Amendment proposal to ANTR OPS 1 based on ICAO Annex 6, Part-I, (Amendment 47 & 48 inclusive) July 2022 Edition 12

Brief-

A-6-I, Ch.6, 6.26, a new sub-chapter added in the 12th edition
A-6-I, Ch.15, a new chapter added in the 12th edition
Appendix 10 a new addition in 12th edition
Attachment B – Aeroplane Performance operating limitations – removed and
- Air Operator Certification and validation added (Attachment D earlier)

Attachment C – Guidance for EDTO removed (EDTO is now referred to Doc 10085. But the State letter still refers to Attachment C revisions) and
- MEL added (earlier it was E)

Attachment D - Flight Safety doc system - was F earlier
Attachment E – guidance single engine IMC - was earlier G
Attachment F – Rescue & Fire Fighting - was earlier I
Attachment G – DG - was earlier J
Attachment H – Location - was earlier K
Attachment I – DG - was earlier L

A-6-I, Ch.3.5

ANTR OPS 1.045 Aircraft Tracking

~~On and after 08 November 2018;~~

(a) The operator shall establish an aircraft tracking capability to track aeroplanes throughout its area of operations.

Note: Guidance on aircraft tracking capabilities is contained in the **Aircraft Tracking Implementation Guidance** *(Cir 347)*

(b) The operator should track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the inflight operation(s) under the following conditions:

(1) the aeroplane has a maximum certificated take-off mass of over 27 000 kg and a seating capacity greater than 19; and

(2) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

Note 1.— Oceanic area, for the purpose of aircraft tracking, is the airspace which overlies waters outside the territory of a State.

Note 2: See ICAO Annex 11 Chapter 2 for coordination between the operator and air

traffic services provisions regarding position report messages.

Note 3.— Operational procedures for monitoring the aircraft tracking information are contained in PANS-OPS, Volume III, Section 10.

(a) The operator shall track the position of an aeroplane through automated reporting at least every 15 minutes for the portion(s) of the inflight operation(s) that is planned in an oceanic area(s) under the following conditions:

(1) the aeroplane has a maximum certificated take-off mass of over 45 500 kg and a seating capacity greater than 19; and

(2) where an ATS unit obtains aeroplane position information at greater than 15 minute intervals.

Note 1: Oceanic area - for the purpose of aircraft tracking is the airspace which overlies waters outside the territory of a State.

Note 2: See ICAO Annex 11 Chapter 2 for coordination between the operator and air traffic services provisions regarding position report messages.

(d) The operator shall establish procedures, approved by the BCAA, for the retention of aircraft tracking data to assist SAR in determining the last known position of the aircraft.

Note: Refer to ANTR OPS 1.175 (p) for operator responsibilities when using third parties for the conduct of aircraft tracking.

(e) Notwithstanding the provisions in (a) to (d), the BCAA may, based on the results of an approved risk assessment process implemented by the operator, allow for variations to automated reporting intervals. The process shall demonstrate how risks to the operation resulting from such variations can be managed and shall include at least the following:

(1) capability of the operator's operational control systems and processes, including those for contacting ATS units;

(2) overall capability of the aeroplane and its systems;

(3) available means to determine the position of, and communicate with, the aeroplane;

(4) frequency and duration of gaps in automated reporting;

(5) human factors consequences resulting from changes to flight crew procedures; and

(6) specific mitigation measures and contingency procedures.

Note: Guidance on development, implementation and approval of the risk assessment process which allows for variations to the need for automatic reporting and the required interval, including variation examples, is contained in the Aircraft Tracking Implementation Guidelines (Cir 347).

A-6-I, Appendix 6, Ch.3

Appendix 2 to ANTR OPS 1.175

The management and organisation of an AOC/Authorisation holder

OPERATIONS SPECIFICATIONS

Filling Instructions: -

1. *Telephone and fax contact details of the authority, including the country code. Email and fax to be provided if available.*
2. *Insert the associated AOC number.*
3. *Insert the operator's registered name and the operator's trading name, if different. Insert "dba" before the trading name (for "doing business as").*
4. *Issuance date of the operations specifications (dd-mm-yyyy) and signature of the authority representative.*
5. *Insert the Commercial Aviation Safety Team (CAST)/ICAO designation of the aircraft make, model and series, or master series, if a series has been designated (e.g. Boeing-737-3K2 or Boeing-777-232). The CAST/ICAO taxonomy is available at: http://www.intlaviationstandards.org/.*
6. *Other type of transportation to be specified (e.g. emergency medical service).*
7. *List the geographical area(s) of authorized operation (by geographical coordinates or specific routes, flight information region or national or regional boundaries). as defined by the issuing authority.*
8. *List the applicable special limitations (e.g. VFR only, day only).*
9. *List in this column the most permissive criteria for each specific approval or the approval type (with appropriate criteria).*
10. *Insert the applicable precision approach category (CAT II or IIIA, IIIB or IIIC). Insert the minimum RVR in metres and decision height in feet. One line is used per listed approach category.*
11. *Insert the approved minimum take-off RVR in metres, or the equivalent horizontal visibility if RVR is not used. One line per approval may be used if different approvals are granted.*
12. *List the airborne capabilities (~~i.e.~~ eg. automatic landing, HUD, EVS, SVS, CVS) and associated operational credit(s) granted.*
13. *"Not applicable (N/A)" box may be checked only if the aircraft maximum ceiling is below FL 290.*

14. *If extended diversion time operations (EDTO) specific approval does not apply based on the provisions in Chapter 4, 4.7, select "N/A". Otherwise a threshold time and maximum diversion time must be specified.*
15. *The threshold time and maximum diversion time may also be listed in distance (NM), as well as the engine type. Details of each particular aeroplane-engine combination for which the threshold time is established, and maximum diversion time has been granted may be listed under 'remarks'. One line per approval may be used if different approvals are granted.*
16. *Performance-based navigation (PBN): one line is used for each PBN AR navigation specification approval (e.g. RNP AR APCH), with appropriate limitations listed in the "Description" column.*
17. *Insert the name of the person/organization responsible for ensuring that the continuing airworthiness of the aircraft is maintained and the regulation that requires the work, i.e. within the AOC regulation or a specific approval (e.g. ANTR-M/8/12.2, ANTR-M, Subpart G).*
18. *List the EFB functions used for the safe operation of aeroplanes with and any applicable limitations.*
19. *Other authorizations or data can be entered here, using one line (or one multi-line block) per authorization (e.g. special approach authorization, NAT HLA, approved navigation performance).*

A-6-I, Ch 4.7.2

ANTR OPS 1.245 Maximum distance from an adequate aerodrome without an EDTO Approval

(See ANTR OPS 1.192)
(See IEM OPS 1.245(a))

(a) Unless the BCAA has issued specific approval for EDTO in accordance with ANTR OPS 1.246(a) (EDTO Approval), 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-engine operating cruise speed for aeroplanes with more than two turbine engines, exceeds the threshold times established for such operations by BCAA. The specific approval shall identify the applicable threshold time established for each particular aeroplane and engine combination.

On issuing the specific approval for extended diversion time operations, the State of the Operator shall specify the maximum diversion time granted to the operator for each particular aeroplane and engine combination.

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 specific approval of extended diversion time operations is contained in the Extended Diversion Time Operations Manual (Doc 10085).

Note 3: Guidance on the conditions to be used when converting EDTO maximum diversion times to distances is contained in the Extended Diversion Time Operations Manual (Doc 10085).

A-6-I, Ch.4.7

ANTR OPS 1.246 Extended Diversion Time Operations (EDTO)
(See ANTR OPS 1.192)
(See IEM OPS 1.246)

(a) The operator shall not conduct operations beyond the threshold distance determined in accordance with ANTR OPS 1.245 unless approved to do so by the BCAA (EDTO Approval)

~~(See CAP 04 - EDTO)~~

(b) Prior to conducting an EDTO flight, the operator shall ensure that a suitable EDTO en-route alternate is available, within either the approved diversion time or a diversion time based on the MEL generated serviceability status of the aeroplane, whichever is shorter. (See also ANTR OPS 1.297(d).)

