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| ICAO Reference:  Annex 6 Part I, Definitions  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS | |
| **ABBREVIATIONS AND SYMBOLS**  EDTO – Extended diversion time operations |  |  |  |  | |
| **CHAPTER 1. DEFINITIONS**  ***Extended diversion time operations (EDTO).*** Any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the State of the Operator. |  |  |  | *Additional acronyms, abbreviations and definitions can be found in the Glossary section of ICAO Doc 10085* | |
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| ***Alternate aerodrome.*** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:  *En-route alternate.* An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route. |  |  |  |  | |
| ***EDTO critical fuel.*** The fuel quantity necessary to fly to an en-route alternate aerodrome considering, at the most critical point on the route, the most limiting system failure.  ***EDTO significant system.*** An aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion.  ***Maximum diversion time.*** Maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome.  ***Threshold time.*** The range, expressed in time, established by the State of the Operator, to an en-route alternate aerodrome, whereby any time beyond requires an EDTO approval from the State of the Operator. |  |  |  | *Note – Attachment C contains guidance on EDTO critical fuel scenarios* |
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| ICAO Reference:  Annex 6 Part I, Section 4.7  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **4.7.1    Requirements for operations beyond 60 minutes to an en-route alternate aerodrome** |  |  |  | *Note: Guidance on compliance with these provisions is contained in Attachment C.* |
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| 4.7.1.1    Operators conducting operations beyond 60 minutes from a point on a route to an en‑route alternate aerodrome shall ensure that:  a) for all aeroplanes:  1) en-route alternate aerodromes are identified; and  2) the most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;  b) for aeroplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator’s established aerodrome operating minima for the operation at the estimated time of use |  |  |  |  |
| 4.7.1.2    In addition to the requirements in 4.7.1.1, all operators shall ensure that the following are taken into account and provide the overall level of safety intended by the provisions of Annex 6, Part I:  a) operational control and flight dispatch procedures;  b) operating procedures; and  c) training programmes. |  |  |  |  |

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| **4.7.2 Requirements for extended diversion time operations (EDTO)** |  |  |  | *Note: Guidance on compliance with these provisions is contained in Attachment C.* |
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| 4.7.2.1    Unless the operation has been specifically approved by the State of the Operator, an aeroplane with two or more turbine engines shall not be operated on a route where the diversion time to an en-route alternate aerodrome from any point on the route, calculated in ISA and still-air conditions at the one-engine-inoperative cruise speed for aeroplanes with two turbine engines and at the all engines operating cruise speed for aeroplanes with more than two turbine engines, exceeds a threshold time established for such operations by that State. |  |  |  | *Note 1* - *When the diversion time exceeds the threshold time, the operation is considered to be an extended diversion time operation (EDTO).*  *Note 2 - Guidance on the establishment of an appropriate threshold time and on approval of extended diversion time operations is contained in Attachment C.*  *Note 3 - For the purpose of EDTO, the take-off and/or destination aerodromes may be considered en-route alternate aerodromes* |
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| 4.7.2.2    The maximum diversion time for the operator of a particular aeroplane type engaged in extended diversion time operations shall be approved by the State of the Operator. |  |  |  | *Note - Guidance on the conditions to be used when converting diversion times to distances is contained in Attachment C.* |
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| 4.7.2.3    When approving the appropriate maximum diversion time for the operator of a particular aeroplane type engaged in extended diversion time operations, the State of the Operator shall ensure that:   1. *for all aeroplanes:* the most limiting EDTO significant system time limitation, if any, indicated in the aeroplane flight manual (directly or by reference) and relevant to that particular operation is not exceeded; and   b) *for aeroplanes* with two turbine engines: the aeroplane is EDTO certified. |  |  |  | *Note 1 - EDTO may be referred to as ETOPS in some documents.*  *Note 2 - Guidance on compliance with the requirements of this provision is contained in Attachment C.* |
