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The Civil Aviation Authority of Thailand

Thailand Civil Aviation Regulation-Air Operations
Part Operations Requiring Specific Approvals
(TCAR OPS Part - SPA)

TCAR OPS Part - SPA

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Approved By

Air Chief Marshal
Manat Chavanaprayoon
Director General
The Civil Aviation Authority of Thailand

THAILAND CIVIL AVIATION REGULATION (TCAR)

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RECORD OF REVISIONS

Issue No.	Revision No.	Date (DD/MMM/YYYY)	Subject	Insert By (Department/ Division)
01	00	8 Dec 2023	Initial issue including (EU) No 2019/1387, (EU) No2018/1384, (EU) No 2019/1387, (EU) No 2020/2036, (EU) No 2021/1296, (EU) No 2021/2237, (EU) 2022/2203 and (EU) 2023/217, Notably, (EU) 2023/203 was not included.	OPS
02	00	20 Dec 2024	New Issue	OPS
02	01	DD MMM YYYY	Revise regulation concerned Dangerous goods	OPS

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REVISION HIGHLIGHTS

Area of Change	Change Detail(s)
SPA.DG.100	The operator shall conduct in according with the Requirement of the Civil Aviation Authority of Thailand No. 73 on the Operations regarding the Transport of Dangerous Goods and Prohibited or Special Handling Items 2024 and Requirement of The Civil Aviation Authority of Thailand No. 68 Application for and issuance of permission for operating Dangerous Goods and Prohibited or Special Handling Items 2024.

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LIST OF EFFECTIVE PAGES

Change and amendment bar is placed against each paragraph affected.

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INTRODUCTION AND APPLICABILITY

In this publication the word 'must' or 'shall' is used to indicate where the Director General requires the Organisation, owner or operator to respond to and comply with, or adhere closely to, the defined requirement

If the Organisation's/owner's/operator's response is deemed to be inadequate by the Director General, a specific requirement or restriction may be applied as a condition of the appropriate instrument to be issued under Thailand Civil Aviation Regulations.

TCAR OPS is based on the latest consolidated version of Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations, as amended up to (EU) No 2023/217. Notably, (EU) 2023/203 was not included as part of the initial issue.

TCAR OPS Part SPA is a part of the overall TCAR OPS Regulation set.

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SUBPART A: GENERAL REQUIREMENTS

SPA.GEN.100 The competent authority

(a) CAAT is the competent authority for issuing a specific approval:

(1) for commercial operator's which have their principal place of business in the Kingdom of Thailand;

(2) for the non-commercial operator, in the case whereby the operator is established or residing in the Kingdom of Thailand.

(b) Notwithstanding (a)(2), for the non-commercial operator using aircraft registered in a foreign country, the applicable requirements under TCAR OPS Part SPA for the approval of the following operations shall not apply if these approvals are issued by a third-country State of Registry:

(1) Performance-based navigation (PBN);

(2) Minimum operational performance specifications (MNPS);

(3) Reduced vertical separation minima (RVSM) airspace;

(4) Low visibility operations (LVO).

SPA.GEN.105 Application for a specific approval

(a) The operator applying for the initial issue of a specific approval shall provide to CAAT the documentation required in the applicable Subpart, together with the following information:

(1) the name, address and mailing address of the applicant;

(2) a description of the intended operation.

(b) The operator shall provide the following evidence to the CAAT:

(1) compliance with the requirements of the applicable Subpart;

(2) that the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA Part 21 or any equivalent material acceptable to the CAAT are taken into account.

(c) The operator shall retain records relating to (a) and (b) at least for the duration of the operation requiring a specific approval, or, if applicable, in accordance with TCAR OPS Part ORO.

SPA.GEN.110 Privileges of an operator holding a specific approval

The scope of the activity that an operator is approved to conduct shall be documented and specified:

(a) for operators holding an air operator certificate (AOC) in the operations specifications to the AOC;

(b) for all other operators in the list of specific approvals.

SPA.GEN.115 Changes to a specific approval

When the conditions of a specific approval are affected by changes, the operator shall provide the relevant documentation to CAAT and obtain prior approval for the operation.

SPA.GEN.120 Continued validity of a specific approval

Specific approvals shall be issued for an unlimited duration and shall remain valid subject to the operator remaining in compliance with the requirements associated with the specific approval and taking into account the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT.

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SUBPART B: PERFORMANCE-BASED NAVIGATION (PBN) OPERATIONS

SPA.PBN.100 PBN operations

(a) An approval is required for each of the following PBN specifications:

(1) RNP AR APCH; and

(2) RNP 0.3 for helicopter operation.

(b) An approval for RNP AR APCH operations shall allow operations on public instrument approach procedures which meet the applicable ICAO procedure design criteria.

(c) A procedure-specific approval for RNP AR APCH or RNP 0.3 shall be required for private instrument approach procedures or any public instrument approach procedure that does not meet the applicable ICAO procedure design criteria, or where required by the Aeronautical Information Publication (AIP) or the CAAT.

SPA.PBN.105 PBN operational approval

To obtain a PBN specific approval from CAAT, the operator shall provide evidence that:

(a) the relevant airworthiness approval, suitable for the intended PBN operation, is stated in the AFM or other document that has been approved by the certifying authority as part of an airworthiness assessment or is based on such approval;

(b) a training programme for the flight crew members and relevant personnel involved in the flight preparation has been established;

(c) a safety assessment has been carried out;

(d) operating procedures have been established specifying:

(1) the equipment to be carried, including its operating limitations and appropriate entries in the minimum equipment list (MEL);

(2) flight crew composition, qualification and experience;

(3) normal, abnormal and contingency procedures; and

(4) electronic navigation data management;

(e) a list of reportable events has been specified; and

(f) a management RNP monitoring programme has been established for RNP AR APCH operations, if applicable.

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SUBPART C: OPERATIONS WITH SPECIFIED MINIMUM NAVIGATION PERFORMANCE (MNPS)

SPA.MNPS.100 MNPS operations

Aircraft shall only be operated in designated minimum navigation performance specifications (MNPS) airspace in accordance with regional supplementary procedures, where minimum navigation performance specifications are established, if the operator has been granted an approval by the CAAT to conduct such operations.

SPA.MNPS.105 MNPS operational approval

To obtain an MNPS operational approval from the CAAT, the operator shall provide evidence that:

(a) the navigation equipment meets the required performance;

(b) navigation displays, indicators and controls are visible and operable by either pilot seated at his/her duty station;

(c) a training programme for the flight crew members involved in these operations has been established;

(d) operating procedures have been established specifying:

(1) the equipment to be carried, including its operating limitations and appropriate entries in the MEL;

(2) flight crew composition and experience requirements;

(3) normal procedures;

(4) contingency procedures including those specified by the authority responsible for the airspace concerned;

(5) monitoring and incident reporting.