(c) When specifying the appropriate maximum diversion time for the operator of a particular aeroplane type engaged in extended diversion time operations, for the aeroplanes with two turbine engines, the BCAA 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;~~ the operator has in place procedures to prevent the aeroplane being dispatched on a route with diversion times beyond the capability of EDTO significant system time limitation, if any, indicated in the aeroplane flight manual (directly or by reference); and

(2) for aeroplanes with two turbine engines, the aeroplane is EDTO certified; and

Note : Guidance on the conditions to be used when converting EDTO maximum diversion times to distances and on the consideration of EDTO system time limitations at dispatch is contained in the Extended Diversion Time Operations Manual (Doc 10085).

(3) the reliability of the propulsion system is acceptable; and

Note 2: The Airworthiness Manual *(Doc 9760) and the CAP 04 of BCAA contains guidance on the level of performance and reliability of aeroplane systems.*

(4) the EDTO maintenance programme, operator's maintenance procedures, operating practices, flight dispatch procedures and crew training programmes are acceptable; and provide the overall level of safety intended by the provisions of ANTR Parts IV and V. In making this assessment, account shall be taken of the route to be flown, the anticipated operating conditions and the location of adequate en-route alternate aerodromes.

(d) Operators conducting operations beyond 60 minutes, from a point on a route to an en-route alternate aerodrome shall ensure that:

(1) for all aeroplanes:

(i) en-route alternate aerodromes are identified; and

(ii) the most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions; and

(iii) operational control, flight dispatch procedures, operating procedures and training programmes are considered.

(2) 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.

Note.— Guidance on compliance with the requirements of these provisions is contained in the Extended Diversion Time Operations Manual (Doc 10085).

(e) In addition to the requirements in ANTR OPS 1.245, all operators shall ensure that the following are taken into account and provide the overall level of safety intended by the this regulation:
1) operational control and flight dispatch procedures;

2) operating procedures; and

3) training programmes.

(f e) A flight shall not proceed beyond the threshold time in accordance with ANTR OPS 1.245 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.

(g ~~f~~) In establishing the appropriate threshold time and to maintain the required level of safety, it is necessary to consider that

(1) The airworthiness certification of aeroplane type does not restrict operations beyond the threshold time, taking into account the aeroplane system design and reliability aspects,

(2) Specific flight dispatch requirements are met,

(3) Necessary in-flight operational procedures are established, and

(4) The operator's previous experience on similar aircraft types and routes is satisfactory.

(h ~~g~~) For aeroplanes engaged in EDTO, the additional fuel required by ANTR OPS 1.255 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 the Extended Diversion Time Operations Manual *(Doc 10085).*

(i ~~h~~) Notwithstanding the provisions in (d) above, the BCAA, as 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 ~~operational variations to alternate aerodrome selection criteria~~. operations beyond the time limits of the most time-limited system The specific safety risk assessment shall include at least the:

(1) capabilities of the operator;

(2) overall capability of the aeroplane and its systems;

(3) ~~available aerodrome technologies, capabilities and infrastructure~~ reliability of each time-limited system;;

(4) ~~quality and reliability of meteorological information~~ relevant information from the aeroplane manufacturer; and;

~~(5) identified hazards and safety risks associated with each alternate aerodrome variation; and~~

(5 ~~6~~) specific mitigation measures.

Note: For the purpose of EDTO, the destination aerodrome may be considered as an en-route alternate aerodrome.

Note: Guidance on the specific safety risk assessment is contained in the Extended Diversion Time Operations (EDTO) Manual *(Doc 10085).*

(i) The operator shall show compliance to the BCAA, the State of the Operator, to enable specifying the maximum diversion times for aeroplanes with two turbine engines,

that the following are taken into account in providing the overall level of safety intended by the regulation:

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, as well as guidance on continuing airworthiness aspects of the requirements.*

(j ɨ) Maintaining operational approval – Continued validity of the granted EDTO approval:

(1) In order to maintain the required level of safety on routes where these aeroplanes are permitted to operate beyond the established threshold time under the EDTO approval, it is necessary that:

(i) the airworthiness certification of the aeroplane type specifically permits continued operations beyond the threshold time, taking into account the aeroplane's system design and reliability aspects;

(ii) the reliability of the propulsion system is such that the risk of double engine failure from independent causes is extremely remote, assessed as provided for in the Airworthiness Manual (Doc 9760) and found acceptable to support the diversion time being approved;

(iii) any special maintenance requirements are fulfilled;

(iv) specific flight dispatch requirements are met;

(v) the necessary in-flight operational procedures are established; and

(vi) specific operational approval is granted by the State of the Operator.

(2) Maintaing the Airworthiness modifications and maintenance programme requirements:

Each operator's maintenance programme should continue to ensure that:

(i) the titles and numbers of all airworthiness modifications, additions and changes which were made to qualify aeroplane systems for extended diversion time operations are maintained in real time basis and provided

to the BCAA.

(ii) any changes to maintenance and training procedures, practices or limitations established in the qualification for extended diversion time operations are submitted to the BCAA for approval before such changes are adopted;

(iii) a reliability monitoring and reporting programme developed is continued to be implemented to hold the continued approval;

(iv) continued to prompt implementation of required modifications and inspections which could affect propulsion system reliability;

(v) established procedures continue to prevent an aeroplane from being dispatched for an extended diversion time;

(vi) established system of preventing operation an aeoplane after engine shutdown or EDTO significant system failure on a previous flight until the cause of such failure has been positively identified and the necessary corrective action has been completed including that of confirmation flight prior to dispatch on EDTO operation, is running satisfactory.

(vii) established procedure to ensure that the airborne equipment is continued to be maintained at the level of performance and reliability required for extended diversion time operations; and

(viii) established procedure to minimize scheduled or unscheduled maintenance during the same maintenance visit on more than one parallel or similar EDTO significant system is effective. Minimization of staggering to accomplish maintenance tasks, performing and/or supervising maintenance by a different technician, or verifying maintenance correction actions prior to the aeroplane entering an EDTO threshold is effective.

Note: EDTO may be referred to as ETOPS in some documents.

A-6-I, Ch.4.3

ANTR OPS 1.255 Fuel policy
(See Appendix 1 to ANTR-OPS 1.255)
(See Appendix 2 to ANTR-OPS 1.255)
(See AC OPS 1.255)

(a) The operator shall establish a fuel policy for the purpose of flight planning and in-flight re-planning to ensure that every flight carries sufficient fuel for the planned operation and reserves to cover deviations from the planned operation.

(b) The operator shall ensure that the planning of flights is at least based upon (1) and (2) below:

(1) Procedures contained in the Operations Manual and data derived from:

(i) Current aeroplane-specific data derived from a fuel consumption monitoring system, if available; or

(ii) if current aeroplane-specific data are not available, data provided by the aeroplane manufacturer; and

(2) The operating conditions under which the planned flight is to be conducted including:

(i) Anticipated masses;

(ii) Notices to Airmen

(iii) Current meteorological reports or a combination of current reports and forecasts;

(iv) Air Navigation Services Provider(s) procedures, restrictions and anticipated delays; and

(v) The effects of deferred maintenance items and/or configuration deviations.

(c) The pre-flight calculation of usable fuel required shall include:

(1) *taxi fuel*, which shall be the amount of fuel expected to be consumed before take-off, taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;

(2) *trip fuel*, which shall be the amount of fuel required to enable the aeroplane to fly from take-off, or the point of inflight re-planning, until landing at the destination aerodrome taking into account the operating conditions of para (b) above.

(3) *contingency fuel*, which shall be the amount of fuel required to compensate for unforeseen factors. It shall be five per cent of the planned trip fuel or of the fuel required from the point of in-flight re-planning based on the consumption rate used to plan the trip fuel but, in any case, shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1 500 ft) above the destination aerodrome in standard conditions;

Note: Unforeseen factors are those which could have an influence on the fuel consumption to the destination aerodrome, such as deviations of an individual

aeroplane from the expected fuel consumption data, deviations from forecast meteorological conditions, extended delays and deviations from planned routings and/or cruising levels.

