สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

# TCAR OPS Part SPO Introduction

Flight Operations Standards Department
General Aviation and Aerial Work Division

# Contents

# 01

## Cover Regulation

# Objectives

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.

# 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.
The organisation may implement these AMoCs subject to prior formal approval by the CAAT and upon receipt of the notification of approval.

# Detailed Requirements & AMCs

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.

In case they find another way to comply, then, the operators have to submit a request for an Alternative Mean of compliance (AMoC) and to justify to the CAAT that this AMoC allows to reach a level of safety not lower to the level reached through the existing AMC.

# Detailed Requirements & AMCs

To **demonstrate compliance** with a requirement contained in the TCAR OPS:

- If the **operator has implemented** the means detailed in the corresponding **AMC**, the situation shall be considered as acceptable by the inspectors;

- If the operator **wants to proceed differently**, it is possible.

  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

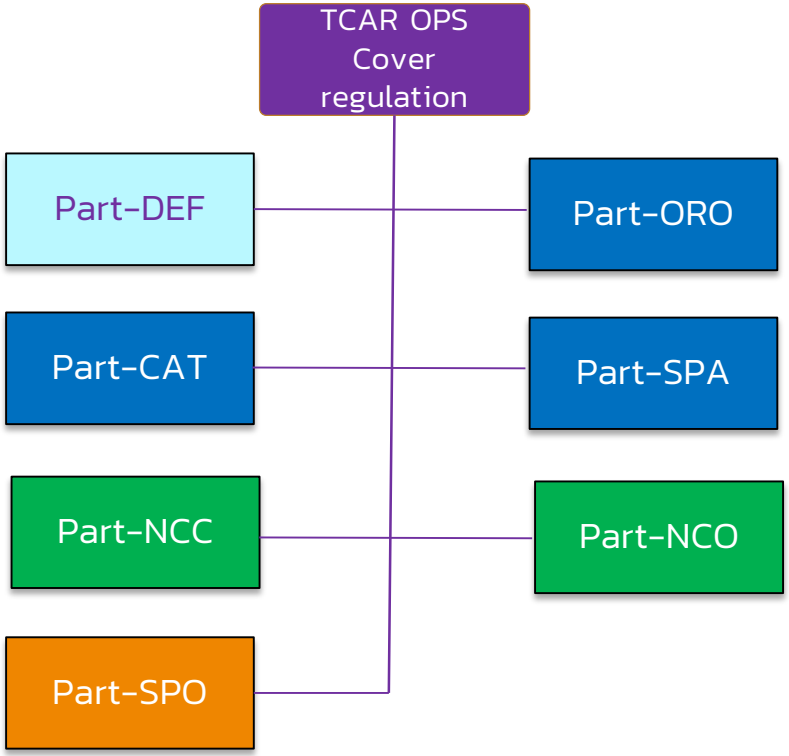
For both type of operators, **some operations requires a specific approval** (SPA)

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

# 02

## TCAR OPS 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

# Definitions

- Part ORO → Means to implement
  - Organisation & Management System
  - Facilities
  - security
  - Documentation
  - Personnel Training (Fight crew, Cabin crew and Others)
  - Flight Time Limitations (Personnel Management)
- Part CAT, NCC, NCO, SPO → Technical Aspects
  - Additional requirements related to Organisation (GEN)
  - Operating procedures (OP)
  - Performance & Operating Limitations (POL)
  - Instrument, Data and Equipment (IDE)

# Questions

- What is a Complex motor-powered aircraft (CMPA)?
- What is the difference between Commercial operations and Commercial Air Transport operations ?
- Complex Organisation Vs Non-Complex organisation ?

# CMPA vs Non-CMPA… Part DEF

**To adapt the requirements to the complexity of aircrafts used, the concept of Complex Motor-powered aircraft is introduced….**

'Complex motor-powered aircraft' shall mean:

(i) an aeroplane:

- with a maximum certificated take-off mass exceeding 5 700 kg, or
- certificated for a maximum passenger seating configuration of more than nineteen, or
- certificated for operation with a minimum crew of at least two pilots, or
- equipped with (a) turbojet engine(s) or more than one turboprop engine, or

(ii) a helicopter certificated:

- for a maximum take-off mass exceeding 3 175 kg, or
- for a maximum passenger seating configuration of more than nine, or
- for operation with a minimum crew of at least two pilots, or

(iii) a tilt rotor aircraft.

**This is purely an OPS/PEL concept.**

# ‘Commercial operation’ Vs ‘Commercial air transport (CAT) operation’… Part DEF

- 'Commercial operation' means any operation of an aircraft, in return for remuneration or other valuable consideration, which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator.”
- 'Commercial air transport' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration.

The two definitions make it clear that 'commercial operations' include 'CAT operations'. Specialised operations (SPO) are another type of commercial operations.

# ‘Complex’ Vs ‘Non-Complex’ organisation …. ORO.GEN.200

(b) The management system shall correspond to the size of the operator and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in these activities.
Notwithstanding point (a) (1) (iii), for non-complex organizations management safety risk management shall include at least:

— The use of Hazard checklists or similar risk management processes integrated into the activities of the organisation;

— The management of change;

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— A system or plan to implement immediate safety actions and to coordinate with other parties involved in a safety related event.

# ‘Complex’ Vs ‘Non-Complex’ organisation …. ORO.GEN.200

**AMC1 ORO.GEN.200(b) - Management system**

SIZE, NATURE AND COMPLEXITY OF THE ACTIVITY

(a) An operator should be considered as complex when it has a workforce of more than 20 full time equivalents (FTEs) involved in the activity subject to the Air Navigation Act B.E.2497 and the CAAT Civil Aviation Regulations.

(b) Operators with up to 20 FTEs involved in the activity subject to the Air Navigation Act B.E.2497 and the CAAT Civil Aviation Regulations may also be considered complex based on an assessment of the following factors:

(1) in terms of complexity, the extent and scope of contracted activities subject to the approval;

(2) organisations for which one of the following criteria is met should always be considered as complex

(i) operations requiring a specific approval;

(ii) high-risk commercial specialised operations;

(iii) use of complex motor-powered aircrafts;

(iv) operations with different categories of aircraft used; and

(v) where operations are primarily in a challenging environment (offshore, mountainous area, etc.).

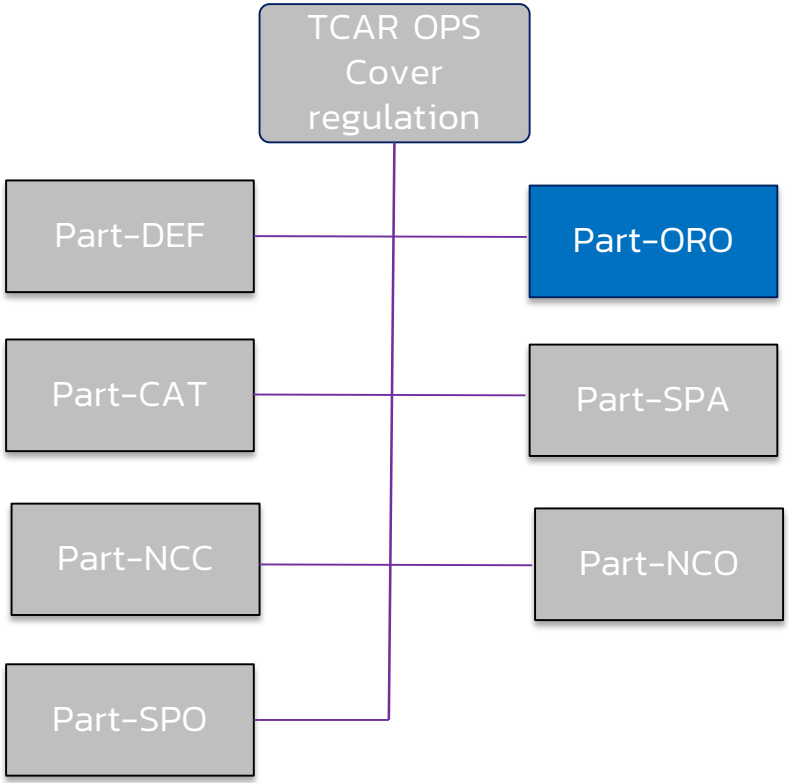
# TCAR OPS Parts applicable per type of operations

| | Annex: / Type of ops: | Part-DEF | Part-ORO | Part-CAT | Part-SPA | Part-NCC | Part-NCO | Part-SPO |
|---|---|---|---|---|---|---|---|---|
| Commercial Operations | CAT | ✓ | ✓ | ✓ | ✓ | | | |
| | Commercial SPO | ✓ | ✓ | | ✓ | | | ✓ |
| Non-commercial Operations (*General Aviation & Aerial work*) | CMPA | ✓ | ✓ | | ✓ | ✓ | | |
| | Other than CMPA | ✓ | | | ✓ | | ✓ | |
| | Specialised operations with CMPA | ✓ | ✓* | | ✓ | | | ✓ |
| | Specialised operations with other than CMPA | ✓ | | | ✓ | | ✓ | |

# 03

## Part ORO

# TCAR OPS Structure – Part ORO

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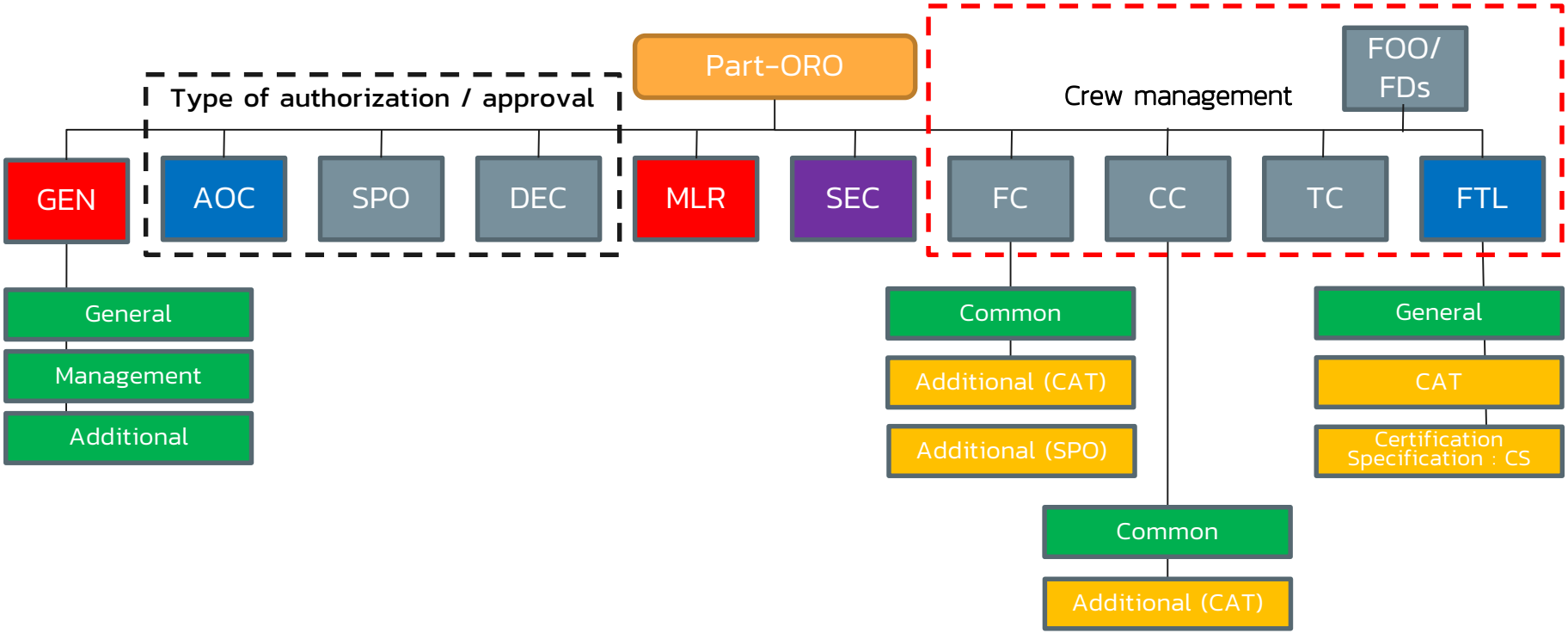
THAILAND CIVIL AVIATION REGULATION

TCAR OPS – Part ORO
Organisation Requirements for Air Operations

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

# Part ORO: “Organisation Requirements for Air Operations”



# Part ORO

- SUBPART GEN: GENERAL REQUIREMENTS
  - SECTION I General
  - SECTION 2 Management
  - SECTION 3 – ADDITIONAL ORGANISATIONAL REQUIREMENTS
- SUBPART AOC: AIR OPERATOR CERTIFICATION
- SUBPART DEC: DECLARATI...
- SUBPART SPO: COMMERCIAL SPECIALISED OPERATIONS
- SUBPART MLR: MANUALS, LOGS AND RECORDS
- SUBPART SEC: SECURITY
- SUBPART FC: FLIGHT CREW
  - ORO.FC.005 - Scope
  - SECTION 1 Common requirements
  - SECTION 2 Additional requirements for commercial air transport operations
  - SECTION 3 Additional requirements for commercial specialised operations and CAT operations referred to in ORO...
- SUBPART CC: CABIN CREW
- SUBPART TC: TECHNICAL CREW IN HEMS, HHO OR NVIS OPERATIONS
- SUBPART FOO/FD: Flight Operations Officer/Flight Dispatcher
- SUBPART FTL: FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

Appendix I to TCAR OPS Part ORO

# Part ORO Subpart GEN

SUBPART GEN: GENERAL REQUIREMENTS

- SECTION I General
- SECTION 2 Management
- SECTION 3 – ADDITIONAL ORGANISATIONAL REQUIREMENTS

- SUBPART GEN: GENERAL REQUIREMENTS
  - SECTION I General
    - ORO.GEN.005 - Scope
    - ORO.GEN.105 - Competent authority
    - ORO.GEN.110 - Operator responsibilities
    - ORO.GEN.115 - Application for an AOC
    - ORO.GEN.120 - Means of compliance
    - ORO.GEN.125 - Terms of approval and privileges of an AOC holder
    - ORO.GEN.130 - Changes related to an AOC holder
    - ORO.GEN.135 - Continued validity of an AOC
    - ORO.GEN.140 - Access
    - ORO.GEN.150 - Findings
    - ORO.GEN.155 - Immediate reaction to a safety problem
    - ORO.GEN.160 - Occurrence reporting

# Part ORO Subpart GEN

SUBPART GEN: GENERAL REQUIREMENTS

- SECTION I General
- SECTION 2 Management
- SECTION 3 – ADDITIONAL ORGANISATIONAL REQUIREMENTS

SECTION 2 Management

ORO.GEN.200 - Management system

ORO.GEN.205 - Contracted activities

ORO.GEN.210 - Personnel requirements

ORO.GEN.215 - Facility requirements

ORO.GEN.220 - Record-keeping

SECTION 3 – ADDITIONAL ORGANISATIONAL REQUIREMENTS

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

# Part ORO Subpart AOC

SUBPART AOC: AIR OPERATOR CERTIFICATION

- ORO.AOC.100 - Application for an air operator certificate
- ORO.AOC.105 - Operations specifications and privileges of an AOC holder
- ORO.AOC.110 - Leasing agreement
- ORO.AOC.115 - Code-share agreements
- ORO.AOC.120 - Approvals to provide cabin crew training and to issue cabin crew attestations
- ORO.AOC.125 - Non-commercial operations of aircraft listed in the operations specifications by the holder of an AOC
- ORO.AOC.130 - Flight data monitoring — aeroplanes & helicopters
- ORO.AOC.135 - Personnel requirements
- ORO.AOC.140 - Facility requirements
- ORO.AOC.150 - Documentation requirements