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| 4.7.2.3.1    Notwithstanding the provisions in 4.7.2.3 a), the State of the Operator may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve operations beyond the time limits of the most time-limited system. The specific safety risk assessment shall include at least the:  a) capabilities of the operator;  b) overall reliability of the aeroplane;  c) reliability of each time-limited system;  d) relevant information from the aeroplane manufacturer; and  e) specific mitigation measures. |  |  |  | *Note - Guidance on the specific safety risk assessment is contained in Attachment C.* |
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| 4.7.2.4    For aeroplanes engaged in EDTO, the additional fuel required by 4.3.6.3 f) 2) shall include the fuel necessary to comply with the EDTO critical fuel scenario as established by the State of the Operator. |  |  |  | *Note .- Guidance on compliance with the requirements of this provision is in Attachment C.* |
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| 4.7.2.5    A flight shall not proceed beyond the threshold time in accordance with 4.7.2.1 unless the identified en-route alternate aerodromes have been re-evaluated for availability and the most up-to-date information indicates that, during the estimated time of use, conditions at those aerodromes will be at or above the operator’s established aerodrome operating minima for the operation. If any conditions are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use, an alternative course of action shall be determined. |  |  |  |  |
| 4.7.2.6    The State of the Operator shall, when approving maximum diversion times for aeroplanes with two turbine engines, ensure that the following are taken into account in providing the overall level of safety intended by the provisions of Annex 8:  a) reliability of the propulsion system;  b) airworthiness certification for EDTO of the aeroplane type; and  c) EDTO maintenance programme. |  |  |  | *Note 1.- EDTO may be referred to as ETOPS in some documents.*  *Note 2.- The Airworthiness Manual (Doc 9760) contains guidance on the level of performance and reliability of aeroplane systems intended by 4.7.2.6, as well as guidance on continuing airworthiness aspects of the requirements of 4.7.2.6.* |
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| 4.7.2.7    **Recommendation. -** *The State of the Operator of an aeroplane type with two turbine engines which, prior to 25 March 1986, was authorized and operating on a route where the flight time at one-engine-inoperative cruise speed to an en-route alternate aerodrome exceeded the threshold time established for such operations in accordance with 4.7.2.1 should give consideration to permitting such an operation to continue on that route after that date.* |  |  |  |  |

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| ICAO Reference:  Annex 6 Part I, Section 4.3  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **4.3.4 Alternate aerodromes**  4.3.4.1 *Take-off alternate aerodrome*  4.3.4.1.2 The take-off alternate aerodrome shall be located within the following flight time from the aerodrome of departure:  c) for aeroplanes engaged in extended diversion time operations (EDTO) where an alternate aerodrome meeting the distance criteria of a) or b) is not available, the first available alternate aerodrome located within the distance of the operator’s approved maximum diversion time considering the actual take-off mass. |  |  |  |  |
| **4.3.6 Fuel requirements**  4.3.6.3 The pre-flight calculation of usable fuel required shall include:  f) *additional fuel,* which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with 4.3.6.3 b), c), d) and e) is not sufficient to**:**  2) allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the State of the operator; |  |  |  | *Note 2.- Guidance on EDTO critical fuel scenarios is contained in Attachment C* |
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| ICAO Reference:  Annex 6 Part I, Section 4.3  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **4.3.10    Time capability of cargo compartment fire suppression system**  4.3.10.1    **Recommendation. -** *All flights should be planned so that the diversion time to an aerodrome where a safe landing could be made does not exceed the cargo compartment fire suppression time capability of the aeroplane, when one is identified in the relevant aeroplane documentation, reduced by an operational safety margin specified by the State of the Operator.* |  |  |  | *Note 1.- Cargo compartment fire suppression time capabilities will be identified in the relevant aeroplane documentation when they are to be considered for the operation.*  *Note 2.- Fifteen minutes is an operational safety margin commonly retained for that purpose.*  *Note 3.- Refer to Chapter 4, 4.7 and Attachment ~~B~~ C for considerations of time capability of cargo compartment fire suppression systems for aeroplanes engaged in EDTO.* |