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SUBPART D: OPERATIONS IN AIRSPACE WITH REDUCED VERTICAL SEPARATION MINIMA (RVSM)

SPA.RVSM.100 RVSM operations

Aircraft shall only be operated in designated airspace where a reduced vertical separation minimum of 300 m (1000 ft) applies between flight level (FL) 290 and FL 410, inclusive, if the operator has been granted an approval by the CAAT to conduct such operations.

SPA.RVSM.105 RVSM operational approval

To obtain an RVSM operational approval from the CAAT, the operator shall provide evidence that:

(a) the RVSM airworthiness approval has been obtained;

(b) procedures for monitoring and reporting height-keeping errors have been established;

(c) a training programme for the flight crew members involved in these operations has been established;

(d) operating procedures have been established specifying:

(1) the equipment to be carried, including its operating limitations and appropriate entries in the MEL;

(2) flight crew composition and experience requirements;

(3) flight planning;

(4) pre-flight procedures;

(5) procedures prior to RVSM airspace entry;

(6) in-flight procedures;

(7) post-flight procedures;

(8) incident reporting;

(9) specific regional operating procedures.

SPA.RVSM.110 RVSM equipment requirements

Aircraft used for operations in RVSM airspace shall be equipped with:

(a) two independent altitude measurement systems;

(b) an altitude alerting system;

(c) an automatic altitude control system;

(d) a secondary surveillance radar (SSR) transponder with altitude reporting system that can be connected to the altitude measurement system in use for altitude control.

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SPA.RVSM.115 RVSM height-keeping errors

(a) The operator shall report recorded or communicated occurrences of height-keeping errors caused by malfunction of aircraft equipment or of operational nature, equal to or greater than:

(1) a total vertical error (TVE) of ± 90 m (± 300 ft);

(2) an altimetry system error (ASE) of ± 75 m (± 245 ft); and

(3) an assigned altitude deviation (AAD) of ± 90 m (± 300 ft).

(b) Reports of such occurrences shall be sent to the CAAT within 72 hours. Reports shall include an initial analysis of causal factors and measures taken to prevent repeat occurrences.

(c) When height-keeping errors are recorded or received, the operator shall take immediate action to rectify the conditions that caused the errors and provide follow-up reports, if requested by the CAAT.

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SUBPART E: LOW VISIBILITY OPERATIONS (LVO) and OPERATIONS WITH OPERATIONAL CREDITS

SPA.LVO.100 Low visibility operations and operations with operational credits

The operator shall conduct the following operations only if they are approved by the CAAT:

(a) take-off operations with visibility conditions of less than 400 m RVR;

(b) instrument approach operations in low-visibility conditions; and

(c) operations with operational credits, except for EFVS 200 operations, which shall not be subject to a specific approval.

SPA.LVO.105 Specific approval criteria

To obtain a specific approval as required by SPA.LVO.100, the operator shall demonstrate that:

(a) for low-visibility approach operations, LVTO operations in an RVR less than 125 m, and operations with operational credits, the aircraft has been certified for the intended operations;

(b) the flight crew members are competent to conduct the intended operation and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation has been established, in accordance with SPA.LVO.120;

(c) operating procedures for the intended operations have been established;

(d) any relevant changes to the minimum equipment list (MEL) have been made;

(e) any relevant changes to the maintenance programme have been made;

(f) procedures have been established to ensure the suitability of aerodromes, including instrument flight procedures, for the intended operations, in accordance with SPA.LVO.110; and

(g) for the intended operations, a safety assessment has been carried out, and performance indicators have been established to monitor the level of safety.

SPA.LVO.110 Aerodrome-related requirements, including instrument flight procedures

The operator shall ensure that only aerodromes, including instrument flight procedures, suitable for the intended operations are used for LVOs and operations with operational credits.

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SPA.LVO.120 Flight crew competence

(a) The operator shall ensure that the flight crew is competent to conduct the intended operations.

(b) The operator shall ensure that each flight crew member successfully completes training and checking for all types of LVOs and operations with operational credits for which an approval has been granted. Such training and checking shall:

(1) include initial and recurrent training and checking;

(2) include normal, abnormal and emergency procedures;

(3) be tailored to the type of technologies used in the intended operations; and

(4) take into account the human factor risks associated with the intended operations.

(c) The operator shall keep records of the training and qualifications of the flight crew members.

(d) The training and checking shall be conducted by appropriately qualified personnel. In the case of flight and flight simulation training and checking, the personnel providing the training and conducting the checks shall be qualified in accordance withTCAR PEL Part FCL.

SPA.LVO.125 Operating procedures

(a) The operator shall establish procedures and instructions to be used for LVOs. These procedures and instructions shall be included in the operations manual or procedures manual and contain the duties of flight crew members during taxiing, take-off, approach, flare, landing, rollout and missed approach operations, as appropriate.

(b) Prior to commencing an LVO, the pilot-in-command/commander shall be satisfied that:

(1) the status of the visual and non-visual facilities is sufficient;

(2) appropriate LVPs are in force according to information received from air traffic services (ATS);

(3) flight crew members are properly qualified.

SPA.LVO.130 Minimum equipment

(a) The operator shall include the minimum equipment that has to be serviceable at the commencement of an LVO in accordance with the aircraft flight manual (AFM) or other approved document in the operations manual or procedures manual, as applicable.

(b) The pilot-in-command/commander shall be satisfied that the status of the aircraft and of the relevant airborne systems is appropriate for the specific operation to be conducted.

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SUBPART F: EXTENDED DIVERSION TIME OPERATIONS (EDTO)

SPA.EDTO.100 ETOPS

In commercial air transport operations, two-engined aeroplanes shall only be operated beyond the threshold distance determined in accordance with CAT.OP.MPA.140 if the operator has been granted an EDTO operational approval for ETOPS by the CAAT.

SPA.EDTO.101 EDTO by aeroplanes with more than two turbine engines

In commercial air transport operations, aeroplanes with more than two turbine engines shall only be operated beyond the threshold distance from an adequate en-route alternate determined in accordance with CAT.OP.MPA.141 only if the operator has been granted an EDTO operational approval by the CAAT.

SPA.EDTO.105 ETOPS operational approval

To obtain an EDTO operational approval for ETOPs operations with an aeroplane with two engines from the CAAT, the operator shall provide evidence that:

(a) the aeroplane/engine combination holds an ETOPS type design and reliability approval for the intended operation;

(b) a training programme for the flight crew members and all other operations personnel involved in these operations has been established and the flight crew members and all other operations personnel involved are suitably qualified to conduct the intended operation;

(c) the operator's organisation and experience are appropriate to support the intended operation;

(d) operating procedures have been established.

