AIRWORTHINESS NOTICE

NOTICE 6304

Issue 1
15 July 2019

EXTENDED DIVERSION TIME OPERATIONS (EDTO)

IN exercise of the powers conferred by section 24O of the Civil Aviation Act 1969 [Act 3], the Chief Executive Officer makes this Airworthiness Notice ("Notice") – Extended Diversion Time Operations (EDTO).

This Notice provides the airworthiness requirements on extended diversion time operations.

This Notice is published by the Chief Executive Officer under section 24O of the Civil Aviation Act 1969 [Act 3] and come into operation on 15th July 2019.

Non-compliance with this Notice

Any person who contravenes any provision in this Notice commits an offence and shall on conviction be liable to the punishment under section 24O of the Civil Aviation Act 1969 [Act 3].

(Ahmad Nizar Zolfakar)
Chief Executive Officer
Civil Aviation Authority of Malaysia
15th July 2019
1.0 CITATION

This Notice may be cited as the Airworthiness Notice – Extended Diversion Time Operations (EDTO) [Notice 6304].

2.0 APPLICATION

This Notice shall apply to—

(a) an applicant for an approval to fly a Malaysian aeroplane, for the purpose of commercial air transport, for the EDTO; and

(b) a holder of an approval to fly a Malaysian aeroplane, for the purpose of commercial air transport, for the EDTO.

3.0 INTERPRETATION

In this Notice, unless the context otherwise requires—

“aeroplane/engine combination” or “AEC” means a combination of aeroplane model and engine model which has been identified for the purpose of EDTO certification or authorised for EDTO;

“Authority” means the Civil Aviation Authority of Malaysia;

“extended diversion time operations” or “EDTO” shall have the same meaning assigned to it under regulation 122 of the MCAR;

“in-flight shutdown” or “IFSD” means an engine ceases to function (when the aeroplane is airborne) and is shutdown whether caused by self-induced, flight-crew initiated or an external influence; and

“MCAR” means the Civil Aviation Regulations 2016.

4.0 AIRWORTHINESS CONSIDERATIONS FOR EDTO

For purposes of granting an approval for EDTO, airworthiness consideration is required.

5.0 AIRWORTHINESS REQUIREMENT

5.1 For purposes of paragraph 4.0 of this Notice, an applicant shall fulfil airworthiness requirements as follows—

(a) the aeroplane is identified as an AEC by State of Design as stated in the type certificate data sheet (TCDS), aircraft flight manual (AFM), aircraft flight manual
supplement, configuration, maintenance and procedure (CMP) or any other relevant document;

(b) establish and submit EDTO maintenance programme which consist of the following elements—

(i) EDTO maintenance manual;
(ii) EDTO CMP document;
(iii) aeroplane maintenance programme for EDTO;
(iv) EDTO significant systems;
(v) EDTO-related maintenance tasks/EDTO qualified personnel;
(vi) Parts control programme;
(vii) EDTO service check;
(viii) Reliability programme;
(ix) Propulsion system monitoring;
(x) Verification programme;
(xi) Dual maintenance limitations;
(xii) Engine condition monitoring programme;
(xiii) Oil consumption monitoring programme;
(xiv) APU in-flight start monitoring programme;
(xv) EDTO release statement; and
(xvi) EDTO training;

(c) submit a Minimum Equipment List; and

(d) has ability to demonstrate competency to maintain and operate the aeroplane for EDTO.

6.0 EDTO MAINTENANCE MANUAL

6.1 An operator shall ensure the EDTO maintenance manual consists of the following information—

(a) general information on applicable EDTO rules and the operator’s EDTO programme;
(b) scope of operator’s EDTO authorization (routes, fleet, diversion time, etc.);
(c) responsibilities (maintenance control centre, engineering, quality, training, planning and production, etc.);
(d) processes (daily review, reporting, dual maintenance limitations, etc.);
(e) EDTO maintenance procedures (aeroplane release, EDTO service check, oil consumption monitoring, etc.); and

(f) EDTO maintenance training.

7.0 EDTO CMP DOCUMENT

An operator shall comply with the EDTO CMP document which contains the minimum standards as approved by the State of Design for EDTO relative to any system improvements (configuration), maintenance tasks or operational procedures required for the EDTO operational approval.

8.0 AEROPLANE MAINTENANCE PROGRAMME FOR EDTO

8.1 An operator shall ensure that the aeroplane maintenance programme contains the standard, guidance and directions to support the intended EDTO.

8.2 For purposes to establish the aeroplane maintenance programme for EDTO, the operator shall take into consideration—

(a) all scheduled tasks applicable to both EDTO and non-EDTO, coming from the maintenance review board report/maintenance planning document (MRBR/MPD) or certification maintenance requirements (CMR) documents;

(b) the additional specific task intervals coming from the EDTO CMP document; and

(c) unscheduled maintenance affecting EDTO significant systems that must be managed.