(d) *destination alternate fuel*, which shall be:

(1) where a destination alternate aerodrome is required, the amount of fuel required to enable the aeroplane to:

(i) perform a missed approach at the destination aerodrome;

(ii) climb to the expected cruising altitude;

(iii) fly the expected routing;

(iv) descend to the point where the expected approach is initiated; and

(v) conduct the approach and landing at the destination alternate aerodrome; or

(2) where two destination alternate aerodromes are required, the amount of fuel, as calculated in Para (d) (1) above, required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or

(3) where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the aeroplane to fly for 15 minutes at holding speed at 450 m (1 500 ft) above destination aerodrome elevation in standard conditions; or

(4) where the aerodrome of intended landing is an isolated aerodrome:

(i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or

(ii) for a turbine-engined aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;

(e) *final reserve fuel*, which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required:

(1) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes, under speed and altitude conditions specified by the State of the Operator; or

(2) for a turbine-engined aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1 500 ft) above aerodrome elevation in standard conditions;

(f) *additional fuel*, which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with Para (b), (c), (d) and (e) above is not sufficient to:

(1) allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss of pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;

(i) fly for 15 minutes at holding speed at 450 m (1 500 ft) above aerodrome elevation in standard conditions; and

(ii) make an approach and landing;

(2) allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the State of the Operator;

(3) meet additional requirements not covered above;

Note 1: Fuel planning for a failure that occurs at the most critical point along a route (Para (e)) may place the aeroplane in a fuel emergency situation based on ANTR-OPS 1.375 (In-Flight Fuel Management)

Note 2: Guidance on EDTO critical fuel scenarios is contained in EDTO Manual (Doc 10085) / CAP 04;

(g) *discretionary fuel*, which shall be the extra amount of fuel to be carried at the discretion of the pilot-in-command.

(h) *Operators should determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.*

(i) A flight shall not commence unless the usable fuel on board meets the requirements in ANTR OPS 1.255 (a), (b), (c), (d), (e) and (f), if required and shall not continue from the point of in-flight re-planning unless the usable fuel on board meets the requirements in ANTR OPS 1.255 (b), (c), (d), (e) and (f) if required.

(j) Notwithstanding the provisions in ANTR OPS 1.255 (a), (b), (c), (d), and (f), the BCAA 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 variations to the pre-flight fuel calculation of taxi fuel, trip fuel, contingency fuel, destination alternate fuel, and additional fuel. The specific safety risk assessment shall include at least the:

(1) flight fuel calculations; and

(2) capabilities of the operator to include a data-driven method that includes a fuel consumption monitoring programme and/or the advanced use of alternate aerodromes; and

(3) specific mitigation measures.

(k) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

A-6-I, Ch. 4.3.4

ANTR OPS 1.295 Selection of aerodromes

(a) The operator shall establish procedures for the selection of destination and/or alternate aerodromes in accordance with ANTR–OPS 1.220 when planning a flight.

(b) Take-off Alternate. The operator must select and specify in the operational flight plan a take-off alternate aerodrome if either the meteorological conditions at the aerodrome of departure are below the operator's established aerodrome landing minima for that operation or if it would not be possible to return to the departure aerodrome for other reasons. The take-off alternate aerodrome shall be located within the following flight time from the aerodrome of departure:

(1) For two-engined aeroplanes, one hour flight time at a one-engine-inoperative cruising speed determined from ~~according to~~ the Aircraft Flight Manual (AFM) calculated in ISA and still air conditions based on the actual take-off mass or. If the AFM does not contain a one-engine-inoperative cruising speed, the speed to be used for calculation must be that which is achieved with the remaining engine(s) set at maximum continuous power.- The Red Text is not part of Annex 6. Ops to decide, whether to keep it or delete it.!!!!!!?????

(2) For aeroplanes with three engines or more, two hours of flight time at an all-engine operating cruising speed determined from the AFM, calculated in ISA and ~~in~~ still air standard conditions based on the actual take-off mass or.

(3) For aeroplanes engaged in extended diversion time operations (EDTO) where an alternate aerodrome meeting the distance criteria of (1) or (2) is not available, the first available alternate aerodrome located within the distance of the operator's specified maximum diversion time considering the actual take-off mass.

~~*Note: For the purpose of EDTO, the take-off aerodrome may be considered as an en-route alternate aerodrome.*~~

(c) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the operator's established aerodrome operating minima for that operation.

(d) En-route alternate aerodromes, required by 1.246 for extended diversion time operations by aeroplanes with two turbine engines, shall be selected and specified in the operational and air traffic services (ATS) flight plans.

(e ~~c~~) Destination Alternate. For a flight to be conducted in accordance with IFR, at least one destination alternate aerodrome shall be selected and specified in the operational and ATS flight plans, unless:

~~(1)Both:~~

~~(i) The duration of the planned flight from take-off to landing or, in the event of in-flight re-planning in accordance with ANTR-OPS 1.255(d), the remaining flying time to destination does not exceed 6 hours; and~~

~~(ii) Two separate runways (See ANTR-OPS 1.192) are available and usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument landing system and the appropriate meteorological reports or forecasts for the destination aerodrome, or any combination thereof, indicate that for the period from one hour before until one hour after the expected time of arrival at the destination aerodrome, the ceiling will be at least 2 000 ft or circling height + 500 ft, whichever is greater, and the visibility will be at least 5 km.; or~~

~~(2) The destination aerodrome is isolated. Operations into isolated aerodromes do not require the selection of a destination alternate aerodrome(s) and shall be planned in accordance with ANTR-OPS 1.255 and Appendix 1 to ANTR-OPS 1.255 paragraph (c);~~

~~(i) for each flight into an isolated aerodrome, a pre-determined point (PDP) shall be calculated which shall be the last point of diversion to any available en-route alternate aerodrome; and~~

~~(ii) a flight to be conducted to an isolated aerodrome shall not be continued past the pre-determined point (PDP) unless a current assessment of meteorological conditions, traffic and other operational conditions indicate that a safe landing can be made at the estimated time of use.~~

~~*Note: Separate runways are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.*~~

(1) the duration of the flight from the departure aerodrome, or from the point of in-flight re-planning, to the destination aerodrome is such that, taking into account all meteorological conditions and operational information relevant to the flight, at the estimated time of use, a reasonable certainty exists that:

i) the approach and landing may be made under visual meteorological conditions; and
ii) separate runways are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument approach procedure; or

(2) the aerodrome is isolated. Operations into isolated aerodromes do not require the selection of a destination alternate aerodrome(s) and shall be planned in accordance with ANTR OPS 1.255(d)(4);

i) for each flight into an isolated aerodrome a point of no return shall be determined; and
ii) a flight to be conducted to an isolated aerodrome shall not be continued past the point of no return unless a current assessment of meteorological conditions, traffic and other operational conditions indicate that a safe landing can be made at the estimated time of use.

Note 1: Separate runways are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.

Note 2: Guidance on planning operations to isolated aerodromes is contained in the Flight Planning and Fuel Management (FPFM) Manual *(Doc 9976).*

(f ~~d~~) Two destination alternate aerodromes shall be selected and specified in the operational and ATS flight plans when, for the destination aerodrome:

(1) ~~The appropriate meterological reports or forecasts for the destination, or any combination thereof, indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival,~~ the meterological conditions will be below the operator's established aerodrome operating minima for that operation applicable ~~planning minima~~ (See ANTR-OPS 1.297(b); or

(2) No meteorological information is available.

(g ~~e~~) The operator shall select and specify any required alternate aerodrome(s), including enroute alternate aerodromes required for EDTO by aeroplanes with two turbine engines, in the operational and ATS flight plans.

(h) Notwithstanding the provisions in ANTR OPS 1.295, 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 operational variations to alternate aerodrome selection criteria. The specific safety risk assessment shall include at least the:

a) capabilities of the operator;
b) overall capability of the aeroplane and its systems;
c) available aerodrome technologies, capabilities and infrastructure;
d) quality and reliability of meteorological information;
e) identified hazards and safety risks associated with each alternate aerodrome variation; and
f) specific mitigation measures.