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| ICAO Reference:  Annex 6 Part I, Attachment C  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **ATTACHMENT C: GUIDANCE FOR OPERATIONS BY TURBINE-ENGINED AEROPLANES BEYOND 60 MINUTES TO AN EN-ROUT ALTERNATE AERODROME INCLUDING EXTENDED DIVERSION TIME OPERATIONS (EDTO)**  *(Supplementary to Chapter 4, 4.7)* |  |  |  | *The guidance material contained in Attachment C will be included in a future revision of ICAO Document 10085, Extended Diversion Time Operations (EDTO) Manual. The Attachment will be removed from Annex 6 once this has occurred.* |
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| **1. INTRODUCTION** |  |  |  |  |
| **2. OPERATIONS BY AEROPLANES WITH TURBINE ENGINES BEYOND 60 MINUTES TO AN EN-ROUTE ALTERNATE AERODROME** |  |  |  |  |
| **2.1 General** |  |  |  |  |
| **2.2 Conditions to be used when converting diversion times to distances** |  |  |  |  |
| **2.3 Training** |  |  |  |  |
| **2.4 Flight dispatch and operational requirements** |  |  |  |  |
| **2.5 Enroute alternate aerodromes** |  |  |  |  |
| **3. EXTENDED DIVERSION TIME OPERATIONS (EDTO) REQUIREMENTS** |  |  |  |  |
| **3.1 Basic concept** |  |  |  |  |
| *3.1.2 EDTO significant systems* |  |  |  |  |
| *3.1.3 Threshold time* |  |  |  |  |
| *3.1.4 Maximum diversion time* |  |  |  |  |
| **3.2 EDTO for aeroplanes with more than two turbine engines** |  |  |  |  |
| *3.2.1 General* |  |  |  |  |
| *3.2.2 Operational and diversion planning principles* |  |  |  |  |
| *3.2.3 Threshold time* |  |  |  |  |
| *3.2.4 Maximum diversion time* |  |  |  |  |
| *3.2.5 EDTO significant systems* |  |  |  |  |
| *3.2.6 En-route alternate aerodromes* |  |  |  |  |
| *3.2.7 Operational approval procedure* |  |  |  |  |
| *3.2.8 Conditions to be used when converting diversion times to distances for the determination of the geographical area beyond threshold and within maximum diversion distances* |  |  |  |  |
| *3.2.9 Airworthiness certification requirements for extended diversion time operations beyond the threshold time* |  |  |  |  |
| *3.2.10 Maintaining operational approval* |  |  |  |  |
| *3.2.11 Airworthiness modification and maintenance programme requirements* |  |  |  |  |
| *3.2.12 Examples* |  |  |  |  |
| **3.3 EDTO for aeroplanes with two turbine engines** |  |  |  |  |
| *3.3.1 General* |  |  |  |  |
| *3.3.2 Operational and diversion planning principles* |  |  |  |  |
| *3.3.3 Threshold time* |  |  |  |  |
| *3.3.4 Maximum diversion time* |  |  |  |  |
| *3.3.5 EDTO Significant Systems* |  |  |  |  |
| *3.3.6 En-route alternate aerodromes* |  |  |  |  |
| *3.3.7 Operational approval procedure* |  |  |  |  |
| *3.3.8 Conditions to be used when converting diversion times to distances for the determination of the geographical area beyond threshold and within maximum diversion distances* |  |  |  |  |
| *3.3.9 Airworthiness certification requirements for extended diversion time operations beyond the threshold time* |  |  |  |  |
| *3.3.10 Maintaining operational approval* |  |  |  |  |
| *3.3.11 Airworthiness modification and maintenance programme requirements* |  |  |  |  |
| *3.3.12 Examples* |  |  |  |  |

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| ICAO Reference:  Annex 6 Part I, Appendix 2  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **APPENDIX 2: ORGANIZATION AND CONTENT OF AN OPERATIONS MANUAL**  *(Chapter 4, 4..2.3.1 refers)* |  |  |  |  |
| **1. ORGANIZATION**  An operations manual, which may be issued in separate parts corresponding to specific aspects of operations, provided in accordance with Chapter 4, 4.2.3.1, shall be organized with the following structure:  a) General;  b) Aircraft operating information;  c) Areas, routes and aerodromes; and  d) Training |  |  |  |  |
| **2. CONTENTS**  2.1.4    Where relevant to the operations, the long‑range navigation procedures, engine failure procedure for EDTO and the nomination and utilization of diversion aerodromes. |  |  |  |  |

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| ICAO Reference:  Annex 6 Part I, Appendix 6  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **APPENDIX 6: AIR OPERATOR CERTIFICATE**  *(Chapter 4, 4.2.1.5 and 4.2.1.6 refers)* |  |  |  |  |
| **3. OPERATIONS SPECIFICATIONS FOR EACH AIRCRAFT MODEL** |  |  |  | *The State should ensure that provisions for EDTO SPECIFIC APPROVAL are included in the State Operations Specification format template* |
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| ICAO Reference:  Annex 6 Part I, Attachment I  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **ATTACHMENT I: RESCUE AND FIRE FIGHTING SERVICE (RFFS) LEVELS**  *(Supplementary to Chapter 4, 4.1.4)* |  |  |  |  |