9.0 EDTO SIGNIFICANT SYSTEMS

9.1 EDTO Significant Systems means a system that help preclude and protect a diversion once the aeroplane is dispatched on an EDTO flight.

9.2 An operator shall ensure the EDTO significant systems include the following systems unless otherwise specified by the aircraft manufacturer—

(a) electrical systems, including battery;

(b) hydraulics;

(c) pneumatic systems;

(d) flight instrumentation;

(e) fuel systems;

(f) flight controls;

(g) ice protection systems;

(h) engine start and ignition;
(i) engine system instruments;
(j) navigation and communications;
(k) engines;
(l) auxiliary power units;
(m) air conditioning and pressurization;
(n) cargo fire suppression;
(o) engine fire protection;
(p) emergency equipment; and
(q) any other equipment required for EDTO as may be determined by the Authority.

10.0 EDTO-RELATED MAINTENANCE TASKS/EDTO QUALIFIED PERSONNEL

10.1 An operator shall engage EDTO qualified personnel who has received EDTO training which covers—

(a) initial training, to ensure the personnel have the knowledge, skills and ability to perform an adequate EDTO technical procedure for the specific AEC; and

(b) recurrent training, to ensure the personnel maintain and update their awareness of EDTO maintenance specificities.

10.2 EDTO training shall include contents as follows—

(a) introduction to EDTO regulations;
(b) elements of national EDTO regulation;
(c) overview of EDTO certification of twin-engine aeroplane;
(d) EDTO significant systems;
(e) EDTO authorisation (maximum diversion times, Time Limited System, operator’s approved diversion time, EDTO routes, EDTO Minimum Equipment List);
(f) CMP and EDTO maintenance programme;
(g) EDTO pre-departure service check and EDTO maintenance release;
(h) EDTO reliability programme procedures such as parts control programme, EDTO service check, reliability programme, propulsion system monitoring, verification programme, dual maintenance limitations, engine condition monitoring, oil consumption monitoring and APU in-flight start monitoring programme; and

(i) additional procedures for EDTO.

10.3 EDTO related maintenance tasks means tasks impacting EDTO significant systems which are categorised as follows—
(a) EDTO specific task; and
(b) EDTO relevant task.

11.0 PARTS CONTROL PROGRAMME

11.1 An operator shall establish parts control programme to be incorporated in the EDTO maintenance manual.

11.2 Parts control programme shall include the following information—
(a) the ability to recognise and restrict EDTO based on part capability;
(b) how the qualified personnel identify EDTO part capability;
(c) the coordination within the operator to ensure the flight does not exceed the configuration capability; and
(d) parts pooling arrangements and any part borrowing capability.

11.3 An operator shall develop parts list which contains the following information—
(a) configuration requirements of the EDTO CMP document; and
(b) part numbers (P/Ns) that “not approved for EDTO” and “approved or mandatory for EDTO”.

12.0 EDTO SERVICE CHECKS

12.1 An operator shall perform an EDTO service check prior to each EDTO flight in order to confirm adequate operation of significant systems prior to EDTO dispatch.

12.2 EDTO service check shall include the following information—
(a) verification that all EDTO significant systems defects have been resolved or have sufficient MEL coverage;
(b) review of the journey log book for EDTO significant system items and servicing entries;
(c) performance of an interior and exterior inspection where the exterior inspection is intended to be a general visual inspection (GVI) from ground level;
(d) verification of engine oil level to include the APU if it is required for EDTO; and
(e) assessment of the EDTO status of the aeroplane and related EDTO maintenance release.

13.0 RELIABILITY PROGRAMME

13.1 Reliability programme means a programme which is designed with the objective to allow early identification and prevention of EDTO-related significant events and ensure that EDTO reliability is maintained.
13.2 For purposes of the reliability programme, an operator shall establish—

(a) procedures to manage the EDTO diversion time capability;
(b) APU in-flight start monitoring programme under paragraph 19.0 of this Notice;
(c) propulsion system reliability monitoring programme;
(d) reporting programme which includes the following event—
   (i) in-flight shutdowns or flameouts;
   (ii) diversion or turn-back;
   (iii) uncommanded power changes or surges;
   (iv) inability to control the engine or obtain desired power; and
   (v) significant events or adverse trends with EDTO significant systems; and
(e) reporting programme which shall include the following information—
   (i) aeroplane identification;
   (ii) engine identification (make and serial number);
   (iii) total time, cycles and time since last shop visit;
   (iv) in the case of systems, time since overhaul or last inspection of the defective unit;
   (v) phase of flight;
   (vi) corrective action; and
   (vii) resulting action by the flight crew (divert, return, continue, etc.); and
(f) assessment of EDTO reliability indicators.

13.3 An operator shall achieve 95% success rate of APU in-flight start, which include a minimum of 20 attempts.

14.0 PROPULSION SYSTEM MONITORING

14.1 An operator shall establish in-flight shutdown (IFSD) rate, which is used to access the reliability of engine model versus the target rate.