Note: Guidance on performing a safety risk assessment and on determining variations, including examples of variations, is contained in the Flight Planning and Fuel Management (FPFM) Manual *(Doc 9976) and the* Safety Management Manual *(Doc 9859).*

A-6-I, Ch.4.2.8

ANTR OPS 1.430 Aerodrome Operating Minima – General
(See Appendix 1 to ANTR OPS 1.430 & IEM OPS to ANTR OPS 1.430)

(a) The operator shall establish aerodrome operating minima for each aerodrome to be used in operations and shall approve the method of determination of such minima. Such minima shall not be lower than any that may be established for such aerodromes by the State of the Aerodrome, except when specifically approved by that State.

Note: This does not require the State of the Aerodrome to establish aerodrome operating minima.

(b) The BCAA shall authorize operational credit(s) for operations with ~~aeroplanes equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS~~ advanced aircraft. Where the operational credit relates to low visibility operations, the State of the Operator shall issue a specific approval. Such authorization shall not affect the classification of the instrument approach procedure. Operational credit includes:

(1) for the purposes of an approach ban (See ANTR OPS 1.405(b)) or dispatch considerations, a minimum below the aerodrome operating minima;

(2) reducing or satisfying the visibility requirements; or

(3) requiring fewer ground facilities as compensated for by airborne capabilities.

Note 1: Guidance on operational credit and how to express the operational credit

in the Operations Specifications ~~for aircraft equipped with automatic landing systems, a HUD or equivalent displays, EVS, SVS and CVS~~ is contained in CAP 33 and ~~Attachment H to~~ Annex 6 Part I and ICAO Doc 9365 – All-Weather Operations.

Note 2: Information regarding automatic landing systems, a HUD or equivalent displays, ~~including references to RTCA and EUROCAE documents~~, EVS, SVS or CVS, is contained in the Manual of All-Weather Operations *(Doc 9365).*

(c) When applying for a specific approval for the operational credit, the Operator shall ensure that:

a) the aeroplane meets the appropriate airworthiness certification requirements;

b) the information necessary to support effective crew tasks for the operation is appropriately available to both pilots where the number of flight crew members specified in the operations manual is more than one;

c) the operator has carried out a safety risk assessment of the operations supported by the equipment;

d) the operator has established and documented normal and abnormal procedures and MEL;

e) the operator has established a training programme for the flight crew members and relevant personnel involved in the flight preparation;

f) the operator has established a system for data collection, evaluation and trend monitoring for low visibility operations for which there is an operational credit; and

g) the operator has instituted appropriate procedures in respect of continuing airworthiness (maintenance and repair) practices and programmes.

Note 1.— Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) (Doc 9859).

Note 2.— Guidance on operational approvals is contained in the Manual Of All-Weather Operations (Doc 6 9365).

(d) For operations with operational credit with minima above those related to low visibility operations, the ~~State of the~~ Operator shall establish criteria for the safe operation of the aeroplane.

Note.— Guidance on operational credit for operations with minima above those related to low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).

(e ϵ) The operator, in establishing the aerodrome operating minima which will apply to any particular operation, the operator shall take full account of:

(1) The type, performance and handling characteristics of the aeroplane and any conditions or limitations stated in the flight manual;

(2) The composition of the flight crew, their competence and experience;

(3) The dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;

(4) The adequacy and performance of the available visual and non-visual ground aids; (See Appendix 1 to ANTR OPS 1.430 Table 9 and AMC OPS 1.430, Para VII.)

(5) The equipment available on the aeroplane for the purpose of navigation, acquisition of visual references and/or control of the flight path, during the take-off, the approach, the flare, the landing, roll-out and the missed approach;

(6) The obstacles in the approach and missed approach areas and the obstacle clearance altitude/height for the instrument approach procedures;

(7) The means used to determine and report meteorological conditions.

(8) the obstacles in the climb-out areas and necessary clearance margins:

(i) the conditions prescribed in the operations specifications; and

(ii) any minima that may be promulgated by the state of the Aerodrome

(9) The flight technique to be used during the final approach.

(f ~~d~~) Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

(1) Type A: a minimum descent height or decision height at or above 75 m (250 ft); and

(2) Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:

(i) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800m or a runway visual range not less than 550 m;

(ii) Category II (CAT II): a decision height lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m; and

(iii) Category III (CAT III): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range less than 300 m or no runway visual range limitations;

Note 1: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT III but with an RVR in the range of CAT III would be considered a CAT III operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation). This does not apply if the RVR and/or DH has been approved as operational credits.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach operation, the required visual reference is the runway environment.

Note 3: Guidance on approach classification as it relates to instrument approach operations, procedures, runways and navigation systems is contained in the Manual of All-Weather Operations *(Doc 9365).*

(g ~~e~~) The aeroplane categories referred to in this Subpart must be derived in accordance with the method given in Appendix 2 to ANTR OPS 1.430.

(h ~~f~~) The state of the operator – BCAA shall not issue a specific approval for instrument approach operations in low visibility which shall only be conducted when RVR information is provided.

Note: Guidance on low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).

(I ~~g~~) For take-off in low visibility, the State of the Operator shall issue a specific approval for the minimum take-off RVR.

Note: In general, visibility for take-off is defined in terms of RVR. An equivalent horizontal visibility may also be used.

(j ~~h~~) For instrument approach operations, aerodrome operating minima below 800 m visibility should not be authorized unless RVR information is provided.

(k ~~i~~) All approaches shall be flown as stabilised approaches (SAp) unless otherwise approved by the BCAA for a particular approach to a particular runway.

(l ~~j~~) All non-precision approaches shall be flown using the continuous descent final approaches (CDFA) technique unless otherwise approved by the BCAA for a particular approach to a particular runway.

When calculating the minima in accordance with Appendix 1, the operator shall ensure that the applicable minimum RVR is increased by 200 metres (m) for Cat A/B aeroplanes and by 400 m for Cat C/D aeroplanes for approaches not flown using the CDFA technique, providing that the resulting RVR/CMV value does not exceed 5000 m.

For aerodromes where there is a public interest to maintain current operations and the CDFA technique cannot be applied, shall be established and regularly reviewed by the competent authority taking into account the operator's experience, training programme and flight crew qualification.

(m ~~k~~) Notwithstanding the requirements in (h) above, the BCAA may exempt the operator from the requirement to increase the RVR when not applying the CDFA technique.

(n ~~l~~) Exemptions as described in paragraph (i) shall be limited to locations where there is a clear public interest to maintain current operations. The exemptions shall be based on the operator's experience, training programme and flight crew qualification. The exemptions shall be reviewed at regular intervals and shall be terminated as soon as facilities are improved to allow application of the CDFA technique.

(o ~~m~~) The operator shall ensure that Appendix 1 to ANTR OPS 1.430 is applied.

(p ~~n~~) Notwithstanding the requirements in (k) above, the BCAA may exempt the operator from the requirement to increase the RVR above 1500 m (Cat A/B aeroplanes) or above 2400 m (Cat C/D aeroplanes), when approving an operation to a particular runway where it is not practicable to fly an approach using the CDFA technique or where the criteria in paragraph III of Appendix 1 to ANTR OPS 1.430 cannot be met.

(q ~~o~~) Exemptions as described in paragraph (l) shall be limited to locations where there is a clear public interest to maintain current operations. The exemptions shall be based on the operator's experience, training programme and flight crew qualification. The exemptions shall be reviewed at regular intervals and shall be terminated as soon as facilities are improved to allow application of the CDFA technique.

(r ~~p~~) Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as defined in ANTR Part I, Section 1, under "instrument approach procedure".

(s ~~q~~) The operating minima for 2D instrument approach operations using instrument approach procedures shall be determined by establishing a minimum descent altitude (MDA) or minimum descent height (MDH), minimum visibility and, if necessary,

cloud conditions.

Note: For guidance on applying a continuous descent final approach (CDFA) flight technique on non-precision approach procedures, refer to PANS-OPS (Doc 8168), Volume I, Part I, Section 5, Chapter 1, paragraph 1.8.

(t ~~r~~) The operating minima for 3D instrument approach operations using instrument approach procedures shall be determined by establishing a decision altitude (DA) or decision height (DH) and the minimum visibility or RVR.

(u ~~s~~) The operator shall specify the method of determining aerodrome operating minima in the operations manual.

(v ~~t~~) The minima for a specific approach and landing procedure shall only be used if all the following conditions are met:

(1) the ground equipment shown on the chart required for the intended procedure is operative;

(2) the aircraft systems required for the type of approach are operative;

(3) the required aircraft performance criteria are met; and

(4) the crew is appropriately qualified.