# Part ORO Subpart MLR

- SUBPART MLR: MANUALS, LOGS AND RECORDS
  - ORO.MLR.100 - Operations manual — general
  - ORO.MLR.101 - Operations manual — structure for commercial air transport
  - ORO.MLR.105 - Minimum equipment list
  - ORO.MLR.110 - Journey log
  - ORO.MLR.115 - Record-keeping

# Part ORO Subpart FC

SUBPART FC: FLIGHT CREW

ORO.FC.005 - Scope

- SECTION 1 Common requirements
- SECTION 2 Additional requirements for commercial air transport operations
- SECTION 3 Additional requirements for commercial specialised operations and CAT operations referred to in ORO.FC.005(b)(1) and (2)

SECTION 1 Common requirements

ORO.FC.100 - Composition of flight crew
ORO.FC.105 - Designation as pilot-in-command/commander
ORO.FC.110 - Flight engineer
ORO.FC.115 - Crew resource management (CRM) training
ORO.FC.120 - Operator conversion training
ORO.FC.125 - Differences training and familiarisation training
ORO.FC.130 - Recurrent training and checking
ORO.FC.135 - Pilot qualification to operate in either pilot's seat
ORO.FC.140 - Operation on more than one type or variant
ORO.FC.145 - Provision of training
ORO.FC.146 - Personnel providing training, checking and assessment

# Part ORO Subpart FC

SUBPART FC: FLIGHT CREW

ORO.FC.005 - Scope

- SECTION 1 Common requirements
- SECTION 2 Additional requirements for commercial air transport operations
- SECTION 3 Additional requirements for commercial specialised operations and CAT operations referred to in ORO.FC.005(b)(1) and (2)

SECTION 2 Additional requirements for commercial air transport operations

ORO.FC.200 - Composition of flight crew
ORO.FC.A.201 - In-flight relief of flight crew members
ORO.FC.202 - Single-pilot operations under IFR or at night
ORO.FC.205 - Command course
ORO.FC.215 - Initial operator's crew resource management (CRM) training
ORO.FC.220 - Operator conversion training and checking
ORO.FC.230 - Recurrent training and checking
ORO.FC.231 - Evidence-based training
ORO.FC.232 - EBT programme assessment and training topics
ORO.FC.235 - Pilot qualification to operate in either pilot's seat
ORO.FC.240 - Operation on more than one type or variant
ORO.FC.A.245 - Alternative training and qualification programme
ORO.FC.A.250 - Commanders holding a CPL(A)
ORO.FC.H.250 - Commanders holding a CPL(H)

# Part ORO Subpart CC

- SUBPART CC: CABIN CREW
  - ORO.CC.005 - Scope
  - SECTION 1 Common requirements
  - SECTION 2 Additional requirements for commercial air transport operations

- SECTION 1 Common requirements
  - ORO.CC.100 - Number and composition of cabin crew
  - ORO.CC.110 - Conditions for assignment to duties
  - ORO.CC.115 - Conduct of training courses and associated checking
  - ORO.CC.120 - Initial training course
  - ORO.CC.125 - Aircraft type specific training and operator conversion training
  - ORO.CC.130 - Differences training
  - ORO.CC.135 - Familiarisation
  - ORO.CC.140 - Recurrent training
  - ORO.CC.145 - Refresher training
- SECTION 2 Additional requirements for commercial air transport operations
  - ORO.CC.200 - Senior cabin crew member
  - ORO.CC.205 - Reduction of the number of cabin crew during ground operations and in unforeseen circums...
  - ORO.CC.210 - Additional conditions for assignment to duties
  - ORO.CC.215 - Training and checking programmes and related documentation
  - ORO.CC.250 - Operation on more than one aircraft type or variant
  - ORO.CC.255 - Single cabin crew member operations

# Part ORO Subpart FOO/FD

- SUBPART FOO/FD: Flight Operations Officer/Flight Dispatcher
  - ORO.FOO/FD.005 – Scope
  - ORO.FOO/FD.010 – Duties of the Flight Operations Officer/Flight Dispatcher
  - ORO.FOO/FD.100 – Training and checking
  - ORO.FOO/FD.105 – Recent experience
  - ORO.FOO/FD.110 – Operator Conversion Training
  - ORO.FOO/FD.115 – Differences training and familiarisation training
  - ORO.FOO/FD.120 – Recurrent training and checking
  - ORO.FOO/FD.125 – New route/destination training

# Part ORO Subpart FTL

- SUBPART FTL: FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS
  - SECTION 1 General
    - ORO.FTL.100 - Scope
    - ORO.FTL.105 - Definitions
    - ORO.FTL.110 - Operator responsibilities
    - ORO.FTL.115 - Crew member responsibilities
    - ORO.FTL.120 - Fatigue Risk Management (FRM)
    - ORO.FTL.125 - Flight time specification schemes
  - SECTION 2 Commercial Air Transport Operators
    - ORO.FTL.200 - Home base
    - ORO.FTL.205 - Flight duty period (FDP)
    - ORO.FTL.210 - Flight times and duty periods
    - ORO.FTL.215 - Positioning
    - ORO.FTL.220 - Split duty
    - ORO.FTL.225 - Standby and duties at the airport
    - ORO.FTL.230 - Reserve
    - ORO.FTL.235 - Rest periods
    - ORO.FTL.240 - Nutrition
    - ORO.FTL.245 - Records of home base, flight times, duty and rest peri
    - ORO.FTL.250 - Fatigue management training

**Not applicable to the SPO operator.**

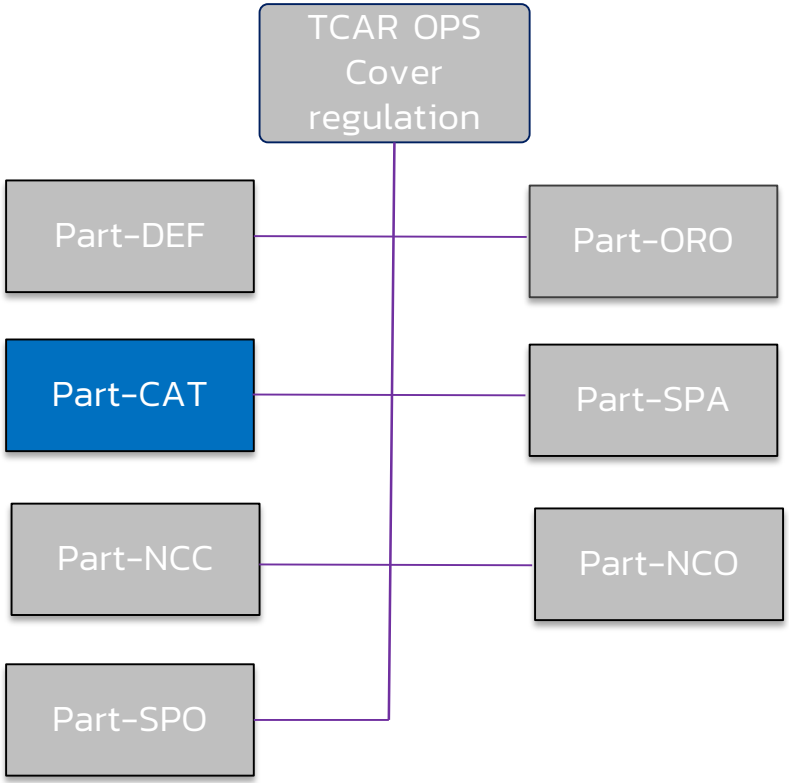
**SPO operator have to comply with the "Notification of the Civil Aviation Authority of Thailand On Flight Time and Flight Duty Period Limitation".**

- CERTIFICATION SPECIFICATIONS AND GUIDANCE MATERIAL FOR COMMERCIAL AIR TRANSPORT BY AEROPLANE...
  - CS FTL.1.100 - Applicability
  - CS FTL.1.200 - Home base
  - CS FTL.1.205 - Flight duty period (FDP)
  - CS FTL.1.220 - Split duty
  - CS FTL.1.225 - Standby
  - CS FTL.1.230 - Reserve
  - CS FTL.1.235 - Rest periods

# 04

## Part CAT

# TCAR OPS Structure

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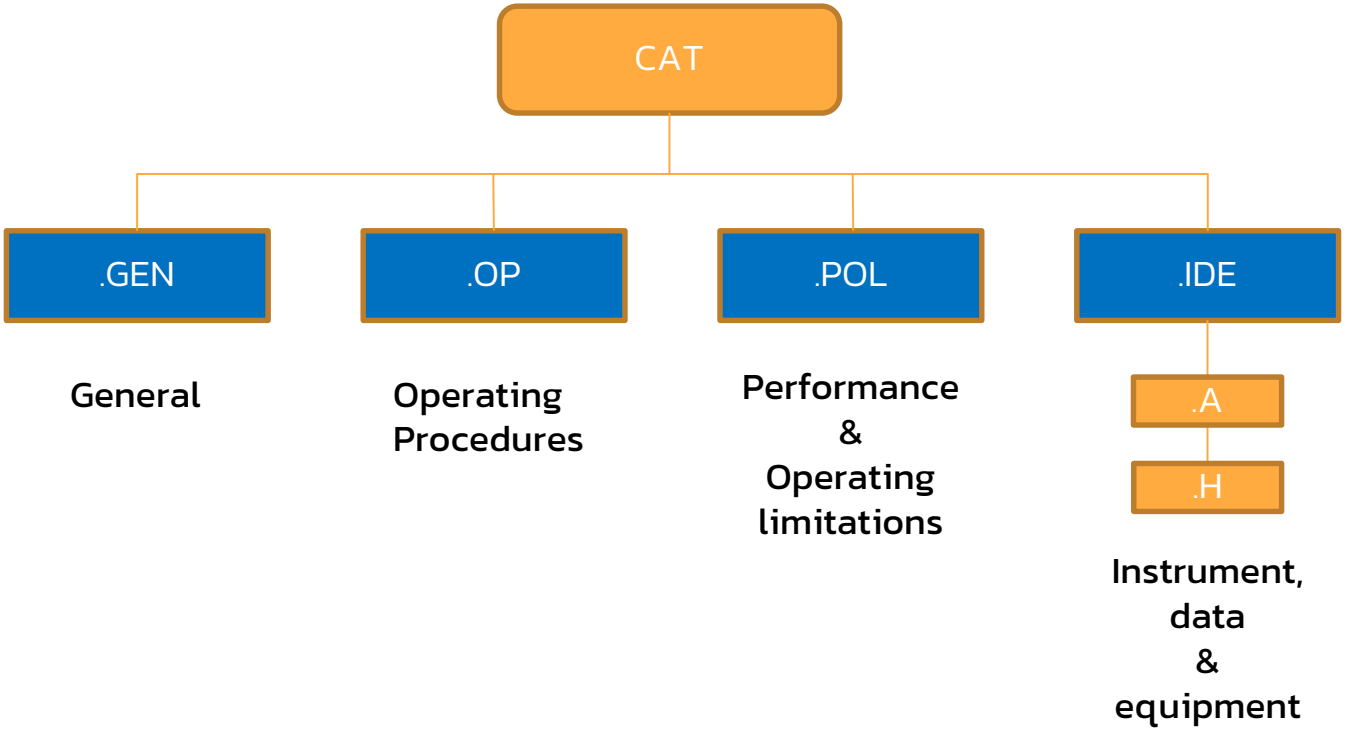
THAILAND CIVIL AVIATION REGULATION

TCAR OPS - PART CAT

Commercial Air Transport

Issue 01
Revision 00
Date 30 SEPTEMBER 2021

# Part CAT (Commercial Air Transport) Structure



# Part CAT (Commercial Air Transport) Structure

SUBPART A: GENERAL REQUIREMENTS

- SECTION 1 Motor-powered aircraft

SUBPART B: OPERATING PROCEDURES

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

SECTION 1 Aeroplanes

- CHAPTER 1 - General requirements
- CHAPTER 2 Performance class A
- CHAPTER 3 Performance class B
- CHAPTER 4 Performance class C

SECTION 2 Helicopters

- CHAPTER 1 General requirements
- CHAPTER 2 Performance class 1
- CHAPTER 3 Performance class 2
- CHAPTER 4 Performance class 3

