



TCAR OPS – Air Operations

Part NCO, NCC

Introduction and public hearing of the regulations
12 September 2023

Flight Operations Standards Department
General Aviation and Aerial Work Division



THAILAND CIVIL AVIATION REGULATION

TCAR OPS – Air Operations

Cover regulation to TCAR OPS Parts ORO, CAT, SPA, NCC, NCO, SPO and transition provisions of existing activities to TCAR OPS

Issue 01
Revision 00
Date 30 OCTOBER 2021



THAILAND CIVIL AVIATION REGULATION

TCAR OPS – Part NCC

Non-Commercial Air Operations with Complex Motor Powered Aircraft

Issue 01
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THAILAND CIVIL AVIATION REGULATION

Acceptable Means of Compliance and Guidance Material to - TCAR OPS Part NCC

Non-Commercial Air Operations with Complex Motor Powered Aircraft

Issue 01
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THAILAND CIVIL AVIATION REGULATION

TCAR OPS – Part NCO

Non-Commercial Air Operations with Other-Than Complex Motor-Powered Aircraft

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Acceptable Means of Compliance and Guidance Material to TCAR OPS

Part NCO

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Issue 01
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TCAR OPS – Air Operations
Cover regulation to
TCAR OPS Part ORO, CAT, SPA, NCC,
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of existing activities to TCAR OPS

Cover Regulation & Essential requirements

To ensure compliance with the **essential requirements** laid down in the Air Navigation Act and in the cover regulation, CAAT issued detailed requirement contained in TCAR OPS parts.

The **cover regulation**:

- Make a clear **link between the Essential requirements** contained in Air Navigation Act (complemented by the cover) **and the TCAR parts**
- Sets **applicability** of each parts
- Contains the **provisions for the transition**

Detailed Requirements

Detailed requirements (TCAR OPS Parts) are at several level

- General/Common requirements
- Specific requirements
- Additional requirement
 - *E.g. Additional organization requirements,*
 - *Additional requirement for CAT, additional requirement for commercial SPO*
- AMCs & GM

Detailed Requirements & AMCs

Detailed requirements are further “explained” to the industry using AMCs & GM

ORO.GEN.120 - Means of compliance

(a) Purpose

With a view to ensuring uniformity in the application of common requirements, it is essential that common standards be applied. Consequently, the CAAT, when necessary and practicable, will develop Acceptable Means of Compliance and Guidance Material to TCAR OPS Parts to facilitate the necessary regulatory uniformity. These AMCs may be used to demonstrate compliance with the provisions of corresponding provisions contained in TCAR OPS.

(b) Definitions

Acceptable means of compliance (AMC) are non-binding standards adopted by the CAAT to illustrate means to establish compliance with requirements of the Regulation.

Alternative means of compliance (AMoC) are those means that propose an alternative to an existing AMC or those that propose new means to establish compliance with requirements of the Regulation for which no associated AMC have been adopted by the CAAT.

Detailed Requirements & AMCs

(c) Acceptable Means of Compliance

The AMCs to TCAR OPS Parts issued by the CAAT shall neither introduce new requirements nor alleviate the requirements of the corresponding TCARs.

Each AMC shall identify clearly the provisions of the TCAR OPS it illustrates.

When the acceptable means of compliance to TCAR OPS issued by the CAAT are used, the related requirements of the TCAR OPS shall be considered met without further demonstration.

(d) Alternative means of compliance

Alternative means of compliance (AMoC) to those published by the CAAT may be used by an organisation to establish compliance with the requirements of TCAR OPS Parts.

When an organisation, wishes to use an AMoC to the AMCs to TCAR OPS, it shall, prior to implementing it, provide the CAAT with a full description of the proposed AMoC.

The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the corresponding requirements are met.

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AMCs enable to **explain** to the industry **one or several ways to comply** with the requirement contained in the TCARs.

However, it is **not a regulation** because operators may find some other ways to comply.

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TCAR OPS – Air Operations (Cover regulations)

- ❑ **SECTION I – Introduction and Principles**
- ❑ **SECTION II – Commercial Air operations**
- ❑ **SECTION III – Non-Commercial Air Operations**
- ❑ **SECTION IV – Operations requiring a specific approval**
- ❑ **SECTION V – Provisions for the transition**
- ❑ **Annex 01 Essential requirements for air operations**

□ SECTION I – Introduction and Principles

Article 1 – Introduction

Article 2 – Definitions

- **'Complex Motor-Powered Aircraft'** (CMPA) shall mean:
 - (i) an aeroplane:
 - o with a maximum certificated take-off mass exceeding 5 700 kg, or
 - o certificated for a maximum passenger seating configuration of more than nineteen, or
 - o certificated for operation with a minimum crew of at least two pilots, or
 - o equipped with (a) turbojet engine(s) or more than one turboprop engine, or
 - (ii) a helicopter certificated:
 - o for a maximum take-off mass exceeding 3 175 kg, or
 - o for a maximum passenger seating configuration of more than nine, or
 - o for operation with a minimum crew of at least two pilots, or
 - (iii) a tilt rotor aircraft.
- **'Declaration'** means a written statement made in accordance with this TCAR OPS Air Operations regulation, TCAR OPS Parts, TCAR PEL FCL/TO or TCAR PEL Parts under the sole responsibility of a legal or natural person subject to these regulations and which confirms that the applicable requirements of this regulation relating to an operator or organisation are complied with;

□ SECTION I – Introduction and Principles

Article 2 – Definitions

- **'Declared organisation'** means an organisation which is approved or authorised to perform operations on the basis of a declaration made in accordance with this TCAR OPS Air Operations regulation, TCAR OPS Parts, TCAR PEL FCL/TO or TCAR PEL Parts;
- **'Principal place of business'** of an organisation means the head office or registered office of the organisation within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;

Article 3 – Objective

TCAR regulations is to establish and maintain a high uniform level of civil aviation safety, and to:

- a) contribute to the Thailand aviation safety policy and to the improvement of the overall performance of the civil aviation sector;
- b) facilitate, in the fields covered by this Regulation, the mutual recognition of goods, persons, services and capital, providing a level playing field for all actors in the ASEAN market, and improve the competitiveness of the Thai aviation industry;
- c) facilitate, in the fields covered by these regulations, the movement of goods, services and personnel worldwide, by promoting the mutual acceptance of certificates and other relevant documents;
- d) promote cost-efficiency, avoiding duplication, and promoting effectiveness in regulatory, certification and oversight processes;
- e) promote, worldwide, the views of the Kingdom of Thailand regarding civil aviation standards and civil aviation regulations;
- f) support passenger confidence in a safe civil aviation.

❑ SECTION I – Introduction and Principles

Article 4 – Subject matter and scope

❑ TCAR OPS **is applicable to:**

- **Commercial Operators:**

- Performing Commercial **Air Transport Operations (CAT)**
- Performing Commercial **Specialised Operations (SPO)**

- **Non-Commercial Operators**

- Using **Complex Motor Powered Aircrafts (NCC)**
- Using **Other aircrafts (NCO)**
- ATOs (However, Organisation requirements are in TCAR PEL)
- Non-commercial **SPO**

For both type of operators, **some operations requires a specific approval (SPA)**

And some operators shall comply with part **ORO** (Organisation Requirements)

❑ TCAR OPS **is applicable to** the operations of aeroplane and helicopter which are:

- **Registered in Thailand;**
- **Operate by an operator having his principle place of business within the kingdom of Thailand.**

❑ This regulations **does not apply** to air operations with airships, balloons, powered-lifts, ultralights and gliders.

❑ **SECTION II – Commercial Air operations**

❑ **SECTION III – Non-Commercial Air Operations**

Article 8 – Non-commercial operations with CMPA

- (1) An Operator shall only operate a CMPA for the purpose of non-commercial operations if it holds an authorisation for non-commercial operations with CMPA issued in accordance with TCAR OPS Part ORO and appropriate for the type of operations to be performed;
- (2) An operator shall only be issued a TCAR OPS authorisation for non-commercial operations with CMPA when it was found compliant with the detailed requirements contained in this regulation and in TCAR OPS Part ORO and Part NCC applicable to the type of operations to be performed.
- (3) An authorisation for non-commercial operations with CMPA may be limited, suspended or revoked when the holder does not comply with the applicable detailed requirements contained in this regulation and in TCAR OPS Part ORO and Part NCC applicable to the type of operations to be performed.
- (4) Flight and duty time limitations for non-commercial operations with CMPA shall be implemented in compliance with the detailed requirements contained in Notification of the Civil Aviation Authority of Thailand On Flight Time and Flight Duty Period Limitation.

❑ SECTION II – Commercial Air operations

❑ SECTION III – Non-Commercial Air Operations

Article 8 – Non-commercial operations with CMPA (Cont.)

- (5) By derogation to (1), operators of complex motor- powered aeroplanes with a maximum certificated take-off mass (MCTOM) **at or below 5 700 kg**, equipped with turboprop engines, involved in non-commercial operations **are not required to submit a declaration and do not need to obtain authorisation from the CAAT.**
- (6) By derogation to (2), operators of complex motor- powered aeroplanes with a maximum certificated take-off mass (MCTOM) **at or below 5 700 kg**, equipped with turboprop engines, involved in non-commercial operations **shall operate those aircraft in accordance with TCAR OPS Part NCO.**

□ SECTION III – Non-Commercial Air Operations

Article 9 – Non-commercial operations with other than CMPA

- (1) An Operator shall only operate **other than CMPA for the purpose of non-commercial operations**, as specified in TCAR OPS Part NCO.
- (2) By derogation from Article 5 and Article 7 of this TCAR OPS Air Operations Regulation, the following operations with other than CMPA, may be conducted in accordance with TCAR OPS Part NCO:
 - (a) **cost-shared flights by private individuals**, on the condition that **the direct cost is shared by all the occupants of the aircraft, pilot included and the number of persons sharing the direct costs is limited to six**;
 - (b) **competition flights or flying displays**, on the condition that the remuneration or any valuable consideration given for such flights **is limited to recovery of direct costs and a proportionate contribution to annual costs, as well as prizes of no more than a value specified by the competent authority**;

□ SECTION III – Non-Commercial Air Operations

Article 9 – Non-commercial operations with other than CMPA

(2) By derogation from Article 5 and Article 7 of this TCAR OPS Air Operations Regulation, the following operations with other than CMPA, may be conducted in accordance with TCAR OPS Part NCO (Cont.):

- (c) **introductory flights, parachute dropping, glider towing or aerobatic flights** performed either by:
- **a training organisation** having its principal place of business in the Kingdom of Thailand and approved in accordance with TCAR PEL, **or**
 - **by an organisation** created with the **aim of promoting aerial sport or leisure aviation**, on the condition that the aircraft is operated by the organisation on the basis of ownership or dry lease,
 - **that the flight does not generate profits distributed outside of the organisation, and that whenever non-members of the organisation are involved, such flights represent only a marginal activity of the organisation.**

Article 10 – Training Organisations

SECTION IV – Operations requiring a specific approval

□ SECTION V – Provisions for the transition

Article 12 – Entry into force and application

- (1) This TCAR OPS Air Operations regulation as well as TCAR OPS Parts, **shall enter into force on 3 December 2023.**
- (2) This TCAR OPS Air Operations regulation as well as TCAR OPS Parts **shall be fully applicable and binding in their entirety from the 1 July 2027. Beyond this date,** operators shall comply with the detailed requirements contained in this TCAR OPS Air Operations regulation and TCAR OPS Parts and shall have obtained, from the CAAT, the appropriate certificate, approval or authorisation issued in accordance with this TCAR OPS Air Operations regulation and TCAR OPS Parts as applicable.
- (3) Between the date in (1) and the date in (2), the transition period operators shall comply with the provisions contained in this Section.

□ SECTION V – Provisions for the transition

Article 13 – Equivalence of regulations

- (1) **During the transition period**, when compliance with the detailed requirements contained in this TCAR OPS Air Operations regulation and in TCAR Parts has been demonstrated to the CAAT:
- (a) **for a training programme or course for flight crew**, cabin crew member and flight operations officers, as well as corresponding instructors and examiners;
 - (b) **for checking and assessment of flight crew**, cabin crew member and flight operations officers as well as corresponding instructors and examiners;
 - (c) **for the requirements applicable to air operators in terms of organisation, management system, personnel, facilities as well as manuals, operating procedures and records**;
 - (d) **for crew composition**;
 - (e) **for specific approvals**;
 - (f) **for flight time limitations**;
 - (g) **for performance and operating limitations**;
 - (h) **for instrument, data and equipment**.

It shall be considered by the CAAT that compliance with corresponding requirements in regulations in force before the entry into force of this TCAR OPS Air Operations regulations and TCAR OPS Parts, is also achieved.

□ SECTION V – Provisions for the transition

Article 13 – Equivalence of regulations (Cont.)

- (2) Operators may propose to comply with some provisions of TCAR OPS Air operations regulation and TCAR OPS Parts by anticipation without waiting for limit dates listed in this section. This shall be formally agreed by the CAAT.
- (3) In such cases the CAAT may impose any related requirement.

Article 14 – Application to obtain an AOC

□ SECTION V – Provisions for the transition

Article 15 – Change Management and Transition Plan to TCAR OPS

- (1) CAT operators and non-commercial operators using CMPA shall perform a change management process before implementing the organisational, procedural and documentation changes planned to comply with this TCAR OPS Air Operations regulation and TCAR OPS Parts. This change management process shall, in particular, assess and mitigate:
 - (a) the risk of pairing of crews with different levels of training;
 - (b) the risk that members of a same crew use different procedures.
- (2) CAT operators shall plan for the transition to TCAR OPS considering the dates not to exceed in article 32.
- (3) Non-commercial operators using CMPA shall plan for the transition to TCAR OPS considering the dates not to exceed in article 35.
- (4) CAT operators shall provide to the CAAT, not later than 6 months after the entry into force of this Regulation, their detailed TCAR OPS transition plan including the date at which full compliance with this TCAR OPS Air Operation regulation and TCAR OPS Parts is planned to be achieved.

□ SECTION V – Provisions for the transition

Article 16 – Management system

- (1) CAT operators....
- (2) **Non-commercial operators using CMPA** and Operators performing commercial specialised operations **shall comply with the following requirements during the transition period:**
 - (a) Personnel involved in compliance monitoring shall have received a training to TCAR OPS provisions, accepted by the CAAT, before submission of documents or declaration made in accordance with this TCAR OPS Air Operations regulation and TCAR OPS Parts or 31 March 2025;
 - (b) The operator shall have performed a compliance audit of the operator covering all aspects of the operator before submission of any declaration made in accordance with the detailed requirements contained in this TCAR OPS Air Operations regulation and TCAR OPS Parts. The results of such audit shall be provided to the CAAT with the declaration required in TCAR OPS Part ORO;
 - (c) Declaration as well as other documents submitted to the CAAT, **shall be supported by a statement from the person in charge of the compliance management** that the documents submitted were verified and found in compliance with TCAR OPS requirements.

❑ SECTION V – Provisions for the transition

Article 16 – Use of Operating Procedures

Revised procedures applicable to flight crews, cabin crew members and flight operations officers contained in Operations Manual (OMA and OMB) to comply with this TCAR OPS Air Operations regulation and TCAR OPS Parts **shall not be implemented until the flight crews, cabin crew members and flight operations officers involved have been trained to these procedures.**

Article 18 – Validity of training delivered before the entry into force of TCAR OPS

Trainings delivered to personnel involved in operations of aircraft, including management personnel and other personnel of an operator delivered before the entry into force of TCAR OPS Air Operations regulation and TCAR OPS Parts in accordance with training programmes approved by the CAAT in accordance with the regulations in force at that time **may be considered as valid to demonstrate compliance with the equivalent requirements of TCAR OPS Parts.**

□ SECTION V – Provisions for the transition

Article 19 – Validity of flight crew training, qualifications and nomination delivered by CAT operators before the entry into force of TCAR OPS

Article 20 – Validity of cabin crew training, qualifications and nomination delivered by CAT operators before the entry into force of TCAR OPS

Article 21 – Validity of Flight operations officer training delivered by CAT operators before the entry into force of TCAR OPS

Article 22 – Validity of flight crew training delivered by other operators than CAT operators before the entry into force of TCAR OPS

Article 23 – Validity of cabin crew training delivered by other operators than CAT operators before the entry into force of TCAR OPS

Article 24 – Training to TCAR OPS

The training programmes for flight crews, cabin crew members, flight operations officers and other personnel shall include the necessary elements for the transition to TCAR OPS.

□ **SECTION V – Provisions for the transition**

Article 25 – Validity of Specific approvals granted before the entry into force of TCAR OPS

Article 26 – Granting of a Specific approval during the transition period

Article 27 – Specific approvals for PBN operations

Article 28 – Specific approvals for MNPS operations

Article 29 – Specific approvals for LVOs and operations with operational credits

Article 30 – ETOPS/EDTO Two and more-engines aeroplanes used for extended range operations/extended diversion time operations (ETOPS/EDTO).

Article 31 – Type B EFB application by a CAT operator.

Article 32 – Transition for commercial air transport operations

Article 33 – Transition for commercial specialised operations

Article 34 – Transition for training organisations

□ SECTION V – Provisions for the transition

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Article 32 – Transition for commercial air transport operations

Article 33 – Transition for commercial specialised operations

Article 34 – Transition for training organisations

□ SECTION V – Provisions for the transition

Article 35 – Transition for operators performing non-commercial operations with Complex Motor-Powered Aircraft (CMPA)

- (1) Operators starting non-commercial operations with CMPA after the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts **shall file a declaration and obtain a CAAT authorisation in accordance with TCAR OPS Part ORO.**
- (2) To continue performing non-commercial operations with CMPA, operators shall comply:
 - (a) with the provisions contained in article 15 of this regulation; **[Change management and transition plan to TCAR OPS]**
 - (b) with the provisions contained in article 16 of this regulation. **[Management system]**
- (3) Operators performing non-commercial operations with CMPA before the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts may continue to operate provided that:
 - (a) **not later than 6 months after the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts, the operator provides the CAAT, the evidence that it was conducting non-commercial operations with CMPA;**
 - (b) the operator provides to the CAAT, **not later than 31 March 2027,** the declaration and the information required by TCAR OPS Part ORO;
 - (c) **the operator obtains from the CAAT the authorisation required under TCAR OPS Part ORO not later than 30 June 2027.**

□ SECTION V – Provisions for the transition

Article 35 – Transition for operators performing non-commercial operations with Complex Motor-Powered Aircraft (CMPA) [Cont.]