A-6-I, 6.24

ANTR OPS 1.652 IFR or night operations – Flight and navigational instruments and associated equipment

(See AMC OPS 1.650/1.652 & IEM OPS 1.650/1.652)

All aeroplanes when operated in accordance with the instrument flight rules, or when the aeroplane cannot be maintained in a desired attitude without reference to one or more flight instruments, shall be equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs: (a) A magnetic compass (The means of measuring and displaying magnetic direction should be a magnetic compass or equivalent);

(b) An accurate time-piece showing the time in hours, minutes and seconds, with a sweep-second pointer or digital presentation;

(c) Two sensitive pressure altimeters calibrated in feet, with counter drum-pointer or equivalent presentation; with sub-scale settings, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.

Note: Neither three-pointer nor drum-pointer altimeters satisfy the requirement in.

(d) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including a warning indication of pitot heater failure. The pitot heater failure warning indication requirement does not apply to those aeroplanes with a maximum approved passenger seating configuration of 9 or less or a maximum certificated take-off mass of 5 700 kg or less and issued with an individual Certificate of Airworthiness prior to 1 April 1998 (See AMC OPS 1.652(d) & (k)(2));

(e) A vertical speed indicator/a rate-of-climb and descent indicator;

(f) A turn and slip indicator;

(g) An attitude indicator;

(h) A stabilised heading/direction indicator (directional gyroscope);

Note: The requirements of (f), (g) and (h) may be met by combinations of instruments or by integrated flight director systems provided that the safeguards against total failure, inherent in the three separate instruments, are retained.

(i) A means of indicating whether the power supply to the gyroscopic instrument is adequate;

(j) A means of indicating in the flight crew compartment the outside air temperature calibrated in degrees Celsius (See AMC OPS 1.650 (i) & 1.652(i)); and

(k) Two independent static pressure systems, except that for propeller driven aeroplanes with maximum certificated take-off mass of 5 700 kg or less, one static pressure system and one alternate source of static pressure is allowed.

(l) Whenever two pilots are required the second pilot's station shall have separate instruments as follows:

(1) Two sensitive pressure altimeters calibrated in feet, with counter drum-pointer or equivalent presentation; with sub-scale settings, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.

Note: Neither three-pointer nor drum-pointer altimeters satisfy the requirement in.

(2) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including a warning indication of pitot heater failure. The pitot heater failure warning

indication requirement does not apply to those aeroplanes with a maximum approved passenger seating configuration of 9 or less or a maximum certificated take-off mass of 5 700 kg or less and issued with an individual Certificate of Airworthiness prior to 1 April 1998 (See AMC OPS 1.652(d) & (k)(2));

(3) A vertical speed indicator;

(4) A turn and slip indicator;

(5) An attitude indicator; and

(6) A stabilised direction indicator.

(m) Those aeroplanes with a maximum certificated take-off mass in excess of 5 700 kg or having a maximum approved passenger seating configuration of more than 9 seats must be equipped with an additional, standby, attitude indicator (artificial horizon), capable of being used from either pilot's station, that:

(1) Is powered continuously during normal operation and, after a total failure of the normal electrical generating system is powered from a source independent of the normal electrical generating system;

(2) Provides reliable operation for a minimum of 30 minutes after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures;

(3) Operates independently of any other attitude indicating system;

(4) Is operative automatically after total failure of the normal electrical generating system; and

(5) Is appropriately illuminated during all phases of operation, except for aeroplanes with a maximum certificated take-off mass of 5 700 kg or less, equipped with a standby attitude indicator in the left-hand instrument panel.

(n) In complying with sub-paragraph (l) above, it must be clearly evident to the flight crew when the standby attitude indicator, required by that sub-paragraph, is being operated by emergency power. Where the standby attitude indicator has its own dedicated power supply there shall be an associated indication, either on the instrument or on the instrument panel, when this supply is in use.

Those instruments that are used by any one pilot shall be so arranged as to permit the pilot to see their indications readily from his or her station, with the minimum practicable deviation from the position and line of vision normally assumed when looking forward along the flight path.

(o) A chart holder in an easily readable position which can be illuminated for night operations.

(p) If the standby attitude instrument system is certificated according to CS 25 or equivalent, the turn and slip indicators may be replaced by slip indicators.

(q) Whenever duplicate instruments are required, the requirement embraces separate displays for each pilot and separate selectors or other associated equipment where appropriate;

(r) All aeroplanes must be equipped with means for indicating when power is not adequately supplied to the required flight instruments; and

(s) All aeroplanes with compressibility limitations not otherwise indicated by the required airspeed indicators shall be equipped with a Mach number indicator at each pilot's station.

(t) The operator shall not conduct IFR or night operations unless the aeroplane is equipped with a headset with boom microphone or equivalent for each flight crew member on flight deck duty and a transmit button on the control wheel for each required pilot. (See IEM OPS 1.650(p)/1.652(s).)

(u) Notwithstanding the ANTR OPS 1.430(b) to (d), where aeroplanes are equipped with automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS, or any combination of those systems into a hybrid system, the use of such systems for the safe operation of an aeroplane shall be approved in accordance with the criteria stipulated under ANTR OPS 1.785 by the BCAA. In approving the operational use of automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS, the BCAA shall ensure that:

(1) the equipment meets the appropriate airworthiness certification requirements;

(2) the operator has carried out a safety risk assessment of the operations supported by the automatic landing systems, HUD or equivalent displays, EVS, SVS or CVS;

(3) the operator has established and documented the procedures for the use of, and training requirements for, automatic landing systems, a HUD or equivalent displays, EVS, SVS or CVS.

(v) Such additional instruments or equipment as may be prescribed by BCAA.

A-6-I, Ch. 6.15

ANTR OPS 1.665 Ground proximity warning system and terrain awareness warning system

(a) The operator shall not operate a turbine powered aeroplane having a maximum certificated take-off mass in excess of 5700 kg or a maximum approved passenger seating configuration of more than 9 unless it is equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.

(b) The ground proximity warning system must automatically provide, ~~by means of aural signals, which may be supplemented by visual signals,~~ a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the earth's surface:

(1) excessive sink rate,

(2) unsafe terrain clearance,

(3) excessive altitude loss after take-off or go-around,

(4) unsafe terrain clearance while not in landing configuration;

(i) gear not locked down;

(ii) flaps not in a landing position; and

(5) excessive descent below the instrument glide path.

(c) All turbine-engined aeroplanes of a maximum certificated take-off mass of 5700 kg or less and authorized to carry more than five but not more than nine passengers for which the individual certificate of airworthiness is first issued on or after 1 January 2026, shall ~~should~~ be equipped with a ground proximity warning system which provides warning:

(1) on excessive descent rate;

(2) on excessive altitude loss after take-off or go-around and

(3) of unsafe terrain clearance and

(4) Forward-looking terrain avoidance function.

(d) All piston-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers shall be equipped with a ground proximity warning system which provides the warnings:

(1) on excessive descent rate;

(2) on excessive altitude loss after take-off or go-around and

(3) of unsafe terrain clearance and

(4) Forward-looking terrain avoidance function.

(e) The operator shall implement database management procedures that ensure the timely distribution and update of current terrain and obstacle data to the ground proximity warning system.

A-6-I, Appendix 8, Ch. 1.9

ANTR OPS 1.700 Flight Recorders - General

(See Appendix 1 to ANTR OPS 1.700)

(a) Crash protected flight recorders comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR) and/or a data link recorder (DLR). Image and data link information may be recorded on either the CVR or the FDR.

(b) Light weight flight recorders comprise one or more of the following systems: an aircraft data recording system (ADRS), a cockpit audio recording system (CARS), an airborne image recording system (AIRS) and/or a data link recording system (DLRS). Image and data link information may be recorded on either the CARS or the ADRS.

Note 1: For aeroplanes for which the application for type certification is submitted to a Contracting State before 1 January 2016, specifications applicable to crash-protected flight recorders may be found in the European Organisation for Civil Aviation Equipment standards, EUROCAE ED-112, ED-56A, ED-55, Minimum Operational Performance Specifications (MOPS), or earlier equivalent documents.