(e) An ETOPs maintenance programme have been established.

On issuing the specific approval for extended diversion time operations, the maximum diversion time granted to the operator for each particular aeroplane and engine combination shall be specified by the CAAT.

SPA.EDTO.110 EDTO operational approval for aeroplanes with more than two turbine engines

To obtain an EDTO operational approval for EDTO operations other than ETOPs from the CAAT, the operator shall provide evidence that:

(a) 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;

(b) training programme for the flight crew members and all other operations personnel involved in these operations has been established and the flight crew members and all other operations personnel involved are suitably qualified to conduct the intended operation;

(c) the operator's organisation and experience are appropriate to support the intended operation;

(d) operating procedures have been established.

Notwithstanding the provisions in first paragraph; the CAAT may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of

safety will be maintained, approve operations beyond the time limits of the most time-limited system. The specific safety risk assessment shall include at least the:

(a) Capabilities of the operator;

(b) Overall reliability of the aeroplane;

(c) Reliability of each time limited system;

(d) Relevant information from the aeroplane manufacturer; and

(e) Specific mitigation measures.

On issuing the specific approval for extended diversion time operations, the maximum diversion time granted to the operator for each particular aeroplane and engine combination shall be specified by the CAAT.

SPA.EDTO.115 EDTO en-route alternate aerodrome

(a) An EDTO en-route alternate aerodrome shall be considered adequate, if, at the expected time of use, the aerodrome is available and equipped with necessary ancillary services such as air traffic services (ATS), sufficient lighting, communications, weather reporting, navigation aids and emergency services and has at least one instrument approach procedure available.

(b) Prior to conducting an EDTO flight, the operator shall ensure that an EDTO en-route alternate aerodrome is available, within either the operator's approved diversion time, or a diversion time based on the MEL generated serviceability status of the aeroplane, whichever is shorter.

(c) The operator shall specify any required EDTO en-route alternate aerodrome(s) in the operational flight plan and ATS flight plan.

SPA.EDTO.120 EDTO en-route alternate aerodrome planning minima

(a) The operator shall only select an aerodrome as an EDTO en-route alternate aerodrome when the appropriate weather reports or forecasts, or any combination thereof, indicate that, between the anticipated time of landing until one hour after the latest possible time of landing, conditions will exist at or above the planning minima calculated by adding the additional limits of Table 1.

(b) The operator shall include in the operations manual the method for determining the operating minima at the planned EDTO en-route alternate aerodrome.

Table 1 Planning minima for the EDTO en-route alternate aerodrome

Type of approach	Planning minima
Precision approach	DA/H + 200 ft RVR/VIS + 800 m(1)
Non-precision approach or Circling approach	MDA/H + 400 ft(1) RVR/VIS + 1500 m
(1) VIS: visibility; MDA/H: minimum descent altitude/height.	

SPA.EDTO.125 Additional fuel

For aeroplanes engaged in EDTO, the additional fuel required by CAT.OP.MPA.181 shall include the fuel necessary to comply with the EDTO critical fuel scenario as established by the CAAT.

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SUBPART G: TRANSPORT OF DANGEROUS GOODS

SPA.DG.100 Transport of dangerous goods

Except as provided for in TCAR OPS Part CAT, TCAR OPS Part NCC, TCAR OPS Part NCO and TCAR OPS Part SPO, the operator shall only transport dangerous goods by air if the operator has been approved by the CAAT.

The operator shall conduct in according with the Requirement of the Civil Aviation Authority of Thailand No. 73 on the Operations regarding the Transport of Dangerous Goods and Prohibited or Special Handling Items 2024 and Requirement of The Civil Aviation Authority of Thailand No. 68 Application for and issuance of permission for operating Dangerous Goods and Prohibited or Special Handling Items 2024

SPA.DG.105 Approval to transport dangerous goods

To obtain the approval to transport dangerous goods, the operator shall in accordance with the technical instructions:

(a) establish and maintain a training programme for all personnel involved and demonstrate to the CAAT that adequate training has been given to all personnel;

(b) establish operating procedures to ensure the safe handling of dangerous goods at all stages of air transport, containing information and instructions on:

(1) the operator's policy to transport dangerous goods;

(2) the requirements for acceptance, handling, loading, stowage and segregation of dangerous goods;

(3) actions to take in the event of an aircraft accident or incident when dangerous goods are being carried;

(4) the response to emergency situations involving dangerous goods;

(5) the removal of any possible contamination;

(6) the duties of all personnel involved, especially with relevance to ground handling and aircraft handling;

(7) inspection for damage, leakage or contamination;

(8) dangerous goods accident and incident reporting.

SPA.DG.110 Dangerous goods information and documentation

The operator shall, in accordance with the technical instructions:

(a) provide written information to the pilot-in-command/commander:

(1) about dangerous goods to be carried on the aircraft;

(2) for use in responding to in-flight emergencies;

(b) use an acceptance checklist;

(c) ensure that dangerous goods are accompanied by the required dangerous goods transport document(s), as completed by the person offering dangerous goods for air transport, except when the information applicable to the dangerous goods is provided in electronic form;

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(d) ensure that where a dangerous goods transport document is provided in written form, a copy of the document is retained on the ground where it will be possible to obtain access to it within a reasonable period until the goods have reached their final destination;

(e) ensure that a copy of the information to the pilot-in-command or the commander is retained on the ground and that that copy, or the information contained in it, is readily accessible to the flight operations officer, flight dispatcher, or the designated ground personnel responsible for their part of the flight operations, until after the completion of the flight to which the information refers;

(f) retain the acceptance checklist, transport document and information to the pilot-in-command/commander for at least three months after completion of the flight;

(g) retain the training records of all personnel for at least three years.

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SUBPART H: HELICOPTER OPERATIONS WITH NIGHT VISION IMAGING SYSTEMS

SPA.NVIS.100 Night vision imaging system (NVIS) operations

(a) Helicopters shall only be operated under VFR at night with the aid of NVIS if the operator has been approved by the CAAT.

(b) To obtain such approval by the CAAT, the operator shall:

(1) operate in commercial air transport (CAT) and hold a CAT AOC in accordance with TCAR OPS Part ORO;

(2) demonstrate to the CAAT:

(i) compliance with the applicable requirements contained in this Subpart;

(ii) the successful integration of all elements of the NVIS.

SPA.NVIS.110 Equipment requirements for NVIS operations

(a) Before conducting NVIS operations each helicopter and all associated NVIS equipment shall have been issued with the relevant airworthiness approval in accordance with EASA Part 21 or any equivalent material acceptable to the CAAT.

(b) Radio altimeter. The helicopter shall be equipped with a radio altimeter capable of emitting an audio warning below a pre-set height and an audio and visual warning at a height selectable by the pilot, instantly discernible during all phases of NVIS flight.