- (4) To continue performing non-commercial operations with CMPA after the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts, operators shall:
- (a) verify the compliance to **TCAR OPS Part NCC Subpart IDE** of each aircraft in their fleet and for each aircraft that enters their fleet during the transition;
 - (b) the verification in (a) **shall also include the compliance to the other specific requirements of TCAR OPS Part SPA as applicable to type of operations authorised to be performed with a specific aircraft;**
 - (c) **provide the corresponding status containing the status of compliance required in (a) and (b) to the CAAT, not later than 30 June 2025;**
 - (d) in case the status in (c) contains non-compliances with TCAR OPS Part NCC Subpart IDE, the operator shall provide to the CAAT a plan to comply with TCAR OPS Part NCC Subpart IDE not later than 30 June 2025. This plan shall demonstrate that the concerned aircraft will comply with requirement of TCAR OPS Part NCC Subpart IDE not later than 30 June 2027;

□ SECTION V – Provisions for the transition

Article 36 – Transition for operators performing non-commercial operations with other than Complex Motor-Powered Aircraft

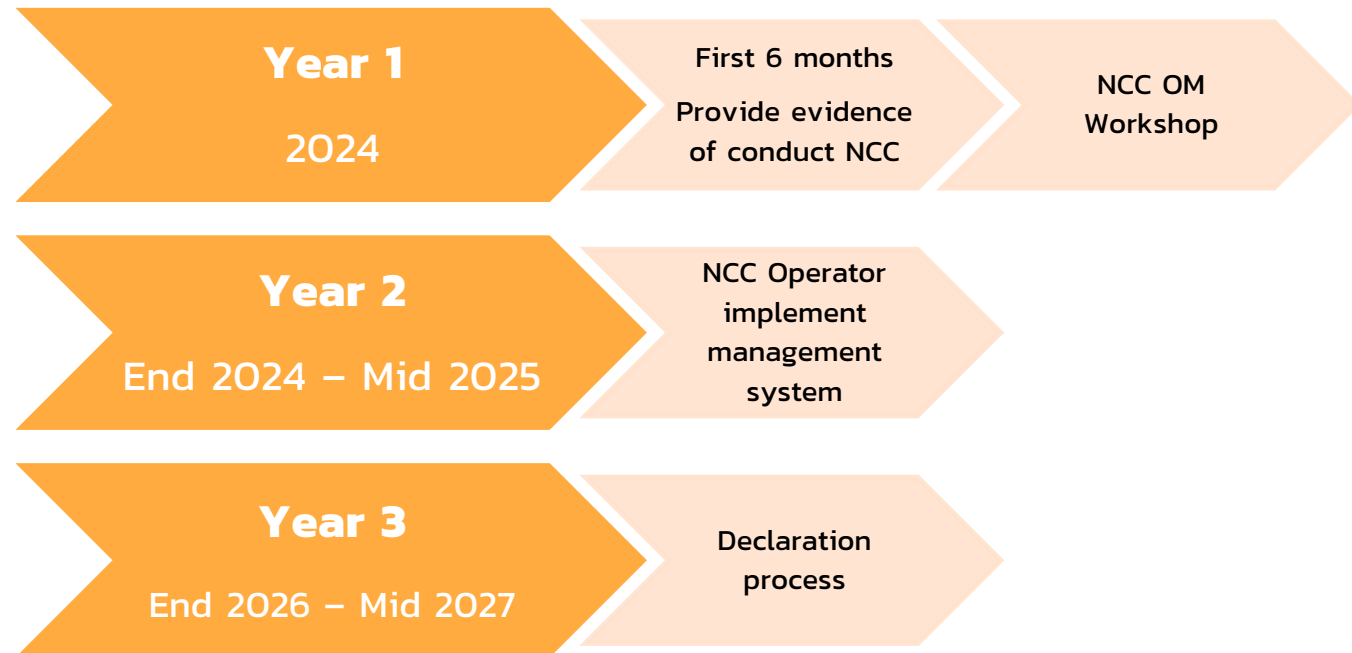
- (1) Operators performing non-commercial operations with other than complex motor-powered aircraft shall continue to operate in accordance with the regulations applicable before the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts until 30 June 2027.
- (2) Non-commercial operations with other than complex motor-powered aircraft shall be performed in accordance with TCAR OPS Part NCO from 1 July 2027.
- (3) To continue performing non-commercial operations with other than CMPA after the entry into force of this TCAR OPS Air Operations regulation and TCAR OPS Parts, the operators shall continue to comply with the applicable airworthiness and maintenance requirements.

--End of TCAR OPS Cover Regulations--

Strategy for the NCC Transition

- ✓ CAAT is **not** willing to perform **a full recertification** in one shot.
- ✓ NCC Operator will apply for declaration process during the Transition **within 3.5 years**
 - 3 December 2023 – 30 June 2027
 - not later than 6 months after 3 Dec 2023, the operator provides the CAAT, the evidence that it was conducting NCC operation
 - 3 Phases declaration

TCAR OPS Part NCC
Declaration
within 3.5 years



Progressive approach

During the transition NCC Operators **shall respect the deadlines** set for each manual approval

Systems or **Subject Matter** can be:

- Organisation and Management system,
- Flight preparation and dispatch,
- Flight crew training,
- Minimum Equipment List
- Specific Approval (if applicable)
-





สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

TCAR OPS Part-NCC Introduction

Flight Operations Standards Department
General Aviation and Aerial Work Division

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Part SPA



01

Cover Regulation



Objectives

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- a) **contribute to the Thailand aviation safety policy** and to the improvement of the overall performance of the civil aviation sector;
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However the operator will have to **submit an AMoC** and to demonstrate to the authority that this new way to comply is **"as safe as"** the one detailed in the existing AMC.

Applicability

TCAR OPS is applicable to:

- **Commercial Operators:**
 - Performing Commercial **Air Transport** Operations ([CAT](#))
 - Performing Commercial **Specialised Operations** ([SPO](#))
- **Non-Commercial Operators**
 - Using **Complex Motor Powered** Aircrafts ([NCC](#))
 - Using **Other** aircrafts ([NCO](#))
 - ATOs (However, Organisation requirements are in TCAR PEL)
 - Non-commercial [SPO](#)

For both type of operators, **some operations requires a specific approval** ([SPA](#))

And some operators shall comply with part [ORO](#) (Organisation Requirements)



Applicability to Part NCC

Definitions or Terms (Explanatory)

- Complex-Motor Powered-Aircraft (**CMPA**)
 - ❖ **Aeroplane:**
 - ✓ MTOW > 5,700 kg; or
 - ✓ Certified of Max Passenger Seats Capability > 19; or
 - ✓ Certified as MPO (multi-pilot-operations); or
 - ✓ Turbojet or more than one turboprop.



Definitions or Terms (Explanatory)

- Complex–Motor Powered–Aircraft (**CMPA**)

- ❖ Helicopter:

- ✓ MTOW > 3,175 kg; or
- ✓ Certified of Max Passenger Seats Capability > 9; or
- ✓ Certified as MPO (multi-pilot-operations); or

- ❖ Tilt rotor aircraft



Key Players (Who is effected by TCAR OPS Part NCC?)

Operators of “Complex motor-powered aircraft” flying **non-commercial flights**:

- ❖ Aircraft that is **registered in the Kingdom of Thailand**; or
- ❖ Aircraft that is registered in foreign country but having **principle place of business (residing)** in the Kingdom of Thailand.

GM1 NCC.GEN.100 – The **competent authority**, provides details and explanation regarding “Residing” term...

Conclusion

- Non-commercial operators of complex motor-powered aircraft with a principal place of business or residing in Thailand, must comply with TCAR OPS Part NCC;



Applicability Summary Matrix

		TCAR OPS Part-						
Type of operations		DEF	ORO	CAT	SPA	NCC	NCO	SPO
Non-Commercial operations	CMPA	✓	✓		✓	✓		

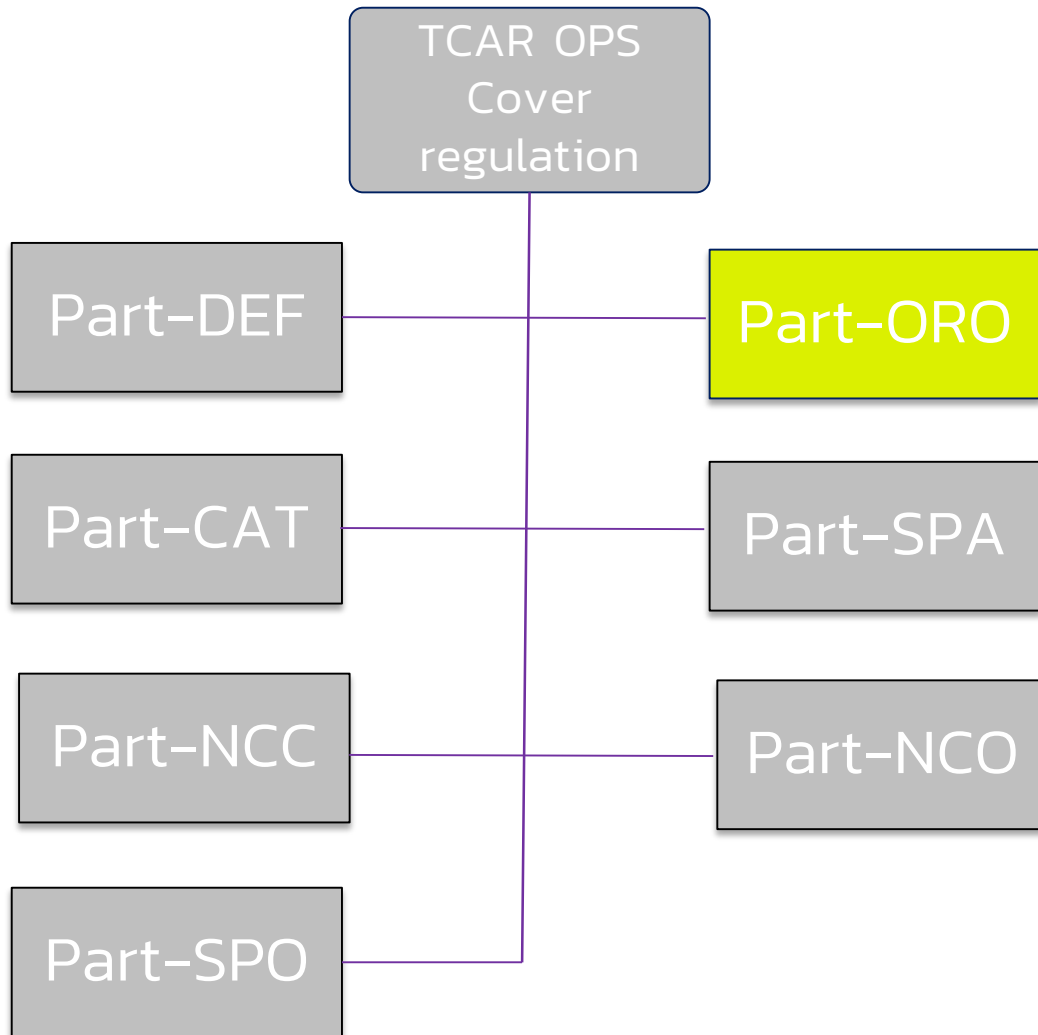
Note: NCC operators may apply for Operations Requiring Specific Approval (SPA), which include specific approvals e.g. *PBN, RVSM, AWOs, DGs*.



02

Part ORO

TCAR OPS Structure – Part ORO



CAAT
สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

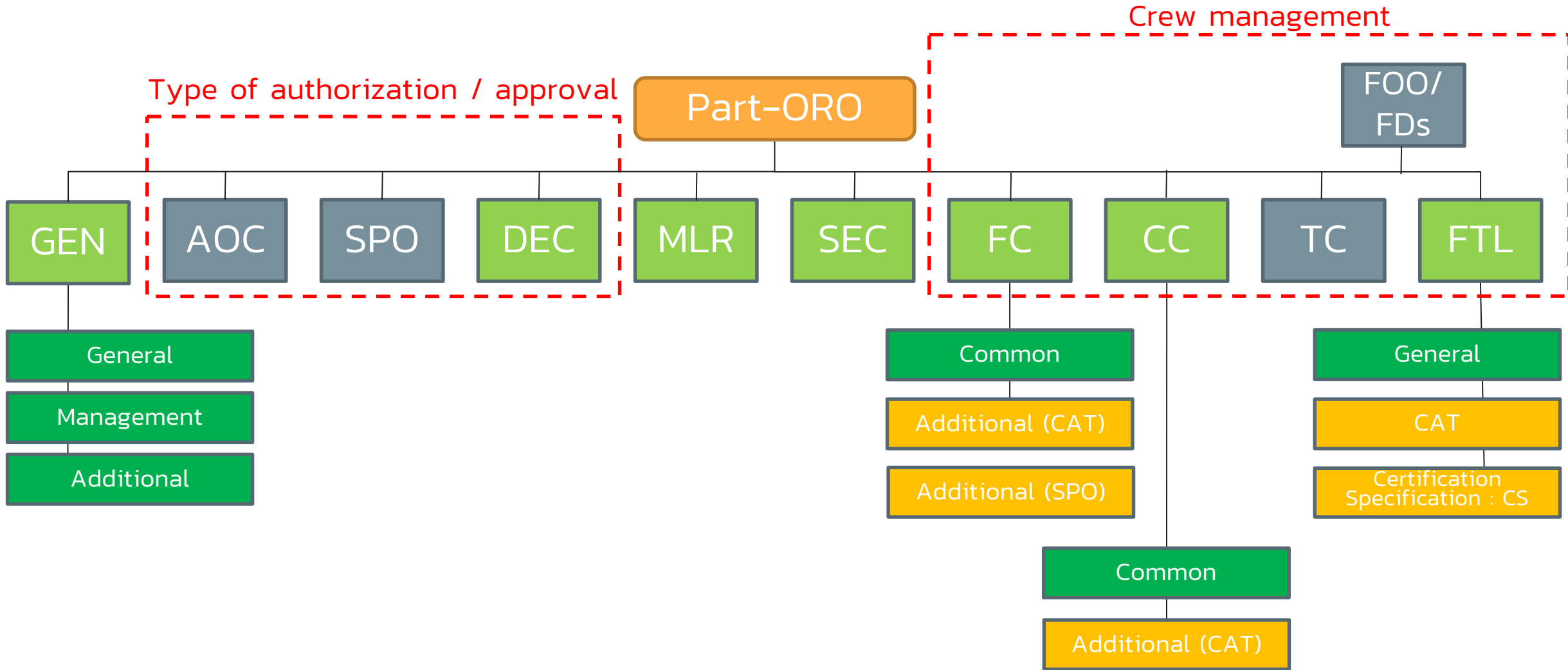
THAILAND CIVIL AVIATION REGULATION

TCAR OPS – Part ORO
Organisation Requirements for Air
Operations

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

Part ORO: "Organisation Requirements for Air Operations"



ORO.GEN.110 – The Competent Authority

- The operator is responsible for the operation of the aircraft in accordance with the air operations requirements set out in the Air Navigation Act B.E.2497, the relevant requirements of TCAR OPS Part ORO and its air operator certificate (AOC), specialised operation authorisation (SPO authorisation) or other authorisation, as it is required.
- (b) Every flight shall be conducted in accordance with the provisions of the **operations manual**.

ORO.GEN.110 – The Competent Authority

- ORO.GEN.110 (j)

The operator shall establish and maintain dangerous goods training programmes for personnel,

Training programmes of operators performing CAT, whether they transport dangerous goods or not, and of operators conducting commercial or non-commercial specialised operations or **non-commercial operations with complex motor-powered aircraft shall be subject to review and approval by the CAAT.**

ORO.GEN.120 – Means of compliance

ORO.GEN.120 (d) – Alternative means of compliance (AMoCs)

The organisation may implement these AMoCs subject to **prior formal approval by the CAAT**

ORO.GEN.120 (e) – Approval of AMCs and AMoC.

The CAAT OPS department shall be responsible for developing, **approving and publishing AMCs** to TCAR OPS Parts.

ORO.GEN.200 – Management system

- ORO.GEN.200 (a) – Safety Management system
Establish, implement and maintain SMS, Documentation, training for personels
- ORO.GEN.200 (b)
Management system correspond to size of operator and nature and complexity of activities

ORO.GEN.310 – Use of aircraft listed on an AOC for non-commercial operations and specialised operations

- The AOC holder providing the aircraft and the operator using the aircraft shall establish a procedure in OM;
 - 1) Clearly identifying which operator is responsible for the operational control of each flight
 - 2) Describing the handover procedure of the aircraft upon its return to the AOC holder

Operator shall submit these procedures to CAAT for prior approval

ORO.DEC.100 – Declaration

- NCC Operator shall,
 - Provide CAAT with all relevant information using declaration form (Appendix I of TCAR OPS Part ORO)
 - maintain compliance with the applicable requirements and with the information given in the declaration;

Appendix I to TCAR OPS Part ORO

DECLARATION in accordance with TCAR OPS					
Operator					
Name: Place in which the operator has its principal place of business or, if the operator has no principal place of business, place in which the operator is established or residing and place from which the operations are directed: Name and contact details of the accountable manager:					
Aircraft operation					
Starting date of operation and applicability date of the change:					
Information on aircraft, operation and continuing airworthiness management organisation ⁽¹⁾ :					
Type(s) of aircraft, registration(s) and main base:					
Aircraft MSN ⁽²⁾	Aircraft type	Aircraft registration ⁽³⁾	Main base	Type(s) of operation ⁽⁴⁾	Organisation in charge of continuing airworthiness management ⁽⁵⁾
The operator shall obtain a prior approval ⁽⁶⁾ or specific approval ⁽⁷⁾ for certain operations before conducting such operations.					