Note 2: For aeroplanes for which the application for type certification is submitted to a Contracting State on or after 1 January 2016, specifications applicable to flight recorders may be found in EUROCAE ED-112A, Minimum Operational Performance Specification (MOPS), or equivalent documents.

Note 3: Specifications applicable to lightweight flight recorders may be found in EUROCAE ED 155, Minimum Operational Performance Specification (MOPS), or equivalent documents.

Note 4: As of 7 November 2019, States shall not allow the use of recordings or transcripts of CVR, CARS, Class A AIR and Class A AIRS for purposes other than the investigation of an accident or incident as per ICAO, Annex 13, except where the recordings or transcripts are:

a) related to a safety-related event identified in the context of a safety management system; are restricted to the relevant portions of a de-identified transcript of the recording; and are subject to the protections accorded by ICAO, Annex 19;

b) sought for use in criminal proceedings not related to an event involving an accident or incident investigation and are subject to the protections accorded by ICAO, Annex 19; or

c) used for inspections of flight recorder systems as provided in Appendix 1 to ANTR OPS 1.700.

Provisions on the protection of safety data, safety information and related sources are contained in Appendix 3 to ICAO, Annex 19. When an investigation under ICAO, Annex 13 is instituted, investigation records are subject to the protections accorded by ICAO, Annex 13.

Note 5: As of 7 November 2019, States shall not allow the use of recordings or transcripts of FDR, ADRS as well as Class B and Class C AIR and AIRS for purposes other than the investigation of an accident or incident as per ICAO, Annex 13, except where the recordings or transcripts are subject to the protections accorded by ICAO, Annex 19 and are:

a) used by the operator for airworthiness or maintenance purposes; Appendix 1 to ANTR OPS 1.700.

b) used by the operator in the operation of a flight data analysis programme required in this ANTR OPS 1;

c) sought for use in proceedings not related to an event involving an accident or incident investigation;

d) de-identified; or

e) disclosed under secure procedures.

Provisions on the protection of safety data, safety information and related sources are contained in Appendix 3 to ICAO, Annex 19.

(c) Construction and installation

(1) Flight recorders shall be constructed, located and installed so as to provide maximum practical protection for the recordings in order that the recorded information may be preserved, recovered and transcribed. Flight recorders shall meet the prescribed crashworthiness and fire protection specifications.

Note 1: Industry crashworthiness and fire protection specifications for FDR, CVR, AIR and DLR are as contained in the EUROCAE ED-112, Minimum Operational Performance Specifications (MOPS) for Crash Protected Airborne Recorder Systems, or equivalent documents.

Note 2: Industry crashworthiness and fire protection specifications for ADRS and CARS are as contained in the EUROCAE ED-155, Minimum Operational Performance Specifications (MOPS) for Light weight Flight Recorder Systems, or equivalent documents.

(2) Non-deployable flight recorder containers shall:

(i) be painted a distinctive orange colour;

(ii) carry reflective material to facilitate their location; and

(iii) have securely attached an automatically activated underwater locating device operating at a frequency of 37.5kHz and, by no later than 1 January 2018, be capable of operating for a minimum of 90 days.

(3) Automatic deployable flight recorder containers shall:

(i) be painted a distinctive orange colour, however the surface visible from outside the aircraft may be of another colour;

(ii) carry reflective material to facilitate their location; and

(iii) have an integrated automatically activated ELT.

(4) The crash-protected flight recorders shall be installed so that:

(i) the probability of damage to the recordings is minimized;

(ii) they receive electrical power from a bus that provides the maximum reliability for operation of the flight recorders without jeopardizing service to essential or emergency loads;

(iii) the light weight flight recorders shall be connected to a power source having the characteristics which ensure proper and reliable recording in the operational environment.

(iv) there is an aural or visual means for pre-flight checking that the flight recorder systems are operating properly; and

(v) if the flight recorder systems have an erasure device, the installation shall be designed to prevent operation of the device during flight time or crash impact; and

(vi) for aeroplanes for which the individual certificate of airworthiness is first issued on or after 1 January 2023, a flight crew-operated erase function shall be provided on the flight deck which, when activated, modifies the recording of a CVR and AIR so that it cannot be retrieved using normal replay or copying techniques. The installation shall be designed to prevent activation during flight. In addition, the probability of an inadvertent activation of an erase function during an accident shall also be minimized.

Note: The erase function is intended to prevent access to CVR and AIR recordings by normal replay or copying means, but would not prevent accident investigation authorities access to such recordings by specialized replay or copying techniques.

(5) The flight recorder systems, when tested by methods approved by the appropriate certificating authority, shall be demonstrated to be suitable for the environmental extremes over which they are designed to operate.

(6) Means shall be provided for an accurate time correlation between the flight recorder systems recordings.

(7) The flight recorder system manufacturer shall provide the appropriate certificating authority with the following information in respect of the flight recording systems:

(i) manufacturer's operating instructions, equipment limitations and installation procedures;

(ii) parameter origin or source and equations which relate counts to units of measurement; ~~and~~

(i) manufacturer's test reports; and

(ii) detailed information to ensure the continued serviceability of the flight recorder system.

(8) The holder of the airworthiness approval for the installation design of the flight recorder system shall make available the relevant continuing airworthiness information to the operator of the aeroplane to be incorporated in the continuing airworthiness maintenance programme. This continuing airworthiness information shall cover in detail all the tasks required to ensure the continued serviceability of the flight recorder system.

Note 1: The flight recorder system is composed of the flight recorder as well as any dedicated sensors, hardware and software that provide information required per this Appendix.

Note 2: Conditions related to the continued serviceability of a flight recorder system are defined in section 7 of this appendix. The Manual on Flight Recorder

System Maintenance (FRSM) *(Doc 10104) provides guidance on maintenance tasks associated with flight recorder systems.*

(d) Operation

(1) Flight recorders shall not be switched off during flight time.

(2) To preserve cockpit voice recorder records, cockpit voice recorder shall be deactivated upon completion of flight time following an accident or incident. The flight recorders shall not be reactivated before their disposition as determined in accordance with ANTR Part VI – Aircraft Accident and Incident Investigation, chapter 3, paragraph 3.2.2.4.

Note 1: The need for removal of the cockpit voice recorder records from the aircraft will be determined by the investigation authority in the State conducting the investigation with due regard to the seriousness of an occurrence and the circumstances, including the impact on the operation.

Note 2: The operator shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related cockpit voice recorder records and, if necessary, the associated flight recorders, and their retention in safe custody pending their disposition as determined in accordance with ANTR Part VI, chapter 3, paragraph 3.2.2.4.

(e) Continued Serviceability

Operational checks and evaluations of recordings from the cockpit voice recorder systems shall be conducted to ensure the continued serviceability of the recorders.

Note: Procedures for the inspections of the flight recorder systems are given in Appendix I to ANTR OPS 1.700.

(f) Flight recorder electronic documentation

The documentation requirement concerning FDR and ADRS parameters provided by operators to accident investigation authorities shall be in an electronic format, acceptable to the accident investigation authority, and take account of industry specifications.

Note: Industry specification for documentation concerning flight recorder parameters may be found in the Specification of Aeronautical Radio Incorporated, ARINC 647A, Flight Recorder Electronic Documentation, or equivalent document.

(g) Combination Recorders

(1) All aeroplanes of a maximum certificated take-off mass of over 5700kg for which the application for type certification is submitted to a Contracting State

on or after 1 January 2016 and which are required to be equipped with both a CVR and an FDR, should be equipped with two combination recorders (FDR/CVR).

(2) All aeroplanes of a maximum certificated take-off mass of over 15000 kg for which the application for type certification is submitted to a Contracting State on or after 1 January 2016 and which are required to be equipped with both a CVR and an FDR, shall be equipped with two combination recorders (FDR/CVR). One recorder shall be located as close to the cockpit as practicable and the other recorder located as far aft as practicable.

(3) All aeroplanes of a maximum certificated take-off mass over 5700kg, required to be equipped with an FDR and a CVR, may alternatively be equipped with two combination recorders (FDR/CVR).