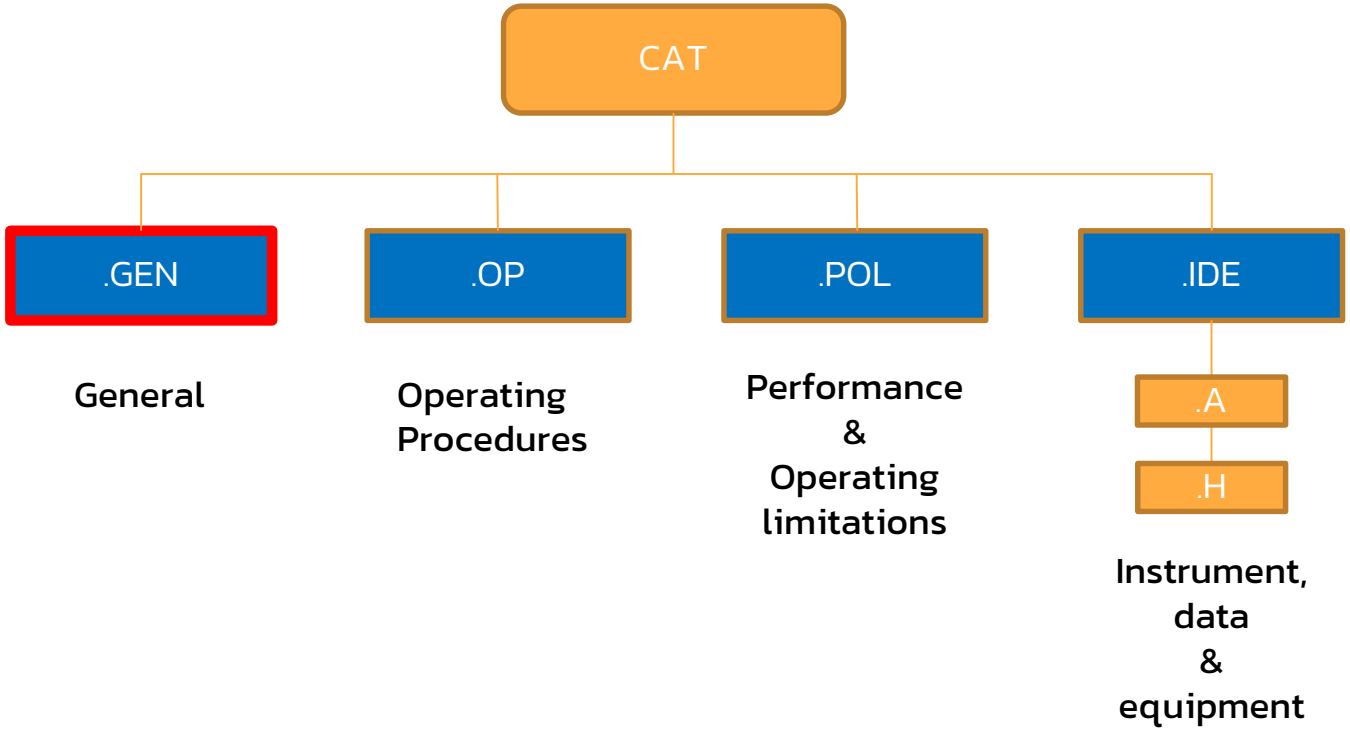
SECTION 3 Mass and balance

- CHAPTER 1 Motor-powered aircraft

SUBPART D: INSTRUMENTS, DATA, EQUIPMENT

- SECTION 1 Aeroplanes
- SECTION 2 Helicopters

# Part CAT (Commercial Air Transport) Structure

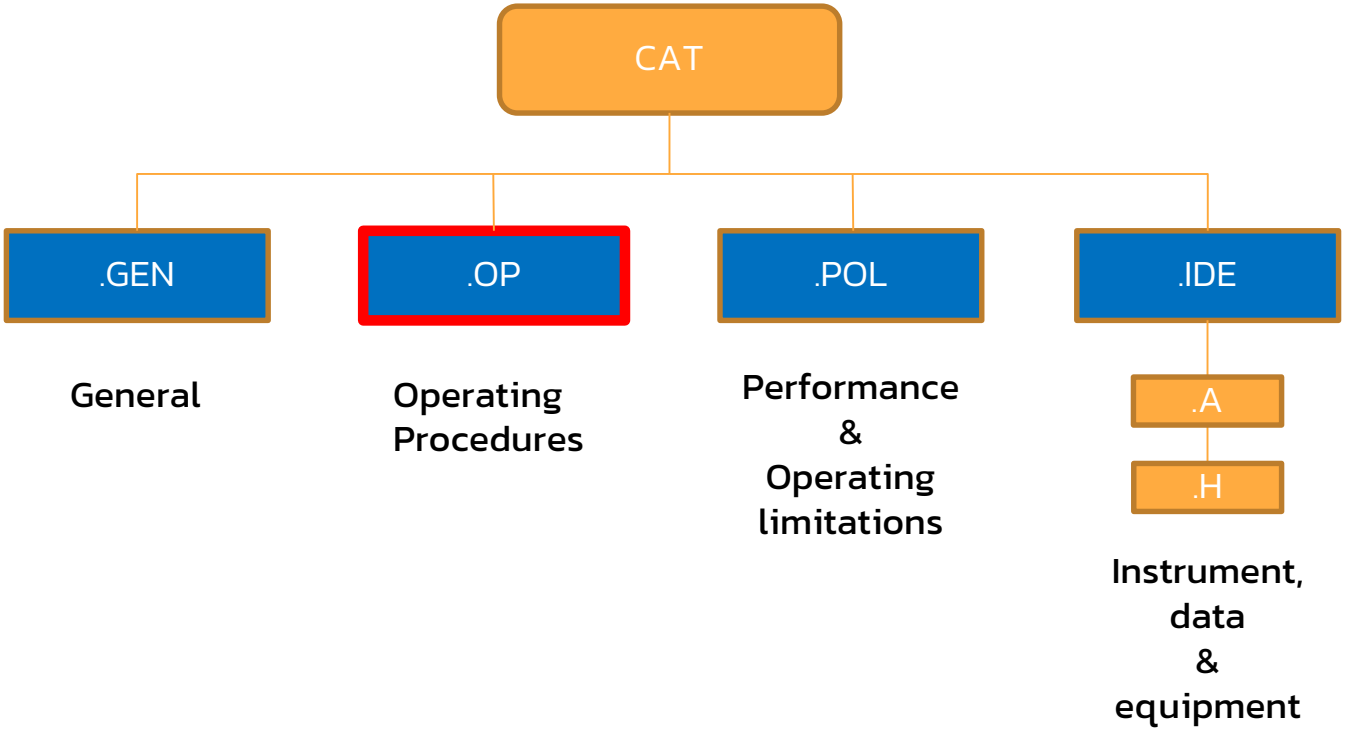


# Part CAT Subpart A GENERAL REQUIREMENTS

SUBPART A: GENERAL REQUIREMENTS

- SECTION 1 Motor-powered aircraft
  - CAT.GEN.MPA.100 Crew responsibilities
  - CAT.GEN.MPA.105 Responsibilities of the commander
  - CAT.GEN.MPA.110 Authority of the commander
  - CAT.GEN.MPA.115 Personnel or crew members other than cabin crew in the passenger compartment
  - CAT.GEN.MPA.120 Common language
  - CAT.GEN.MPA.124 Taxiing of aircraft
  - CAT.GEN.MPA.125 Taxiing of aeroplanes
  - CAT.GEN.MPA.130 Rotor engagement — helicopters
  - CAT.GEN.MPA.135 Admission to the flight crew compartment
  - CAT.GEN.MPA.140 Portable electronic devices
  - CAT.GEN.MPA.141 Use of electronic flight bags (EFBs)
  - CAT.GEN.MPA.145 Information on emergency and survival equipment carried
  - CAT.GEN.MPA.150 Ditching — aeroplanes
  - CAT.GEN.MPA.155 Carriage of weapons of war and munitions of war
  - CAT.GEN.MPA.160 Carriage of sporting weapons and ammunition
  - CAT.GEN.MPA.161 Carriage of sporting weapons and ammunition — alleviations
  - CAT.GEN.MPA.165 Method of carriage of persons
  - CAT.GEN.MPA.170 Psychoactive substances
  - CAT.GEN.MPA.175 Endangering safety
  - CAT.GEN.MPA.180 Documents, manuals and information to be carried
  - CAT.GEN.MPA.185 Information to be retained on the ground
  - CAT.GEN.MPA.190 Provision of documentation and records
  - CAT.GEN.MPA.195 Handling of flight recorder recordings: preservation, production, protection an...
  - CAT.GEN.MPA.200 Transport of dangerous goods
  - CAT.GEN.MPA.205 Aircraft tracking system — Aeroplanes & Helicopters
  - CAT.GEN.MPA.210 Location of an aircraft in distress — Aeroplanes
  - CAT.GEN.MPA.215 Support Programme
  - CAT.GEN.MPA.220 Cosmic Radiation — Aeroplanes

# Part CAT (Commercial Air Transport) Structure



# Part CAT Subpart B OPERATING PROCEDURES

SUBPART B: OPERATING PROCEDURES

- SECTION 1 Motor-powered aircraft
  - CAT.OP.MPA.100 Use of air traffic services
  - CAT.OP.MPA.105 Use of Aerodromes/Heliports and operating sites
  - CAT.OP.MPA.106 Use of isolated aerodromes — aeroplanes
  - CAT.OP.MPA.107 Adequate aerodrome
  - CAT.OP.MPA.110 Aerodrome operating minima
  - CAT.OP.MPA.115 Approach flight technique — aeroplanes
  - CAT.OP.MPA.125 Instrument departure and approach procedures
  - CAT.OP.MPA.126 Performance-based navigation
  - CAT.OP.MPA.130 Noise abatement procedures — aeroplanes
  - CAT.OP.MPA.131 Noise abatement procedures — helicopters
  - CAT.OP.MPA.135 Routes and areas of operation — general
  - CAT.OP.MPA.136 Routes and areas of operation — single-engined aeroplanes
  - CAT.OP.MPA.137 Routes and areas of operation — helicopters
  - CAT.OP.MPA.140 Maximum distance from an adequate aerodrome for two-engined aeroplanes wi...
  - CAT.OP.MPA.141 Additional requirements for operations by more than two engines aeroplanes wi...
  - CAT.OP.MPA.145 Establishment of minimum flight altitudes
  - CAT.OP.MPA.150 Fuel policy
  - CAT.OP.MPA.151 Fuel policy — alleviations

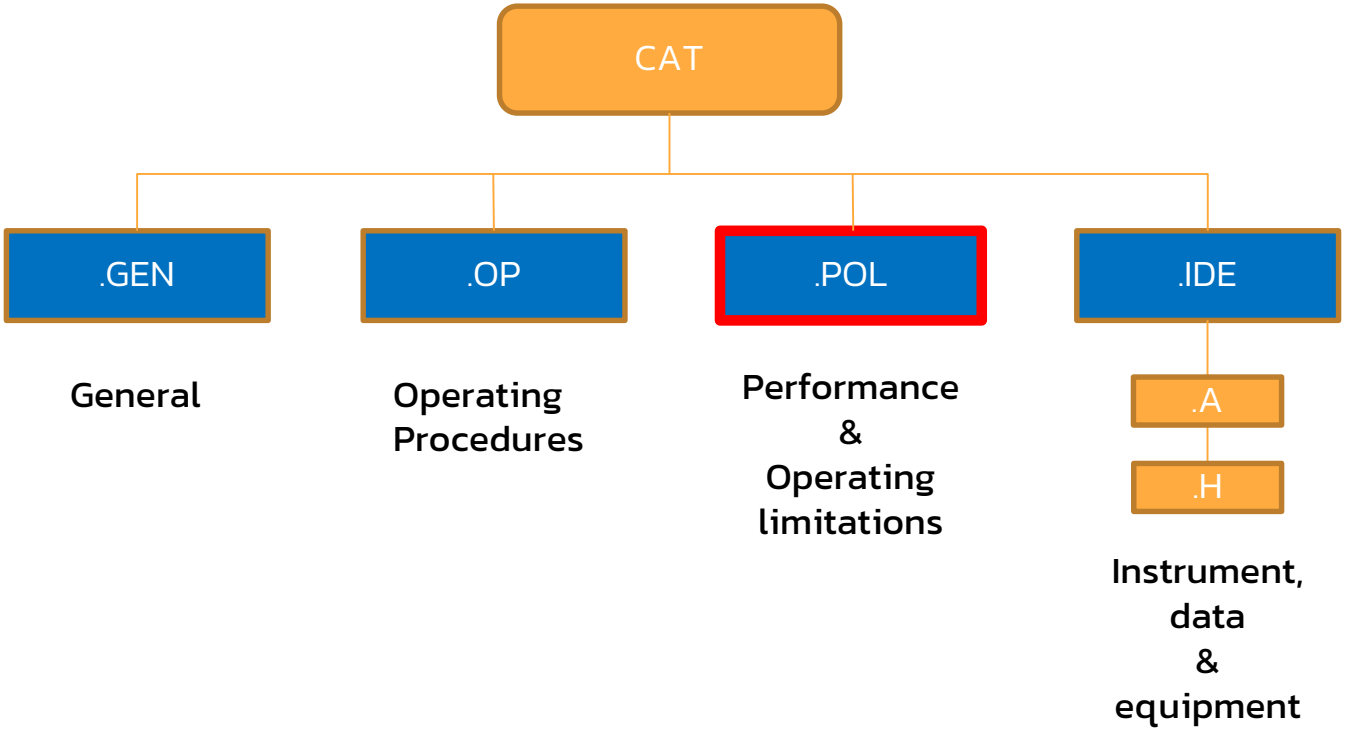
# Part CAT Subpart B OPERATING PROCEDURES

CAT.OP.MPA.155 Carriage of special categories of passengers (SCPs)
CAT.OP.MPA.160 Stowage of baggage and cargo
CAT.OP.MPA.165 Passenger seating
CAT.OP.MPA.170 Passenger briefing
CAT.OP.MPA.175 Flight preparation
CAT.OP.MPA.180 Selection of aerodromes — aeroplanes
CAT.OP.MPA.181 Selection of aerodromes and operating sites — helicopters
CAT.OP.MPA.182 Destination aerodromes — instrument approach operations
CAT.OP.MPA.185 Planning minima for IFR flights — aeroplanes
CAT.OP.MPA.186 Planning minima for IFR flights — helicopters
CAT.OP.MPA.190 Submission of the ATS flight plan
CAT.OP.MPA.195 Refuelling/defuelling with passengers embarking, on board or disembarking
CAT.OP.MPA.200 Refuelling/defuelling with wide-cut fuel
CAT.OP.MPA.205 Push back and towing — aeroplanes
CAT.OP.MPA.210 Crew members at stations
CAT.OP.MPA.215 Use of headset — aeroplanes
CAT.OP.MPA.216 Use of headset — helicopters
CAT.OP.MPA.220 Assisting means for emergency evacuation
CAT.OP.MPA.225 Seats, safety belts and restraint systems
CAT.OP.MPA.230 Securing of passenger compartment and galley(s)
CAT.OP.MPA.235 Life-jackets — helicopters

# Part CAT Subpart B OPERATING PROCEDURES

CAT.OP.MPA.240 Smoking on board
CAT.OP.MPA.245 Meteorological conditions — all aircraft
CAT.OP.MPA.246 Meteorological conditions — aeroplanes
CAT.OP.MPA.247 Meteorological conditions — helicopters
CAT.OP.MPA.250 Ice and other contaminants — ground procedures
CAT.OP.MPA.255 Ice and other contaminants — flight procedures
CAT.OP.MPA.260 Fuel and oil supply
CAT.OP.MPA.265 Take-off conditions
CAT.OP.MPA.270 Minimum flight altitudes
CAT.OP.MPA.275 Simulated abnormal situations in flight
CAT.OP.MPA.280 In-flight fuel management — aeroplanes
CAT.OP.MPA.281 In-flight fuel management — helicopters
CAT.OP.MPA.285 Use of supplemental oxygen
CAT.OP.MPA.290 Ground proximity detection
CAT.OP.MPA.295 Use of airborne collision avoidance system (ACAS)
CAT.OP.MPA.300 Approach and landing conditions
CAT.OP.MPA.301 Approach and landing conditions — helicopters
CAT.OP.MPA.303 In-flight check of the landing distance at time of arrival — aeroplanes
CAT.OP.MPA.305 Commencement and continuation of approach
CAT.OP.MPA.310 Operating procedures — threshold crossing height — aeroplanes
CAT.OP.MPA.311 Reporting on runway braking action
CAT.OP.MPA.315 Flight hours reporting — helicopters
CAT.OP.MPA.320 Aeroplane categories

# Part CAT (Commercial Air Transport) Structure



# Part CAT Subpart C PERFORMANCE & LIMITATIONS

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

SECTION 1 Aeroplanes

- CHAPTER 1 - General requirements
- CHAPTER 2 Performance class A
- CHAPTER 3 Performance class B
- CHAPTER 4 Performance class C