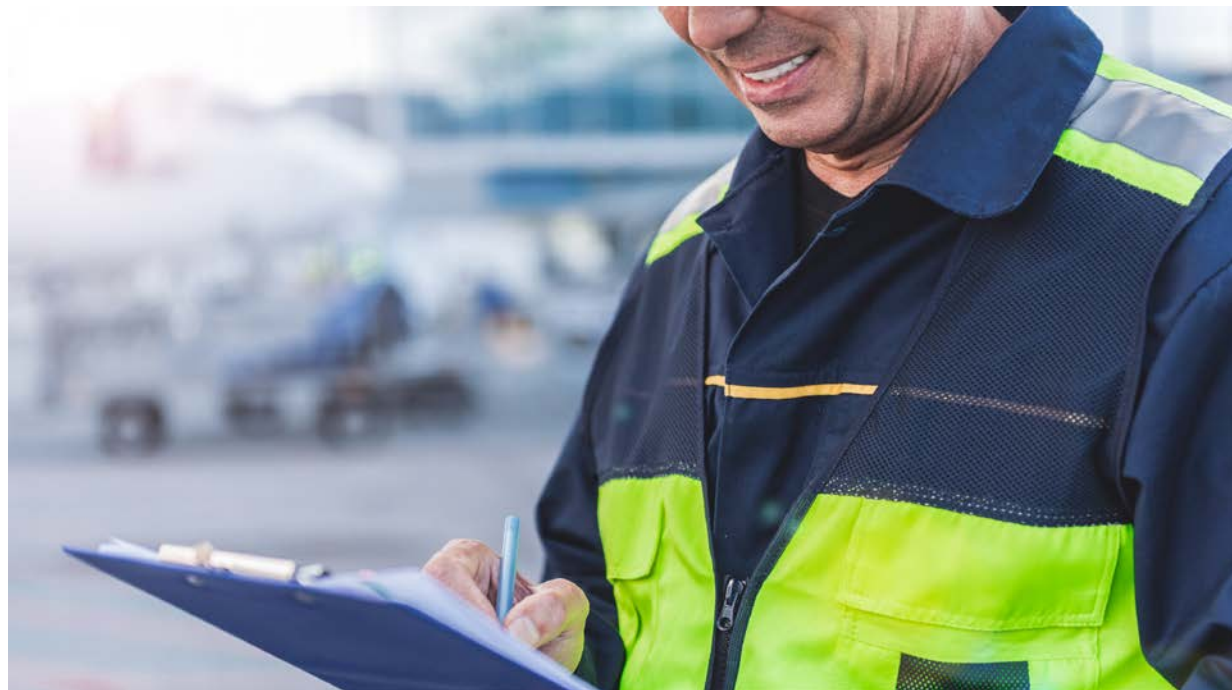
ORO.DEC.100 – Declaration

(c) Notify CAAT of any change to declaration, and shall obtain the corresponding amended authorisation from the CAAT prior to implementing the change(s)

(d) Notify the CAAT when it ceases operation.

ORO.MLR.100 – Operations manual - general

- Operator shall establish Operation Manual (OM)
- The content of the OM shall reflect the requirements set out in this TCAR OPS Part ORO, Part NCC, Part SPA, Part CAT, and Part SPO, as applicable



ORO.MLR.105 – Minimum equipment list

- (b) The MEL and any amendment thereto shall be **approved by the CAAT**

In addition to the list of items, the MEL shall contain:

- (1) a preamble, including guidance and definitions for flight crews and maintenance personnel using the MEL;
- (2) the revision status of the MMEL upon which the MEL is based and the revision status of the MEL;
- (3) the scope, extent and purpose of the MEL.

ORO.FC.145 – Provision of training

- All training, checking and assessment required in Flight Crew (FC) Subpart shall be conducted in accordance with the training programmes and syllabi established by the operator in the operations manual;

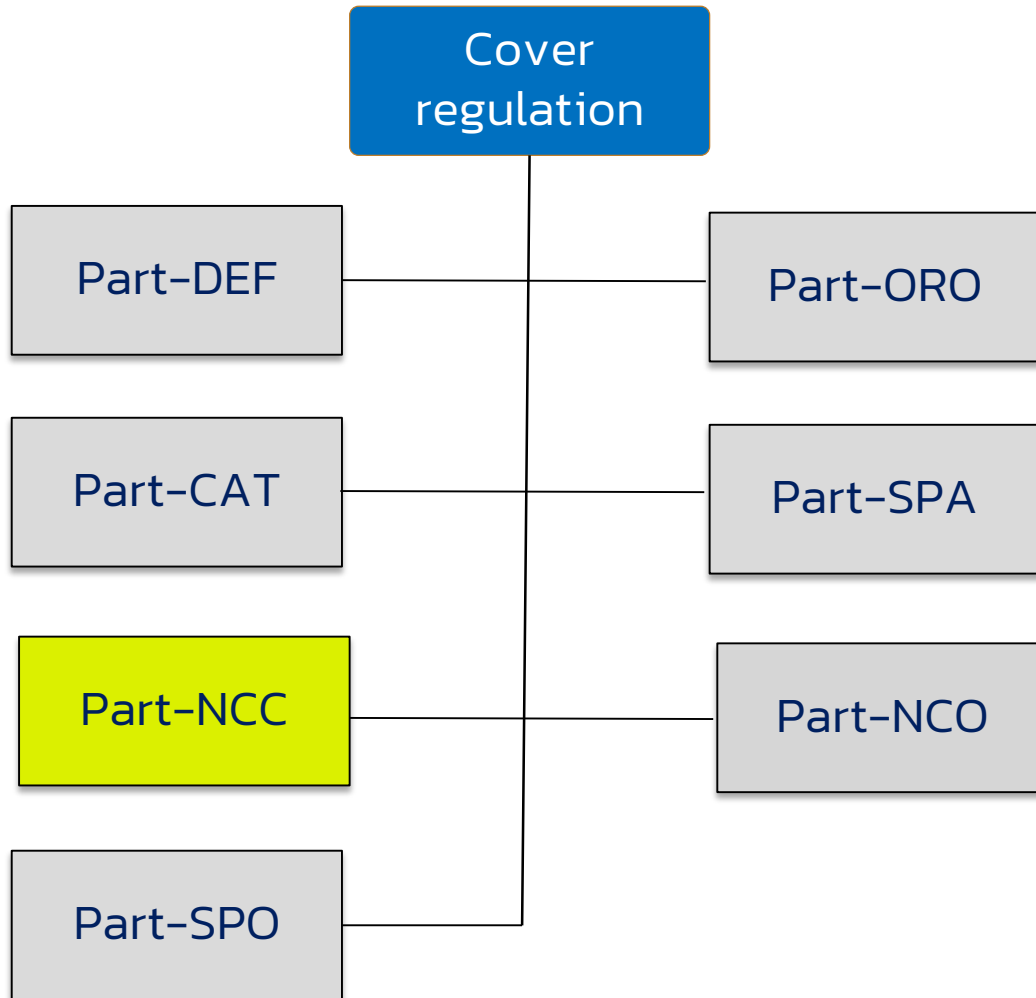




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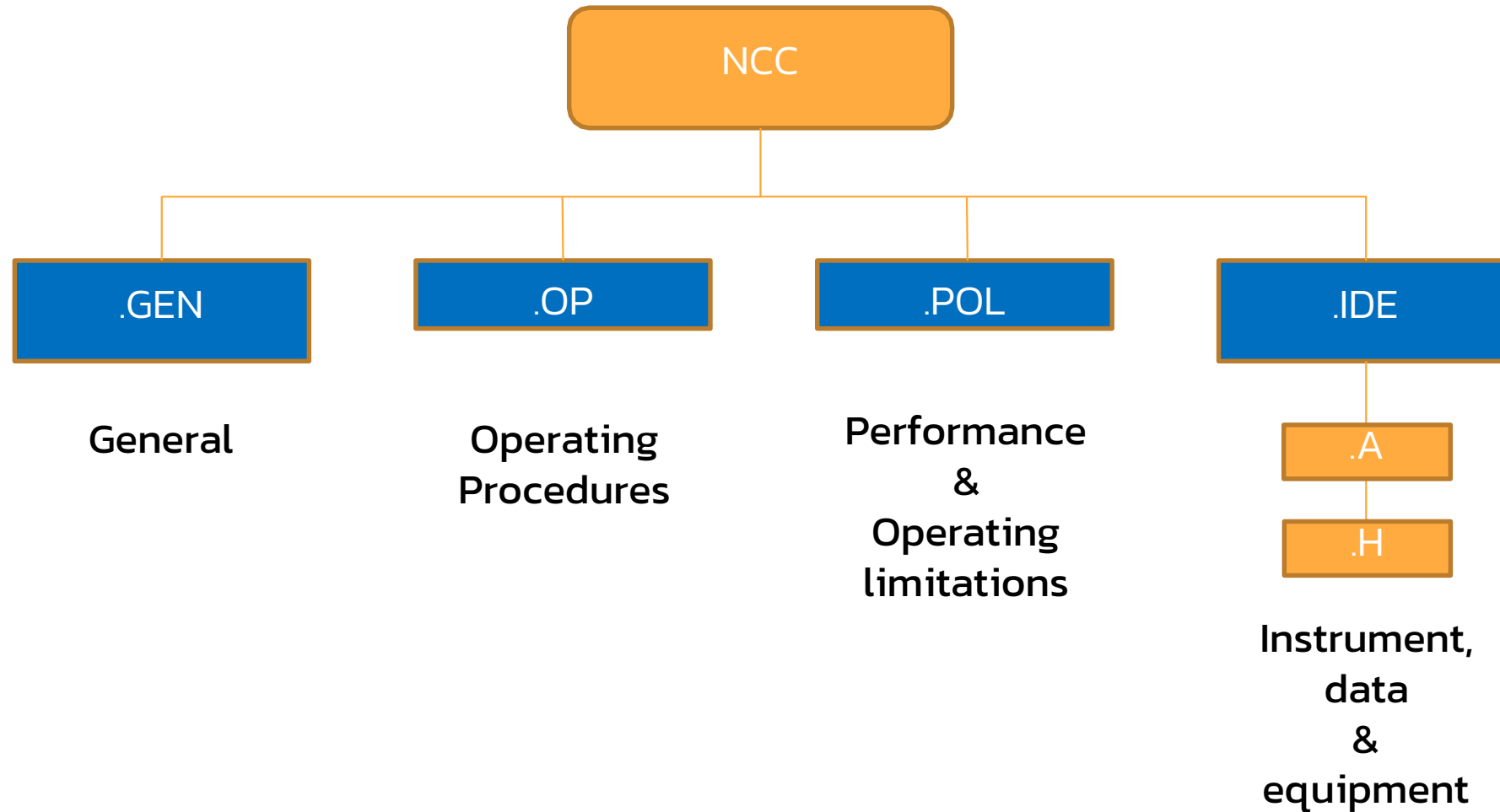
Part-NCC

TCAR OPS Structure









- Part-DEF: Definitions
- Part-ORO: Organisation requirements
- Part-CAT: Commercial Air Transport operations
- Part-NCC: Non-commercial operations with complex motor-powered aircraft (CMPA)
- Part-NCO: Non-commercial operations with other than CMPA
- Part-SPO: Specialised Operations (aerial work)
- Part-SPA: Operations Requiring Specific Approval

Part NCC: Non-Commercial with complex motor-powered aircraft



Part-NCC Structure

- ⊕  SUBPART A: GENERAL REQUIREMENTS
- ⊕  SUBPART B: OPERATIONAL PROCEDURES
- ⊕  SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS
- ⊖  SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT
 - ⊕  SECTION 1 Aeroplanes
 - ⊕  SECTION 2 Helicopters

SUBPART-GEN: General Requirements

☰ SUBPART A: GENERAL REQUIREMENTS

- ☰ NCC.GEN.100 The competent authority
- ☰ NCC.GEN.101 Additional requirements for flight training organisations
- ☰ NCC.GEN.105 Crew responsibilities
- ☰ NCC.GEN.106 Pilot-in-command responsibilities and authority
- ☰ NCC.GEN.110 Compliance with laws, regulations and procedures
- ☰ NCC.GEN.115 Common language
- ☰ NCC.GEN.119 Taxiing of aircraft
- ☰ NCC.GEN.120 Taxiing of aeroplanes
- ☰ NCC.GEN.125 Rotor engagement — helicopters
- ☰ NCC.GEN.130 Portable electronic devices
- ☰ NCC.GEN.131 Use of electronic flight bags (EFBs)
- ☰ NCC.GEN.135 Information on emergency and survival equipment carried
- ☰ NCC.GEN.140 Documents, manuals and information to be carried
- ☰ NCC.GEN.145 Handling of flight recorder recordings: Preservation, production, protection and use
- ☰ NCC.GEN.150 Transport of dangerous goods

NCC.GEN.100 – The Competent Authority

- **NCC.GEN.100 The competent authority**
- For the purpose of TCAR OPS Part NCC, the CAAT is the competent authority exercising oversight, over operators subject to an authorisation obligation and having their principal place of business in the Kingdom of Thailand.
- **(GM1 NCC.GEN.100)** there are details for clarification regarding “Residing” terminology:
 - (a) the duration of a person’s presence on the territory of the countries concerned;
 - (b) the person’s family status and ties;
 - (c) the person’s housing situation and how permanent it is;
 - (d) the place where the person pursues professional or non-profit activities;
 - (e) the characteristics of the person’s professional activity; and
 - (f) the State where the person resides for taxation purposes

NCC.GEN.101 – Additional requirements for flight training organisations

- ATO that are required to comply with this part shall also comply with
 - (a) ORO.GEN.310, as applicable;
 - Use of aircraft listed on an AOC for non-commercial operations and specialised operations
 - and,
 - (b) ORO.MLR.105.
 - Minimum equipment list (**MEL shall be approved by CAAT**)

NCC.GEN.105 – Crew responsibilities

- Crew member shall execute as specified in the instructions and procedures in the operations manual.
- At least one qualified flight crew member remain at the controls of aircraft at all times
- Crew member shall report any fault/ malfunction defect may affect safety of operation
- The crew member who undertakes duties for more than one operator shall: maintain his/her individual records regarding flight and duty times and rest periods as referred to in TCAR OPS Part ORO, Subpart FTL.
- provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.

NCC.GEN.106 – PIC responsibility & authority

There is **no change** in the concept when compared with GAR and ICAO Annex 6 part II. PIC shall responsible for:

- Safety of operation of aircraft, pax and cargo (as soon as he/she arrives onboard);
- Operations control (initiate, continue, terminate, divert)
- Ensure compliance with procedures, checklist provided by OEM (latest version)
- Aircraft is airworthy
- **AMC and GM** also provided PIC responsibility details related **PBN** flight preparations, Nav database, NOTAM that adversely affect the operation.

NCC.GEN.110 – Compliance with laws, regulations and procedure

There is **no change** in the concept and details when compared with GAR and ICAO Annex 6 part II. Where:

- ❖ PIC shall **be familiar** and **comply with** applicable law, regulation and procedures.

NCC.GEN.115 – Common language

- All crew can communicate in common language

NCC.GEN.130 – Portable Electronic Devices

PEDs (including EFBs) are prohibited from use if they **adversely affect** the aircraft's **systems, equipment**, or the **pilot's ability** to operate the aircraft.

AMC and **GM** introduce and describe:

- EFB function, hardware, software applications (e.g. Charts, Performance, M&B, AMMD);
- PED: T-PED, risk of interference, (not operating PEDs on-board aircraft is the safest option)
- ICAO Doc 9481 contains Guideline to follow in case of fire caused by PEDs



NCC.GEN.131 – Use of electronic flight bags (EFBs)

- Ensure EFB do not adversely affect the performance of the aircraft systems
- Prior to using a type B EFB application
 - (1) Conduct a risk assessment related to use of EFB device
 - (2) Establish EFB administration system including procedures and training requirements for the administration and use of the device and the EFB application.

NCC.GEN.135 – Information on emergency and survival equipment

Lists of **EMERGENCY** and **SURVIVAL EQUIPMENT** on-board shall be immediately communicated with RCC (rescue coordination centers) at all times:

Items for communication to RCC:

- Number, colour & type of Life Raft including pyrotechnic;
- EMER Medical & Water supplies;
- Frequency of EMER portable Radio equipment

*See Item 19: Supplementary Information
“ICAO Flight Plan”*

NCC.GEN.140 – Documents, manuals and information to be carried

There are numbers of **Document**, **Manual** and **Information** to be carried on-board listed in the regulation (e.g. AFM, CofA, CofR, Journey log, charts maps,

It is also a PIC responsibility to provide the required documents (to be carried) to Authority upon requested.

NCC.GEN.145 – Handling of flight recorder recordings: Preservation, production, protection and use

- Accident, serious incident or an occurrence identified by the investigating authority, the operator of an aircraft shall preserve the original recorded data of the flight recorders for a period of 60 days
- Conduct operational checks and evaluations of recordings
- Make available if determined by CAAT

NCC.GEN.150 – Transport of dangerous goods

- Transportation of **DGs shall be approved** by CAAT (Part-SPA);
- It is a responsibility of PIC:
 - Prevent unintentional carried of DGs;
 - Report of DGs incidents/accidents (*more details in AMCI...*);
 - Provide PAX information about DGs;
- Packing and loading instruction under **TI** *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO Doc 9284-AN/905),

SUBPART B - OP: Operational Procedures

☰ SUBPART B: OPERATIONAL PROCEDURES

- ☰ NCC.OP.100 Use of aerodromes and operating sites
- ☰ NCC.OP.101 Altimeter check and settings
- ☰ NCC.OP.105 Specification of isolated aerodromes — aeroplanes
- ☰ NCC.OP.110 Aerodrome operating minima — general
- ☰ NCC.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations
- ☰ NCC.OP.112 Aerodrome operating minima — circling operations with aeroplanes
- ☰ NCC.OP.113 Aerodrome operating minima — onshore circling operations with helicopters
- ☰ NCC.OP.115 Departure and approach procedures
- ☰ NCC.OP.116 Performance-based navigation — aeroplanes and helicopters
- ☰ NCC.OP.120 Noise abatement procedures
- ☰ NCC.OP.125 Minimum obstacle clearance altitudes — IFR flights
- ☰ NCC.OP.130 Fuel/energy scheme – aeroplanes and helicopters
- ☰ NCC.OP.131 Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters
- ☰ NCC.OP.135 Stowage of baggage and cargo
- ☰ NCC.OP.140 Passenger briefing
- ☰ NCC.OP.145 Flight preparation
- ☰ NCC.OP.147 Destination alternate aerodromes planning minima — aeroplanes
- ☰ NCC.OP.148 Destination alternate aerodrome planning minima — helicopters
- ☰ NCC.OP.150 Take-off alternate aerodromes — aeroplanes
- ☰ NCC.OP.151 Destination alternate aerodromes — aeroplanes
- ☰ NCC.OP.152 Destination alternate aerodromes — helicopters
- ☰ NCC.OP.153 Destination aerodromes — instrument approach operations
- ☰ NCC.OP.155 Refuelling with passengers embarking, on board or disembarking
- ☰ NCC.OP.157 Refuelling with engine(s)and/or rotors turning – helicopters
- ☰ NCC.OP.160 Use of headset
- ☰ NCC.OP.165 Carriage of passengers
- ☰ NCC.OP.170 Securing of passenger compartment and galley(s)
- ☰ NCC.OP.175 Smoking on board
- ☰ NCC.OP.180 Meteorological conditions
- ☰ NCC.OP.185 Ice and other contaminants — ground procedures
- ☰ NCC.OP.190 Ice and other contaminants — flight procedures
- ☰ NCC.OP.195 Take-off conditions — aeroplanes and helicopters
- ☰ NCC.OP.200 Simulated situations in flight
- ☰ NCC.OP.205 NCC.OP.205 Fuel/energy scheme – in-flight fuel/energy management policy
- ☰ NCC.OP.210 Use of supplemental oxygen
- ☰ NCC.OP.215 Ground proximity detection
- ☰ NCC.OP.220 Airborne collision avoidance system (ACAS)
- ☰ NCC.OP.225 Approach and landing conditions — aeroplanes and helicopters
- ☰ NCC.OP.230 Commencement and continuation of approach
- ☰ NCC.OP.235 EFVS 200 operations

NCC.OP.100 – Use of aerodromes and operating sites

The **aerodrome** and **operating-site** shall be **adequate** the type of aircraft and operation concerned.

