to emergency exits; (b) Obstructing the flow of required fire retardants; (c) Interfering with design features of the aircraft critical to the safety of flight (e.g. flight controls).	

Table 4.11—Required Aircraft Systems and Equipment

(xxv)	Humane killer device, (if carried on board).	On cargo aircraft used in the transport of livestock, if humane killer device is carried on board.	Humane killer device stowed in a secure manner with only controlled access during flight.	
(xxvi)	Flight deck door	<p>Aircraft used for passenger flights with:</p> <ul style="list-style-type: none"> • A maximum certificated takeoff mass in excess of 54 500 kg, or • Of a maximum certificated takeoff mass in excess of 45 500 kg and with a passenger seating capacity greater than 19, or • With a passenger seating capacity greater than 60. 	<p>An approved flight deck door that:</p> <p>(a) Is designed to resist penetration by small arms fire, grenade shrapnel or forcible intrusions by unauthorized persons.</p> <p>(b) Is capable of being locked and unlocked from either pilot station.</p> <p>(c) Has the associated means for monitoring the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behavior or potential threat.</p> <p>(GM) See Table 4.12 (xxvi)</p> <p>(d) Has the means by which cabin crew members or other authorized persons can notify the flight crew in the event of suspicious activity or a security breach.</p> <p>(GM) See Table 4.12 (xxvi)</p>	<p>Note: A smoke barrier or curtain is not acceptable for addressing this specification for a flight deck door.</p>
(xxvii)	Cabin emergency escape path marking system	Aircraft used for passenger flights with or without cabin crew, and with more than 9 passenger seats for which the individual certificate of airworthiness was first issued after 1 January 1958.	<p>A system that enables visual identification of the emergency escape paths and exits in darkness and conditions of reduced visibility.</p> <p>(GM) See Table 4.12 (xxvii)</p>	

Table 4.11—Required Aircraft Systems and Equipment

(xxviii)	Smoke detection system in lavatories	Aircraft used for passenger flights with or without cabin crew, and with 10 or more passenger seats.	A smoke detection system in the lavatories. (GM) See Table 4.12 (xxviii)	
(xxix)	Built in fire extinguisher in lavatories	Aircraft used for passenger flights with or without cabin crew, with 20 or more passenger seats, and for which the application for certification was submitted on or after 2 March 2004.	A built-in fire extinguisher system for each lavatory receptacle intended for the disposal of towels, paper or waste. (GM) See Table 4.12 (xxix)	
△ (xxx)	Autonomous distress position transmission system	Aircraft of a maximum certificated takeoff mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2024.	<p>A system that autonomously transmits information from which aircraft position can be determined by the Operator at least once every minute when in distress and:</p> <ul style="list-style-type: none"> (a) Automatically activates transmission of position information when the aircraft is sensed to be in distress; (b) Has a means for information transmission to be activated manually; (c) Transmits information that contains a time stamp; (d) In the event aircraft electrical power is lost, transmits position information for at least the expected duration of the entire flight. <p>(GM) See Table 4.12 (xxx)</p>	<p>Note: Applicable aircraft shall be equipped with such system as of 1 January 2025.</p> <p>Note: An operator may conform to the equipage date of applicable aircraft in Table 4.11 (xxx) through Active Implementation (AI) as long as the Implementation Action Plan (IAP) projects conformance on or before 31 August 2026.</p>