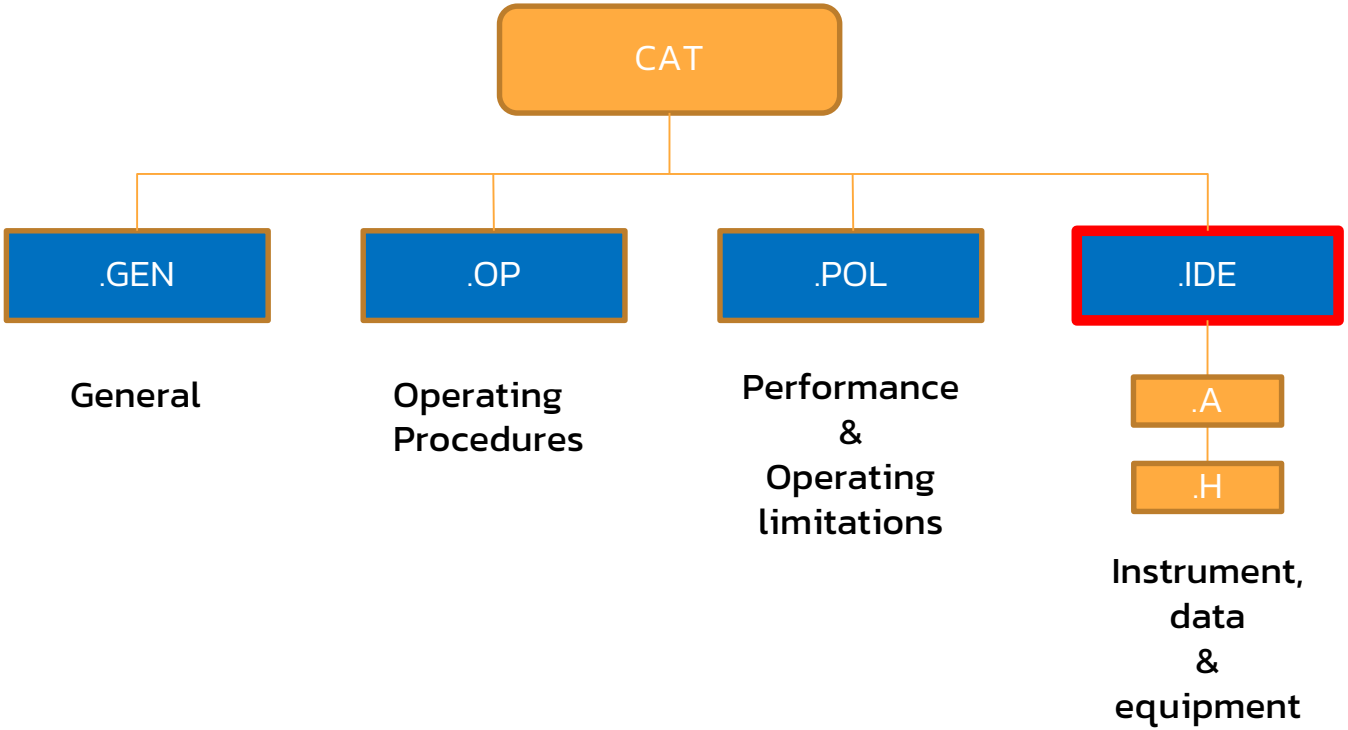
SECTION 2 Helicopters

- CHAPTER 1 General requirements
- CHAPTER 2 Performance class 1
- CHAPTER 3 Performance class 2
- CHAPTER 4 Performance class 3

SECTION 3 Mass and balance

- CHAPTER 1 Motor-powered aircraft

# Part CAT (Commercial Air Transport) Structure



# Part CAT Subpart D Instrument, Data & Equipment

SUBPART D: INSTRUMENTS, DATA, EQUIPMENT

- SECTION 1 Aeroplanes
- SECTION 2 Helicopters

**Even though the structure is simple, the content is very detailed.**

# Part CAT Subpart D Instrument, Data & Equipment

SECTION 1 Aeroplanes

- CAT.IDE.A.100 Instruments and equipment — general
- CAT.IDE.A.105 Minimum equipment for flight
- CAT.IDE.A.110 Spare electrical fuses
- CAT.IDE.A.115 Operating lights
- CAT.IDE.A.120 Equipment to clear windshield
- CAT.IDE.A.125 Operations under VFR by day — flight and navigational instruments and associated equipment
- CAT.IDE.A.130 Operations under IFR or at night — flight and navigational instruments and associated equip...
- CAT.IDE.A.135 Additional equipment for single-pilot operation under IFR
- CAT.IDE.A.140 Altitude alerting system
- CAT.IDE.A.150 Terrain awareness warning system (TAWS)
- CAT.IDE.A.151 Runway overrun awareness and alerting system (ROAAS)
- CAT.IDE.A.155 Airborne collision avoidance system (ACAS)
- CAT.IDE.A.160 Airborne weather detecting equipment
- CAT.IDE.A.165 Additional equipment for operations in icing conditions at night
- CAT.IDE.A.170 Flight crew interphone system
- CAT.IDE.A.175 Crew member interphone system
- CAT.IDE.A.180 Public address system
- CAT.IDE.A.185 Cockpit voice recorder
- CAT.IDE.A.190 Flight data recorder
- CAT.IDE.A.191 Lightweight flight recorder
- CAT.IDE.A.195 Data link recording
- CAT.IDE.A.200 Combination recorder

# Part CAT Subpart D Instrument, Data & Equipment

CAT.IDE.A.205 Seats, seat safety belts, restraint systems and child restraint devices
CAT.IDE.A.210 Fasten seat belt and no smoking signs
CAT.IDE.A.215 Internal doors and curtains
CAT.IDE.A.220 First-aid kit & Universal Precaution Kit
CAT.IDE.A.225 Emergency medical kit
CAT.IDE.A.230 First-aid oxygen
CAT.IDE.A.235 Supplemental oxygen — pressurised aeroplanes
CAT.IDE.A.240 Supplemental oxygen — non-pressurised aeroplanes
CAT.IDE.A.245 Crew protective breathing equipment
CAT.IDE.A.250 Hand fire extinguishers
CAT.IDE.A.255 Crash axe and crowbar
CAT.IDE.A.260 Marking of break-in points
CAT.IDE.A.265 Means for emergency evacuation
CAT.IDE.A.270 Megaphones
CAT.IDE.A.275 Emergency lighting and marking
CAT.IDE.A.280 Emergency locator transmitter (ELT)
CAT.IDE.A.285 Flight over water
CAT.IDE.A.305 Survival equipment

CAT.IDE.A.330 Radio communication equipment
CAT.IDE.A.335 Audio selector panel
CAT.IDE.A.340 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks
CAT.IDE.A.345 Communication, navigation and surveillance equipment for operations under IFR or under VFR over routes not navigated by.
CAT.IDE.A.350 Transponder
CAT.IDE.A.355 Management of aeronautical databases
CAT.IDE.A.360 Surveillance Equipment
CAT.IDE.A.365 Radiation Indicator – Aeroplanes

# Part CAT Subpart D Instrument, Data & Equipment

The structure is the same for helicopters, CAT.IDE.A.XXX becomes CAT.IDE.H.XXX.

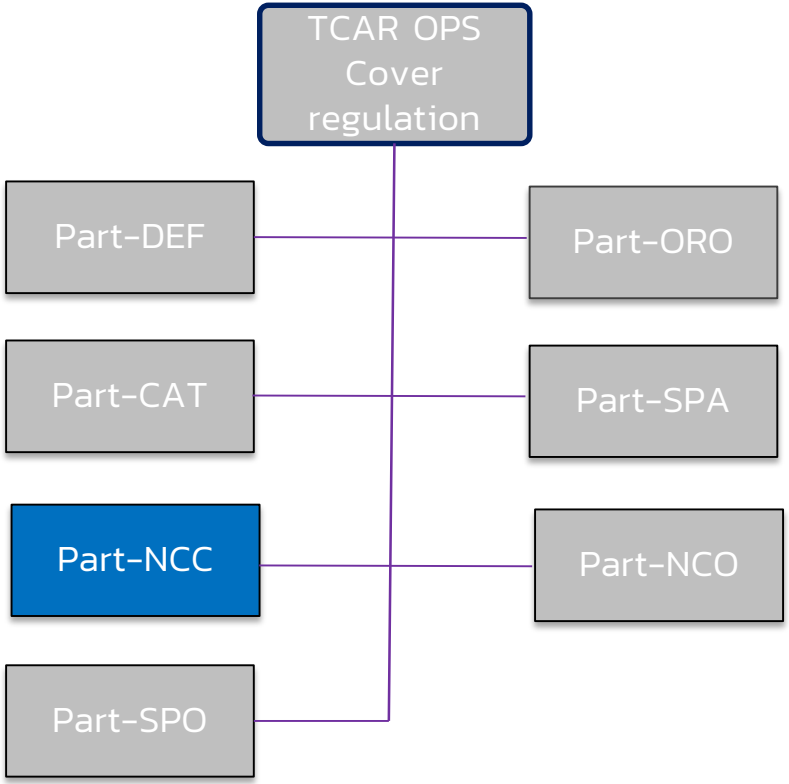
Minor differences exists:

- No spare fuse requirement for helicopters
- Equipment to clear windshield
- TAWS, ACAS, ROAAS
- Radiation indicator

# 05

## Part NCC

# TCAR OPS Structure

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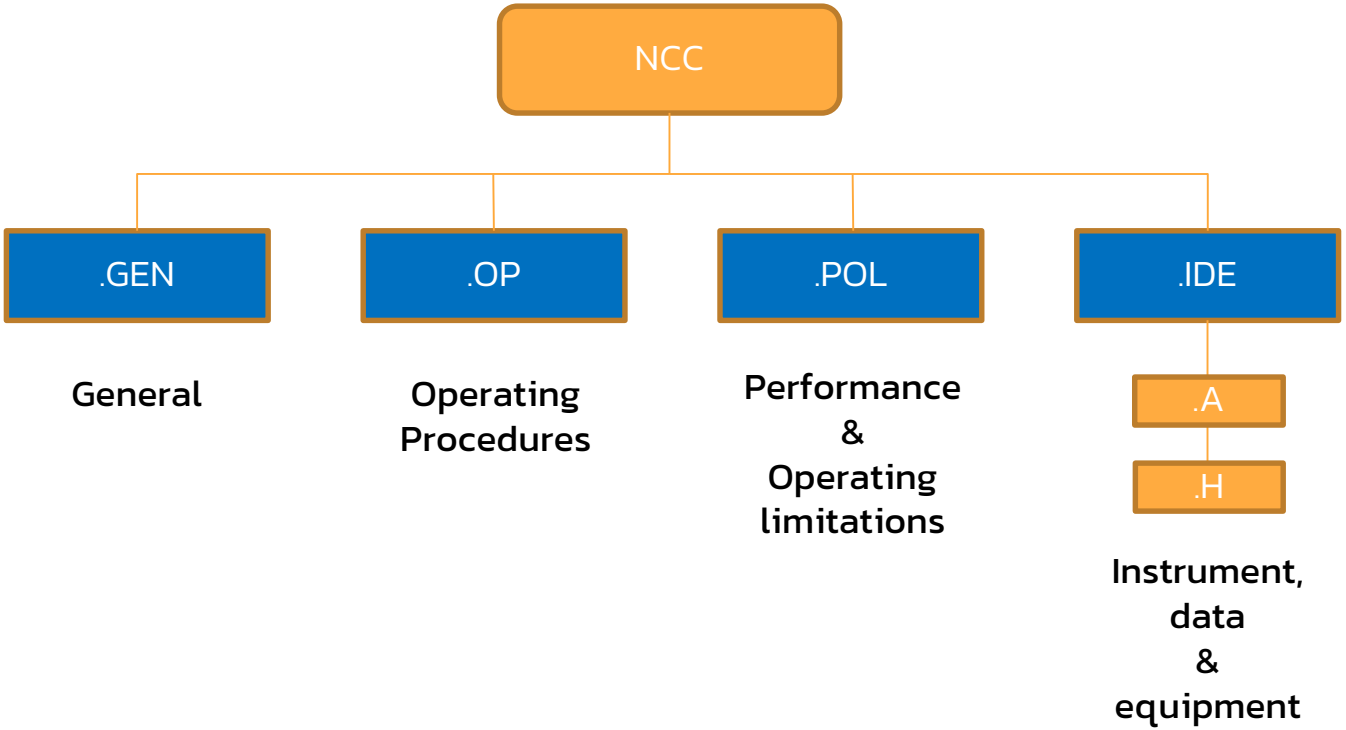
TCAR OPS – Part NCC

Non-Commercial Air Operations with Complex Motor Powered Aircraft

Issue 01
Revision 00
Date 30 SEPTEMBER 2021

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



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

The structure of Part NCC is the same as the structure of Part CAT.

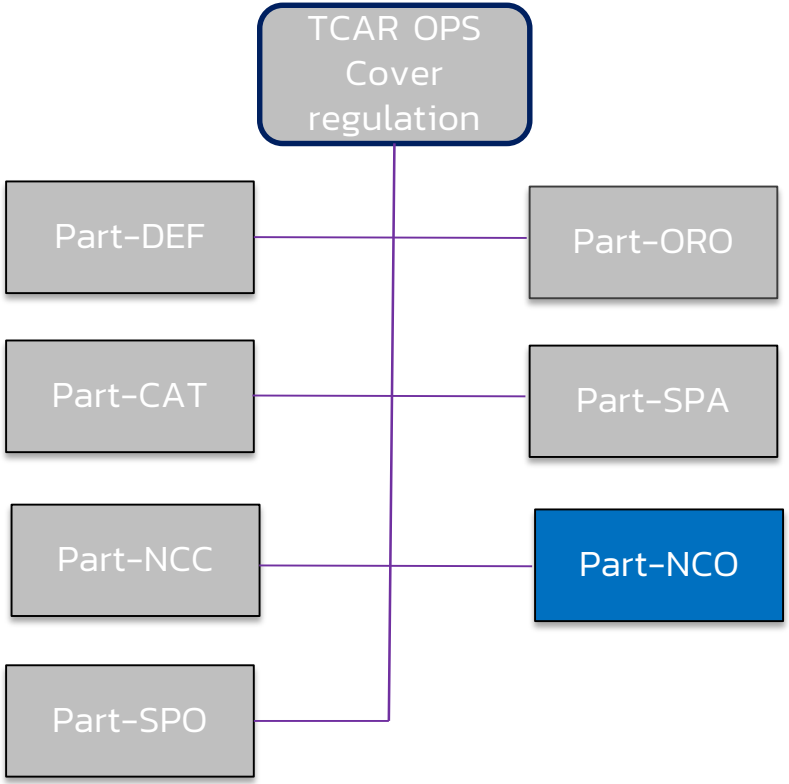
However:

- the requirements are usually lower than for CAT operations.
- Performance and Operating limitations are the same (generic) for all performance classes.