Part-DEF:

'adequate aerodrome' means an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway characteristics;

NCC.OP.101 – Altimeter check and settings

Operator shall establish procedure for altimeter checking before departure, *And all phase of flight.* ICAO Doc 8168 (PANS-OPS), Volume III provide recommended guidance on how to develop the altimeter setting procedure:

NCC.OP.105 – Isolated Aerodrome

Criteria of **Isolated Aerodrome**:

- Piston engine, flying time to alternate > 60 min;
- Turbine engine, flying time to alternate > 90 min.

provided that operational criteria are used to ensure a safe-landing option.

NCC.OP.110 –Aerodrome operating minima

For **IFR**:

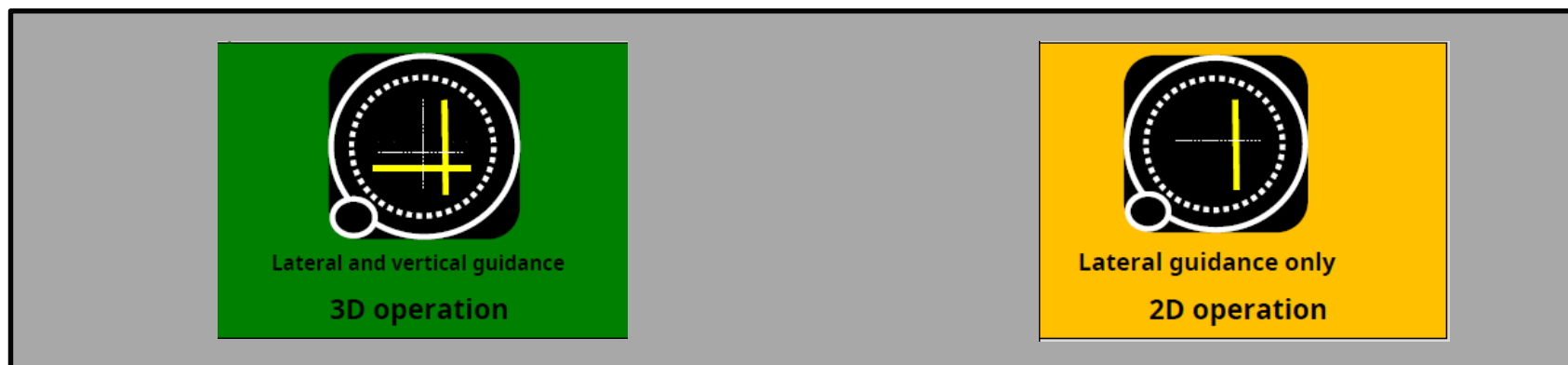
- *It is a **PIC responsibility** to ensure that aerodrome operating minima comply with criteria (e.g. terrain, OBS, visual reference);*
 - *Criteria of establish “minima” are detailed in regulation*
 - The type, performance, and handling characteristics of the aircraft;
 - the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs);
 - the obstacles in the climb-out areas and necessary clearance margins;
- (14 elements).**

NCC.OP.111 –Aerodrome operating minima - NPA, APV, CAT I operations

Introduction:

3D approach operation: an approach operation during which the pilot will use **lateral** and **vertical guidance information**.

2D approach operation: an approach operation during which the pilot will **only** use **lateral guidance information**



NCC.OP.111 –Aerodrome operating minima - NPA, APV, CAT I operations

A Brief Summary “Term of Minima”:

- **3D operation (CDFA):** DA or DH
 - **2D operation (non-CDFA):** MDA or MDH
-
- Regulation has detailed the criteria for calculated the DA/H (3D), and MDA/H (2D):

NCC.OP.112 –Aerodrome operating minima - Circling

Circling minima: MDH + VIS

- Height shall be the highest of (OCH, table1, preceding IAP);
- Vis shall be the highest of (Table 1, published vis).

*Note: Circling operations technique is provided in **GM1 NCC.OP.112***

NCC.OP.115 – Departure and approach procedures (A)(H)

- Use the published DEP and IAPs
- PIC can deviate from published procedures when:
 - **Visual OBS Clearance. (PIC responsibility); or**
 - **Radar vector**

NCC.OP.116 –PBN (A)(H)

PIC responsible to ensure that **aircraft equipment** is suitable for PBN **navigation specifications:**

- Normally NAV SPEC are detailed in **AFM** (or equivalent);
- **Limitations** and **procedures** in AFM must be adhered.

Note:

1. *RNAV 10,5,1/2 and RNP4, 2, 1, APCH are not required prior approval. However PIC is appropriated trained for intended operations.*
2. *See more useful information related **Operating procedures, Database management, normal abnormal and Contingency Procedure...** in AMC1-8 and GM1.*

NCC.OP.120 – Noise Abatement procedure (A)(H)

Operator shall develop NADP 1&2 profile, PIC shall adhere to NADP, however, safety is priority.

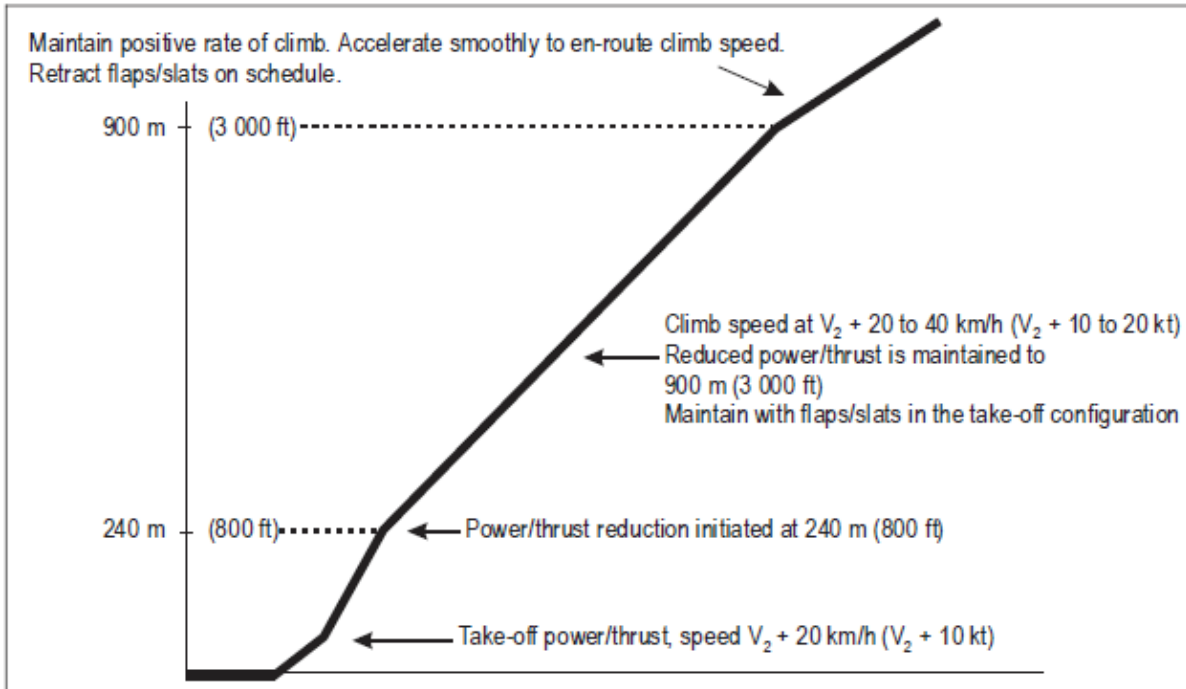


Figure 9-3-App-1. Noise abatement take-off climb — Example of a procedure alleviating noise close to the aerodrome (NADP 1)

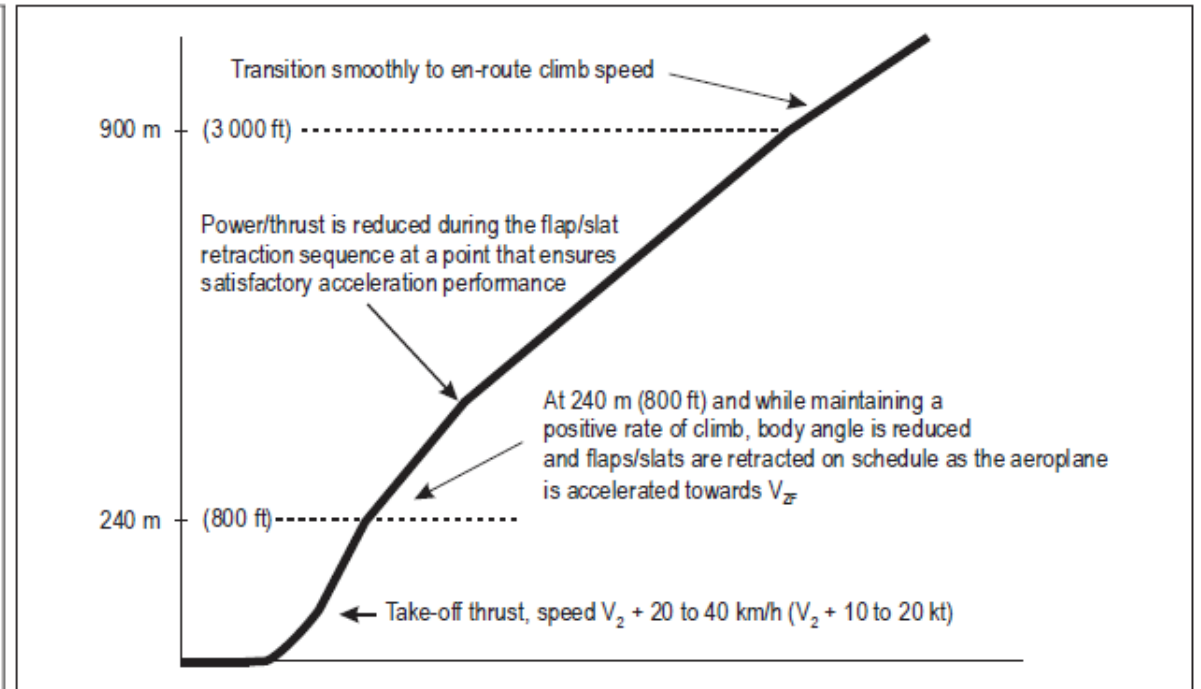


Figure 9-3-App-2. Noise abatement take-off climb — Example of a procedure alleviating noise distant from the aerodrome (NADP 2)

NCC.OP.125 – Minimum obstacle clearance altitudes — IFR flights

- Operator shall specify method to establish MOCA for all route segments to be flown in IFR
- PIC shall use this method to establish Minimum flight altitude for each flight from this method

NCC.OP.131 – Fuel/Energy and Oil supply (A)(H)

- PIC shall ensure aircraft carry **sufficient fuel** (met condition, performance, delayed, contingency must be taken into action);
- **Final Reserve Fuel** (FRF) is mandatory.

Calculation of **FRF (Aeroplane):**

Turbine : 30 min

Piston Day VFR:	Pison Night VFR / IFR
30 min (holding speed @ 1500 ft)	45 min (holding speed @ 1500 ft).

NCC.OP.131 – Fuel/Energy and Oil supply (A)(H)

Calculation of **FRF (Helicopter)**:

VFR:	IFR:
20 min (best-range speed)	30 min (holding speed @ 1500 ft).

NCC.OP.135 – Stowage of baggage

- Operator shall establish procedure that all baggage and cargo must be secured prevent movement.

NCC.OP.140 – Passenger Briefing

PIC responsible of the passenger briefing on emergency equipment and procedure.

Note: The detail of briefing items are outline in the NCC.OP.140

NCC.OP.145 – Flight Preparation

Before flight PIC shall;

- Check the available facilities (space-based, ground, COM, NAV facilities) **adequate** for the flight.
- Check the MET/forecast report and alternate course of action for the **IFR flight**.

Note: the mean of adequacy of ground state in the AMC1 NCC.OP.145(a) (e.g. RFFS).

OFP GM1 NCC.OP.145(b)

NCC.OP.147 – Destination Alternate Aerodrome (A)

Specific timeframe: the shortest period below; ± 1 hr ETA or; Actual DT to ETA+1hr.

- **Alternate with IAP DH < 250 ft** – *Ceiling > 200 ft above DH + Vis > 1500 m*
- **Alternate with IAP DH > 250 ft** – *Ceiling > 400 ft above DH + Vis > 3000 m*
- **Alternate without IAP** – *Ceiling > 2000 ft + Vis > 5000 m*

NCC.OP.148 – Destination Alternate Aerodrome (H)

Specific timeframe: the shortest period below; ± 1 hr ETA or; Actual DT to ETA+1hr.

- **Alternate with IAP** – *Ceiling > 200 ft above DH + Vis > 1500 m*
- **Alternate without IAP** – *Ceiling > 2000 ft + Vis > 1500 m*

NCC.OP.150 – Take-off alternate aerodromes — aeroplanes

As the alternate **is mandatory** as state in NCC.OP.150 & 151 for IFR flight.

NCC.OP.155 – Refueling with passenger embarking, on board or disembarking

The aircraft **shall not** be refueled with PAX on board/ disembarking for **AVGAS, wide-cut fuel or mixed of these**.

However, for other type of fuel/energy refueling can be commence only attended by **PIC or qualified personnel** to initiate the evacuation.

*Note: “**Operational procedure**” are state in the AMC1 NCC.OP.155*



NCC.OP.157 – Refueling with engine(s) and/or rotors turning (H)

The special requirement for **HELICOPTER**, where they refueling with engine running.

- Procedure & limitation in AFM shall be adherence;
- No PAX on board
- Aerodrome allow such operations
- Presence of RFF
- Checklists are in place.



This refueling procedure and any change required **prior approval by CAAT.**

NCC.OP.160 – Use of headset

- Each flight crew member required to be on duty in the flight crew compartment shall wear a headset with boom microphone or equivalent.
- The headset shall be used as the primary device for voice communications with ATS:
 - On ground
 - In flight

NCC.OP.165 – Carriage of passengers

Passenger safety belt or restraint devices are required during Taxi, T/O, L/D and in situation concerned safety.



NCC.OP.175 – Smoking on board – (A)(H)

Smoking on board is prohibited when refueling and event interest of safety.



NCC.OP.180 – Meteorological conditions

The criteria for PIC decision to continue the flight.

- **VFR:** continue when ETA at destination \geq **VMC**
- **IFR:** continue when ETA at destination **and** alternate \geq **applicable operating minima.**

Note: the interpretation of 'TAF' and 'METAR' (BECMG, TEMPO and FM) are in AMC1 NCC.OP.180

NCC.OP.185 – Ice and other contaminants – ground procedures

- Establish procedures to be followed for ground de-icing and anti-icing and related inspections
- Aircraft with contaminant can not take-off unless specify in AFM



NCC.OP.190 – Ice and other contaminants – flight procedures

- Establish flight procedure for expected or actual icing condition
- Icing condition exceed the certified aircraft limit and uncertified aircraft are prohibited from flying in icing condition.

NCC.OP.195 – Take-off conditions – (A)(H)

This require the PIC to ensure the MET condition (RVR or VIS) at departure point (take-off minima).



NCC.OP.200 – Simulated situations in flight

Simulate IMC or emergency procedure with passengers or cargo on board is **not permit.**

EXCEPT, flight training with student pilot on board (ATO).

NCC.OP.205 – In-flight fuel/energy management

MAYDAY Fuel where safe landing at nearest aerodrome usable fuel < planned FRF

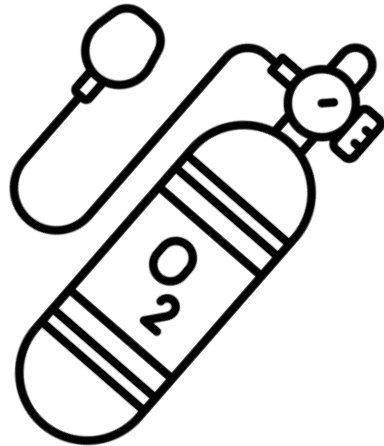
MINIMUM Fuel when committed to land and any change to existing clearance may induce the usable fuel < planned FRF

Note: FRF in VFR and IFR are difference.

NCC.OP.210 – Use of supplemental oxygen

Oxygen requirement when unable to determine the lack of oxygen.

- Use of supplement oxygen at altitude > 10000 ft for > 30 mins and at altitude > 13000 ft



NCC.OP.225 – Approach and landing conditions – (A) (H)

The selected aerodrome operating minima are consistent with all of the following:

- the operative ground equipment;
- the operative aircraft systems;
- the aircraft performance; and
- flight crew qualifications.

NCC.OP.230 – Commencement and continuation of approach (A)(H)











Approach banned concept (the approach shall not commence when the MET condition below the applicable landing minima)

- Before 1000 ft the approach can not continue
- After 1000 ft the approach can continue to DH/MDH

Note 1 : Case DH/MDH higher than 1000 ft. use the highest.