Table 4.12—Guidance Material: Required Aircraft Systems and Equipment

(i)–(ii)	(Intentionally open)																							
(iii)	<p>The term “adjacent to” in the context of this standard means next to, close to or alongside the associated item.</p> <p>The intent of (iii) (g) is that a unit of PBE is installed in the supernumerary compartment for use in conjunction with the associated fire extinguisher.</p>																							
(iv)	<p>The requirements for hand-held fire extinguishers in this specification are applicable only to areas of the aircraft other than the flight deck. Specific requirements for the flight deck are found in Table 4.11 (iv) (a).</p> <p>The minimum number of hand-held fire extinguishers required for passenger aircraft is determined by the Authority and is typically based on the number of passengers the aircraft is authorized to carry.</p> <p>The following list provides the typical minimum numbers of hand-held fire extinguishers based on aircraft passenger seats:</p> <table><tr><th>Seats installed</th><th>Number of fire extinguishers</th><th>Seats installed</th><th>Number of fire extinguishers</th></tr><tr><td>7 to 30</td><td>One (1)</td><td>301 to 400</td><td>Five (5)</td></tr><tr><td>31 to 60</td><td>Two (2)</td><td>401 to 500</td><td>Six (6)</td></tr><tr><td>61 to 200</td><td>Three (3)</td><td>501 to 600</td><td>Seven (7)</td></tr><tr><td>201 to 300</td><td>Four (4)</td><td>601 or more</td><td>Eight (8)</td></tr></table>				Seats installed	Number of fire extinguishers	Seats installed	Number of fire extinguishers	7 to 30	One (1)	301 to 400	Five (5)	31 to 60	Two (2)	401 to 500	Six (6)	61 to 200	Three (3)	501 to 600	Seven (7)	201 to 300	Four (4)	601 or more	Eight (8)
Seats installed	Number of fire extinguishers	Seats installed	Number of fire extinguishers																					
7 to 30	One (1)	301 to 400	Five (5)																					
31 to 60	Two (2)	401 to 500	Six (6)																					
61 to 200	Three (3)	501 to 600	Seven (7)																					
201 to 300	Four (4)	601 or more	Eight (8)																					
(v)	<p>The intent of this specification is to ensure crash axes and/or crowbars are installed in accordance with:</p> <ul style="list-style-type: none">• Applicable certification requirements (e.g. aircraft type certification or for issuance of the Air Operator Certificate);• Applicable security requirements.																							
(vi)	<p>This specification is normally satisfied by the installation of a fixed light or torch attached to the aircraft structure, such as a “Grimes Light.”</p> <p>Operators wishing to use flight crew member flashlights to conform to the specifications of this specification need to demonstrate the means of ensuring the carriage, accessibility and serviceability of such flashlights.</p>																							
(vii)–(ix)	(Intentionally open)																							
(x)	<p>It is important to note that this specification does not refer to a specific ACAS II software version and that technical requirements related to the required ACAS software version vary widely and may be based on one or more of the following criteria:</p> <ul style="list-style-type: none">• Date of issue of an aircraft's individual certificate of airworthiness;• Deadline for initial equipage or retrofit set by an applicable Authority;• Area(s) of operation, including operations over the high seas or under the jurisdiction of an authority other than the Authority of the operator;• Type of airspace (e.g. RVSM). <p>Technical guidance for the operational requirements applicable to ACAS II is contained in one or more of the following documents as relevant to the operations conducted by the operator:</p> <ul style="list-style-type: none">• ICAO Annex 10, Volume IV;• FAA InFO (Information for Operators) 12010 dated 06/26/12;• FAA Booklet “Introduction to TCAS II Version 7.1” dated 02/28/11;• FAA Advisory Circular AC 120-55C (Air Carrier Operational Approval and Use of TCAS II) dated 03/18/13; <p>Commission Regulation (EU) No 1332/2011 of 16 December 2011–“Laying down common airspace usage requirements and operating procedures for airborne collision avoidance.”</p>																							

Table 4.12—Guidance Material: Required Aircraft Systems and Equipment

(xi)	(Intentionally open)
(xii)	<p>A GPWS provides a warning when it senses the aircraft is in close proximity to the earth's surface and not in the landing configuration, which typically means the landing gear is not down and locked, and/or the flaps are not in a landing position.</p> <p>Different systems are available and acceptable as a GPWS with a forward-looking terrain avoidance (FLTA) function, as specified in item ii) of this specification. The following guidance is an overview only; it is not to be construed as technical specifications for an acceptable system.</p> <p>A GPWS with a FLTA function could also be known as a predictive terrain awareness and warning system (TAWS), and provides:</p> <ul style="list-style-type: none"> • A forward-looking capability and terrain clearance floor; • The flight crew, by means of visual and aural signals, and a terrain awareness display, with an alerting time necessary to prevent controlled flight into terrain events. <p>An acceptable system provides a forward-looking capability and terrain clearance floor protection in areas of operations and surrounding airports of intended use. Such systems generally have:</p> <ul style="list-style-type: none"> • A navigation system that provides accurate aircraft position (e.g. GPS or equivalent); • A means of displaying aircraft and terrain information; • A means of providing visual and aural signals; • A terrain database(s) for all areas of potential operations and surrounding airports of intended use. <p>If an obstacle database is commercially available and obstacle detection/display functionality is installed, an obstacle database for all areas of potential operations is used in conformity with FLT 4.2.7.</p>
(xiii)	(Intentionally open)
(xiv)	The Note and the AI statement in the 5th column of Table 4.11 (xiv) are relevant to both applicable aircraft categories specified in the 3rd column.
(xv)	<p>Applicable data link messages as specified in the Requirement column would be those messages related to the authorization and/or control of the aircraft flight path.</p> <p>The minimum recording duration of the DLR is typically equal to the recording duration of the CVR.</p>
(xvi)	(Intentionally open)
(xvii)	The safety harness typically incorporates a device that will automatically restrain the occupant's torso in the event of rapid deceleration.
(xviii)	(Intentionally open)
(xix)	<p>If located in overhead bins or other cabin compartments, megaphones, in order to be readily accessible, would be kept free from and/or not covered by cabin baggage, cabin supplies or other items.</p> <p>The intent of this provision is that aircraft are equipped with no less than the specified number of megaphones. If a greater number of megaphones is required by the Authority, then the operator would have to be in compliance with the requirement of the Authority.</p>
(xx)	<p>Refer to the IRM for the definition of Over-water Flights.</p> <p>Seat cushions that are designed to float may be considered individual flotation devices.</p> <p>State regulations might permit baby survival cots or infant life jackets to be stowed together in one or more common cabin locations (e.g. in a bustle or doghouse) on passenger aircraft.</p> <p>Under such circumstances, an operator would typically have procedures to ensure such items are handed to the parents of infants when required.</p>
(xxi)–(xxii)	(Intentionally open)