# 06

## Part NCO

# TCAR OPS Structure

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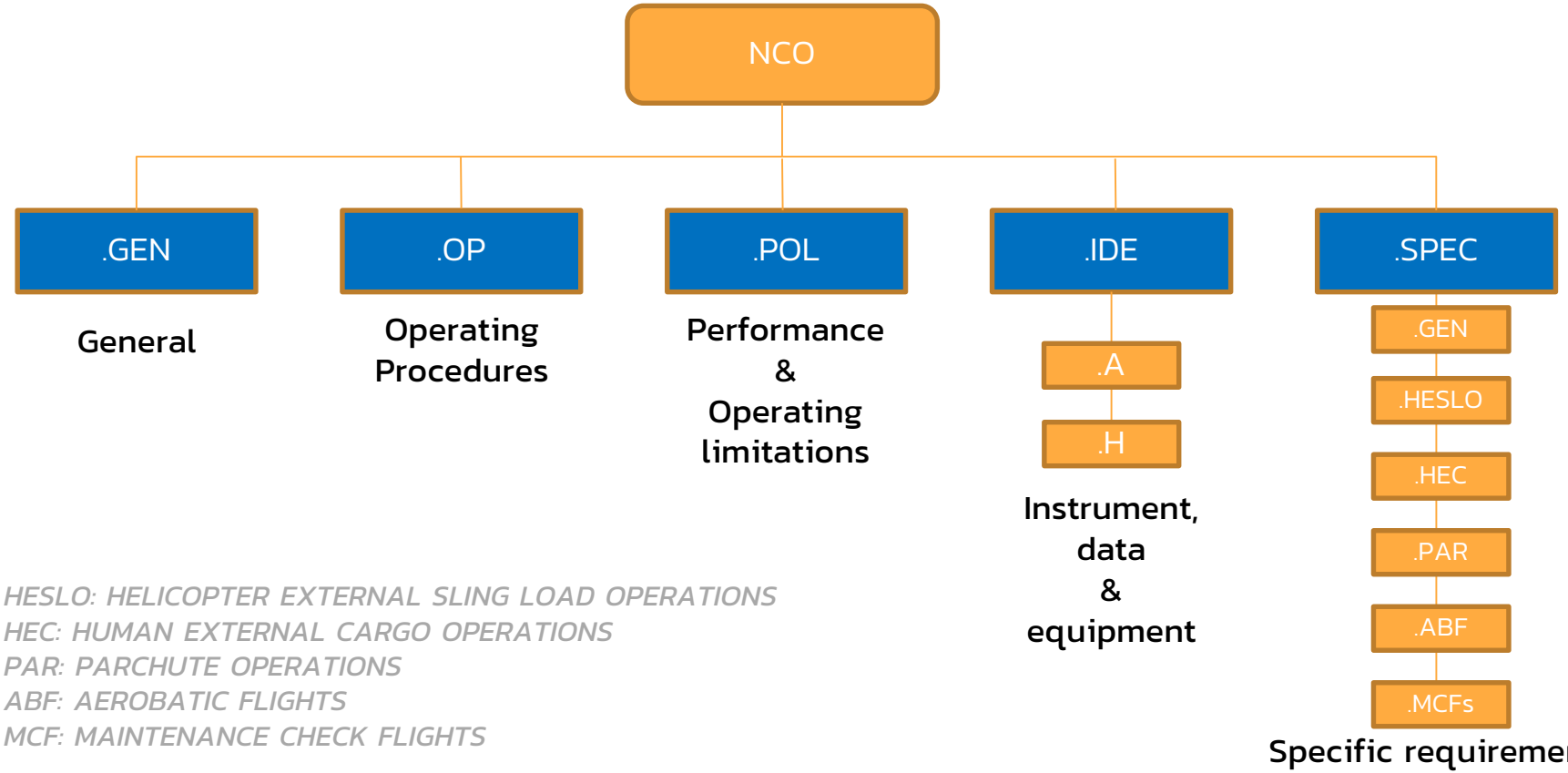
TCAR OPS – Part NCO

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

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

# Part –NCO: Non-Commercial with complex motor-powered aircraft

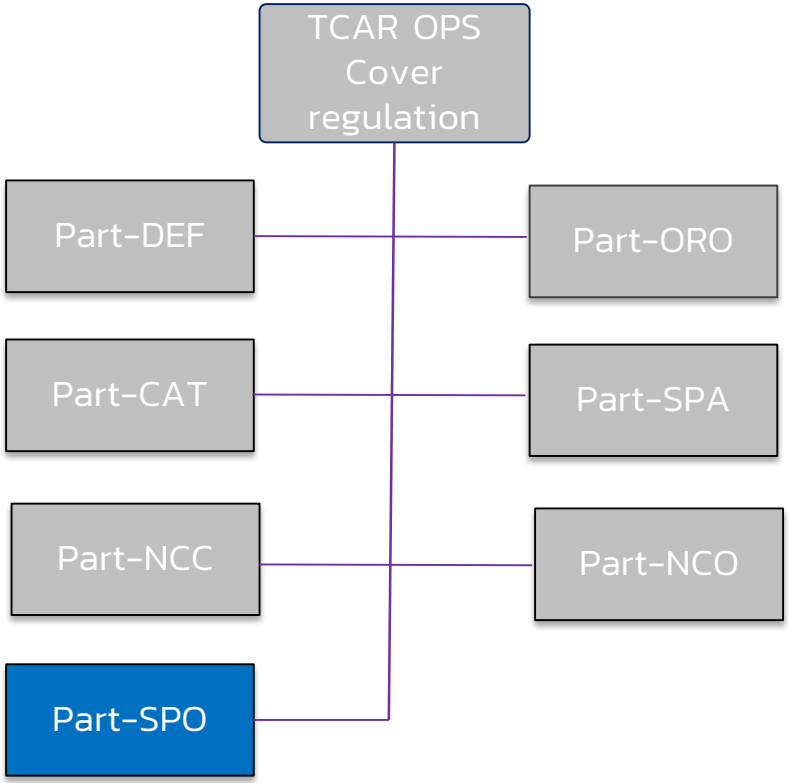



*HESLO: HELICOPTER EXTERNAL SLING LOAD OPERATIONS*
*HEC: HUMAN EXTERNAL CARGO OPERATIONS*
*PAR: PARCHUTE OPERATIONS*
*ABF: AEROBATIC FLIGHTS*
*MCF: MAINTENANCE CHECK FLIGHTS*


# 07

## Part SPO

# TCAR OPS Structure

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THAILAND CIVIL AVIATION REGULATION

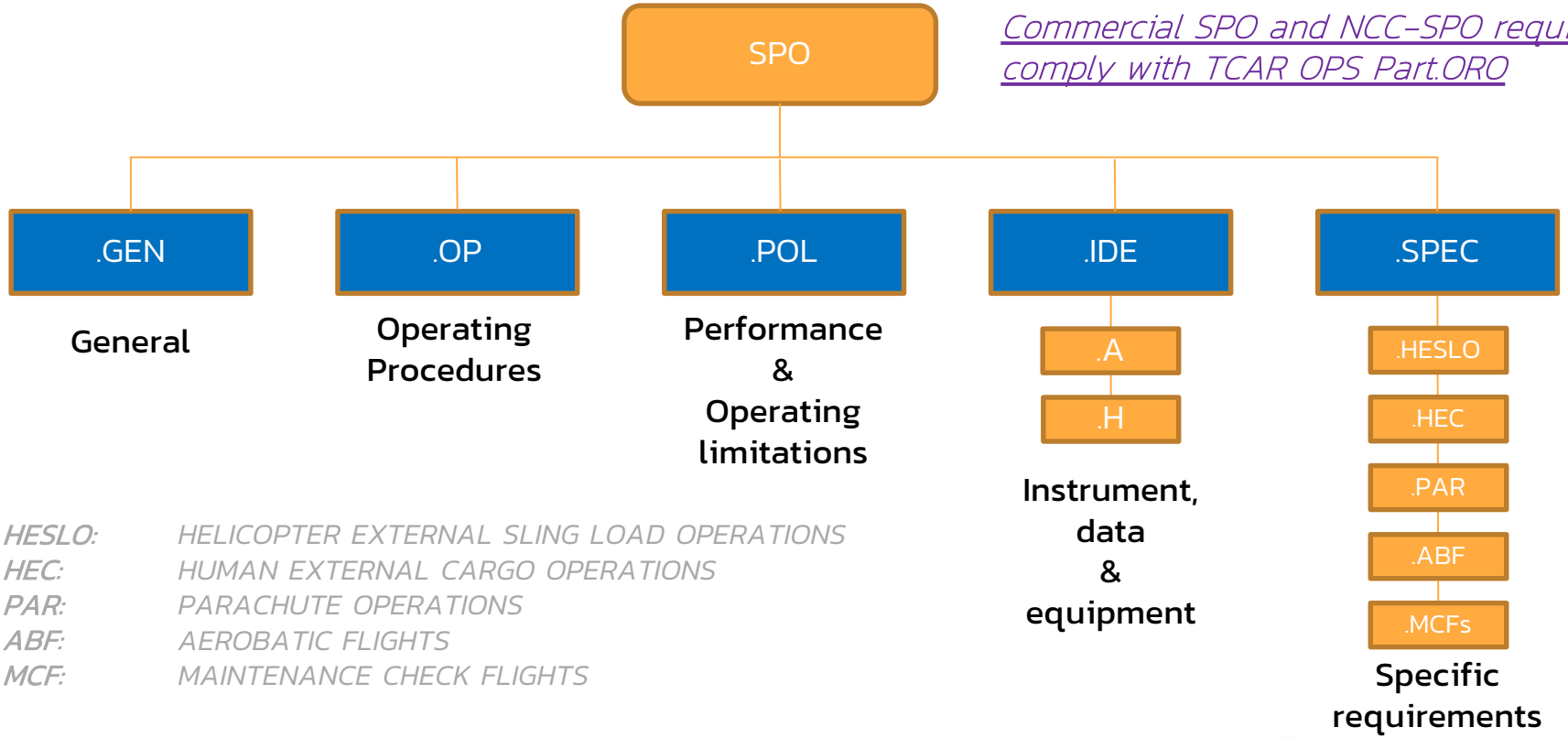
TCAR OPS – Part SPO

Specialised Operations

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

# Part –SPO: Commercial Specialised Operations

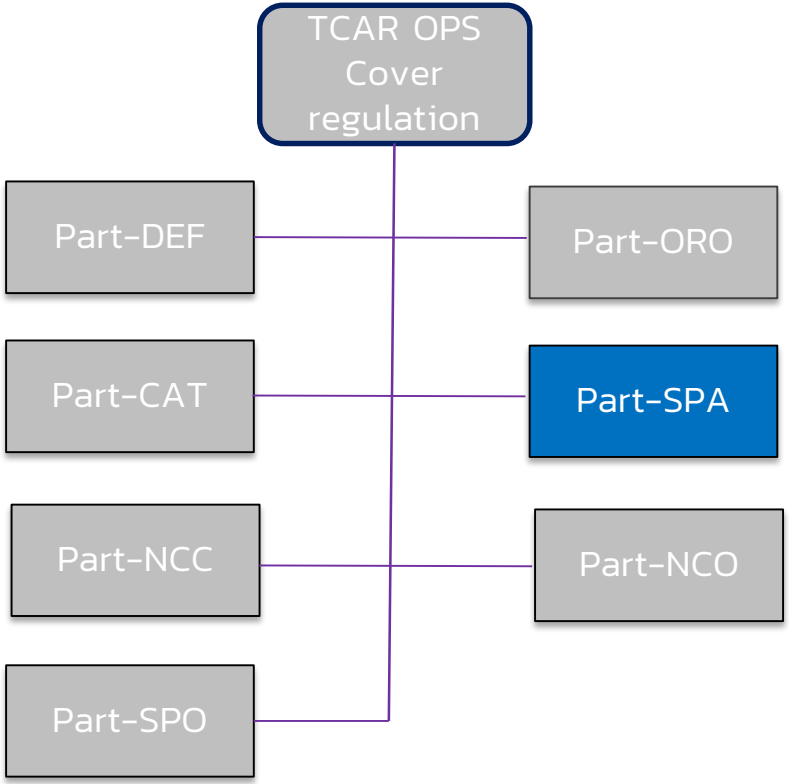



*HESLO:* *HELICOPTER EXTERNAL SLING LOAD OPERATIONS*
*HEC:* *HUMAN EXTERNAL CARGO OPERATIONS*
*PAR:* *PARACHUTE OPERATIONS*
*ABF:* *AEROBATIC FLIGHTS*
*MCF:* *MAINTENANCE CHECK FLIGHTS*

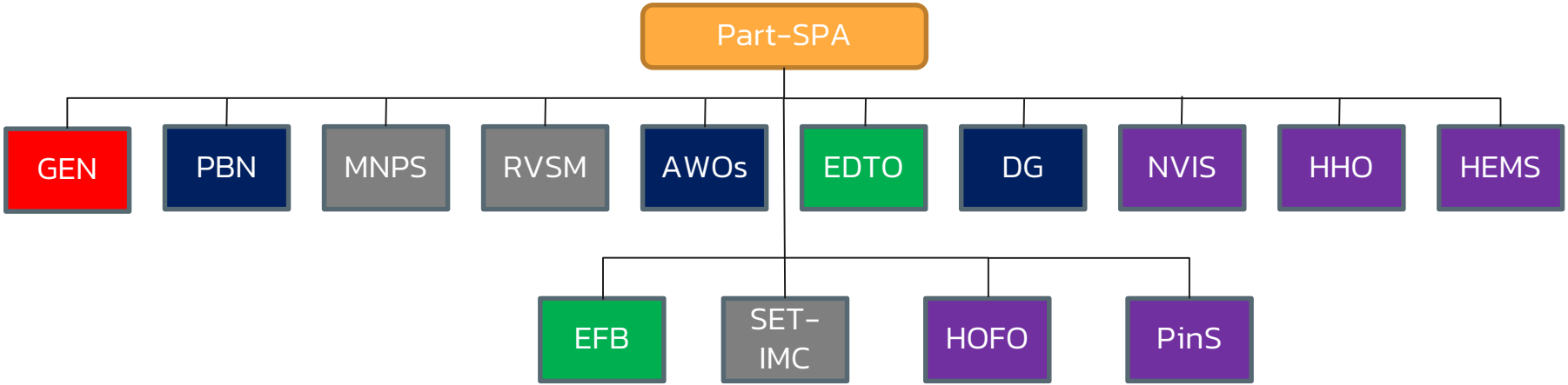
# 08

## Part SPA

# TCAR OPS Structure




# Part SPA: “Specific Approval”




GEN: General
PBN: Performance-based navigation
MNPS: Specified minimum navigation performance
RVSM: Reduced vertical separation minimum
AWOs: All weather operations & operational credit
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
PinS: Point in Space
SET-IMC: Single-engined turbine aeroplane operations at night or IMC
EFB: Electronic flight bags

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# Strategy for the Transition

## Flight Operations Standards Department

# Introduction

**Current Situation**

Specialised Operator do not have the technical requirement to comply with.

→ Specialised operator do not have to comply with TCAR OPS until their certification to be obtained before effectivity date.

**Future Situation**

Specialised Operator are certified according to **TCAR OPS**

→ SPO operator have to comply with TCAR OPS to be certified before end of transition. At this date CAAT shall have verified compliance to TCAR OPS.

→ But **what about before** ? Between Publication and full effectivity….

# Introduction

CAAT is **not** willing to perform **a full certification** in one shot.

Commercial-SPO Operator will apply for certification process during the Transition **within 3 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 commercial-SPO**
- → **4 Phases approval**

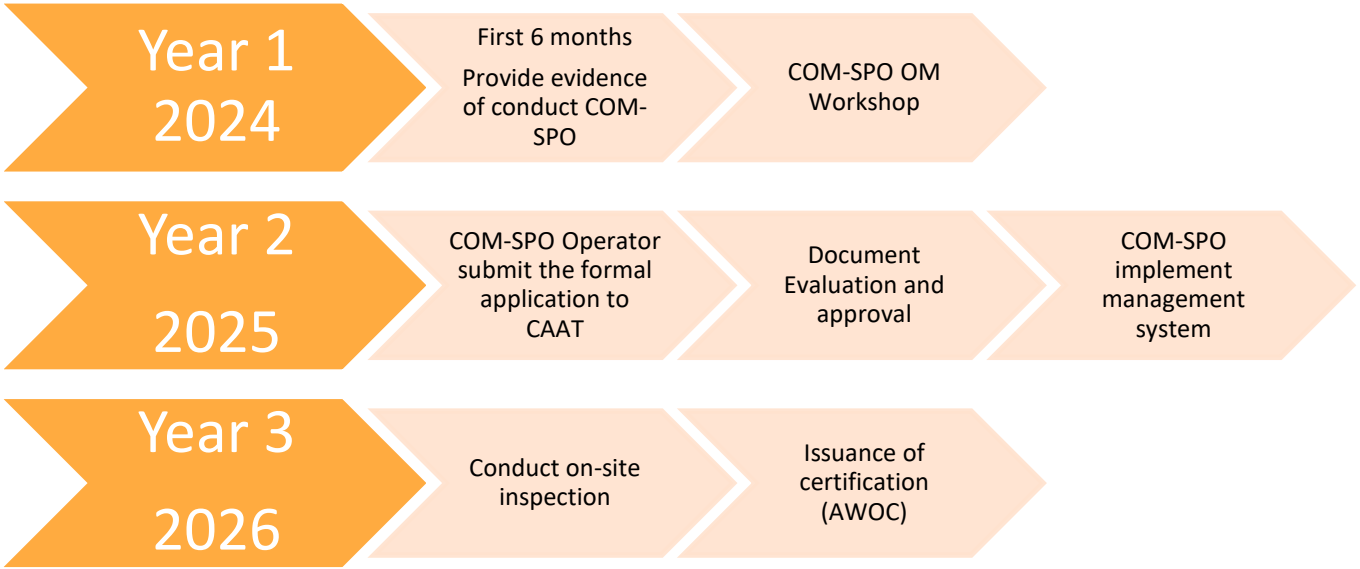
# Progressive approach

During the transition 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)
- .....