Note 2 : Where RVR < 550 m, LVO (specific approval) is required.

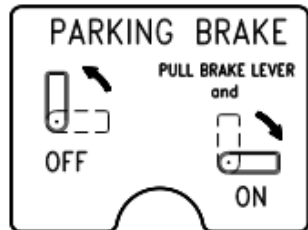
SUBPART-POL: Aircraft Performance and Operating Limitations

- ☐  SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS
 -  NCC.POL.100 Operating limitations — all aircraft
 -  NCC.POL.105 Mass and balance, loading
 -  NCC.POL.110 Mass and balance data and documentation
 -  NCC.POL.111 Mass and balance data and documentation — alleviations
 -  NCC.POL.115 Performance — general
 -  NCC.POL.120 Take-off mass limitations — aeroplanes
 -  NCC.POL.125 Take-off — aeroplanes
 -  NCC.POL.130 En-route — one engine inoperative — aeroplanes
 -  NCC.POL.135 Landing — aeroplanes

NCC.POL.100 – Operating limitations – all aircraft

- In all phase of flight **Mass** and **C.G.** shall comply with limitations in AFM or Operations manual.
- **Placards, listings, instrument markings,** or combinations thereof, containing those **operating limitations** prescribed by the **AFM** for visual presentation, shall be displayed in the aircraft.

Example: *Powerplant, Airspeed Instrument Markings, Airspeed Placards, Flight Maneuver Placard, Baggage Placard, Passenger Warning Placard.*



A placard measuring 74x7 mm is located on the instrument panel to indicate fire extinguisher position:

FIRE EXTINGUISHER ON BAGGAGE FLOOR

NCC.POL.105 – Mass and balance, loading

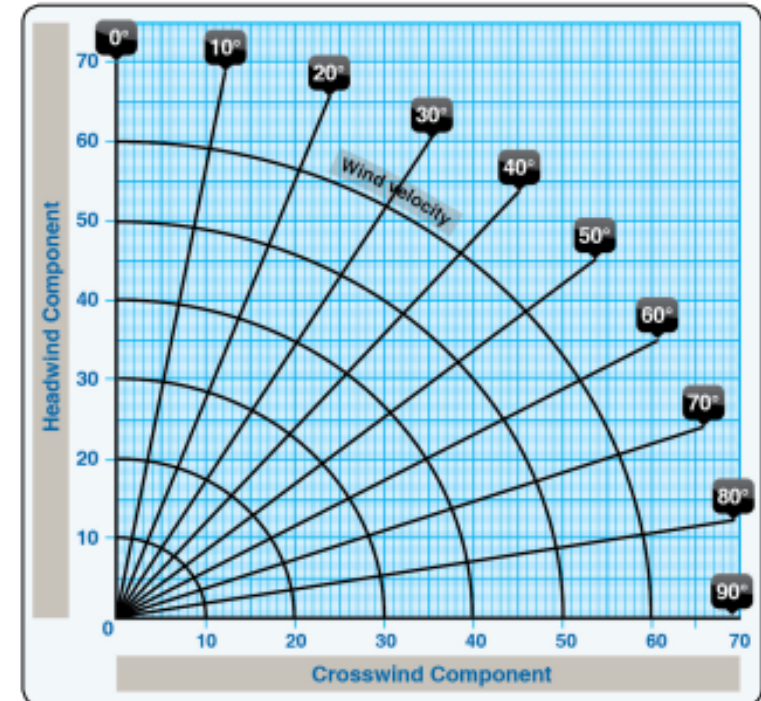
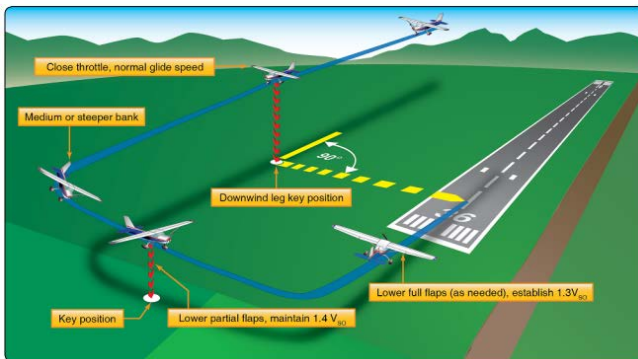
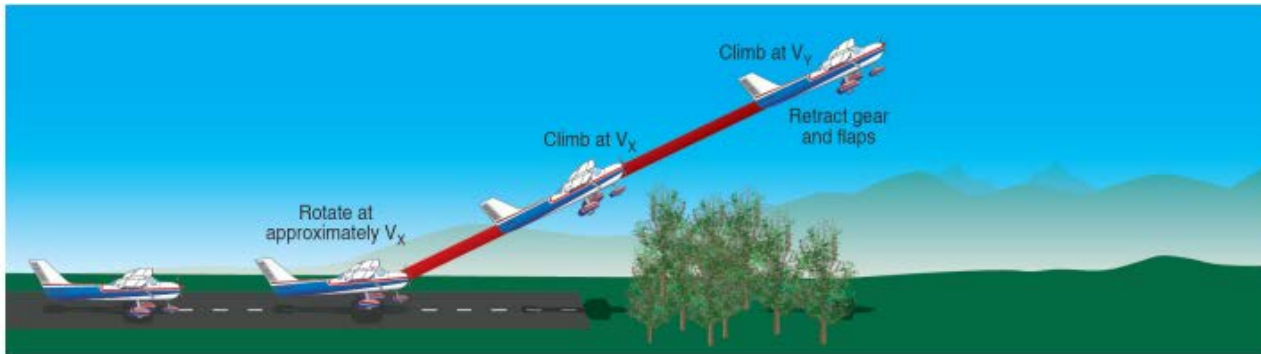
- Operator shall ensure Weight and C.G. of aircraft have **been established** by **actual weighting**;
- Any **Modifications & Repairs** effected mass and balance shall be accounted and properly documented. (Re-weighting is required when effect of modification is not accurately know).

Note:

- *Weighting shall be done by **OEM** or **Approved maintenance org.***
- *M&B revising criteria are detailed in GM1 ($\pm 0.5\%$ of the maximum landing mass), Comply with AFM if it requires a lower threshold.*

NCC.POL.115 – Performance – general

- PIC shall only operate aircraft if **performance** is complying with **applicable Rule of the Air, Airspace, Aerodrome** including **Maps** and **Charts** used.



SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 Aeroplanes

- NCC.IDE.A.100 Instruments and equipment — general
- NCC.IDE.A.105 Minimum equipment for flight
- NCC.IDE.A.110 Spare electrical fuses
- NCC.IDE.A.115 Operating lights
- NCC.IDE.A.120 Operations under VFR — flight and navigational instruments and associated equipment
- NCC.IDE.A.125 Operations under IFR — flight and navigational instruments and associated equipment
- NCC.IDE.A.130 Additional equipment for single-pilot operations under IFR
- NCC.IDE.A.135 Terrain awareness warning system (TAWS)
- NCC.IDE.A.140 Airborne collision avoidance system (ACAS)
- NCC.IDE.A.145 Airborne weather detecting equipment
- NCC.IDE.A.150 Additional equipment for operations in icing conditions at night
- NCC.IDE.A.155 Flight crew interphone system
- NCC.IDE.A.160 Cockpit voice recorder
- NCC.IDE.A.165 Flight data recorder
- NCC.IDE.A.170 Data link recording
- NCC.IDE.A.175 Flight data and cockpit voice combination recorder
- NCC.IDE.A.180 Seats, seat safety belts, restraint systems and child restraint devices
- NCC.IDE.A.185 Fasten seat belt and no smoking signs
- NCC.IDE.A.190 First-aid kit
- NCC.IDE.A.195 Supplemental oxygen — pressurised aeroplanes
- NCC.IDE.A.200 Supplemental oxygen — non-pressurised aeroplanes
- NCC.IDE.A.205 Hand fire extinguishers
- NCC.IDE.A.206 Crash axe and crowbar
- NCC.IDE.A.210 Marking of break-in points
- NCC.IDE.A.215 Emergency locator transmitter (ELT)
- NCC.IDE.A.220 Flight over water
- NCC.IDE.A.230 Survival equipment
- NCC.IDE.A.240 Headset
- NCC.IDE.A.245 Radio communication equipment
- NCC.IDE.A.250 Navigation equipment
- NCC.IDE.A.255 Transponder
- NCC.IDE.A.260 Management of aeronautical databases
- NCC.IDE.A.265 Surveillance Equipment

SECTION 2 Helicopters

- NCC.IDE.H.100 Instruments and equipment — general
- NCC.IDE.H.105 Minimum equipment for flight
- NCC.IDE.H.115 Operating lights
- NCC.IDE.H.120 Operations under VFR — flight and navigational instruments and associated equipment
- NCC.IDE.H.125 Operations under IFR — flight and navigational instruments and associated equipment
- NCC.IDE.H.130 Additional equipment for single-pilot operations under IFR
- NCC.IDE.H.145 Airborne weather detecting equipment
- NCC.IDE.H.150 Additional equipment for operations in icing conditions at night
- NCC.IDE.H.155 Flight crew interphone system
- NCC.IDE.H.160 Cockpit voice recorder
- NCC.IDE.H.165 Flight data recorder
- NCC.IDE.H.170 Data link recording
- NCC.IDE.H.175 Flight data and cockpit voice combination recorder
- NCC.IDE.H.180 Seats, seat safety belts, restraint systems and child restraint devices
- NCC.IDE.H.185 Fasten seat belt and no smoking signs
- NCC.IDE.H.190 First-aid kit
- NCC.IDE.H.200 Supplemental oxygen — non-pressurised helicopters
- NCC.IDE.H.205 Hand fire extinguishers
- NCC.IDE.H.210 Marking of break-in points
- NCC.IDE.H.215 Emergency locator transmitter (ELT)
- NCC.IDE.H.225 Life-jackets
- NCC.IDE.H.226 Crew survival suits
- NCC.IDE.H.227 Life-rafts, survival ELTs and survival equipment on extended overwater flights
- NCC.IDE.H.230 Survival equipment
- NCC.IDE.H.232 Helicopters certified for operating on water — miscellaneous equipment
- NCC.IDE.H.235 All helicopters on flights over water — ditching
- NCC.IDE.H.240 Headset
- NCC.IDE.H.245 Radio communication equipment
- NCC.IDE.H.250 Navigation equipment
- NCC.IDE.H.255 Transponder
- NCC.IDE.H.260 Management of aeronautical databases
- NCC.IDE.H.265 Surveillance Equipment

NCC.IDE.A.105 - Minimum equipment for flight

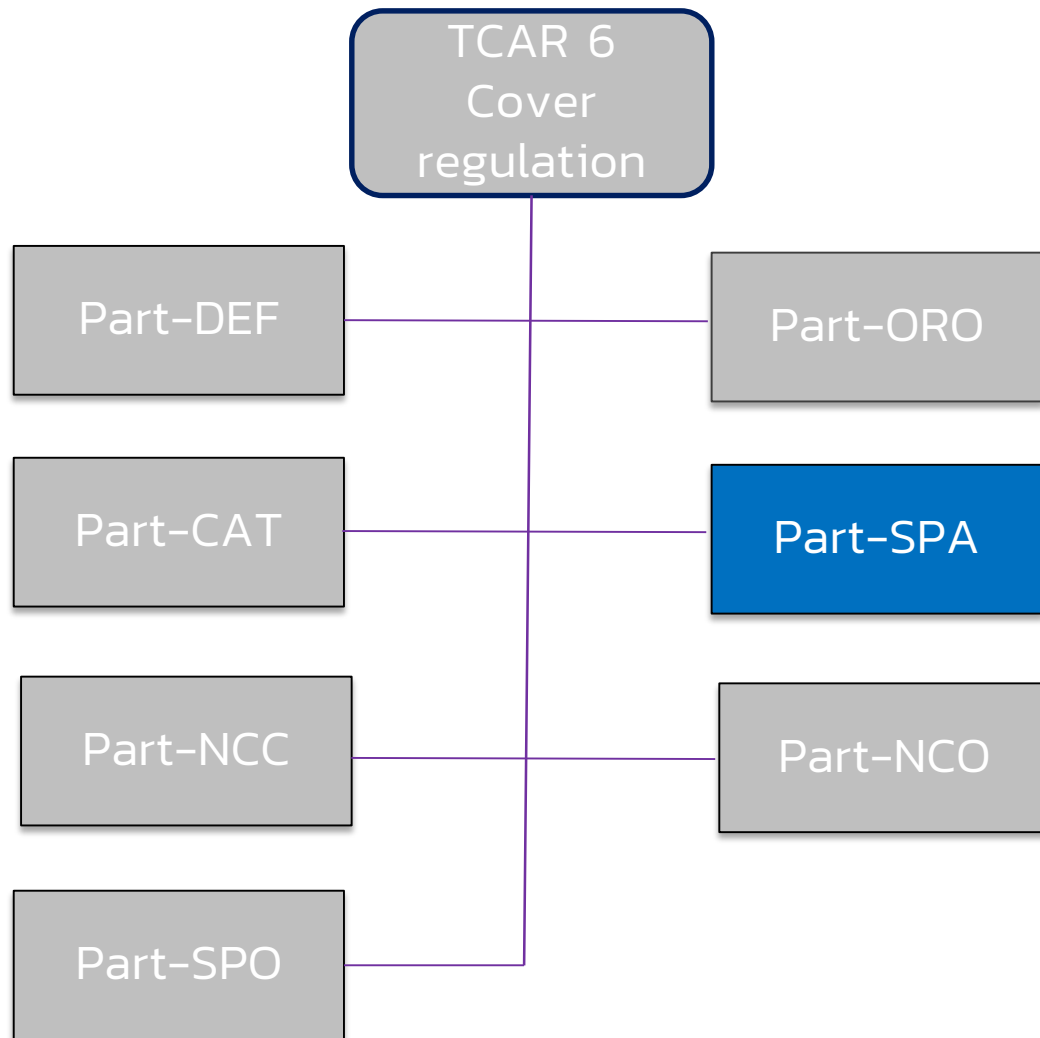
- (a) aeroplane is operated in accordance with the operator's minimum equipment list (MEL)
- (b) the operator **is approved by the CAAT** to operate the aeroplane within the constraints of the master minimum equipment list ("MMEL") in accordance with TCAR OPS Part ORO point ORO.MLR.105(j)



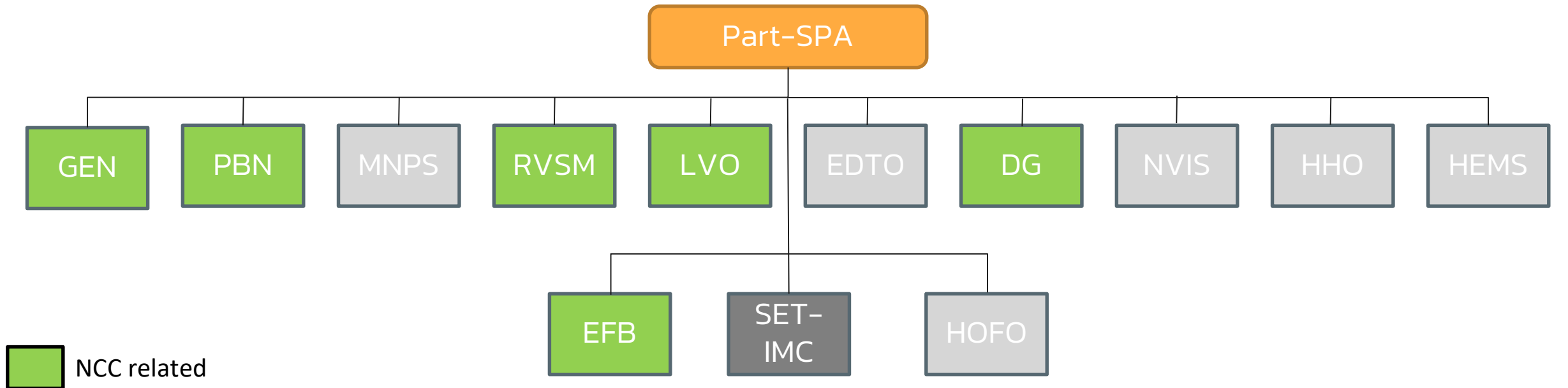
04

Part SPA

TCAR 6 Structure



Part SPA: "Specific Approval"



GEN: General

PBN: Performance-based navigation

MNPS: Specified minimum navigation performance

RVSM: Reduced vertical separation minimum

LVO: Low visibility operations

EDTO: Extended diversion time operations

DG: Transportation of dangerous goods

NVIS: Helicopter operations with night vision images systems

HHO: Helicopter hoist operations

HEMS: Helicopter Emergency medical service operations

HOFO: Helicopter offshore operations

SET-IMC: Single-engined turbine aeroplane operations at night or IMC

EFB: Electronic flight bags





TCAR OPS Part-NCO Introduction

Flight Operations Standards Department

Contents

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Part-NCO
Structure

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Technical
Requirements

04
Part SPA



01

Applicability

Applicability to Part-NCO

- Non-Commercial Flights in Other-than-Complex Motor-Powered Aircraft (**other than-CMPA**) must comply with NCO;
- **Derogation** (alleviation) Provision:
 - CMPA with twin-turboprop with MTOW $\leq 5\,700$ kg, can applied only Part-NCO.
- Following activities with other-than-CMPA can be performed i.a.w Part-NCO:
 - **Cost-Shared** flight, **Introductory Flight**, Airshow or **Competition Flight**

Definitions or Terms (Explanatory)

- Complex-Motor Powered-Aircraft (**CMPA**)
 - ❖ **Aeroplane:**
 - ✓ MTOW > 5 700 kg; or
 - ✓ Certified of Max Passenger Seats Capability > 19; or
 - ✓ Certified as MPO (multi-pilot-operations); or
 - ✓ Turbojet or more than one turboprop.
- Other-than-CMPA = Opposite definition of CMPA

Definitions or Terms (Explanatory)

- Complex-Motor Powered-Aircraft (**CMPA**)
 - ❖ **Helicopter:**
 - ✓ MTOW > 3 175 kg; or
 - ✓ Certified of Max Passenger Seats Capability > 9; or
 - ✓ Certified as MPO (multi-pilot-operations); or



Definitions or Terms (Explanatory)

- **Cost Shared:** flights carried out by individuals, provided that the direct cost is shared among all occupants of the aircraft, including the pilot, and the number of individuals sharing the direct cost does not exceed six
- **Introductory Flight:** flights conducted by ATOs or a sports and recreational aviation organization. The organization operating the aircraft should either own it or have it under a dry lease agreement. Additionally, the flights must not generate distributed profits beyond the organization, and flights involving non-members should only be a marginal activity.
- **Competition Flight:** , any remuneration or compensation given should only cover direct costs and make a proportionate contribution to annual costs. The prices charged for these flights must not exceed a specified amount determined by the competent authority.