(c) Aircraft NVIS compatible lighting. To mitigate the reduced peripheral vision cues and the need to enhance situational awareness, the following shall be provided:

(1) NVIS-compatible instrument panel flood-lighting, if installed, that can illuminate all essential flight instruments;

(2) NVIS-compatible utility lights;

(3) portable NVIS compatible flashlight; and

(4) a means for removing or extinguishing internal NVIS non-compatible lights.

(d) Additional NVIS equipment. The following additional NVIS equipment shall be provided:

(1) a back-up or secondary power source for the night vision goggles (NVG);

(2) a helmet with the appropriate NVG attachment.

(e) All required NVGs on an NVIS flight shall be of the same type, generation and model.

(f) Continuing airworthiness

(1) Procedures for continuing airworthiness shall contain the information necessary for carrying out ongoing maintenance and inspections on NVIS equipment installed in the helicopter and shall cover, as a minimum:

(i) helicopter windscreens and transparencies;

(ii) NVIS lighting;

(iii) NVGs; and

(iv) any additional equipment that supports NVIS operations.

(2) Any subsequent modification or maintenance to the aircraft shall be in compliance with the NVIS airworthiness approval.

SPA.NVIS.120 NVIS operating minima

(a) Operations shall not be conducted below the weather minima for the type of night operations being conducted.

(b) The operator shall establish the minimum transition height from where a change to/from aided flight may be continued.

SPA.NVIS.130 Crew requirements for NVIS operations

(a) *Selection*. The operator shall establish criteria for the selection of crew members for the NVIS task.

(b) *Experience*. The minimum experience for the commander shall not be less than 20 hours VFR at night as pilot-in-command/commander of a helicopter before commencing training.

(c) *Operational training*. All pilots shall have completed the operational training in accordance with the NVIS procedures contained in the operations manual.

(d) *Recency*. All pilots and NVIS technical crew members conducting NVIS operations shall have completed three NVIS flights in the last 90 days. Recency may be re-established on a training flight in the helicopter or an approved full flight simulator (FFS), which shall include the elements of (f)(1).

(e) *Crew composition*. The minimum crew shall be the greater of that specified:

(1) in the aircraft flight manual (AFM);

(2) for the underlying activity; or

(3) in the operational approval for the NVIS operations.

(f) Crew training and checking

(1) Training and checking shall be conducted in accordance with a detailed syllabus approved by the CAAT and included in the operations manual.

(2) Crew members

(i) Crew training programmes shall: improve knowledge of the NVIS working environment and equipment; improve crew coordination; and include measures to minimise the risks associated with entry into low visibility conditions and NVIS normal and emergency procedures.

(ii) The measures referred to in (f)(2)(i) shall be assessed during:

(A) night proficiency checks; and

(B) line checks.

SPA.NVIS.140 Information and documentation

The operator shall ensure that, as part of its risk analysis and management process, risks associated with the NVIS environment are minimised by specifying in the operations manual: selection, composition and training of crews; levels of equipment and dispatch criteria; and operating procedures and minima, such that normal and likely abnormal operations are described and adequately mitigated.

SUBPART I: HELICOPTER HOIST OPERATIONS

SPA.HHO.100 Helicopter hoist operations (HHO)

(a) Helicopters shall only be operated for the purpose of CAT hoist operations if the operator has been approved by the CAAT.

(b) To obtain such approval by the CAAT, the operator shall:

(1) operate in CAT and hold a CAT AOC in accordance with TCAR OPS Part ORO;

(2) demonstrate to the CAAT compliance with the requirements contained in this Subpart.

SPA.HHO.110 Equipment requirements for HHO

(a) The installation of all helicopter hoist equipment other than a simple PCDS, including any radio equipment to comply with point SPA.HHO.115, and any subsequent modifications, shall have an airworthiness approval appropriate to the intended function. Ancillary equipment shall be designed and tested to the appropriate standard as required by the CAAT.

(b) Maintenance instructions for HHO equipment and systems shall be established by the operator in liaison with the manufacturer and included in the operator's helicopter maintenance programme.

SPA.HHO.115 HHO communication

Two-way radio communication shall be established with the organisation for which the HHO is being provided and, where possible, a means of communicating with ground personnel at the HHO site for:

(a) day and night offshore operations;

(b) night onshore operations, except for HHO at a helicopter emergency medical services (HEMS) operating site.

SPA.HHO.125 Performance requirements for HHO

Except for HHO at a HEMS operating site, HHO shall be capable of sustaining a critical engine failure with the remaining engine(s) at the appropriate power setting without hazard to the suspended person(s)/cargo, third parties or property.

SPA.HHO.130 Crew requirements for HHO

(a) *Selection*. The operator shall establish criteria for the selection of flight crew members for the HHO task, taking previous experience into account.

(b) *Experience*. The minimum experience level for the commander conducting HHO flights shall not be less than:

(1) Offshore:

(i) 1000 hours as pilot-in-command/commander of helicopters, or 1000 hours as co-pilot in HHO of which 200 hours is as pilot-in-command under supervision; and

(ii) 50 hoist cycles conducted offshore, of which 20 cycles shall be at night if night operations are being conducted, where a hoist cycle means one down-and-up cycle of the hoist hook.

(2) Onshore:

(i) 500 hours as pilot-in-command/commander of helicopters, or 500 hours as co-pilot in HHO of which 100 hours is as pilot-in-command under supervision;

(ii) 200 hours operating experience in helicopters gained in an operational environment similar to the intended operation; and

(iii) 50 hoist cycles, of which 20 cycles shall be at night if night operations are being conducted.

(c) Operational training and experience. Successful completion of training in accordance with the HHO procedures contained in the operations manual and relevant experience in the role and environment under which HHO are conducted.

(d) Recency. All pilots and HHO crew members conducting HHO shall have completed in the last 90 days:

(1) when operating by day: any combination of three day or night hoist cycles, each of which shall include a transition to and from the hover;

(2) when operating by night: three night hoist cycles, each of which shall include a transition to and from the hover.

(e) Crew composition. The minimum crew for day or night operations shall be as stated in the operations manual. The minimum crew will be dependent on the type of helicopter, the weather conditions, the type of task, and, in addition for offshore operations, the HHO site environment, the sea state and the movement of the vessel. In no case shall the minimum crew be less than one pilot and one HHO crew member.

(f) Training and checking

(1) Training and checking shall be conducted in accordance with a detailed syllabus approved by the CAAT and included in the operations manual.

(2) Crew members:

(i) Crew training programmes shall: improve knowledge of the HHO working environment and equipment; improve crew coordination; and include measures to minimise the risks associated with HHO normal and emergency procedures and static discharge.