# TCAR OPS COM-SPO Certification within 3 years



# SPO

# What is Specialised Operation (SPO)

- ‘Specialised Operations’ means any operation other than commercial air transport where the aircraft is used for specialised activities such as:
  - Agriculture
  - Aerial advertisement
  - Calibration Flight
  - Construction
  - Photography Flight
  - Parachute

# What is Specialised Operation (SPO)

- This covers much of what used to be called ‘aerial work’
- More examples of SPO activities and classification criteria can be found in the Acceptable Means of Compliance and Guidance Material.
- Some activities may be deemed to be ‘High Risk’, particularly to third parties, and be subject to prior authorisation

**GM1 SPO.GEN.005 Scope**

LIST OF SPECIALISED OPERATIONS

(a) Specialised operations include the following activities:

(1) helicopter external loads operations;

(2) helicopter survey operations;

(3) human external cargo operations

(4) parachute operations and skydiving;

(5) agricultural flights;

(6) aerial photography flights;

(7) glider towing;

(8) aerial advertising flights;

(9) calibration flights;

(10) construction work flights, including stringing power line operations, clearing saw operations;

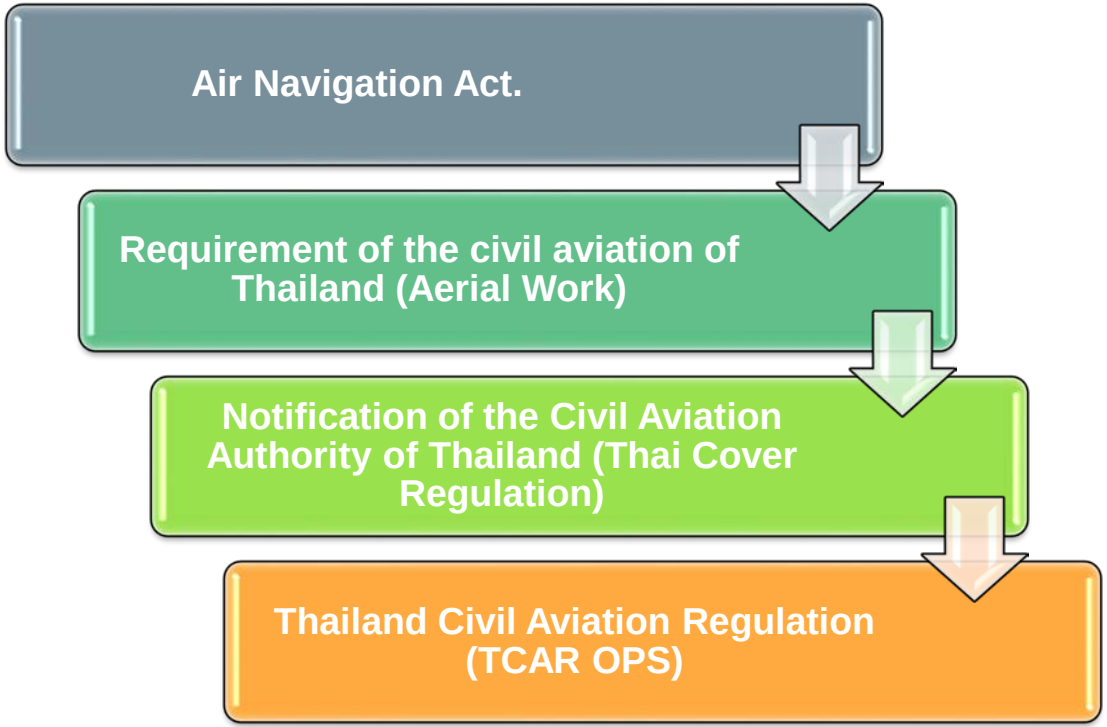
(11) oil spill work;

(12) avalanche mining operations;

# Who is affected by SPO?

- Commercial and non-commercial SPO operators
- Complex and non-complex aircraft SPO operators
- “High Risk” and non-high risk SPO operators

# Rule Hierarchy



# Example of ERs, IRs, AMCs, GMs

- ER Annex 01 of TCAR Cover regulation

5.1. An aircraft must be equipped with all navigation, communication and other equipment necessary for the intended flight, taking account of air traffic regulations and rules of the air applicable during any phase of the flight.

- IR Part SPO

**SPO.IDE.A.210 Headset**

(a) Aeroplanes shall be equipped with a headset with a boom microphone or equivalent for each flight crew member at their assigned station in the flight crew compartment.

(b) Aeroplanes operated under IFR or at night shall be equipped with a transmit button on the manual pitch and roll control for each required flight crew member.

# Example of ERs, IRs, AMCs, GMs

- AMC IDE.A 210

GENERAL

(a) A headset consists of a communication device that includes two earphones to receive and a microphone to transmit audio signals to the aeroplane's communication system. To comply with the minimum performance requirements, the earphones and microphone should match the communication system's characteristics and the flight crew compartment environment. The headset should be adequately adjustable in order to fit the flight crew's head. Headset boom microphones should be of the noise cancelling type.

- GM IDE.A 210

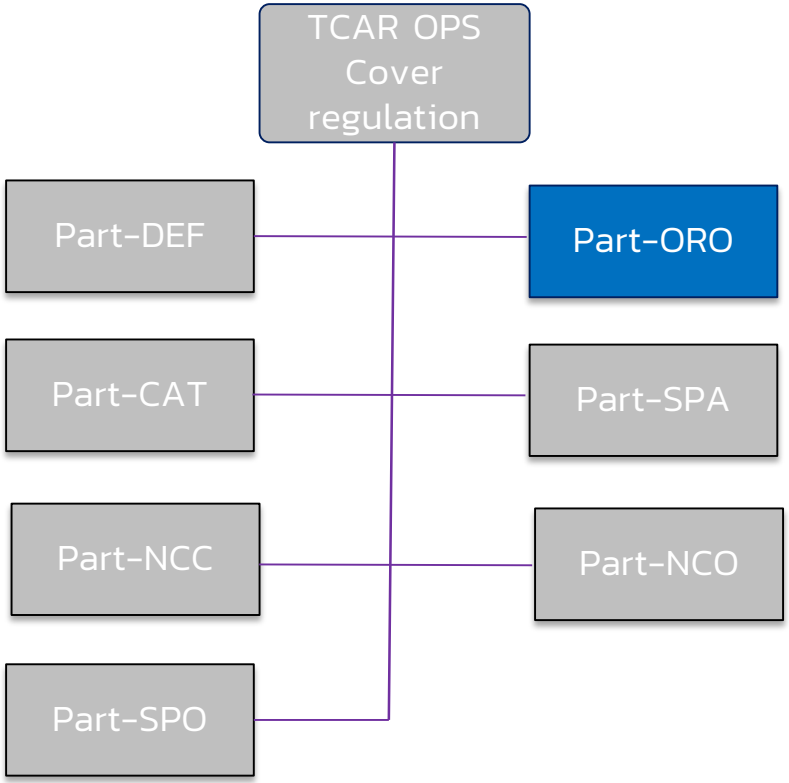
GENERAL

The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

# Part applicable to Specialised Operations

| | Annex: / Type of ops: | Part-DEF | Part-ORO | Part-CAT | Part-SPA | Part-NCC | Part-NCO | Part-SPO |
|---|---|---|---|---|---|---|---|---|
| Commercial Operations | Commercial SPO | ✓ | ✓ | | ✓ | | | ✓ |
| Non-commercial Operations (*General Aviation & Aerial work*) | Specialised operations with CMPA | ✓ | ✓* | | ✓ | | | ✓ |
| | Specialised operations with other than CMPA | ✓ | | | ✓ | | ✓ | |

# TCAR OPS – Part ORO

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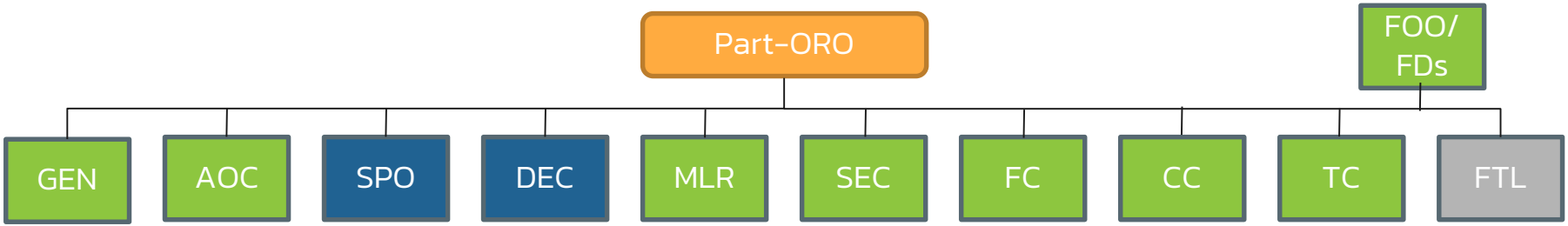
TCAR OPS – Part ORO
Organisation Requirements for Air Operations

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

# Part ORO: “Organisation Requirements for Air Operations”




GEN: General
AOC: Air Operator Certification
SPO: Specialised Operations
DEC: Declaration
MLR: Manual Log and Record
SEC: Security
FC: Flight Crew
CC: Cabin Crew
TC: Technical Crew
FOO/FD: Flight Operation Officer
FTL: Flight and duty time limitation and rest requirement

Full applicable

Partial applicable

Not applicable

# ORO.GEN.200 – Management System

The operator shall establish

- Safety management system
- Compliance monitoring system
- Additional requirement


*The management system shall correspond to Size, Nature, Complexity of activity*

# ORO.DEC.100 – Declaration

The operator – NCC, Non-COM SPO and COM-SPO shall make a declaration to CAAT.

- Provide relevant information use form in Appendix I
- Maintain compliance with the information given in the Declaration.
- Notify CAAT any change to declaration.
- Notify CAAT when stop operations.

# ORO.DEC.100 – Declaration

The propose of Declaration is

- ensure that the operator has acknowledged its responsibilities under the applicable safety regulations and that it holds all necessary specific approvals.
- inform the competent authority of the existence of any operator required to comply with Part-SPO
- enable the competent authority to fulfil its oversight responsibilities

# ORO.SPO.100 – Common requirements for commercial specialised Operators

**COM-SPO** shall obtain approval from the CAAT prior to commencing operations and comply with the following:

- Nominated Person, supervision and training of personnel (Personal Requirement)
- Adequacy of facilities
- Documentation
- Certificate of Airworthiness (CofA)
- Leasing arrangements

# ORO.SPO.110 – Authorisation of high risk commercial specialised operations

COM-SPO shall apply for and obtain an authorisation issued by CAAT prior commencing a high risk specialised operation:

- that is carried out over an area where the safety of third parties on the ground is likely to be endangered in the event of an emergency

- that in respect to the place where the operation is conducted, as determined by the CAAT, including taking account of its specific nature and the local environment in which it is conducted, poses a risk, in particular to third parties on the ground.

# ORO.SPO.115 – Changes

- Any change affecting the scope of the authorisation or the authorised operations shall require prior approval from the CAAT by submitting the amended **risk assessment** and **SOP** to the CAAT.

# ORO.SPO.120 – Continued Validity

- The operator holding the specialised operation authorisation shall comply with the scope and privilege in the authorisation.
- The authorisation in valid for **3 years**
- The operator will under the surveillance activity
- Revocation or Surrender the authorisation shall be returned to the CAAT

# ORO.MLR.100 – Operations manual — general

- The operator shall establish an Operation manual (OM) and content of the OM shall reflect the requirements set out in TCAR OPS Part ORO, Part SPA, Part NCC and Part SPO, as applicable.

- For SPO operator, any amendment associated with the authorised standard operating procedures, prior approval shall be obtained before the amendment becomes effective.

# ORO.MLR.105 – Minimum equipment list

- MEL and any amendment shall be approved by CAAT.
- The operator may use a procedure for the one time extension of category B, C and D rectification intervals.
- The operator may operate an aircraft with inoperative instruments, items of equipment or functions outside the constraints of the MEL but within the constraints of the MMEL. *specific case-by-case approval by CAAT

# ORO.MLR.110 – Journey Log

- Retained for each flight, or series of flights in form of journey log or equivalent.
- Detail of items defined in the AMC1 ORO.MLR.110

# ORO.MLR.115 – Record-keeping

- The following records shall be stored for at least 5 years:
  - a copy of the operator's declaration
  - details of approvals held
  - operations manual
  - records related to the risk assessment and SOPs.
- Information used for the preparation and execution of a flight, and associated reports, shall be stored for 3 months
- Personnel records shall be stored for the periods indicated in ORO.MLR.115 (c)
- The operator shall maintain records of all training, checking and qualification of each crew member, and also made fully available when requested by CAAT.

# ORO.SEC.100 - Flight crew compartment security — aeroplanes

For SPO operation ORO.SEC.100 (a)

- In an aeroplane which is equipped with a flight crew compartment door, that door shall be capable of being locked, and means shall be provided by which the cabin crew can notify the flight crew in the event of suspicious activity or security breaches in the cabin.

# ORO.FC.100 – Composition of flight crew

- All flight crew members shall hold a licence and ratings issued or accepted in accordance with TCAR PEL and appropriate to the duties assigned to them.

- For freelance or part-time flight crew, the operator shall verify that all applicable requirements of this Subpart and the relevant elements of TCAR PEL Part FCL, including the requirements on recent experience and considering services for other operators.

# ORO.FC.105 – Designation as pilot-in-command/commander

- The operator shall designate one flight crew member as a PIC (level of experience, adequate knowledges of route/area, multi-crew command course).

# ORO.FC.105 - Designation as pilot-in-command/commander

For commercial operations of aeroplanes and helicopter operations, the assigned pilot shall have had initial familiarisation training on the route or area to be flown and on the aerodromes, facilities and procedures to be used and shall maintain knowledge follows:

- The aerodrome knowledge shall be maintained by operating at least once on the aerodrome within a 12 calendar months.

- The route or area knowledge shall be maintained by operating at least once to the route or area within a 36 months.
  * In addition, refresher training is required regarding route or area knowledge if not operating on a route or area for 12 months within the 36-month period.

# ORO.FC.115 – Crew resource management (CRM) training

- Before operating, the flight crew member shall have received CRM training, appropriate to his/her role, as specified in the operations manual.