Table 4.12—Guidance Material: Required Aircraft Systems and Equipment

(xxiii)	<p>This specification is applicable to passenger aircraft only and is intended to ensure a means of fire suppression in cargo compartments accessible to crew members.</p> <p>For the purposes of this specification, “in flight” is defined as the period that starts the moment the aircraft is ready to move for the purpose of taking off and ends the moment it finally comes to rest at the end of the flight and the engine(s) are shut down.</p> <p>Ideally, the fire detection system and fire starvation or suppression system as specified in this standard would be designed to account for a sudden and extensive fire that could be caused by an explosive or incendiary device, or by dangerous goods.</p> <p>Refer to the guidance associated with FLT 1.12.2 for the hazards relevant to the conduct of aircraft operations that are typically addressed as part of a safety risk assessment and mitigation program.</p>
(xxiv)–(xxv)	(Intentionally open)
(xxvi)	<p>Item (b): The design of the reinforced flight deck door typically takes into account safety requirements, such as decompression panels, emergency exit capability for the flight crew and emergency access for rescuers. Also, a secondary locking device, such as a deadbolt or cross bar, is installed in case the automated locking device is defective.</p> <p>The aircraft MEL would contain any restrictions pertinent to use of the door in line operations, including, if applicable, a secondary locking system.</p> <p>Item c: For monitoring the area outside the flight deck door, a closed-circuit television (CCTV) system is an acceptable method of conformance. However, a CCTV system is not required in order to conform to this provision. Implementation of other procedural methods in accordance with applicable regulations is also considered acceptable.</p> <p>Item (d): This specification requires a system or device(s) for use by the cabin crew or other authorized persons to notify the flight crew of any security compromise in the cabin.</p>
(xxvii)	An escape path marking system typically consists of any type of illumination that is designed to facilitate the evacuation of the aircraft.
(xxviii)	In certain regulatory jurisdictions there is typically a requirement for the lavatory smoke detection system to provide a warning that can be readily detected by the flight and/or cabin crew.
(xxix)	In certain regulatory jurisdictions there is typically a requirement for the fire extinguisher to discharge automatically into each lavatory waste receptacle in the event of a fire.
(xxx)	An aircraft is in a distress condition when it is in a state that, if the aircraft behavior event is left uncorrected, can result in an accident. Examples of aircraft behavior events that could activate distress information transmission include, but are not limited to, unusual attitudes, unusual speed conditions, collision with terrain and total loss of thrust/propulsion on all engines and ground proximity warnings.

Table 4.13—Guidance Material: First Aid Kits

The minimum number of first aid kits required for passenger aircraft is determined by the Authority and is typically based on the number of passengers the aircraft is authorized to carry.

The following list provides typical minimum numbers of cabin first aid kits based on passenger seats:

Seats installed	Number of first aid kits	Seats installed	Number of first aid kits
100 or fewer	One (1)	301 to 400	Four (4)
101 to 200	Two (2)	401 to 500	Five (5)
201 to 300	Three (3)	501 or more	Six (6)

The contents of an aircraft first aid kit would typically include:

- List of kit contents;
- Antiseptic swabs (10/packs);
- Bandage, adhesive strips;
- Bandage, gauze 7.5 cm × 4.5 m;
- Bandage, triangular 100 cm folded and safety pins;
- Dressing, burn 10 cm × 10 cm;
- Dressing, compress, sterile 7.5 cm × 12 cm approx.;
- Dressing, gauze, sterile 10.4 cm × 10.4 cm approx.;
- Adhesive tape, 2.5 cm (roll);
- Skin closure strips;
- Hand cleanser or cleansing towelettes;
- Pad with shield or tape for eye;
- Scissors, 10 cm (if permitted by applicable regulations);
- Adhesive tape, surgical 1.2 cm × 4.6 m;
- Tweezers, splinter;
- Disposable gloves (several pairs);
- Thermometers (non-mercury);
- Resuscitation mask with one-way valve;
- First aid manual (an operator may decide to have one manual per aircraft in an easily accessible location);
- Incident record form.