(ii) The measures referred to in (f)(2)(i) shall be assessed during visual meteorological conditions (VMC) day proficiency checks, or VMC night proficiency checks when night HHO are undertaken by the operator.

SPA.HHO.135 HHO passenger briefing

Prior to any HHO flight, or series of flights, HHO passengers shall have been briefed and made aware of the dangers of static electricity discharge and other HHO considerations.

SPA.HHO.140 Information and documentation

(a) The operator shall ensure that, as part of its risk analysis and management process, risks associated with the HHO environment are minimised by specifying in the operations manual: selection, composition and training of crews; levels of equipment and dispatch criteria; and operating procedures and minima, such that normal and likely abnormal operations are described and adequately mitigated.

(b) Relevant extracts from the operations manual shall be available to the organisation for which the HHO is being provided.

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SUBPART J: HELICOPTER EMERGENCY MEDICAL SERVICE OPERATIONS

SPA.HEMS.100 Helicopter emergency medical service (HEMS) operations

(a) Helicopters shall only be operated for the purpose of HEMS operations if the operator has been approved by the CAAT.

(b) To obtain such approval by the CAAT, the operator shall:

(1) operate in CAT and hold a CAT AOC in accordance with TCAR OPS Part ORO;

(2) demonstrate to the CAAT compliance with the requirements contained in this Subpart.

SPA.HEMS.110 Equipment requirements for HEMS operations

The installation of all helicopter dedicated medical equipment and any subsequent modifications and, where appropriate, its operation shall be approved in accordance with EASA Part 21 or any equivalent material acceptable to the CAAT.

SPA.HEMS.115 Communication

In addition to that required by CAT.IDE.H, helicopters conducting HEMS flights shall have communication equipment capable of conducting two-way communication with the organisation for which the HEMS is being conducted and, where possible, to communicate with ground emergency service personnel.

SPA.HEMS.120 HEMS operating minima

(a) HEMS flights operated in performance class 1 and 2 shall comply with the weather minima in Table 1 for dispatch and en-route phase of the HEMS flight. In the event that during the en-route phase the weather conditions fall below the cloud base or visibility minima shown, helicopters certified for flights only under VMC shall abandon the flight or return to base. Helicopters equipped and certified for instrument meteorological conditions (IMC) operations may abandon the flight, return to base or convert in all respects to a flight conducted under instrument flight rules (IFR), provided the flight crew are suitably qualified.

Table 1	
HEMS operating minima	
2 PILOTS	
DAY	
Ceiling	Visibility
500 ft and above	As defined by the applicable airspace VFR minima
499 - 400 ft	1000 m(*)
399 - 300 ft	2 000 m

(*) During the en-route phase visibility may be reduced to 800 m for short periods when in sight of land if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe any obstacles in time to avoid a collision.

(b) The weather minima for the dispatch and en-route phase of a HEMS flight operated in performance class 3 shall be a cloud ceiling of 600 ft and a visibility of 1500 m. Visibility may be reduced to 800 m for short periods when in sight of land if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe any obstacle and avoid a collision.

SPA.HEMS.125 Performance requirements for HEMS operations

(a) Performance class 3 operations shall not be conducted over a hostile environment.

(b) Take-off and landing

(1) Helicopters conducting operations to/from a final approach and take-off area (FATO) at a hospital that is located in a congested hostile environment and that is used as a HEMS operating base shall be operated in accordance with performance class 1.

(2) Helicopters conducting operations to/from a FATO at a hospital that is located in a congested hostile environment and that is not a HEMS operating base shall be operated in accordance with performance class 1, except when the operator holds an approval in accordance with CAT.POL.H.225.

(3) Helicopters conducting operations to/from a HEMS operating site located in a hostile environment shall be operated in accordance with performance class 2 and be exempt from the approval required by CAT.POL.H.305(a), provided compliance is shown with CAT.POL.H.305(b)(2) and (b)(3).

(4) The HEMS operating site shall be big enough to provide adequate clearance from all obstructions. For night operations, the site shall be illuminated to enable the site and any obstructions to be identified.

SPA.HEMS.130 Crew requirements

(a) *Selection*. The operator shall establish criteria for the selection of flight crew members for the HEMS task, taking previous experience into account.

(b) *Experience*. The minimum experience level for the commander conducting HEMS flights shall not be less than:

(1) either:

(i) 1 000 hours as pilot-in-command/commander of aircraft of which 500 hours are as pilot-in-command/commander on helicopters; or

(ii) 1 000 hours as co-pilot in HEMS operations of which 500 hours are as pilot-in-command under supervision and 100 hours pilot-in-command/commander of helicopters;

(2) 500 hours' operating experience in helicopters, gained in an operational environment similar to the intended operation; and

(c) Operational training. Successful completion of operational training in accordance with the HEMS procedures contained in the operations manual.

(d) Recency. All pilots conducting HEMS operations shall have completed a minimum of 30 minutes' flight by sole reference to instruments in a helicopter or in an FSTD within the last six months.

(e) Crew composition

(1) Day flight. The minimum crew shall be two pilots.

(2) Night flight is prohibited.

(f) Crew training and checking

(1) Training and checking shall be conducted in accordance with a detailed syllabus approved by the CAAT and included in the operations manual.

(2) Crew members

(i) Crew training programmes shall: improve knowledge of the HEMS working environment and equipment; improve crew coordination; and include measures to minimise the risks associated with en-route transit in low visibility conditions, selection of HEMS operating sites and approach and departure profiles.

(ii) The measures referred to in (f)(2)(i) shall be assessed during:

(A) VMC day proficiency checks,

(B) line checks.

SPA.HEMS.135 HEMS medical passenger and other personnel briefing

(a) *Medical passenger*. Prior to any HEMS flight, or series of flights, medical passengers shall have been briefed to ensure that they are familiar with the HEMS working environment and equipment, can operate on-board medical and emergency equipment and can take part in normal and emergency entry and exit procedures.

(b) *Ground emergency service personnel*. The operator shall take all reasonable measures to ensure that ground emergency service personnel are familiar with the HEMS working environment and equipment and the risks associated with ground operations at a HEMS operating site.

(c) *Medical patient*. Notwithstanding CAT.OP.MPA.170, a briefing shall only be conducted if the medical condition makes this practicable.

SPA.HEMS.140 Information and documentation

(a) The operator shall ensure that, as part of its risk analysis and management process, risks associated with the HEMS environment are minimised by specifying in the operations manual: selection, composition and training of crews; levels of equipment and dispatch criteria; and operating procedures and minima, such that normal and likely abnormal operations are described and adequately mitigated.

(b) Relevant extracts from the operations manual shall be made available to the organisation for which the HEMS is being provided.