- Elements of CRM training shall be included in the aircraft type or class training and recurrent training as well as in the command course.

# ORO.FC.120 – Operator conversion training

- When joining an operator or changing of new aircraft type/class rating, the flight crew member shall complete the operator conversion training course before commencing unsupervised line flying.

- The operator conversion training course shall include training on the equipment installed on the aircraft as relevant to flight crew members' roles.

*Note: Detail of SPO conversion course in AMC 3 ORO.FC.120*

# ORO.FC.125 – Differences training and familiarisation training

- Flight crew members shall complete differences training or familiarisation when required by TCAR PEL Part FCL.

- Flight crew members shall complete equipment and procedure training when changing equipment or changing procedures requiring additional knowledge on types or variants currently operated.

# ORO.FC.130 – Recurrent training and checking

- Flight crew member shall complete annual recurrent flight and ground training relevant to the type or variant, and associated equipment of aircraft, including training on the location and use of all emergency and safety equipment carried on board the aircraft.

- Flight crew member shall be periodically checked to demonstrate competence in carrying out normal, abnormal and emergency procedures.

- Periodic checking = proficiency check

# ORO.FC.140 – Operation on more than one type or variant

- For specialised operations, elements of the aircraft/FSTD training and operator proficiency check that cover the relevant aspects associated with the specialised task and are not related to the type or group of types may be credited towards the other groups or types, based on a risk assessment performed by the operator.

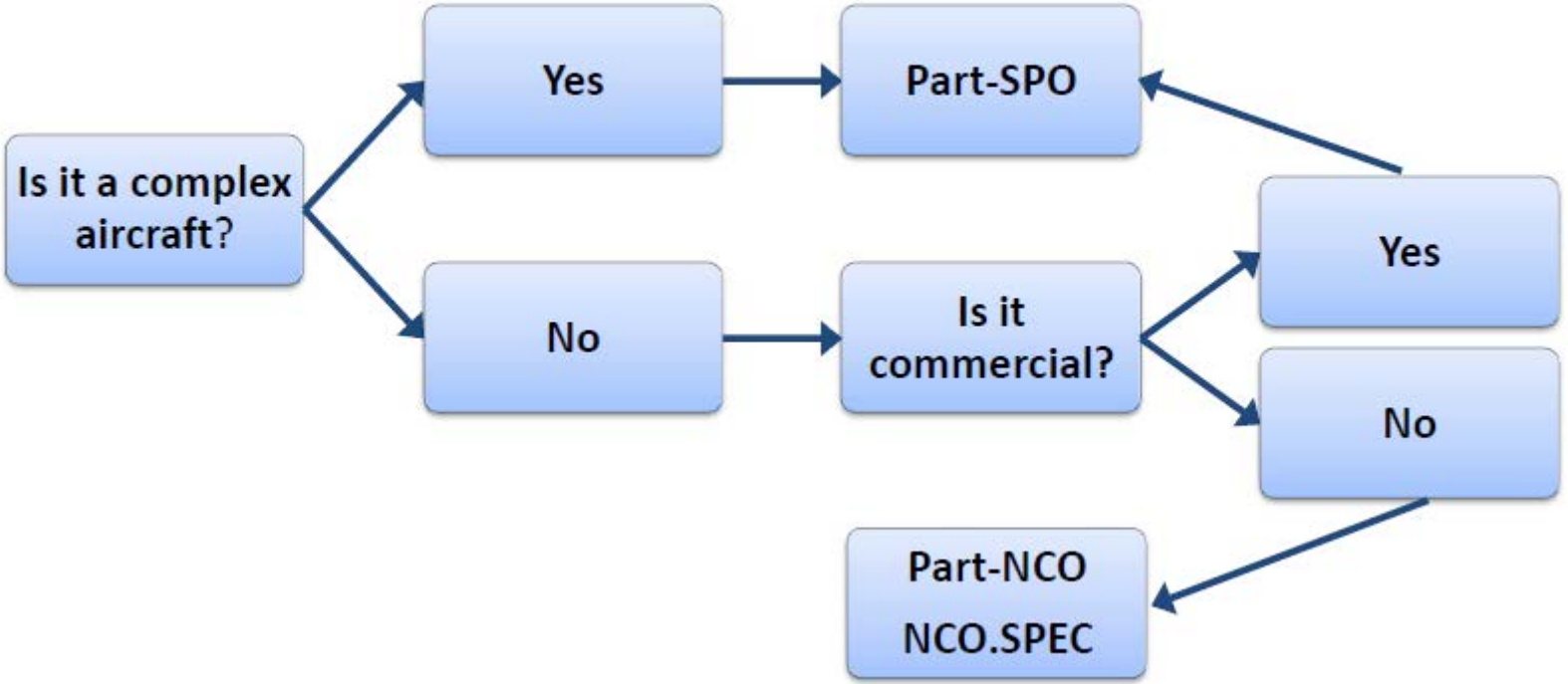
# ORO.FC.145 – Provision of training

- Operator shall establish the training programme and syllabus in the operation manual
- The operator shall include relevant element with mandatory part of the OSD
- The FSTD shall be approved by TCAR PEL and replicate the aircraft. Difference between the FSTD and aircraft shall be briefed or training.
- The operator shall monitor the validity of recurrent training & checking.

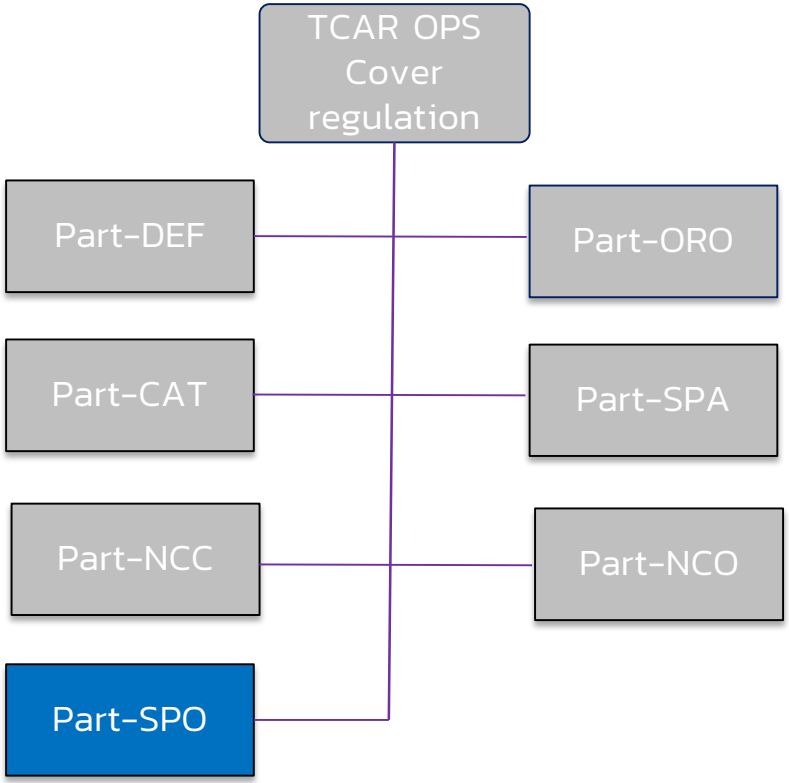
# Commercial Air Transport Operators

- Operators holding an Air Operator Certificate must make a separate SPO Declaration if also conducting SPO flights.

*** SPO with non-commercial other-than complex motor-powered aircraft will be conducted in accordance with Part-NCO**


Is it a complex aircraft?
Yes
Part-SPO
No
Is it commercial?
Yes
No
Part-NCO
NCO.SPEC

# TCAR OPS – Part SPO

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THAILAND CIVIL AVIATION REGULATION

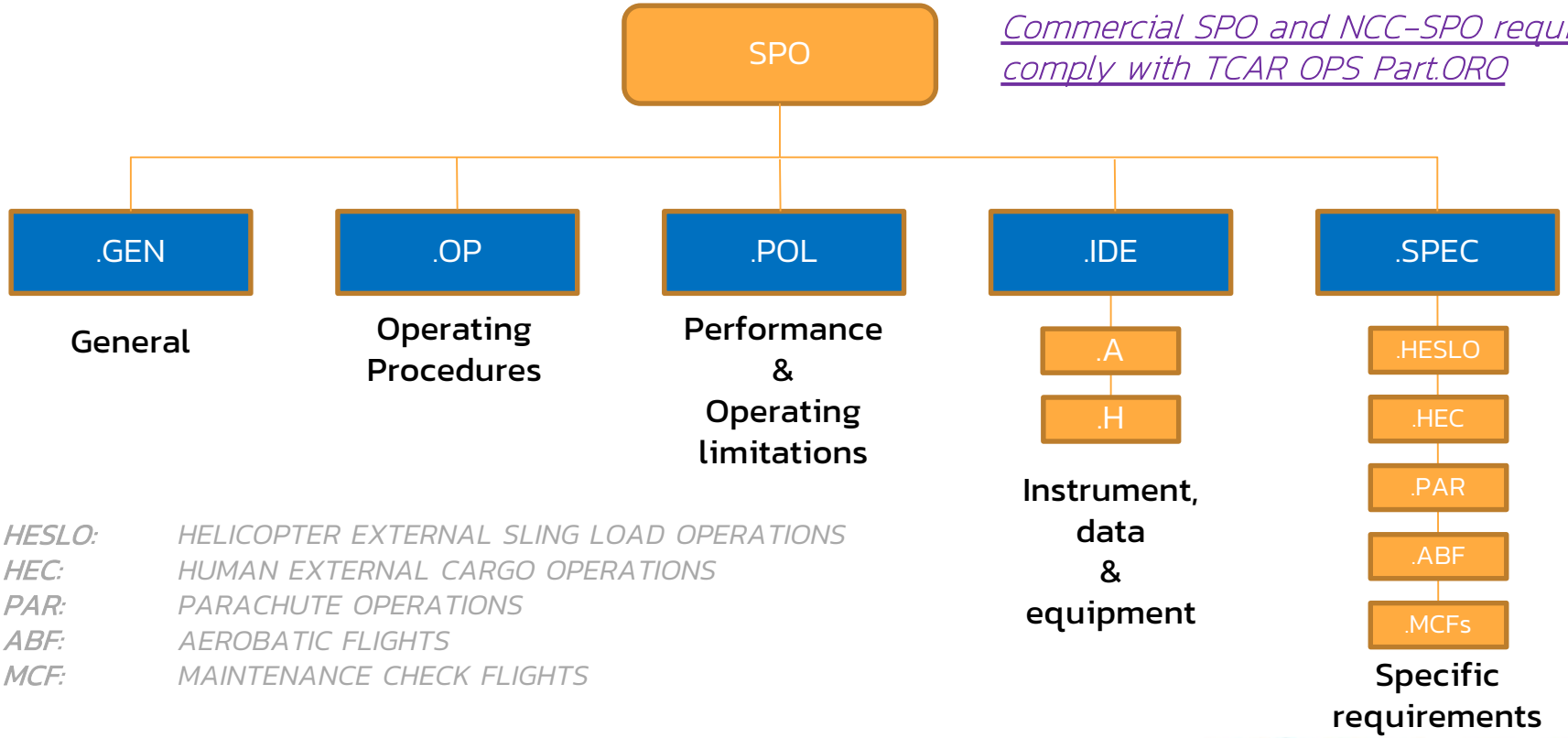
TCAR OPS – Part SPO

Specialised Operations

Issue 01
Revision 00

Date 30 SEPTEMBER 2021

# Part – SPO : Commercial Specialised Operations




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

# SPO.GEN.106 Task spcialists responsibilities

- a person assigned by the operator or a third party, or acting as an undertaking, who performs tasks on the ground directly associated with a specialised task or performs specialised tasks on board or from the aircraft

- Task Specialist responsibilities include the proper execution of duties in accordance with operating procedures

*Note: When a Task Specialist is not operating in that capacity on a flight then he/she reverts to being a passenger*

# SPO.GEN.107 Pilot-in-command responsibilities and authority

(a) The pilot-in-command shall be responsible for:

(1) the safety of the aircraft and of all crew members, task specialists and cargo on board during aircraft operations;

(2) the initiation, continuation, termination or diversion of a flight in the interest of safety;

(3) ensuring that all operational procedures and checklists are complied with in accordance with the appropriate manual;

(4) only commencing a flight if he/she is satisfied that all operational limitations referred to in the Air Navigation Act B.E.2497, TCAR OPS and other other Kingdom of Thailand Civil Aviation Regulations as they may be applicable are complied with, as follows:

(i) the aircraft is airworthy;

(ii) the aircraft is duly registered;

(iii) instruments and equipment required for the execution of that flight are installed in the aircraft and are operative, unless operation with inoperative equipment is permitted by the minimum equipment list (MEL) or equivalent document, if applicable, as required in points SPO.IDE.A.105, SPO.IDE.H.105.

(iv) the mass of the aircraft and the centre of gravity location are such that the flight can be conducted within the limits prescribed in the airworthiness documentation;

(v) all equipment and baggage is properly loaded and secured;

(vi) the aircraft operating limitations as specified in the aircraft flight manual (AFM) will not be exceeded at any time during the flight; and

(vii) any navigational database required for PBN is suitable and current;

# SPO.GEN.115 Common language

- Operator shall ensure that all crew members and task specialists are able to communicate in a common language.

# SPO.GEN.130 Portable electronic devices

- The operator shall not permit any person to use a portable electronic device (PED) on board an aircraft that could adversely affect the performance of the aircraft's systems and equipment.

# SPO.GEN.131 Use of electronic flight bags (EFBs)

- The operator shall ensure that it does not adverse the performance of the aircraft systems and equipment.
- Prior using a type B EFB application
    - Operator shall conduct risk assessment (the human-machine interface, EFB application)
    - Establish an EFB administration system (procedures, training for EFB admin)

# SPO.GEN.135 Information on emergency and survival equipment carried

- The operator shall have available immediate communication to RCCs lists containing information on the emergency and survival equipment on board.

## SPO.GEN.145 Handling of flight recorder recordings: preservation, production, protection and use

For complex motor-powered aircraft

- After an accident, serious incident, an occurrence require investigation shall preserve the original FDR for 60 days.
- Operator shall conduct operational check to ensure serviceability of FDR.

# SPO.GEN.150 Transport of dangerous goods

- Dangerous goods shall only be transported by an operator approved in accordance with TCAR OPS Part SPA except when they are carried by task specialists or crew members or are in baggage which has been separated from its owner, in accordance with Part 8 of the Technical Instructions.

- The operator shall ensure that task specialists are provided with information about dangerous goods.

# SPO.GEN.155 Release of dangerous goods

- The operator shall not operate an aircraft over congested areas of cities, towns or settlements or over an open-air assembly of persons when releasing dangerous goods.

# SPO.GEN.160 Carriage and use of weapons

- The operator shall ensure that, when weapons are carried on a flight for the purpose of a specialised task.
- The task specialist using the weapon shall take all necessary measures to prevent the aircraft and persons on board or on the ground from being endangered.

# SPO.OP.100 Use of aerodromes and operating sites

- The operator shall only use aerodromes and operating sites that are adequate for the type of aircraft and operation concerned.
- Adequate site concern the performance requirement, should be survey by competence person.
- Operating sites that are pre-surveyed should be specifically specified in the operations manual.

# SPO.OP.101 Altimeter check and setting

- The operator shall establish procedures for altimeter checking before each departure.
- The operator shall establish procedures for altimeter settings for all phases of flight.