Key Players (Who is effected?)

Operators of “other-than-complex motor-powered aircraft” flying **non-commercial flights**:

- ❖ Aircraft that is **registered in the Kingdom of Thailand**; or
- ❖ Aircraft that is registered in foreign country but having **principle place of business (residing)** in the Kingdom of Thailand.

GM1 NCO.GEN.100(b) The competent authority, provides details and explanation regarding “Residing” term...

Applicability Summary Matrix

		TCAR OPS Part-						
Type of operations		DEF	ORO	CAT	SPA	NCC	NCO	SPO
Non-Commercial operations	Other-than-CMPA	✓	✗		✓		✓	

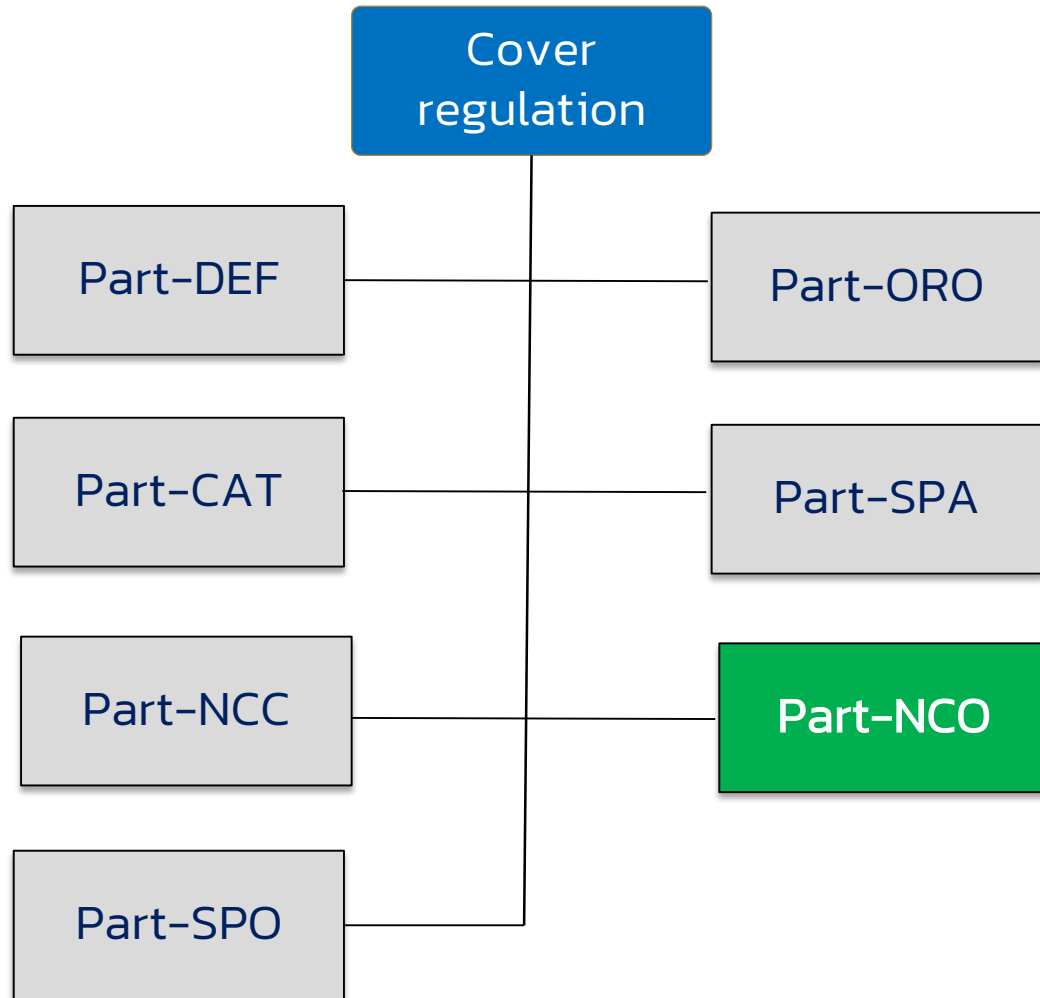
Note: NCO operators may apply for Operations Requiring Specific Approval (SPA), which include specific approvals e.g. *PBN, RVSM, AWOs, DGs*.



02

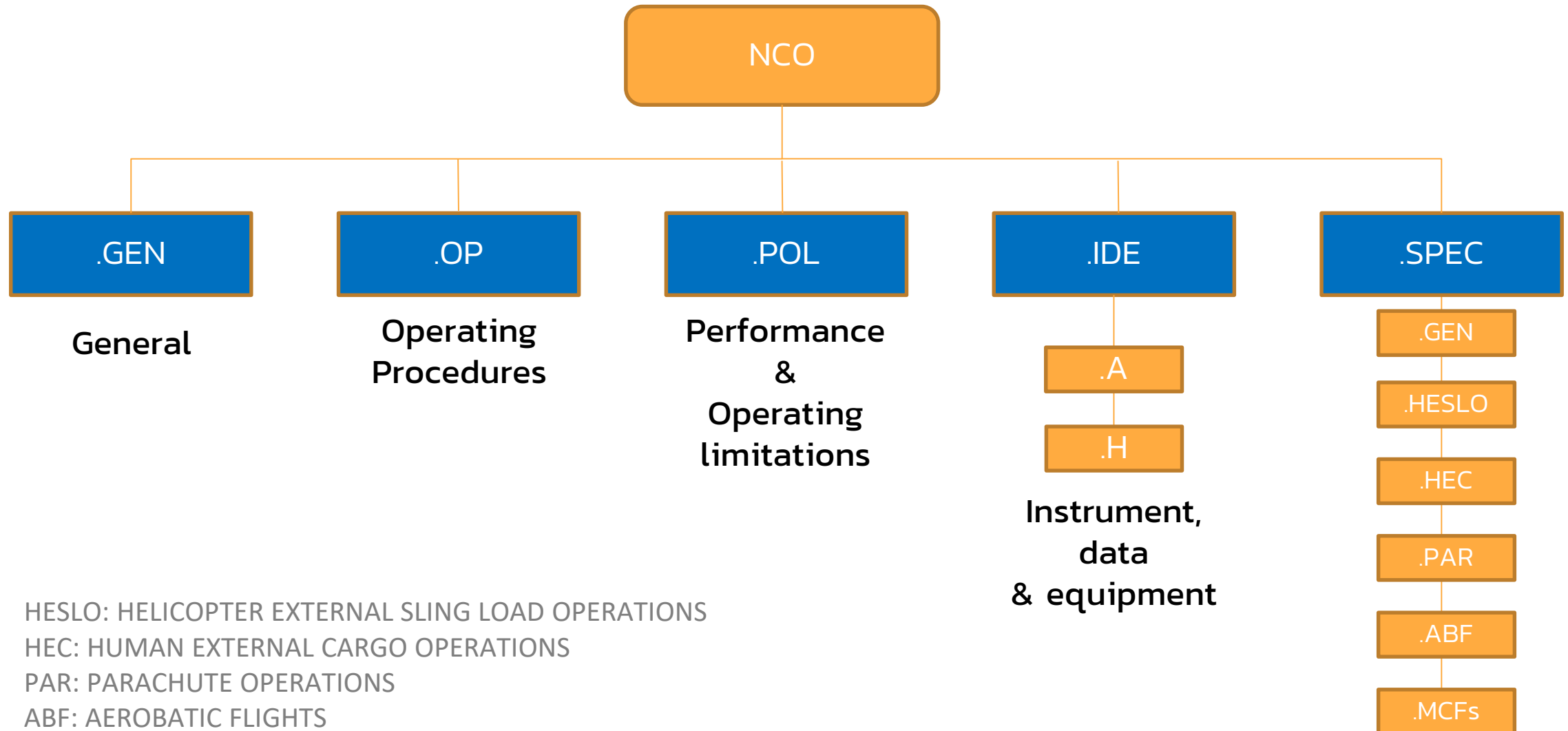
Part-NCO Structure

TCAR OPS Structure



- Part-DEF: Definitions
- Part-ORO: Organisation requirements
- Part-CAT: Commercial Air Transport operations
- Part-NCC: Non-commercial operations with complex motor-powered aircraft (CMPA)
- Part-NCO: Non-commercial operations with other than CMPA
- Part-SPO: Specialised Operations (aerial work)
- Part-SPA: Operations Requiring Specific Approval

Part-NCO Structure



HESLO: HELICOPTER EXTERNAL SLING LOAD OPERATIONS
HEC: HUMAN EXTERNAL CARGO OPERATIONS
PAR: PARACHUTE OPERATIONS
ABF: AEROBATIC FLIGHTS
MCF: MAINTENANCE CHECK FLIGHTS

Part-NCO Structure

- ▷ SUBPART A: GENERAL REQUIREMENTS
- ▷ SUBPART B: OPERATIONAL PROCEDURES
- ▷ SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS
- ▲ SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT
 - ▷ SECTION 1 Aeroplanes
 - ▷ SECTION 2 Helicopters
- ▲ SUBPART E: SPECIFIC REQUIREMENTS
 - ▷ SECTION 1 General
 - ▷ SECTION 2 Helicopter external sling load operations (HESLO)
 - ▷ SECTION 3 Human external cargo operations (HEC)
 - ▷ SECTION 4 Parachute operations (PAR)
 - ▷ SECTION 5 Aerobatic flights (ABF)
 - ▷ SECTION 6 Maintenance check flights (MCFs)

There are 2 types of technical requirements:

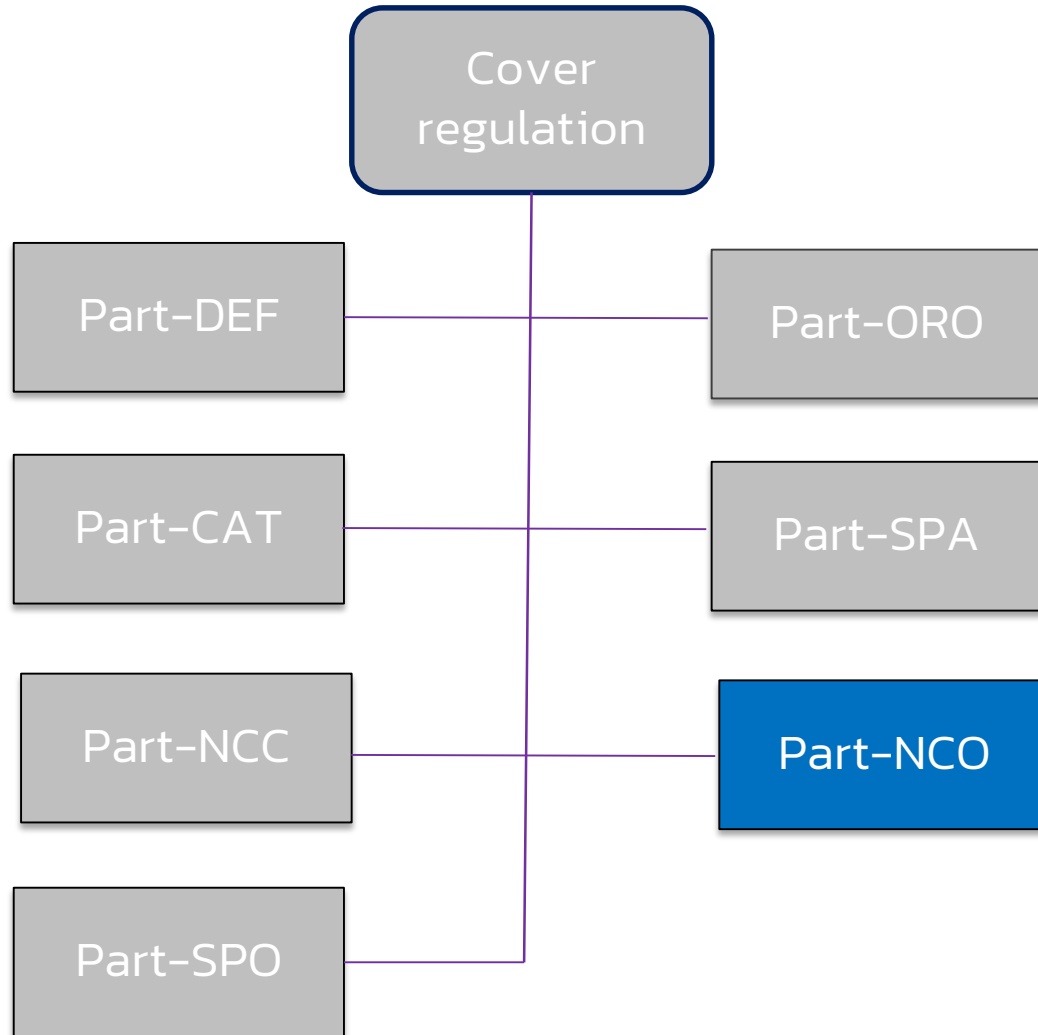
- Common requirement, and
- Specific requirement (e.g. A, H, HESLO, HEC, PAR, ABF, MCF)



03

Technical Requirements

TCAR OPS Part-NCO



SUBPART-GEN: General Requirements

SUBPART A: GENERAL REQUIREMENTS

- NCO.GEN.100 The competent authority
- NCO.GEN.101 Means of compliance
- NCO.GEN.103 Introductory flights
- NCO.GEN.104 Use of aircraft included in an AOC by an NCO operator
- NCO.GEN.105 Pilot-in-command responsibilities and authority
- NCO.GEN.110 Compliance with laws, regulations and procedure
- NCO.GEN.115 Taxiing of aeroplanes
- NCO.GEN.120 Rotor engagement — helicopters
- NCO.GEN.125 Portable electronic devices
- NCO.GEN.130 Information on emergency and survival equipment carried
- NCO.GEN.135 Documents, manuals and information to be carried
- NCO.GEN.140 Transport of dangerous goods
- NCO.GEN.145 Immediate reaction to a safety problem
- NCO.GEN.150 Journey log
- NCO.GEN.155 Minimum equipment list

NCO.GEN.101 – Means of compliance

- AMOC (alternative means of compliance)s are allowed to use after authorized by CAAT.

NCO.GEN.103 – Introductory flight

- Conditions and limitations of introductory flight are:
 - *start-end at the same airport/operating site;*
 - *Day VFR;*
 - *Supervised by designated person to ensure its safety;*
 - *comply with **other conditions** established by CAAT.*

NCO.GEN.105 – PIC responsibility & authority

There is **no change** in the concept when compared with GAR and ICAO Annex 6 part II. PIC shall responsible for:

- Safety of operation of aircraft, pax and cargo (as soon as he/she arrives onboard);
- Operations control (initiate, continue, terminate, diverse)
- Ensure compliance with procedures, checklist provided by OEM (latest version)
- Aircraft is airworthy
-

AMCs and **GM** also provided details related **PBN** flight preparations, Nav data, journey log record, technic for using checklist.....

NCO.GEN.110 – Compliance with laws, regulations and procedure

There is **no change** in the concept and details when compared with GAR and ICAO Annex 6 part II. Where:

- ❖ PIC shall **be familiar** and **comply with** applicable law, regulation and procedures.

NCO.GEN.115 – Taxiing of aeroplanes

The regulation defines, who can taxi the aeroplane in movement area of aerodrome:

- A Qualified **pilot**; or
- A **Trained person**, designated by operator.

GM level also describes:

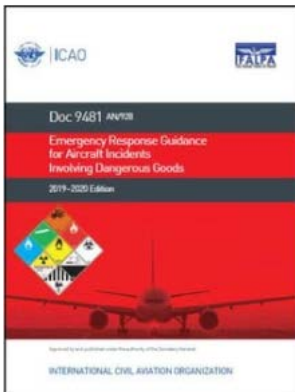
- Taxi is “safety-critical activity”
- Lists of required Skill & Knowledge to taxi of aeroplane.

NCO.GEN.125 – Portable Electronic Devices

PEDs (including EFBs) are prohibited from use if they **adversely affect** the aircraft's **systems, equipment**, or the **pilot's ability** to operate the aircraft.

AMC and **GM** introduce and describe:

- EFB function, hardware, software applications (e.g. Charts, Performance, M&B, AMMD);
- PED: T-PED, risk of interference, (not operating PEDs on-board aircraft is the safest option)
- ICAO Doc 9481 contains Guideline to follow in case of fire caused by PEDs



NCO.GEN.130 – Information on emergency and survival equipment

Lists of **EMERGENCY** and **SURVIVAL EQUIPMENT** on-board shall be immediately communicated with RCC (rescue coordination centers) at all times:

Items for communication to RCC:

- Number, colour & type of Life Raft including pyrotechnic;
- EMER Medical & Water supplies;
- Frequency of EMER portable Radio equipment

*See Item 19: Supplementary Information
“ICAO Flight Plan”*

NCO.GEN.135 – Documents, manuals and information to be carried

There are numbers of **Document**, **Manual** and **Information** to be carried on-board listed in the regulation (e.g. AFM, CofA, CofR, Journey log, charts maps,

- If case of A-A flights; some documents allowed to be retained at aerodrome/operating-site. (see lists in regulation)

It is also a PIC responsibility to provide the required documents (to be carried) to Authority upon requested.

NCO.GEN.140 – Transport of dangerous goods

- Transportation of **DGs shall be approved** by CAAT (Part-SPA);
- It is a responsibility of PIC:
 - Prevent unintentional carried of DGs;
 - Report of DGs incidents/accidents (*more details in **AMC1...***);
 - Provide PAX information about DGs;
 - Packing and loading of Flyaway kits (under **TI** para 1;2,2,1(a)).

NCO.GEN.145 – Immediate reaction to a safety problem

This requirement provides the lists of information that operator shall implement:

- Safety measure mandate by CAAT;
- Mandate safety info (**Airworthiness Directive: AD**).