SPA.HEMS.145 HEMS operating base facilities

(a) If crew members are required to be on standby with a reaction time of less than 45 minutes, dedicated suitable accommodation shall be provided close to each operating base.

(b) At each operating base the pilots shall be provided with facilities for obtaining current and forecast weather information and shall be provided with satisfactory communications with the appropriate air traffic services (ATS) unit. Adequate facilities shall be available for the planning of all tasks.

SPA.HEMS.150 Fuel/energy supply – alleviation

As an alternative to points CAT.OP.MPA.191 (b), (c), and (d), when the helicopter emergency medical services (HEMS) mission is conducted under visual flight rules (VFR) within a local and defined geographical area, the fuel/energy policy shall ensure that on completion of the mission, the final reserve fuel/energy is sufficient for:

(a) 30-minute flying time at best-range speed; or

(b) 20-minute flying time at best-range speed by day, when operating within an area providing continuous and suitable operating sites.';

SPA.HEMS.155 Refuelling with passengers on board

A refuelling procedure with either rotors stopped or rotors turning shall be provided in accordance with point CAT.OP.MPA.200 'Special refuelling or defuelling of the aircraft.

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SUBPART K: HELICOPTER OFFSHORE OPERATIONS

SPA.HOFO.100 Helicopter offshore operations (HOFO)

The requirements of this Subpart apply to:

(a) a commercial air transport operator holding a valid AOC in accordance with Part ORO;

(b) a specialised operations operator having been authorised by the Civil Aviation Authority of the Kingdom of Thailand, in accordance with Kingdom of Thailand Civil Aviation Regulations and the CAAT internal oversight, certification and enforcement procedures; or

(c) a non-commercial operator having been authorised by the Civil Aviation Authority of the Kingdom of Thailand, in accordance with Kingdom of Thailand Civil Aviation Regulations and the CAAT internal oversight, certification and enforcement procedures.

SPA.HOFO.105 Approval for helicopter offshore operations

(a) Prior to engaging in operations under this Subpart, a specific approval by the CAAT shall have been issued to the operator.

(b) To obtain such approval, the operator shall submit an application to the CAAT as specified in SPA.GEN.105, and shall demonstrate compliance with the requirements of this Subpart.

(c) The operator shall, prior to performing operations in a State outside of Thailand seek the approval of the CAAT before the start of the intended operations

SPA.HOFO.110 Operating procedures

(a) The operator shall, as part of its safety management process, mitigate and minimise risks and hazards specific to helicopter offshore operations. The operator shall specify in the operations manual the:

(1) selection, composition and training of crews;

(2) duties and responsibilities of crew members and other involved personnel;

(3) required equipment and dispatch criteria; and

(4) operating procedures and minima, such that normal and likely abnormal operations are described and adequately mitigated.

(b) The operator shall ensure that:

(1) an operational flight plan is prepared prior to each flight;

(2) the passenger safety briefing also includes any specific information on offshore related items and is provided prior to boarding the helicopter;

(3) each member of the flight crew wears an approved survival suit:

(i) when the weather report or forecasts available to the pilot-in-command/commander indicate that the sea temperature will be less than plus 10°C during the flight; or

(ii) when the estimated rescue time exceeds the calculated survival time; or

(iii) when the flight is planned to be conducted at night in a hostile environment;

(4) where established, the offshore route structure provided by the appropriate ATS is followed;

(5) pilots make optimum use of the automatic flight control systems (AFCS) throughout the flight;

(6) specific offshore approach profiles are established, including stable approach parameters and the corrective action to be taken if an approach becomes unstable;

(7) for multi-pilot operations, procedures are in place for a member of the flight crew to monitor the flight instruments during an offshore flight, especially during approach or departure, to ensure that a safe flight path is maintained;

(8) the flight crew takes immediate and appropriate action when a height alert is activated;

(9) procedures are in place to require the emergency flotation systems to be armed, when safe to do so, for all overwater arrivals and departures; and

(10) operations are conducted in accordance with any restriction on the routes or the areas of operation specified by the CAAT or the appropriate authority responsible for the airspace.

SPA.HOFO.115 Use of offshore locations

The operator shall only use offshore locations that are suitable in relation to size and mass of the type of helicopter and to the operations concerned.

SPA.HOFO.120 Selection of aerodromes and operating sites

(a) Onshore destination alternate aerodrome. Notwithstanding points CAT.OP.MPA.192, NCC.OP.152 and SPO.OP.151, the pilot-in command/commander does not need to specify a destination alternate aerodrome in the operational flight plan when conducting flights from an offshore location to a land destination aerodrome provided that sufficient operational contingency is in place to ensure a safe return from offshore.

(b) Offshore destination alternate helideck. The operator may select an offshore destination alternate helideck when all of the following criteria are met:

(1) An offshore destination alternate helideck shall be used only after the point of no return (PNR) and when an onshore destination alternative aerodrome is not geographically available. Prior to the PNR, an onshore destination alternate aerodrome shall be used.

(2) One engine inoperative (OEI) landing capability shall be attainable at the offshore destination alternate helideck.

(3) To the extent possible, helideck availability shall be guaranteed prior to PNR. The dimensions, configuration and obstacle clearance of individual helidecks or other sites shall be suitable for its use as an alternate helideck by each helicopter type intended to be used.

(4) Weather minima shall be established taking into account the accuracy and reliability of meteorological information.

(5) The MEL shall contain specific provisions for this type of operation.

(6) An offshore destination alternate helideck shall only be selected if the operator has established a procedure in the operations manual.

SPA.HOFO.125 Offshore standard approach procedures (OSAPs)

(a) An operator shall establish procedures to ensure that offshore standard approach procedures (OSAPs) are followed only if:

(1) the helicopter is capable of providing navigation and real-time obstacle environment information for obstacle clearance; and

(2) either:

(i) the minimum descent height (MDH) is determined from a radio altimeter or a device that provides equivalent performance; or

(ii) the minimum descent altitude (MDA) is applied and it includes an adequate margin.

(b) If the operator follows OSAPs to rigs or vessels in transit, the flight shall be conducted in multi-pilot operations.

(c) The decision range shall provide adequate obstacle clearance in the missed approach from any destination for which an OSAP is planned.

(d) The approach shall only be continued beyond decision range or below the minimum descent altitude/height (MDA/H) when visual reference to the destination has been established.

(e) For single-pilot operations, appropriate increments shall be added to the MDA/H and decision range.

(f) When an OSAP is followed to a non-moving offshore location (i.e. fixed installation or moored vessel) and a reliable GNSS position for the location is available in the navigation system, the GNSS/area navigation system shall be used to enhance the safety of the OSAP.