14.2 The IFSD rate shall be as follows—

<table>
<thead>
<tr>
<th>Number of Engines</th>
<th>Engine Hours EDTO</th>
<th>EDTO Authorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.05/1000</td>
<td>Up to and including 120 minutes</td>
</tr>
<tr>
<td>2</td>
<td>0.03/1000</td>
<td>Beyond 120 minutes up to and including 180 minutes and 207 minutes in North Pacific</td>
</tr>
<tr>
<td>2</td>
<td>0.02/1000</td>
<td>Greater than 180 minutes (Except for 207 minutes in North Pacific)</td>
</tr>
</tbody>
</table>
14.3 In the case of IFSD rate exceedance, the operator shall, within 30 days of exceeding the IFSD rates, submit a report of investigation and take necessary corrective action.

15.0 VERIFICATION PROGRAMME

15.1 An operator shall establish a verification programme to ensure the effectiveness of maintenance actions taken on EDTO significant systems failures and establish means to assure proper accomplishment of the verifications actions.

16.0 DUAL MAINTENANCE LIMITATIONS

16.1 Dual maintenance means any maintenance performed that could induce the same fault into redundant components of the same EDTO significant system or function.

16.2 An operator shall establish a dual maintenance programme which shall take into account the aeroplane design, architecture and systems reliability, the operator’s experience and the relevant requirements as prescribed by the Authority.

16.3 The operator shall comply with the dual maintenance limitation requirements which include as follows—

(a) the execution of tasks performed on identical or similar EDTO significant systems is staggered;

(b) the tasks are performed by separate EDTO qualified personnel; or

(c) the maintenance action on each of the elements in the EDTO significant system is performed by the same EDTO qualified personnel under the direct supervision of a second EDTO qualified personnel;

and verifies the corrective action to those EDTO significant systems as per applicable verification actions.

17.0 ENGINE CONDITION MONITORING PROGRAMME

17.1 An operator shall implement an engine condition monitoring programme to detect deterioration at an early stage to allow for corrective action before safe operation is affected, and to ensure internal limit margins are maintained to support single-engine diversion scenarios.

17.2 Engine condition monitoring programme shall include the following contents—

(a) parameters to be monitored;

(b) the method of data collection; and

(c) the corrective action process.
18.0 OIL CONSUMPTION MONITORING PROGRAMME

18.1 An operator shall establish an oil consumption monitoring programme to allow the operators to detect unexpected oil consumption that could be the result of an oil leak or unforeseen engine wear which can impact the EDTO dispatch capability of the aeroplane.

18.2 Oil consumption monitoring programme shall include a baseline consumption rate and detect oil consumption based on the previous flight results.

19.0 APU IN-FLIGHT START MONITORING PROGRAMME

An operator shall establish an APU in-flight start monitoring programme to demonstrate and/or confirm that the APU is able to start at altitude while in flight.

20.0 EDTO RELEASE STATEMENT

20.1 An operator shall ensure the EDTO qualified personnel issue an EDTO release statement to indicate the status of the aeroplane prior to each EDTO flight.

20.2 EDTO release statement shall depends on—

(a) the certified EDTO capability of the aeroplane;
(b) the configuration of the aeroplane versus the applicable configuration requirements of the EDTO CMP document;
(c) the compliance of the aeroplane versus the applicable maintenance requirements of the EDTO CMP document;
(d) the capability of relevant Time Limited System; and
(e) any inoperative system of Minimum Equipment List.

21.0 EDTO TRAINING

An operator shall establish an EDTO training programme under paragraphs 10.1 and 10.2 of this Notice to support EDTO qualifications, educate EDTO qualified personnel on the special nature of EDTO and to assure that EDTO programme tasks are properly accomplished.

22.0 OBLIGATIONS OF A HOLDER OF AN APPROVAL

A holder of an approval for EDTO shall comply with the provision of EDTO maintenance programme.

23.0 DOWNGRADING AND RESTORATION

23.1 A holder of an approval for EDTO shall not fly an aeroplane for the EDTO if its EDTO qualified personnel has changed the status of the aeroplane to “non-EDTO”.
23.2 The EDTO qualified personnel may change the status of the aeroplane if—

(a) Minimum Equipment List cannot be complied with for EDTO; or

(b) the aeroplane configuration and/or maintenance do not comply with the applicable EDTO CMP document.

23.3 The EDTO qualified personnel may restore the aeroplane back to “EDTO” status if the operator rectifies all the EDTO discrepancies in line with the applicable EDTO CMP configuration and maintenance standards and/or the Minimum Equipment List EDTO requirements.

24.0 CHANGES TO AEC

A holder of an approval for EDTO shall not fly an aeroplane for EDTO if there are any changes to AEC of that aeroplane unless approved by the Authority.

25.0 VALIDATION FLIGHT

The Authority may require validation flights on proposed route(s) to ensure that the required EDTO airworthiness requirements and procedures are met.