NCO.GEN.150 – Journey log

This requirement provides the details information that should be included in “Journey Log”

- ❖ *Registration, Date, Name of Crew member, Duty assignment, Departure/Arrival (place & time), hour, nature of flight, incident and Observations and PIC signature.*

NCO.GEN.155 – Minimum Equipment List

MEL **is not mandatory** for NCO operators. When establish, it requires only notification to CAAT.

- *Shall be based on MMEL;*
- *Customized to individual;*

Note: *AMC and GM provide more details on How to create MEL.*

SUBPART-OP: Operational Procedures

SUBPART B: OPERATIONAL PROCEDURES

- NCO.OP.100 Use of aerodromes and operating sites
- NCO.OP.101 Altimeter check and settings
- NCC.OP.105 Specification of isolated aerodromes – aeroplanes
- NCO.OP.110 Aerodrome operating minima — aeroplanes and helicopters
- NCO.OP.111 Aerodrome operating minima — 2D and 3D approach operations
- NCO.OP.112 Aerodrome operating minima — circling operations with aeroplanes
- NCO.OP.113 Aerodrome operating minima — onshore circling operations with helicopters
- NCO.OP.115 Departure and approach procedures — aeroplanes and helicopters
- NCO.OP.116 Performance-based navigation — aeroplanes and helicopters
- NCO.OP.120 Noise abatement procedures — aeroplanes and helicopters
- NCO.OP.125 Fuel/energy and oil supply – aeroplanes and helicopters
- NCO.OP.130 Passenger briefing
- NCO.OP.135 Flight preparation
- NCO.OP.140 Destination alternate aerodromes — aeroplanes
- NCO.OP.141 Destination alternate aerodromes — helicopters
- NCO.OP.142 Destination aerodromes — instrument approach operations
- NCO.OP.143 Destination alternate aerodromes planning minima — aeroplanes
- NCO.OP.144 Destination alternate aerodromes planning minima — helicopters
- NCO.OP.145 Refuelling with passengers embarking, on board or disembarking
- NCO.OP.147 Refuelling with engine(s) and/or rotors turning – helicopters
- NCO.OP.150 Carriage of passengers
- NCO.OP.155 Smoking on board — aeroplanes and helicopters
- NCO.OP.160 Meteorological conditions
- NCO.OP.165 Ice and other contaminants — ground procedures
- NCO.OP.170 Ice and other contaminants — flight procedures
- NCO.OP.175 Take-off conditions — aeroplanes and helicopters
- NCO.OP.180 Simulated situations in flight
- NCO.OP.185 NCO.OP.185 In-flight fuel/energy management
- NCO.OP.190 Use of supplemental oxygen
- NCO.OP.195 Ground proximity detection
- NCO.OP.200 Airborne collision avoidance system (ACAS II)
- NCO.OP.205 Approach and landing conditions — aeroplanes and helicopters
- NCO.OP.206 Approach and landing conditions — helicopters
- NCO.OP.210 Commencement and continuation of approach — aeroplanes and helicopters
- NCO.OP.220 Airborne collision avoidance system (ACAS II)

NCO.OP.100 – Use of aerodromes and operating sites

The aerodrome and operating-site shall be **adequate**.

Part-DEF:

'adequate aerodrome' means an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway characteristics;

NCO.OP.101 – Altimeter check and settings

PIC shall comply with “**Altimeter setting procedures**”

Criteria are as follows:

- *Pre-Flight Check (allowable tolerance details in AMC);*
- *Remote area “set to the field elevation”.*

NCO.OP.105 – Isolated Aerodrome

Criteria of **Isolated Aerodrome**:

- Piston engine, alternate > 60 min;
- Turbine engine, alternate > 90 min.

***Note:** Wx is taken into consideration for selected ALT.*

NCO.OP.110 –Aerodrome operating minima

For **IFR**:

- *It is a **PIC responsibility** to ensure that aerodrome operating minima comply with criteria (e.g. terrain, OBS, visual reference);*
- *Criteria of establish “minima” are detailed in regulation (12 elements).*

TAKEOFF minima: (normally expresses in “RVR/VIS”)

APCH minima are detailed in **AMC2 NCO.OP.110**

- *Factors to determine RVR/VIS normally related to **RWY**, **DH/MDH**, **visual-aids**.*

NCO.OP.110 –Aerodrome operating minima

GM4 NCO.OP.110:

- *When use “NAV charts **service provider**”, it is responsibility of PIC to verify that minima are calculated i.a.w. regulation.*

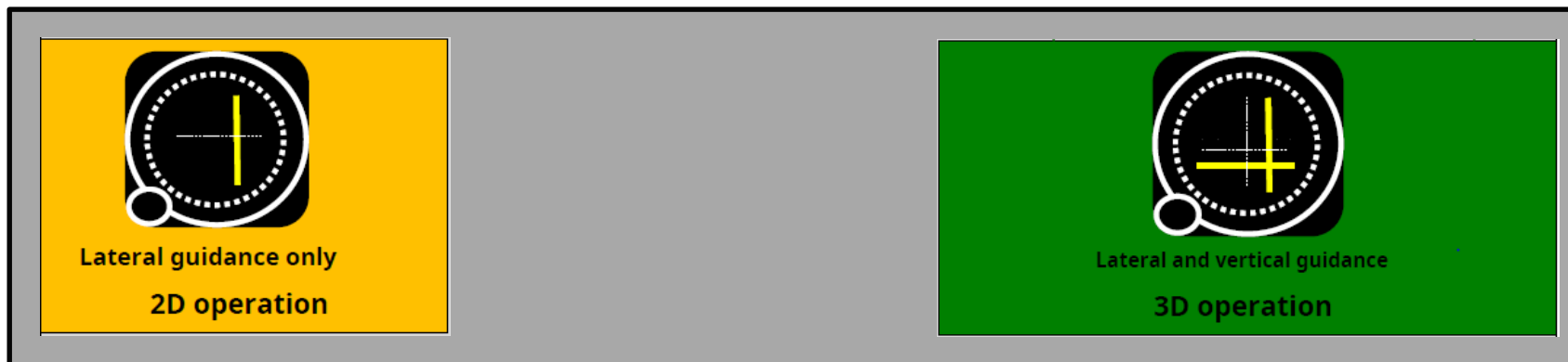
Example: *Some Chart Service Providers have established compliance statements indicating the applicable regulations.*

NCO.OP.111 –Aerodrome operating minima - 2D/3D APP

Introduction:

3D approach operation: an approach operation during which the pilot will use **lateral** and **vertical guidance information**.

2D approach operation: an approach operation during which the pilot will **only** use **lateral guidance information**



NCO.OP.111 –Aerodrome operating minima - 2D/3D APP

A Brief Summary “Term of Minima”:

- **3D operation (CDFA):** DA or DH
 - **2D operation (non-CDFA):** MDH or MDH
-
- Regulation has detailed the criteria for calculated the DH (3D), and MDH (2D):

NCO.OP.112 –Aerodrome operating minima - Circling

Circling minima: **MDH + VIS**

- Height shall be the highest of (OCH, table1, preceding IAP);
- Vis shall be the highest of (Table 1, published vis).

*Note: Circling operations technique is provided in **GM1 NCO.OP.112***

NCO.OP.116 –PBN (A)(H)

PIC responsible to ensure that aircraft **equipment** is suitable for PBN **navigation specifications**:

- Normally NAV SPEC are detailed in **AFM** (or equivalent);
- **Limitations** and **procedures** in AFM must be adhered.

Note:

1. *RNAV 10,5,1/2 and RNP4, 2, 1, APCH are not required prior approval. However PIC is appropriated trained for intended operations.*
2. *See more useful information related **Operating procedures, Database management, normal abnormal and Contingency Procedure...** in AMC1-8 and GM1.*

NCO.OP.120 – Noise Abatement procedure (A)(H)

PIC shall adhere to NADP, however, safety is priority.

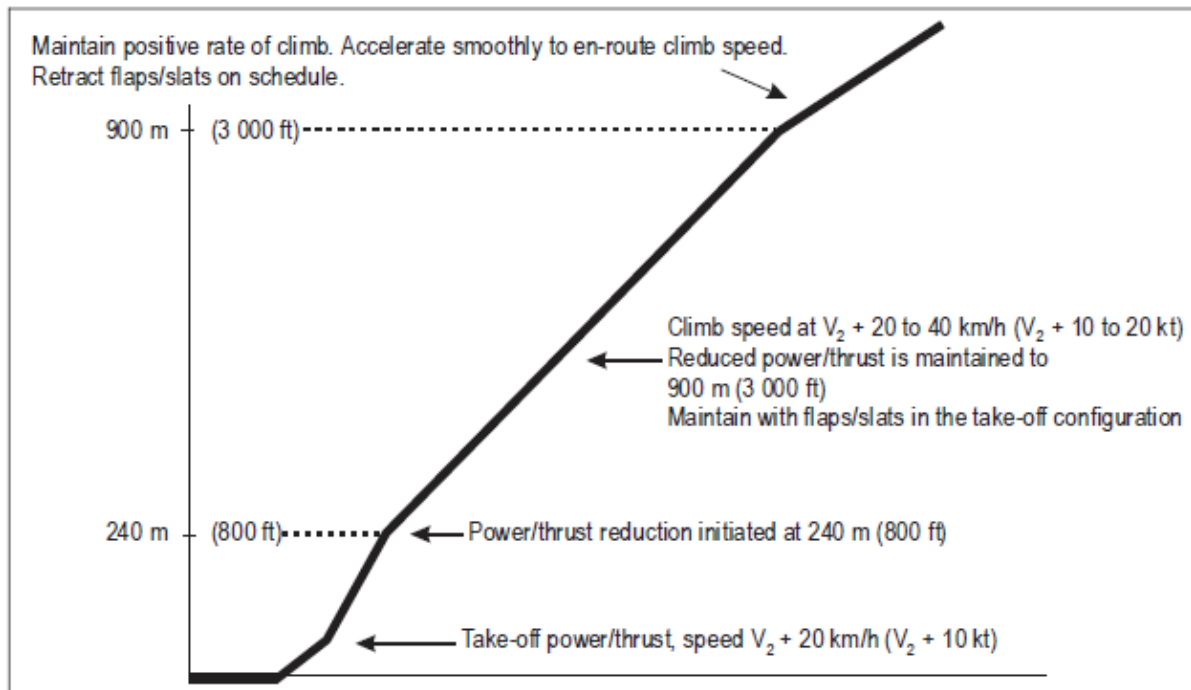


Figure 9-3-App-1. Noise abatement take-off climb — Example of a procedure alleviating noise close to the aerodrome (NADP 1)

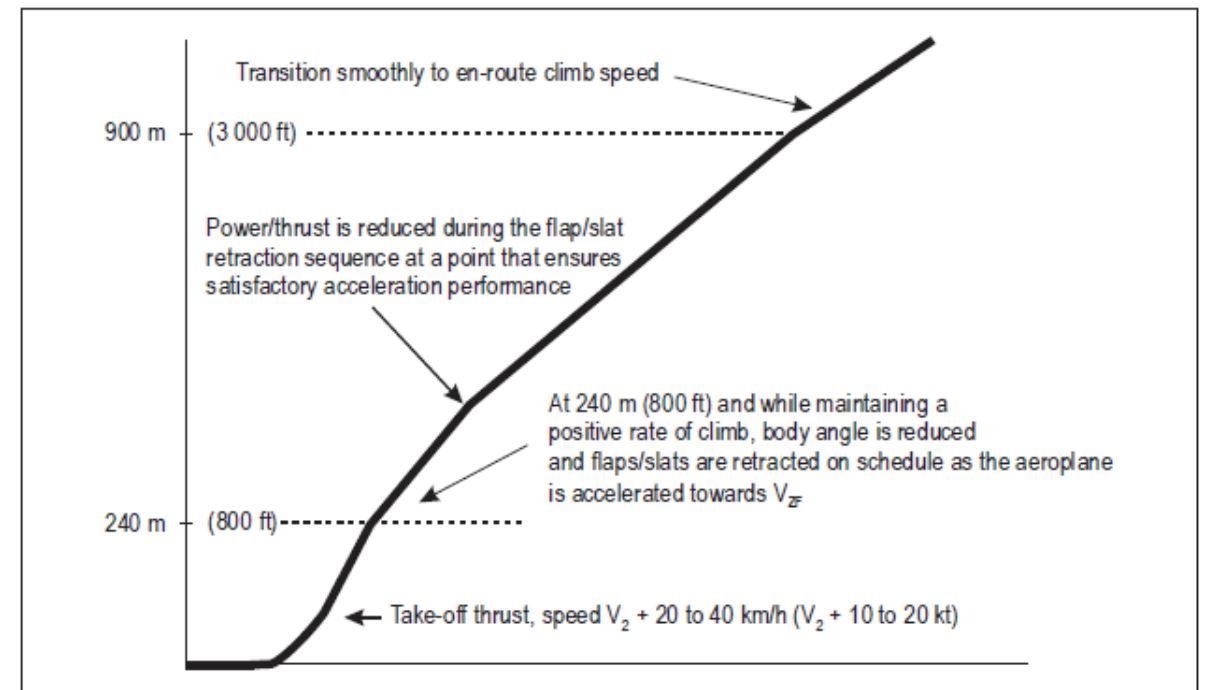


Figure 9-3-App-2. Noise abatement take-off climb — Example of a procedure alleviating noise distant from the aerodrome (NADP 2)

NCO.OP.125 – Fuel/Energy and Oil supply (A)(H)

- PIC shall ensure aircraft carry **sufficient fuel** (met condition, performance, delayed, contingency must be taken into action);
- **Final Reserve Fuel** (FRF) is mandatory.

Calculation of **FRF (A)**:

Day VFR:	Night VFR / IFR:
10 min (For A-A ; Max Con @ 1500 ft)	45 min (holding speed @ 1500 ft).
30 min (holding speed @ 1500 ft)	

NCO.OP.130 – Passenger Briefing

PIC responsible of the passenger briefing on **emergency equipment and procedure.**

Note: The detail of briefing items are outline in the AMC1 NCO.OP.130

NCO.OP.135 – Flight Preparation

Before flight PIC shall;

- Check the available facilities (space-based, ground, COM, NAV) **adequate** for the flight.
- Check the MET/forecast report and alternate course for the **IFR flight**.

Note: the mean of adequacy of ground state in the AMC1 NCO.OPS.135(a) (e.g. RFFS).

Q: Where no RFFS specify, what shall be considered?

NCO.OP.140 – Destination Alternate Aerodrome (A)

NCO.OP.141 – Destination Alternate Aerodrome (H)

IFR flight

- At least 1 destination alternate in flight plan.

No alternate: Ceiling at least 1000 ft above DH/MDH for IAP and VIS at least 5000 m (A) / 3000 m (H)

Specific timeframe: the shortest period below;

- ± 1 hr ETA or;
- Actual DT to + 1 hr ETA.

NCO.OP.142 – Destination Aerodrome

As the alternate **is mandatory** as state in NCO.OP.140 & 141 for IFR flight.

NCO.OP.142 state the selection criteria of alternate aerodrome

- *Condition A: IAP at destination or alternate is not relied on GNSS (PBN).*
- *Condition B: SBAS capable (equipment, airspace, procedure, RAIM)*

NCO.OP.143 – Destination ALTERNATE Aerodrome Planning Minima (A)

DH	Ceiling	Visibility
Type B (< 250 ft)	+ 200 ft	+ 1500 m
Type A (≥ 250 ft)	+ 400 ft	+ 3000 m
No IAP	+ 2000 ft	+ 5000 m

NCO.OP.143 – Destination ALTERNATE Aerodrome Planning Minima (A)

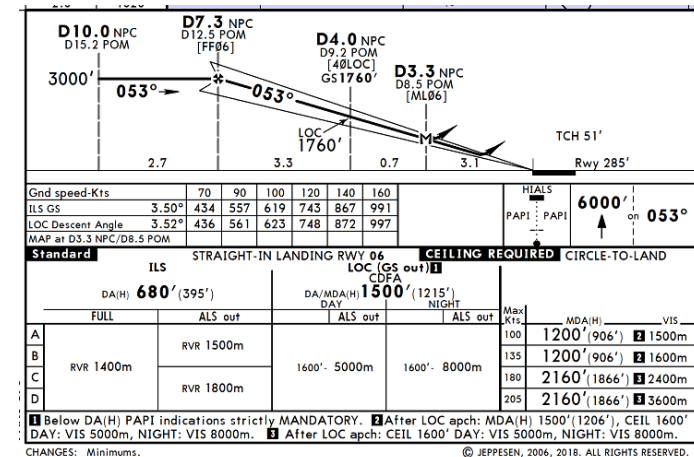
Type A Instrument Approach

Mean an operation with an *MDH/DH at or above 250 ft.*

An ILS with a $DH \geq 250$ ft. is a Type A operation.

Type B Instrument Approach

Mean an operation with a *DH below 250 ft.*



NCO.OP.144 – Destination ALTERNATE Aerodrome Planning Minima (H)

With IAP	Without IAP
Ceiling at least 200 ft above DH/MDH	Ceiling at least 2000 ft. & minimum IFR height
VIS at least 1500 m. (Day) 3000 m. (Night)	

NCO.OP.145 – Refueling with passenger embarking, on board or disembarking

The aircraft **shall not** be refueled with PAX on board/ disembarking for **AVGAS, wide-cut fuel or mixed of these.**

However, for other type of fuel/energy refueling can be commence only attended by **PIC or qualified personnel** to initiate the evacuation.

*Note: “**Operational procedure**” are state in the AMC1 NCO.OP145*

NCO.OP.150 – Carriage of passengers

Passenger safety belt or restraint devices are required during Taxi, T/O, L/D and in situation concerned safety.



NCO.OP.155 – Smoking on board – (A)(H)

Smoking on board is prohibited when refueling and event interest of safety.



NCO.OP.160 – Meteorological condition

The criteria for PIC decision to continue the flight.

- VFR: continue when ETA at destination \geq VMC
- IFR: continue when ETA at destination or alternate \geq applicable **operating minima.**

Note: the interpretation of 'TAF' and 'METAR' (BECMG, TEMPO and FM) are in AMC1 NCO.OP.160

NCO.OP.165 – Ice and other contaminants – ground procedures

Aircraft with contaminant can not take-off unless specify in AFM



NCO.OP.170 – Ice and other contaminants – flight procedures

Icing condition exceed the certified aircraft limit and uncertified aircraft are prohibited from flying in icing condition.