(g) The operator shall include OSAPs in its initial and recurrent training and checking programmes

SPA.HOFO.130 Meteorological conditions

Notwithstanding CAT.OP.MPA.247, NCC.OP.180 and SPO.OP.170, when flying between offshore locations located in class G airspace where the overwater sector is less than 10 NM, VFR flights may be conducted when the limits are at, or better than, the following:

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Minima for flying between offshore locations located in class G airspace

	Day		Night	
	Height*	**Visibility**	**Height***	**Visibility**
Single pilot	300 feet	3 km	500 feet	5 km
Two pilots	300 feet	2 km**	500 feet	5 km***

*The cloud base shall allow flight at the specified height to be below and clear of cloud.

** Helicopters may be operated in flight visibility down to 800 m, provided the destination or an intermediate structure is continuously visible.

***Helicopters may be operated in flight visibility down to 1 500 m, provided the destination or an intermediate structure is continuously visible.

SPA.HOFO.135 Wind limitations for operations to offshore locations

Operation to an offshore location shall only be performed when the wind speed at the helideck is reported to be not more than 60 knots including gusts.

SPA.HOFO.140 Performance requirements at offshore locations

Helicopters taking off from and landing at offshore locations shall be operated in accordance with the performance requirements of the appropriate TCAR OPS regulation according to their type of operation.

SPA.HOFO.145 Flight data monitoring (FDM) system

(a) When conducting CAT operations with a helicopter equipped with a flight data recorder, the operator shall establish and maintain a FDM system, as part of its integrated management system, by 1 January 2019.

(b) The FDM system shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

SPA.HOFO.150 Aircraft tracking system

An operator shall establish and maintain a monitored aircraft tracking system for offshore operations in a hostile environment from the time the helicopter departs until it arrives at its final destination.

SPA.HOFO.155 Vibration health monitoring (VHM) system

(a) The following helicopters conducting CAT offshore operations in a hostile environment shall be fitted with a VHM system capable of monitoring the status of critical rotor and rotor drive systems by 1 January 2019:

(1) complex motor powered helicopters first issued with an individual Certificate of Airworthiness (CofA) after 31 December 2016;

(2) all helicopters with a maximum operational passenger seating configuration (MOPSC) of more than 9 and first issued with an individual CofA before 1 January 2017;

(3) all helicopters first issued with an individual CofA after 31 December 2018.

(b) The operator shall have a system to:

(1) collect the data including system generated alerts;

(2) analyse and determine component serviceability; and

(3) respond to detected incipient failures.

SPA.HOFO.160 Equipment requirements

(a) The operator shall comply with the following equipment requirements:

(1) Public Address (PA) system in helicopters used for CAT and non-commercial operations with complex motor-powered helicopters (NCC):

(i) Helicopters with a maximum operational passenger seat configuration (MOPSC) of more than 9 shall be equipped with a PA system.

(ii) Helicopters with an MOPSC of 9 or less need not be equipped with a PA system if the operator can demonstrate that the pilot's voice is understandable at all passengers' seats in flight.

(2) Radio altimeter

Helicopters shall be equipped with a radio altimeter that is capable of emitting an audio warning below a pre-set height and a visual warning at a height selectable by the pilot.

(b) Emergency exits

All emergency exits, including crew emergency exits, and any door, window or other opening that is suitable for emergency egress, and the means for opening them shall be clearly marked for the guidance of occupants using them in daylight or in the dark. Such markings shall be designed to remain visible if the helicopter is capsized or the cabin is submerged.

(c) Helicopter terrain awareness warning system (HTAWS)

Helicopters used in CAT operations with a maximum certificated take-off mass of more than 3 175 kg or a MOPSC of more than 9 and first issued with an individual CofA after 31 December 2018 shall be equipped with an HTAWS that meets the requirements for class A equipment as specified in an acceptable standard.

SPA.HOFO.165 Additional procedures and equipment for operations in a hostile environment

(a) *Life jackets*

Approved life jackets shall be worn at all times by all persons on board unless integrated survival suits that meet the combined requirement of the survival suit and life jacket are worn.

(b) *Survival suits*

All passengers on board shall wear an approved survival suit:

(1) when the weather report or forecasts available to the commander/pilot-in-command indicate that the sea temperature will be less than plus 10 °C during the flight; or

(2) when the estimated rescue time exceeds the calculated survival time; or

(3) when the flight is planned to be conducted at night.

(c) *Emergency breathing system*

All persons on board shall carry and be instructed in the use of emergency breathing systems.

(d) *Life rafts*

(1) All life rafts carried shall be installed so as to be usable in the sea conditions in which the helicopter's ditching, flotation, and trim characteristics were evaluated for certification.

(2) All life rafts carried shall be installed so as to facilitate their ready use in an emergency.

(3) The number of life rafts installed:

(i) in the case of a helicopter carrying less than 12 persons, at least one life raft with a rated capacity of not less than the maximum number of persons on board; or

(ii) in the case of a helicopter carrying more than 11 persons, at least two life rafts, sufficient together to accommodate all persons capable of being carried on board and, if one is lost, the remaining life raft(s) having the overload capacity sufficient to accommodate all persons on the helicopter.

(4) Each life raft shall contain at least one survival emergency locator transmitter (ELT(S)); and

(5) Each life raft shall contain life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.

(e) *Emergency cabin lighting*

The helicopter shall be equipped with an emergency lighting system with an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter.

(f) *Automatically deployable emergency locator transmitter* (*ELT*(*AD*))

The helicopter shall be equipped with an ELT(AD) that is capable of transmitting simultaneously on 121,5 MHz and 406 MHz.

(g) *Securing of non-jettisonable doors*

Non-jettisonable doors that are designated as ditching emergency exits shall have a means of securing them in the open position so that they do not interfere with the occupants' egress in all sea conditions up to the maximum sea conditions required to be evaluated for ditching and flotation.

(h) *Emergency exits and escape hatches*

All emergency exits, including crew emergency exits, and any door, window or other opening suitable to be used for the purpose of underwater escape shall be equipped so as to be operable in an emergency.

(1) Notwithstanding (a), (b) and (c) above the operator may, based on a risk assessment, allow passengers, medically incapacitated at an offshore location, to partly wear or not wear life jackets, survival suits or emergency breathing systems on return flights or flights between offshore locations.

SPA.HOFO.170 Crew requirements

(a) The operator shall establish:

(1) criteria for the selection of flight crew members, taking into account the flight crew members' previous experience;

(2) a minimum experience level for a commander/pilot-in-command intending to conduct offshore operations; and

(3) a flight crew training and checking programme that each flight crew member shall complete successfully. Such programme shall be adapted to the offshore environment and include normal, abnormal and emergency procedures, crew resource management, water entry and sea survival training.