Note: First aid kit does not normally include ammonia inhalants.

If permitted by applicable regulations, first aid kits could include the following medications:

- Mild to moderate analgesic;
- Antiemetic;
- Nasal decongestant;
- Antacid;
- Antihistaminic;
- Antidiarrheal.

In states where regulations do not allow any medications in the first aid kit, affected operators may carry an extra kit containing the above medications to be used passively (i.e. only given to a passenger on specific request by the passenger).

Table 4.14—Recommended Aircraft Systems and Equipment

Aircraft in the Operator's fleet *should* be equipped with, in accordance with conditions of applicability, the systems and equipment specified in this table. Where referenced, refer to guidance material in [Table 4.15](#).

	Equipment	Applicability	Recommendation	Notes
(i)	Emergency Locator Transmitters (ELTs)	All aircraft.	A minimum of one automatic ELT that operates on 121.5 and 406 MHz simultaneously.	Note: This specification applies to aircraft engaged in all types of operations, regardless of any exemptions or authorizations issued by the Authority or other applicable authorities.
(ii)	Cockpit Voice Recorder (CVR)	Aircraft of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2018	An alternate power source that powers at least one CVR (GM) See Table 4.15 (i)	
(iii)	Airborne Collision Avoidance System II (ACAS II)	All aircraft.	Equipped with an ACAS II using software version 7.1. (GM) See Table 4.15 (ii)	
(iv)	Forward-looking wind shear warning system	All aircraft.	Equipped with a forward-looking wind shear warning system	
(v)	Flight deck door	All aircraft used for passenger flights.	Equipped, where practicable, with an approved flight deck door that is: (a) Capable of being locked and unlocked from either pilot station; (b) Designed to resist penetration by small arms fire, grenade shrapnel or forcible intrusions by unauthorized persons.	

Table 4.14—Recommended Aircraft Systems and Equipment

△ (vi)	Data Link Recorder (DLR)	<p>Aircraft using datalink communications for the authorization and/or control of the aircraft flight path that:</p> <ul style="list-style-type: none"> • Have the individual aircraft certificate of airworthiness first issued before 1 January 2016, and • Had an approved modification available for DLC on the aircraft type (make/ model/ series) prior to 1 January 2016, and • Were modified on or after 1 January 2016 for such use. 	<p>A DLR that records the applicable data link messages is integrated with a CVR or an FDR or with a combination FDR/CVR unit. (GM) See Table 4.15 (v)</p>	<p>Note: <i>This recommended practice will not be upgraded to a standard.</i></p>
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Table 4.14—Recommended Aircraft Systems and Equipment

△	(vii)	Autonomous distress position transmission system	Aircraft of a maximum certificated takeoff mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2023.	A system that autonomously transmits information from which aircraft position can be determined by the Operator at least once every minute when in distress and:	
				(a) Automatically activates transmission of position information when the aircraft is sensed to be in distress;	
				(b) Has a means for information transmission to be activated manually;	
				(c) Transmits information that contains a time stamp;	
				(d) In the event aircraft electrical power is lost, transmits position information for at least the expected duration of the entire flight.	
				(GM) See Table 4.15 (vi)	
□	(viii)	Runway Overrun Awareness and Alerting System (ROAAS)	All turbine-engined aircraft of a maximum certificated takeoff mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2026.		Note: Effective 1 September 2025, this recommended practice will be upgraded to a standard; IOSA registration will require conformance by the Operator.

Table 4.15—Guidance Material: Recommended Aircraft Systems and Equipment

(i)	An alternate power source automatically engages and provides ten minutes, plus or minus one minute, of operation whenever aircraft power to the CVR is lost, either by normal shutdown or other occurrence. The alternate source is typically located as close as practicable to the CVR and powers the CVR and its associated flight deck area microphone components.
(ii)	The intent of this specification is to encourage the earliest practicable deployment of ACAS II with software version 7.1. It is recognized, however, that ACAS software version requirements vary widely based on the criteria contained in the Guidance Material found in Table 4.12 (vii).
(iii)–(iv)	(Intentionally open)
(v)	Applicable data link messages as specified in the Requirement column would be those messages related to the authorization and/or control of the aircraft flight path. The minimum recording duration of the DLR is typically equal to the recording duration of the CVR.
(vi)	An aircraft is in a distress condition when it is in a state that, if the aircraft behavior event is left uncorrected, can result in an accident. Examples of aircraft behavior events that could activate distress information transmission include, but are not limited to, unusual attitudes, unusual speed conditions, collision with terrain and total loss of thrust/propulsion on all engines and ground proximity warnings.