Note: The requirement of ANTR OPS 1.700(g) may be satisfied by equipping the aeroplanes with two combination recorders (one forward and one aft) or separate devices.

(4) All multi-engined turbine-powered aeroplanes of a maximum certificated take-off mass of 5700kg or less, required to be equipped with an FDR and/or a CVR, may alternatively be equipped with one combination recorder (FDR/CVR).

A-6-I, Appendix 8, Ch. 7

Appendix 1 to ANTR OPS 1.700 Flight Recorders – General

(a) Inspections of flight recorder systems

(1) Prior to the first flight of the day, the built-in test features for the flight recorders and Flight Data Acquisition Unit (FDAU), when installed, shall be monitored by manual and/or automatic checks.

(2) FDR systems or ADRS, CVR systems or CARS, and AIR systems or AIRS shall have recording inspection intervals of one year; subject to the approval from the appropriate regulatory authority, this period may be extended to two years provided these systems have demonstrated a high integrity of serviceability and self-monitoring. DLR systems or DLRS shall have recording inspection intervals of two years; subject to the approval from the appropriate regulatory authority, this period may be extended to four years provided these systems have demonstrated high integrity of serviceability and self-monitoring.

(b) Recording inspections shall be carried out as follows:

(1) an analysis of the recorded data from the flight recorders shall ensure that the recorder operates correctly for the nominal duration of the recording;

(2) the FDR or ADRS recording from a complete flight shall be examined in engineering units to evaluate the validity of all recorded parameters. Particular attention shall be given to parameters from sensors dedicated to the FDR or ADRS. Parameters taken from the aircraft's electrical bus system need not be checked if their serviceability can be detected by other aircraft systems;

(3) the readout facility shall have the necessary software to accurately convert the recorded values to engineering units and to determine the status of discrete signals;

(4) an examination of the recorded signal on the CVR or CARS shall be carried out by replay of the CVR or CARS recording. While installed in the aircraft, the CVR shall record test signals from each aircraft source and from relevant external sources to ensure that all required signals meet intelligibility standards;

(5) where practicable, during the examination, a sample of in-flight recordings of the CVR or CARS shall be examined for evidence that the intelligibility of the signal is acceptable; and

(6) an examination of the recorded messages on the DLR or DLRS shall be carried out by replay of the DLR or DLRS recording.

(c) Flight recorder systems shall be considered unserviceable if there is a significant period of poor quality data, unintelligible signals, or if one or more of the mandatory parameters is not recorded correctly.

(d) A report of the annual inspection shall be made available on request to regulatory authorities for monitoring purposes.

(e) Calibration requirements of the FDR system shall be as follows:

(1) For those parameters which have sensors dedicated only to the FDR and are not checked by other means, recalibration shall be carried out ~~at least every five years or in accordance with the recommendations of the sensor manufacturer to~~ at an interval determined by the continuing airworthiness information for the FDR system. In the absence of such information, a recalibration shall be carried out at least every five years. The recalibration shall determine any discrepancies in the engineering conversion routines for the mandatory parameters, and to ensure that parameters are being recorded within the calibration tolerances; and

~~(2)~~ When the parameters of altitude and airspeed are provided by sensors that are dedicated to the FDR system, there shall be a recalibration performed at an interval determined by the continuing airworthiness information for the FDR system. In the absence of such information, a recalibration shall be carried out at least every two years. ~~as recommended by the sensor manufacturer, or at least every two years.~~

A-6-I, 6.24

ANTR OPS 1.785 Head Up Display (HUD) or Equivalent Displays

(See Appendix 1 to ANTR OPS 1.785 HUD, VS or Equivalent)

Notwithstanding the ANTR OPS 1.430(b) to (d), where aeroplanes are equipped with automatic landing system, a head-up display (HUD) or equivalent displays, enhanced vision systems (EVS), synthetic vision systems (SVS) and/or combined vision systems (CVS) or combination of those systems into a hybrid system, the use of such systems for the safe operation of aeroplane, unless:

(a) An approval has been issued by the BCAA for the operational use of such displays;

(b) The equipment meets the appropriate airworthiness certification requirements;

(a) The operator has carried out a safety risk assessment of the operations supported by the HUD or equivalent displays, EVS, SVS or CVS [*Guidance on safety risk assessments is contained in the* Safety Management Manual (SMM) *(Doc 9859)]*;

(d) The operator has established and documented the procedures for the use of, and training requirements for, a HUD or equivalent displays, EVS, SVS or CVS

(e) The criteria for the use of such systems for the safe operation of an aeroplane as described in Appendix 1 to ANTR OPS 1.785 HUD, VS or Equivalent is complied with as applicable.

Note. Information regarding automatic landing systems, a HUD or equivalent displays, ~~including references to RTCA and EUROCAE documents~~, EVS, SVS or CVS, is contained in the Manual of All-Weather Operations *(Doc 9365).*

The Attachment H to Annex 6-Part-I has been deleted by ICAO. The procedure given in the said attachment is covered under DOC 9365. Having addressed the intent of the DOC 9365 and ANTR OPS 1.785, Appendix 1 to 1.785 and CAP 33 covers the said requirement, we may not require to amend the Appendix and or CAP 33. However, Ops Division may like to compare the contents of CAP 33 with DOC 9365 for acceptance.

A-6-I, 6.26

New regulation -

ANTR OPS 1.787 Turbine Aeroplane – Runway Overrun Awareness and Alerting System (ROAAS)

(a) All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg, for which the individual certificate of airworthiness is first issued on or after

1 January 2026, shall be equipped with a runway overrun awareness and alerting system (ROAAS).

Note: Guidance material for ROAAS design is contained in EUROCAE ED-250, Minimum Operational Performance Specification (MOPS) for Runway Overrun Awareness and Alerting Systems (ROAAS), or equivalent documents.

A-6-I, Ch.6.18

ANTR OPS 1.822 Location of an Aeroplane in Distress
(See Appendix 1 ANTR OPS 1.822)
(See IEM OPS 1.822)

(a) As of 1 January 2025, All aeroplanes 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 2024 ~~3~~, shall autonomously transmit information from which a position can be determined by the operator at least once every minute, when in distress, in accordance with Appendix 1 to ANTR OPS 1.822.

(b) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2023, shall autonomously transmit information from which a position can be determined at least once every minute, when in distress, in accordance with Appendix 1 to ANTR OPS 1.822.

(c) The operator shall make position information of a flight in distress available to the appropriate organisations, as established by the BCAA.

Note 1: Refer to ANTR OPS 1.175(p) for operator responsibilities when using third parties.

Note 2: Refer to ICAO Annex 6, Part-I, Appendix 9, Attachment K & DOC 10054 "Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery" for detailed guidelines.

Note 3: Operational procedures for monitoring and making position information of a flight in distress available to the appropriate organisations in a timely manner are contained in PANS-OPS, Volume III, Section 10.

A-6-I, Ch. 6.5

ANTR OPS 1.830 Extended overwater flights

(a) SEAPLANES

All seaplanes for all flights shall be equipped with:

(1) one life jacket, or equivalent individual flotation device, for each person on board, stowed in a position easily accessible from the seat or berth of the person for whose use it is provided with a safety belt or restraint system fastened;

(2) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable; and

(3) one sea anchor (drogue).

Note 1: "Seaplanes" includes amphibians operated as seaplanes.

Note 2: Life jackets accessible from seats or berths located in crew rest compartments are required only if the seats or berths concerned are certified to be occupied during take-off and landing.

(b) LANDPLANES

Landplanes shall carry the equipment prescribed in (b)(4):

(1) when flying over water and at a distance of more than 93 km (50 NM) away from the shore, in the case of landplanes operated in accordance with;

(i) En route — one engine inoperative. The aeroplane shall be able, in the event of the critical engine becoming inoperative at any point along the route or planned diversions therefrom, to continue the flight to an aerodrome at which the Standard of aeroplane performance operating limitation can be met, without flying below the minimum flight altitude at any point.

(ii) En route — two engines inoperative. In the case of aeroplanes having three or more engines, on any part of a route where the location of en-route alternate aerodromes and the total duration of the flight are such that the probability of a second engine becoming inoperative must be allowed for if the general level of safety implied by the Standards of this chapter is to be maintained, the aeroplane shall be able, in the event of any two engines becoming inoperative, to continue the flight to an en-route alternate aerodrome and land.