NCO.OP.175 – Take-off conditions – (A)(H)

This require the PIC to ensure the MET condition (RVR or VIS) at departure point (take-off minima).



NCO.OP.180 – Simulated situations in flight

Simulate IMC or emergency procedure with passengers or cargo on board is **not permit**.

EXCEPT, flight training with student pilot on board (ATO).

NCO.OP.185 – In-flight fuel/energy management

MAYDAY Fuel where safe landing at nearest aerodrome/operating site usable fuel < FRF

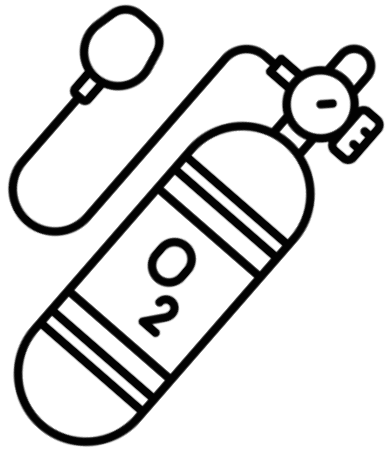
MINIMUM Fuel when committed to land and any change to clearance may induce the usable fuel < FRF

Note: FRF in VFR and IFR are difference.

NCO.OP.190 – Use of supplemental oxygen

Oxygen requirement when unable to determine the lack of oxygen.

- Use of supplement oxygen when +30 min and altitude 10000 ft – 13000 ft
- All occupant when + 13000 ft



NCO.OP.195 – Ground proximity detection

When ground proximity warning, PIC shall take immediate action.

Note: Aeroplane require GPWS Turbine aircraft with MPSC > 9 seats

NCO.OP.200/220 – Airborne collision avoidance system (ACAS II)

Use of ACAS related to the airspace regulation (procedure and FC training are required) in accordance with NCO.OP.220

Note: this provision does not intent to mandate ACAS II

NCO.OP.205 – Approach and landing conditions – (A)

This provision is related to the GRF (Global Reporting Format), where MET condition is related to the Aeroplane landing performance.

- Landing distance (in-flight) assessment performed. By using **RCR, RWYCC**.
- Report of braking action

NCO.OP.210 – Commencement and continuation of approach (A)(H)

Approach banned concept (the approach shall not commence when the MET condition below the applicable landing minima)

- Before 1000 ft the approach can not continue
- After 1000 ft the approach can continue to DH/MDH

Note 1 : Case DH/MDH higher than 1000 ft. use the highest.

Note 2 : Where RVR < 550 m, LVO (specific approval) is required.

SUBPART-POL: Aircraft Performance and Operating Limitations

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

NCO.POL.100 Operating limitations — all aircraft

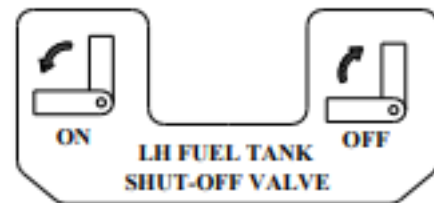
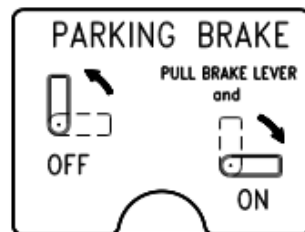
NCO.POL.105 Weighing

NCO.POL.110 Performance — general

NCO.POL.100 – Operating limitations – all aircraft

- In all phase of flight **Mass** and **C.G.** shall comply with limitations in AFM or equivalent document (e.g. POH).
- **Placards, listings, instrument markings, or combinations thereof,** containing those **operating limitations** prescribed by the **AFM** for visual presentation, shall be displayed in the aircraft.

Example: Powerplant, Airspeed Instrument Markings, Airspeed Placards, Flight Maneuver Placard, Baggage Placard, Passenger Warning Placard.



A placard measuring 74x7 mm is located on the instrument panel to indicate fire extinguisher position:

FIRE EXTINGUISHER ON BAGGAGE FLOOR

NCO.POL.105 – Weighing

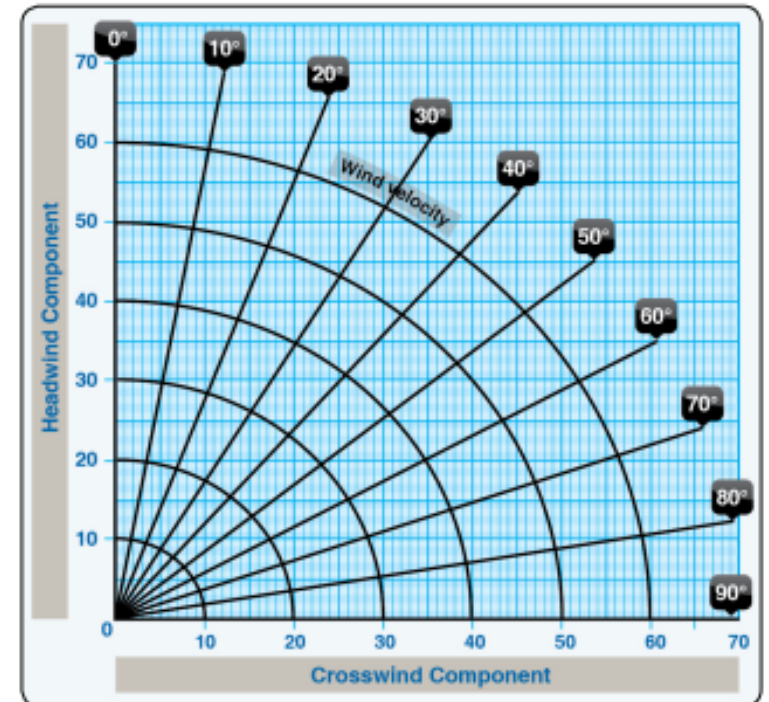
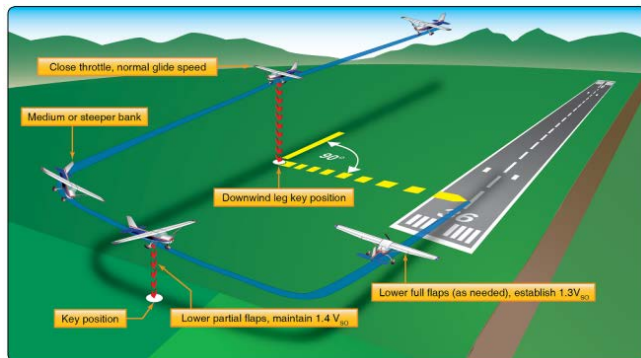
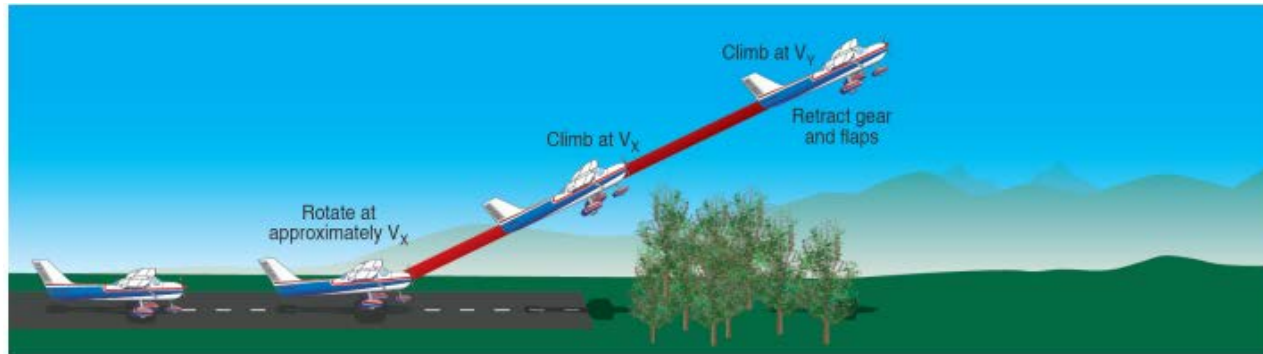
- Operator shall ensure Weight and C.G. of aircraft have **been established by actual weighing;**
- Any **Modifications & Repairs** effected mass and balance shall be accounted and **recorded** and available to **PIC**. (re-weighting is required when effect of modification is not accurately know).

Note:

- *Weighting shall be done by **OEM or Approved maintenance org.***
- *M&B revising criteria are detailed in GM1 ($\pm 0.5\%$), Comply with AFM if it requires a lower threshold.*

NCO.POL.110 – Performance – general

- PIC shall only operate aircraft if **performance** is complying with **applicable Rule of the Air, Airspace, Aerodrome** including **Maps** and **Charts** used.



NCO.IDE (A)(H)

▾ SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

▾ SECTION 1 Aeroplanes

NCO.IDE.A.100 Instruments and equipment — general

NCO.IDE.A.105 Minimum equipment for flight

NCO.IDE.A.110 Spare electrical fuses

NCO.IDE.A.115 Operating lights

NCO.IDE.A.120 Operations under VFR — flight and navigational instruments and associated equipment

NCO.IDE.A.125 Operations under IFR — flight and navigational instruments and associated equipment

NCO.IDE.A.130 Terrain awareness warning system (TAWS)

NCO.IDE.A.135 Flight crew interphone system

NCO.IDE.A.140 Seats, seat safety belts, restraint systems and child restraint devices

NCO.IDE.A.145 First-aid kit

NCO.IDE.A.150 Supplemental oxygen — pressurised aeroplanes

NCO.IDE.A.155 Supplemental oxygen — non-pressurised aeroplanes

NCO.IDE.A.160 Hand fire extinguishers

NCO.IDE.A.165 Marking of break-in points

NCO.IDE.A.170 Emergency locator transmitter (ELT)

NCO.IDE.A.175 Flight over water

NCO.IDE.A.180 Survival equipment

NCO.IDE.A.190 Radio communication equipment

NCO.IDE.A.195 Navigation equipment

NCO.IDE.A.200 Transponder

NCO.IDE.A.205 Management of aeronautical databases

NCO.IDE.A.210 Surveillance Equipment

▾ SECTION 2 Helicopters

NCO.IDE.H.100 Instruments and equipment — general

NCO.IDE.H.105 Minimum equipment for flight

NCO.IDE.H.115 Operating lights

NCO.IDE.H.120 Operations under VFR — flight and navigational instruments and associated equipment

NCO.IDE.H.125 Operations under IFR — flight and navigational instruments and associated equipment

NCO.IDE.H.126 Additional equipment for single pilot operations under IFR

NCO.IDE.H.135 Flight crew interphone system

NCO.IDE.H.140 Seats, seat safety belts, restraint systems and child restraint devices

NCO.IDE.H.145 First-aid kit

NCO.IDE.H.155 Supplemental oxygen — non-pressurised helicopters

NCO.IDE.H.160 Hand fire extinguishers

NCO.IDE.H.165 Marking of break-in points

NCO.IDE.H.170 Emergency locator transmitter (ELT)

NCO.IDE.H.175 Flight over water

NCO.IDE.H.180 Survival equipment

NCO.IDE.H.185 All helicopters on flights over water — ditching

NCO.IDE.H.190 Radio communication equipment

NCO.IDE.H.195 Navigation equipment

NCO.IDE.H.200 Transponder

NCO.IDE.H.205 Management of aeronautical databases

NCO.IDE.H.210 Surveillance Equipment

NCO.IDE (A)(H)

When observe this statement in the MMEL

“Required to be carried/ dispatched, “-” , “As required by regulation”, “As required by 14 CFR”.

This statement refers to the equipment carrying requirements mainly found in

The Subpart-IDE.

23-40-1	Flight crew interphone system				
23-40-1	(ALL)	D	-	-	Any in excess of those required by regulations may be inoperative.

34. Navigation						
Sequence No.	Item	1	2	3	4	Change Bar
-00-01	VHF Navigation Systems					

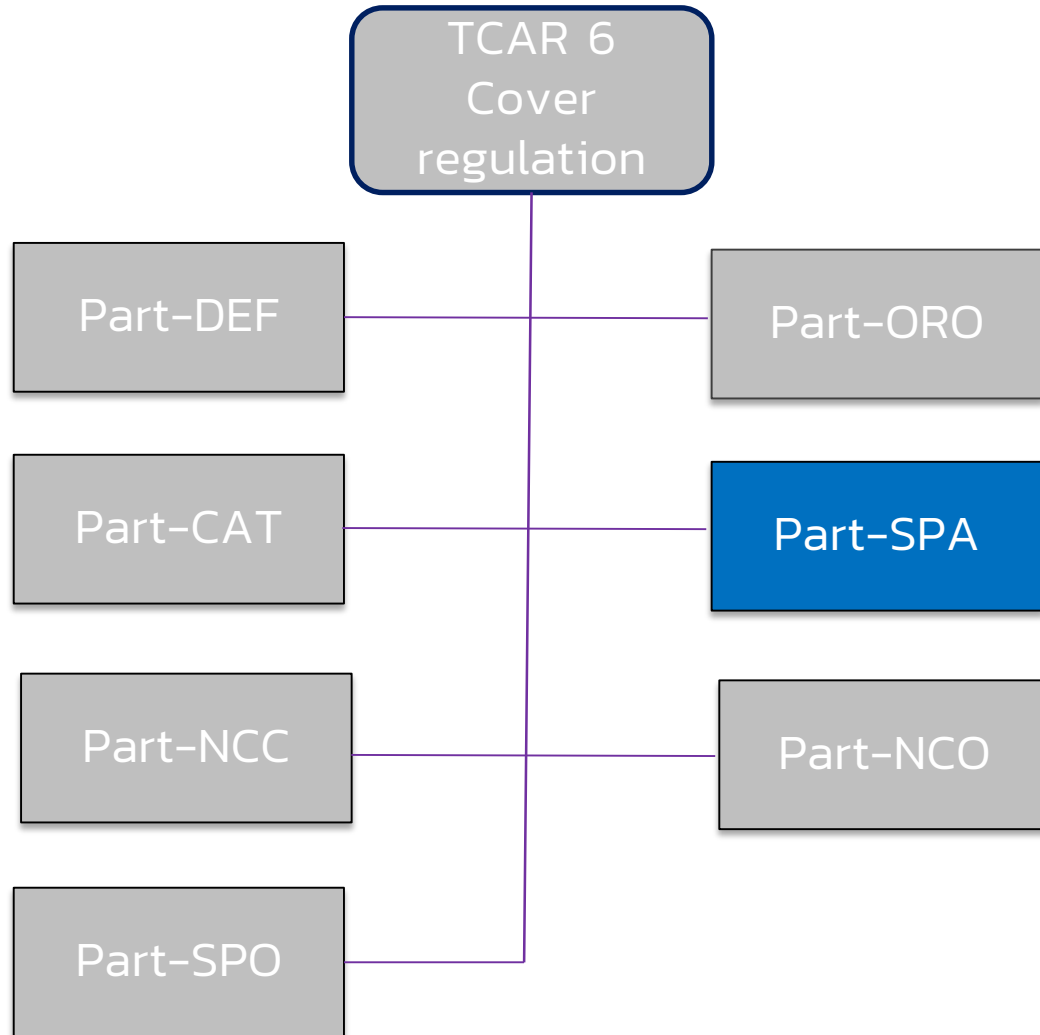
-01	VOR	C	-	-	May be inoperative provided not required by 14 CFR.	
-02	ILS					
-01	Localizer	C	-	-	May be inoperative provided not required by 14 CFR.	
					NOTE: Associated Glideslope must be considered INOPERATIVE.	
-02	Glideslope	C	-	-	May be inoperative provided not required by 14 CFR.	



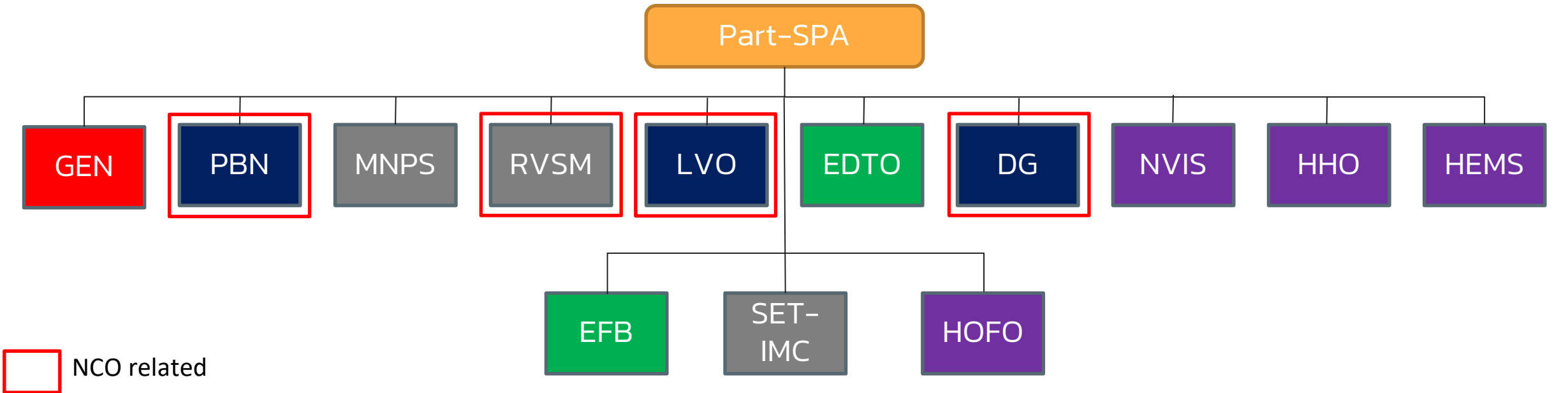
04

Part SPA

TCAR 6 Structure



Part SPA: "Specific Approval"



GEN: General

PBN: Performance-based navigation

MNPS: Specified minimum navigation performance

RVSM: Reduced vertical separation minimum

LVO: Low visibility operations

EDTO: Extended diversion time operations

DG: Transportation of dangerous goods

NVIS: Helicopter operations with night vision images systems

HHO: Helicopter hoist operations

HEMS: Helicopter Emergency medical service operations

HOFO: Helicopter offshore operations

SET-IMC: Single-engined turbine aeroplane operations at night or IMC

EFB: Electronic flight bags