| **Table I-2. Acceptable aerodrome category for rescue and firefighting (alternate aerodromes)**  **Enroute alternate aerodromes**  If at least 30 minutes notice is given to the aerodrome operator prior to the arrival of the aeroplane, a minimum of RFFS Category 4 for aeroplanes with maximum certificated take-off mass of over 27 000 kg, and RFFS Category 1 for other aeroplanes.  If less than 30 minutes notice can be given to the aerodrome operator prior to the arrival of the aeroplane:  **Two** categories below the aeroplane RFFS category, or  **Three** categories below the aeroplane RFFS category in the case of a temporary downgrade of 72 hours or less  but not lower than aerodrome RFFS Category 4 for aeroplanes with maximum certificated take-off mass of over 27 000 kg and not lower than Category 1 for other aeroplanes. |  |  |  | *These guidelines are not unique to EDTO, but are applicable to all en-route alternate aerodromes including those en-route alternate aerodromes used in EDTO operations* |
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| ICAO Reference:  Annex 6 Part II, Section 4.3  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO SARPs  **Difference Status (DS):** **Difference Categories (DC):**  ND: No Difference A. More exacting or exceeds  NA: Not Applicable B. Different in Character/Other means of compliance  SD: Significant Difference C. Less protective/partially implemented/not implemented | | | |
| SECTION /PARAGRAPH | REGULATION REF | DS | DC | REMARKS |
| **3.4.3 Flight Preparation** |  |  |  |  |
| 3.4.3.7 Additional requirements for operations beyond 60 minutes to an en-route alternate aerodrome  **Recommendation.** - *When conducting operations beyond 60 minutes from a point on a route to an en-route alternate aerodrome operators should ensure that:*  *a) en-route alternate aerodromes are identified; and*  *b) the pilot-in-command has access to current information on the identified en-route alternate aerodromes, including operational status and meteorological conditions.* |  |  |  |  |

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| ICAO Reference:  DOC 10085 (EDTOM)  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO Guidance | |
| SECTION /PARAGRAPH | REGULATION REF | REMARKS |
| **Extended Diversion Time Operations (EDTO) Manual**  Glossary  Chapter 1. Policy and general information  Chapter 2. Aircraft airworthiness considerations for EDTO  Chapter 3. EDTO flight operations requirements  Chapter 4. EDTO maintenance and reliability requirements |  | *Document 10085 deals exclusively with extended diversion time operations, and so the entire document may be used as guidance to Contracting States in implementing their own EDTO requirements. The chapter breakdown is listed for reference, however the document should be consulted for the details around each subject area.* |
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| ICAO Reference:  DOC 9976 (FPFMM)  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO Guidance | |
| SECTION /PARAGRAPH | REGULATION REF | REMARKS |
| **CHAPTER 4 - UNDERSTANDING PRESCRIPTIVE COMPLIANCE** |  |  |
| 4.4 Prescriptive alternate aerodrome selection and fuel planning provisions of Annex 6, Part I  4.4.1(b), 4.4.1(g) |  |  |
| 4.6 Take-off alternate aerodromes – distance from aerodrome of departure  4.6.1, 4.6.2, 4.6.3 |  |  |
| 4.7 Takeoff alternate aerodromes – operating minima at estimated time of use  4.7.2 |  |  |
| 4.8 En-route alternate aerodrome selection and specification  4.8.2, 4.8.3, 4.8.4, 4.8.7, 4.8.8(c), 4.8.8(d), 4.8.8(f) |  |  |
| 4.14 Alternate aerodrome planning minima – establishing incremental values for ceiling and visibility  4.14.6, 4.14.7, 4.14.8, 4.14.12(f) |  |  |
| 4.15 Alternate aerodrome planning minima – establishing estimated time of use  4.15.5 |  |  |
| 4.18 Pre-flight fuel planning – components of the pre-flight calculation of usable fuel  4.18.2(f) |  |  |
| 4.21 Pre-flight fuel planning – contingency fuel  4.21.4 (d) |  |  |
| 4.24 Pre-flight fuel planning – additional fuel  4.24.5 |  |  |
| 4.27 Pre-flight fuel planning – basic prescriptive calculation example |  |  |
| **CHAPTER 5 – PERFORMANCE BASED COMPLIANCE** |  |  |
| Appendix 1 – Example of requirements for an operational variation from Annex 1, Part 1 4.3.4.1.2 – Take-off Alternate Aerodromes |  |  |
| Appendix 7 – A performance-based approach job-aid for an approving authority |  |  |
| **CHAPTER 6 – IN-FLIGHT FUEL MANAGEMENT** |  |  |
| 6.4 Completing the planned flight safely  6.4.10, 6.4.13, 6.4.14, 6.4.16, 6.4.19, 6.4.22, 6.4.23 |  |  |
| 6.6 In-flight fuel checks and fuel management policies and procedures  6.6 (l) |  |  |

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| ICAO Reference:  DOC 9760, Part IV – Airworthiness Manual  Standard  Recommended Practice  Guidance Material | STATE IMPLEMENTATION of EDTO Guidance | |
| SECTION /PARAGRAPH | REGULATION REF | REMARKS |
| **Chapter 5. Airworthiness Requirements for Extended Diversion Time Operations** |  |  |
| 5.1 General |  |  |
| 5.2 Airworthiness considerations for aeroplanes with more than two turbine engines |  |  |
| 5.3 Airworthiness considerations for aeroplanes with two turbine engines |  |  |
| 5.4 Continuing surveillance |  |  |
| 5.5 Maintenance requirements |  |  |
| 5.6 Requirements for systems performance and reliability assessment |  | *This section applies to States of Design* |
| **Chapter 6. Leasing Arrangements** |  |  |
| 6.1 General  6.1.5 |  |  |
| 6.4 Approval for extended diversion time operations (EDTO) |  |  |