(2) when flying en route over water beyond gliding distance from the shore, in the case of all other landplanes; and

(3) when taking off or landing at an aerodrome where, in the opinion of the State of the Operator, the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching.

(4) The equipment referred to in (b) (1) to (3) shall comprise one life jacket or equivalent individual flotation device for each person on board, stowed in a

position easily accessible from the seat or berth of the person for whose use it is provided.

Note 1: "Landplanes" includes amphibians operated as landplanes.

Note 2: Life jackets accessible from seats or berths located in crew rest compartments are required only if the seats or berths concerned are certified to be occupied during take-off and landing.

Note 3: information regarding the acceptable means of compliance with this Standard, particularly in the case of infants, can be found, in the Guidance on the preparation of an Operations Manual *(Doc 10153), Chapter11 Attachment D.*

(c) All aeroplanes on long-range over-water flights

In addition to the equipment prescribed in Para (a) & (b) above, whichever is applicable, the following equipment shall be installed in all aeroplanes when used over routes on which the aeroplane may be over water and at more than a distance corresponding to 120 minutes at cruising speed or 740 km (400 NM), whichever is the lesser, away from land suitable for making an emergency landing in the case of aircraft operated in accordance with (b)(1)(i) or (b)(1)(ii), and 30 minutes or 185 km (100 NM), whichever is the lesser, for all other aeroplanes:

(1) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken;

(2) a survivor locator light in each life raft.

(3) equipment for making the pyrotechnical distress signals described in ANTR OPS 1.835; and

(4) at least two survival ELTs [ELT(S)]

(5) at the earliest practicable date, but not later than 1 January 2018, on all aeroplanes of a maximum certificated takeoff mass of over 27 000 kg, a securely attached underwater locating device operating at a frequency of 8.8 kHz., unless

(iii) the the aeroplane is operated over routes on which it is at no point at a distance of more than 180 NM from the shore; or
(iv) the aeroplane is equipped with robust and automatic means to accurately determine, following an accident where the aeroplane is severely damaged, the location of the point of end of flight.

This automatically activated underwater locating device shall operate for a minimum of 30 days and shall not be installed in wings or empennage.

Note: Underwater locator beacon (ULB) performance requirements are as contained in the SAE AS6254, Minimum Performance Standard for Low Frequency Underwater Locating Devices (Acoustic) (Self-Powered), *or equivalent documents.*

(6) Each life jacket and equivalent individual flotation device, when carried in accordance with ANTR OPS 1.825 and ANTR OPS 1.830(a)(1) & ANTR OPS 1.830(b)(1) to (b)(4), shall be equipped with a means of electric illumination (survivor locator light) for the purpose of facilitating the location of persons, except where the requirement of ANTR OPS 1.830 (b)(3) is met by the provision of individual flotation devices other than life jackets.

A-6-I, Appendix 2

Appendix 1 to ANTR OPS 1.1045

Operations Manual Contents

(See IEM to Appendix 1 to ANTR OPS 1.1045)

The operator shall ensure that the Operations Manual contains the following:

A. GENERAL

8 OPERATING PROCEDURES

8.4 *AWO.* A description of the operational procedures associated with All Weather Operations. (See also OPS Subparts D & E) including instructions and training requirements for the use of automatic landing systems, a head-up display (HUD) or equivalent displays and ~~enhanced vision system (~~EVS~~),~~ SVS or CVS equipment as applicable. Instructions and training requirements for the use of the EFB, as applicable.

C ROUTE AND AERODROME INSTRUCTIONS AND INFORMATION

1 Instructions and information relating to communications, navigation and aerodromes including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome planned to be used, including:

(a) Minimum flight level/altitude for each route to be flown;

(b) Operating minima for departure, destination and alternate aerodromes, the increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities;

(c) Instructions for determining aerodrome operating minima for instrument approaches using ~~HUD and EVS~~ eligible equipment for operational credit.

(c) Communication facilities and navigation aids;

(d) Runway data and aerodrome e facilities;

(e) Approach/stabilised approach, precision, non-precision instrument approach, missed approach, and departure/instrument departure procedures including noise abatement procedures;

(f) shall contain the procedure for the operations to ensure that an aeroplane being used to conduct 3D instrument approach operations crosses the threshold by a safe margin, with aeroplane in the landing configuration and attitude.

(g ~~f~~) COM-failure procedures;

(h ~~g~~) Search and rescue facilities in the area over which the aeroplane is to be flown;

(i ~~h~~) Information related to the level of RFFS (Rescue and Fire Fighting Services) protection that is deemed acceptable by the operator shall be contained in the Operations Manual.

(j ~~i~~) A description of the aeronautical charts that must be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity;

(k ~~j~~) Availability of aeronautical information and MET services;

(l ~~k~~) En-route COM/NAV procedures;

(m ~~l~~) Aerodrome categorisation for flight crew competence qualification (See AMC OPS 1.975); and

(n ~~m~~) Special aerodrome limitations (performance limitations and operating procedures etc.).

(o ~~n~~) Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-out.

(p ~~o~~) Where relevant to the operations,

(i) the long-range navigation procedures,

(ii) engine failure procedure for EDTO and

(iii) the nomination and utilization of diversion aerodromes.

(q ~~p~~) familiarization with areas, routes and aerodromes.

(r ~~q~~) The necessary information for compliance with all flight profiles required by regulations, including but not limited to, the determination of:

1) take-off runway length requirements for dry, wet and contaminated conditions, including those dictated by system failures which affect the take-off distance;

2) take-off climb limitations;

3) en-route climb limitations;

4) approach climb limitations and landing climb limitations;

5) landing runway length requirements for dry, wet and contaminated conditions, including systems failures which affect the landing distance; and

6) supplementary information, such as tire speed limitations.

A-6-I, Ch.5.2 & FAA IASA Questionnaire 2.031

ANTR OPS 1.1050

The operator shall keep a current approved Aeroplane Flight Manua or equivalent document for each aeroplane by its serial number / registration it operates. The Flight Manual must be as approved by the state of design / manufacturer and as defined by the Type Certificate accepted by BCAA for that type. This Aeroplane Flight Manual shall be updated and implemented with the changes mandated by the State of Registry

A-6-I, Ch.4.3.3

ANTR OPS 1.1060 Operational flight plan

(a) The operator must ensure that the operational flight plan used and the entries made during flight contain the following items:

(1) Aeroplane registration;

(2) Aeroplane type and variant;

(3) Date of flight;

(4) Flight identification;

(5) Names of flight crew members;

(6) Duty assignment of flight crew members;

(7) Place of departure;

(8) Time of departure (actual off-block time, take-off time);

(9) Place of arrival (planned and actual);

(10) Time of arrival (actual landing and on-block time);

(11) Type of operation (EDTO, VFR, Ferry flight, etc.);

(12) Route and route segments with checkpoints/waypoints, distances, time and tracks;

(13) Planned cruising speed and flying times between check-points/waypoints. Estimated and actual times overhead;

(14) Safe altitudes and minimum levels;

(15) Planned altitudes and flight levels;

(16) Fuel calculations (records of in-flight fuel checks);

(17) Fuel on board when starting engines;

(18) Alternate(s) for destination and, where applicable, take-off and en-route, including information required in sub-paragraphs (12), (13), (14), and (15) above;

(19) Initial ATS Flight Plan clearance and subsequent re-clearance;

(20) In-flight re-planning calculations; and

(21) Relevant meteorological information.

(b) Items which are readily available in other documentation or from another acceptable source or are irrelevant to the type of operation may be omitted from the operational flight plan.

(c) The operator must ensure that the operational flight plan and its use are described in the Operations Manual.

(d) The operator shall ensure that all entries on the operational flight plan are made concurrently and that they are permanent in nature.

(e) The operational flight plan shall be completed for every intended flight and shall be approved by the pilot in command, and where applicable, by the flight operations officer/flight dispatcher.

(f) The operator shall determine the most efficient means of lodging the operational flight plan and a copy shall be filed with the operator or a designated agent, or, if these procedures are not possible, it shall be left with the aerodrome authority or on record in a suitable place at the point of departure..