(b) Recency requirements

A pilot shall only operate a helicopter carrying passengers:

(1) at an offshore location, as commander or pilot-in-command, or co-pilot, when he or she has carried out in the preceding 90 days at least 3 take-offs, departures, approaches and landings at an offshore location in a helicopter of the same type or a full flight simulator (FFS) representing that type; or

(2) by night at an offshore location, as commander or pilot-in-command, or co-pilot, when he/she has carried out in the preceding 90 days at least 3 take-offs, departures, approaches and landings at night at an offshore location in a helicopter of the same type or an FFS representing that type.

The 3 take-offs and landings shall be performed in either multi-pilot or single-pilot operations, depending on the operation to be performed.

(c) Specific requirements for CAT:

(1) The 90-day period presented in points (b)(1) and (2) above may be extended to 120 days as long as the pilot undertakes line flying under the supervision of a type rating instructor or examiner.

(2) If the pilot does not comply with the requirements in (1), he/she shall complete a training flight in the helicopter or an FFS of the helicopter type to be used, which shall include at least the requirements described in (b)(1) and (2) before he or she can exercise his or her privileges.

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SUBPART L: SINGLE-ENGINED TURBINE AEROPLANE OPERATIONS AT NIGHT OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (SET-IMC)

SPA.SET-MC.100 SET-IMC operations

In commercial air transport (CAT) operations, single-engined turbine aeroplanes shall only be operated at night or in IMC if the operator has been granted a SET-IMC approval by the CAAT.

SPA.SET-IMC.105 SET-IMC operations approval

To obtain a SET-IMC approval by the CAAT, the operator shall provide evidence that all the following conditions have been complied with:

(a) an acceptable level of turbine engine reliability is achieved in service by the world fleet for the particular airframe-engine combination;

(b) specific maintenance instructions and procedures to ensure the intended levels of continued airworthiness and reliability of the aeroplane and its propulsion system have been established and included in the operator's aircraft maintenance programme as specified in applicable continuing airworthiness requirements, including all of the following:

(1) an engine trend monitoring programme, except for aeroplanes first issued with an individual certificate of airworthiness after 31 December 2004 that have an automatic trend monitoring system;

(2) a propulsion and associated systems' reliability programme;

(c) flight crew composition and a training/checking programme for the flight crew members involved in these operations have been established;

(d) operating procedures have been established specifying all the following:

(1) the equipment to be carried, including its operating limitations and appropriate entries in the MEL;

(2) the flight planning;

(3) the normal procedures;

(4) the contingency procedures, including procedures following a propulsion system failure, as well as forced landing procedures in all weather conditions;

(5) the monitoring and incident reporting.

(e) a safety risk assessment has been performed, including the determination of an acceptable risk period if an operator intends to make use of it.

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SPA.SET-IMC.110 Equipment requirements for SET-IMC operations

Aeroplanes used for SET-IMC operations shall be equipped with all the following equipment:

(a) two separate electrical generating systems, each one capable of supplying adequate power to all essential flight instruments, navigation systems and aeroplane systems required for continued flight to the destination or alternate aerodrome;

(b) two attitude indicators, powered from independent sources;

(c) for passenger operations, a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;

(d) airborne weather-detecting equipment;

(e) in a pressurised aeroplane, sufficient supplemental oxygen for all occupants to allow descent, following engine failure at the maximum certificated cruising altitude, at the best range gliding speed and in the best gliding configuration, assuming the maximum cabin leak rate, until sustained cabin altitudes below 13 000 ft are reached;

(f) an area navigation system capable of being programmed with the positions of landing sites and providing lateral guidance to the flight crew to reach those sites;

(g) a radio altimeter;

(h) a landing light, capable of illuminating the touchdown point on the power-off glide path from 200 ft away;

(i) an emergency electrical supply system of sufficient capacity and endurance capable of providing power, following the failure of all generated power, to additional loads necessary for all of the following:

  (1) the essential flight and area navigation instruments during descent from maximum operating altitude after engine failure;

  (2) the means to provide for one attempt to restart the engine;

  (3) if appropriate, the extension of landing gear and flaps;

  (4) the use of the radio altimeter throughout the landing approach;

  (5) the landing light;

  (6) one pitot heater;

  (7) if installed, the electrical means to give sufficient protection against impairment of the pilot's vision for landing;

(j) an ignition system that activates automatically, or is capable of being operated manually, for take- off, landing, and during flight, in visible moisture;

(k) a means of continuously monitoring the power train lubrication system to detect the presence of debris associated with the imminent failure of a drivetrain component, including a flight crew compartment caution indication;

(l) an emergency engine power control device that permits continuing operation of the engine at a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel/energy control unit.

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SUBPART M: ELECTRONIC FLIGHT BAGS (EFB)

SPA.EFB.100 Use of electronic flight bags (EFBs) — operational approval

(a) A commercial air transport operator shall only use a type B EFB application if the operator has been granted an approval by the CAAT for such use.

(b) In order to obtain an operational approval from the CAAT for the use of a type B EFB application, the operator shall provide evidence that:

(1) a risk assessment related to the use of the EFB device that hosts the application and to the EFB application and its associated function(s) has been conducted, identifying the associated risks and ensuring that they are appropriately managed and mitigated;

(2) the human–machine interfaces of the EFB device and the EFB application have been assessed against human factors principles;

(3) it has established an EFB administration system and that procedures and training requirements for the administration and use of the EFB device and the EFB application have been established and implemented; these shall include procedures for:

(i) operating the EFB;

(ii) the management of changes to the EFB;

(iii) the management of EFB data;

(iv) EFB maintenance; and

(v) EFB security;

(4) the EFB host platform is suitable for the intended use of the EFB application.

This demonstration shall be specific to the EFB application and the EFB host platform on which the application is installed.

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SUBPART N: HELICOPTER POINT-IN-SPACE APPROACHES AND DEPARTURES WITH REDUCED VFR MINIMA (PINS-VFR)

SPA.PINS-VFR.100 Helicopter point-in-space (PinS) approaches and departures with reduced VFR minima

(a) The operator shall only use reduced VFR operating minima if the operator has been granted an approval by the CAAT.

(b) Reduced VFR operating minima shall apply only to a helicopter flight that includes a segment flown under IFR, and only in one of the following cases:

(1) the segment of the flight flown under VFR takes place immediately after a helicopter PinS approach with the intention of landing at a nearby heliport or operating site;

(2) the segment of the flight flown under VFR takes place immediately after a helicopter PinS approach with the intention of conducting hoist operations at a nearby HEC or HHO site;

(3) the segment of the flight flown under VFR is a departure with the intention of transitioning to IFR at a nearby initial departure fix.

(c) The operator shall define operating procedures that are applicable when flying with reduced VFR operating minima.

(d) The operator shall ensure that the flight crew members are experienced and trained to operate with reduced VFR operating minima.

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