## SPO.OP.110 Aerodrome operating minima — aeroplanes and helicopters

- The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used.
- The method used to establish aerodrome operating minima shall take all the following elements on SPO.OP.110 (b)
- The operator shall specify a method of determining aerodrome operating minima in the operations manual.

## SPO.OP.115 Departure and approach procedures — aeroplanes and helicopters

- The pilot-in-command shall use the departure and approach procedures established by the State of the aerodrome

- The pilot-in-command may deviate from a published departure route, arrival route or approach procedure when provided obstacle clearance criteria can be observed or being radar-vectored by an ATC unit.

- For complex motor-powered aircraft, the final approach segment shall be flown visually or in accordance with the published approach procedure

## SPO.OP.130 Fuel/energy scheme – aeroplanes and helicopters

- a fuel/energy scheme that comprises:
  - a fuel/energy planning and in-flight re-planning policy
  - an in-flight fuel/energy management policy
- Fuel/energy scheme shall appropriate to the type of operation and correspond to the capability of the operator to implement.

## SPO.OP.131 Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters

- The operator shall establish a fuel/energy planning and inflight re-planning policy to ensure that the aircraft carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation.

- The operator shall ensure that, if a flight has to proceed to a destination aerodrome other than the one originally planned, in-flight re-planning procedures for calculating the required usable fuel/energy are available.

## SPO.OP.131 Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters

- The pilot in command shall only commence a flight or continue in the event of in-flight re-planning, when satisfied that the aircraft carries at least the planned amount of usable fuel/energy and oil to safely complete the flight.

# SPO.OP.135 Safety briefing

- The operator shall ensure that, prior to take-off task specialists are given a briefing on:
  - emergency equipment and procedures
  - operational procedures associated with the specialised task before each flight or series of flights

# SPO.OP.140 Flight preparation

- Flight preparation, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available from NOTAM, AIP Supplement or AIP.

- The pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight.
  - METAR
  - TAF
  - SigWX chart/ Wind aloft chart
  - Weather radar

# SPO.OP.170 Meteorological conditions

- The criteria for PIC decision to continue the flight
- VFR: continue when ETA at destination ≥ VMC
- IFR: continue when ETA at destination or alternate ≥ applicable operating minima.

# SPO.OP.185 Simulate situations in flight

- Situation abnormal or emergency procedure or flight in IMC shall not simulate when carry task specialist.
- Except task specialist is on-board for training.

## SPO.OP.190 Fuel/energy scheme – in-flight fuel/energy management policy

- The operator of complex motor-powered aircraft shall establish procedures to ensure that inflight fuel/energy checks and fuel/energy management are performed.

- The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.

## SPO.OP.190 Fuel/energy scheme – in-flight fuel/energy management policy

- MAYDAY fuel when safe landing at nearest aerodrome/operating site usable fuel < final reserve fuel
- MINIMUM fuel when committed to land and any change to clearance may induce the usable fuel < final reserve fuel

# SPO.OP.195 Use of supplemental oxygen

- Operations above 13,000 ft require the prior approval of the CAAT.

- The operator shall ensure that task specialists and crew members uses supplemental oxygen continuously whenever the cabin altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the cabin altitude exceeds 13 000 ft, unless otherwise approved by the CAAT and in accordance with SOPs.

- For parachute operations, short excursions of a specified duration above 13 000 ft without using supplemental oxygen on other-than complex aeroplanes and helicopters may be undertaken with a prior approval of CAAT.

# SPO.OP.230 Standard operating procedures

- Before commencing a specialised operation, the operator **shall conduct a risk assessment,** assessing the complexity of the activity to determine the hazards and associated risks inherent in the operation and establish mitigating measures.

- Based on the risk assessment, the operator shall establish standard operating procedures (SOP) appropriate to the specialised activity and aircraft used taking account of the requirements of subpart E. The SOP shall be part of the operations manual or a separate document. SOP shall be regularly reviewed and updated, as appropriate.

- **The operator shall ensure that specialised operations are performed in accordance with SOP.**

# SPO.POL.100 Operating limitations — all aircraft

- During any phase of operation, the loading, the mass and the centre of gravity (CG) position of the aircraft shall comply with any limitation specified in the appropriate 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.

# SPO.POL.105 Mass and balance

- The operator shall ensure that the mass and the CG of the aircraft have been established by actual weighing prior to the initial entry into service of the aircraft.
- Any modification & repair effected mass and balance shall be accounted and recorded and available to PIC.

Note: weighing shall done by the manufacturer or approved maintenance org.

# SPO.POL.120 Performance — general

The pilot-in-command shall only operate the aircraft if the performance is adequate to comply with the applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes or operating sites used, taking into account the charting accuracy of any charts and maps used.

# Part – SPO.IDE : INSTRUMENTS, DATA AND EQUIPMENT

Includes:

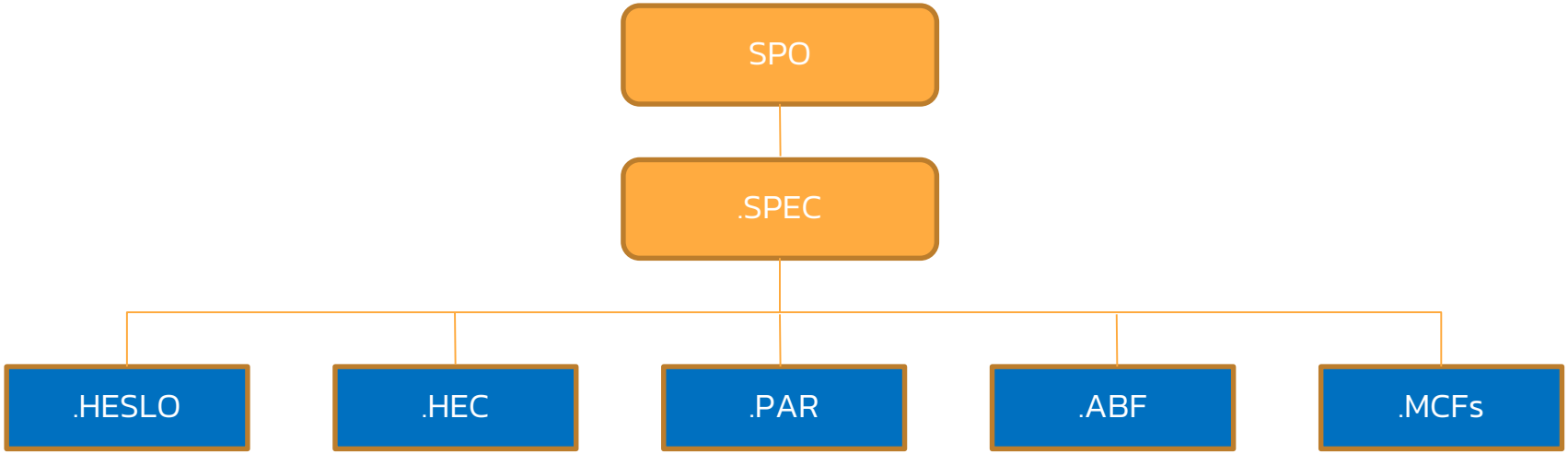
- Instruments and equipment
- Operations under VFR and IFR
- TAWS
- FDRs/CVRs
- Seats, safety belts and restraint systems
- Supplemental oxygen
- Survival equipment
- ELTs
- Radio communication & navigation equipment

# SPO.IDE.A.105 Minimum equipment for flight

- The aeroplane's instruments, items of equipment or functions required for the intended flight are inoperative or missing, can commence
    - Operate in accordance with the minimum equipment list (MEL)

Refer ORO.MLR.105 (j) for commercial complex motor-power aircraft

# Part SPO.SPEC : Specific requirements




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

# Helicopter external sling load operations (HESLO)

# SPO.SPEC.HESLO.100 Standard operating procedures

SOPs for HESLO shall specify

- Equipment
- Crew composition and experience requirements of crew members and task specialist
- Training for the crew member and task specialist.
- Responsibility and duty of the crew member and task specialist.
- Helicopter performance criteria necessary to be met to conduct HESLO operations
- Normal, abnormal and emergency procedures

# SPO.SPEC.HESLO.105 Specific HESLO equipment

- Helicopter shall be equipped with:
  - one cargo safety mirror
  - one load meter

# SPO.SPEC.HESLO.110 Specific HESLO equipment

- Transportation of DG shall be approval by the CAAT.

# Human external cargo operations (HEC)

# SPO.SPEC.HEC.100 Standard operating procedures

SOPs for HEC shall specify

- Equipment
- Crew composition and experience requirements of crew members and task specialist
- Training for the crew member and task specialist
- Responsibility and duty of the crew member and task specialist.
- Helicopter performance criteria necessary to be met to conduct HEC operations
- Normal, abnormal and emergency procedures

# SPO.SPEC.HEC.105 Specific HEC equipment

Helicopter shall be equipped with:

- Hoist operations equipment or cargo hook
- One cargo safety mirror or alternative means to see the hook
- One load meter

*** The installation of all hoist and cargo hook equipment other than a simple PCDS, and any subsequent modifications shall have an airworthiness approval appropriate to the intended function.**

# Parachute operations (PAR)

# SPO.SPEC.PAR.100 Standard operating procedures

The standard operating procedures for PAR shall specify:

- the equipment to be carried, including its operating limitations and appropriate entries in the MEL
- crew composition and experience requirements of crew members and task specialists
- the relevant training for crew members and task specialists
- responsibilities and duties of crew members and task specialists
- performance criteria necessary to be met to conduct parachute operations
- normal, abnormal and emergency procedures.

# SPO.SPEC.PAR.115 Supplemental oxygen

- Operations above 13,000 ft require the prior approval of the CAAT

- Supplemental oxygen shall be applicable for PIC and task specialist carrying out duties essential to the specialised task, whenever the cabin altitude:
  - exceeds 13 000 ft, for a period of not more than 6 minutes.
  - exceeds 15 000 ft, for a period of not more 3 minutes.

# SPO.SPEC.PAR.125 Releasing of dangerous goods

- Notwithstanding point SPO.GEN.155 and when specifically authorised by the CAAT, parachutists may exit the aircraft for the purpose of parachute display over congested areas of cities, towns or settlements or over an open-air assembly of persons whilst carrying smoke trail devices, provided those are manufactured for that purpose.

*SPO.GEN.155 Release of dangerous goods*
*The operator shall not operate an aircraft over congested areas of cities, towns or settlements or over an open-air assembly of persons when releasing dangerous goods.*

# Aerobatic flights (ABF)

# SPO.SPEC.ABF.100 Standard operating procedures

SOPs for ABF shall specify

- Equipment
- Crew composition and experience requirements of crew members and task specialist
- Training for the crew member and task specialist
- Responsibility and duty of the crew member and task specialist
- Performance criteria necessary to be met to conduct aerobatic flights
- Normal, abnormal and emergency procedures

# SPO.SPEC.ABF.105 Documents, manuals and information to be carried

- ATS flight plan
- Aeronautical charts for the route/area of the proposed flight and diverting
- Procedures and visual signals information
- Search and rescue information

**The following documents listed in SPO.GEN.140(a) need not be carried during aerobatic flights.*

# SPO.SPEC.ABF.115 Equipment

- First-aids kit
- Hand-fire extinguisher
- ELT or personal locator beacons


# Maintenance check flights (MCFs)

# SPO.SPEC.MCF.100 Levels of maintenance check flight

The operator shall determine the applicable level of the maintenance check flight as follows:

- **Level A** – maintenance check flight for a flight where the use of abnormal or emergency procedures, as defined in the aircraft flight manual, is expected, or where a flight is required to prove the functioning of a backup system or other safety devices.
- **Level B** – maintenance check flight for any maintenance check flights **other than a "Level A"** maintenance check flight.

# SPO.SPEC.MCF.105 Flight programme for a “Level A” maintenance check flight

Before conducting a Level A maintenance check flight with a complex motor-powered aircraft, the operator shall develop and document a flight programme.

# SPO.SPEC.MCF.110 Maintenance check flight manual for a “Level A” maintenance check flight

The operator conducting a “Level A” maintenance check flight shall:

- Describe those operations and associated procedures in the operations manual
- Update manual
- Inform all affected personnel of the manual and of its changes
- Provide the CAAT with the manual and its updates.

## SPO.SPEC.MCF.115 Flight crew requirements for a “Level A” maintenance check flight

- Flight crew requirement for complex motor powered aircraft
- PIC has the training course for Level A maintenance check flight (SPO.SPEC.MCF.120)
- Training in simulator, pilot conduct at least 1 level A MCF as PM or as OBS.
- PIC same aircraft category minimum 1000 fhs., 400 hrs. as PIC and 50 hrs. on aircraft type.
- New aircraft type pilot at least 50 hrs. on that aircraft type.
- PIC shall perform a Level A MCF with in 36 months.
- Recency can regain after OBS or PM or PIC in Level A MCF in simulator.

# SPO.SPEC.MCF.125 Crew composition and persons on board

- Establish procedure to identify the need for additional task specialist.
- Level A MCF the operator shall define policy for person on board in the OM.
- Level A MCF if the aircraft config. not permit or operator can justify the FC workload, the task specialist or additional pilot is not required.

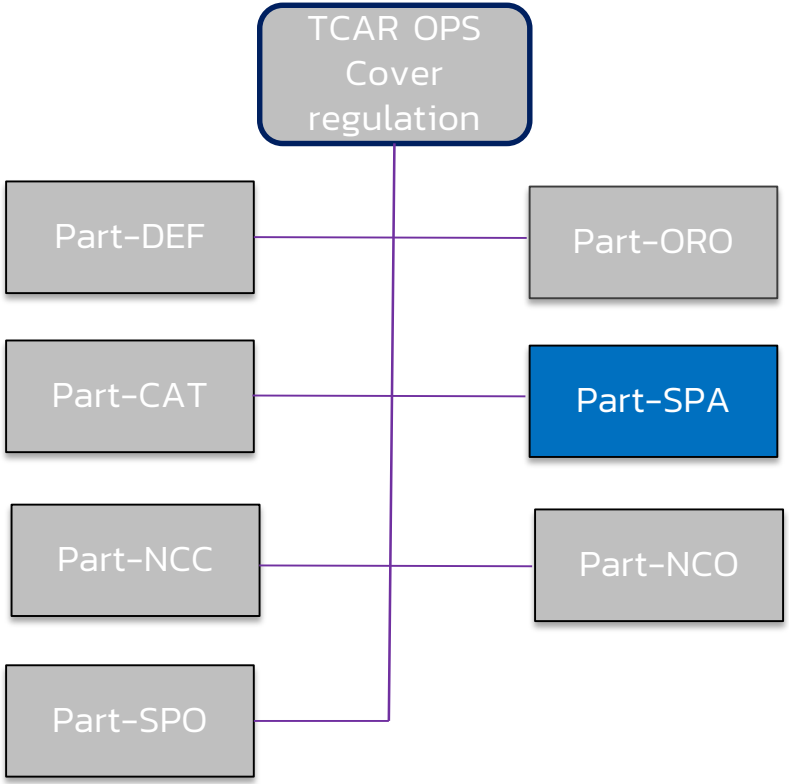
## SPO.SPEC.MCF.130 Simulated abnormal or emergency procedures in flight

By way of derogation from point SPO.OP.185 a task specialist may be on board a “Level A” maintenance check flight if the task specialist is required to meet the intention of the flight and has been identified in the flight programme.

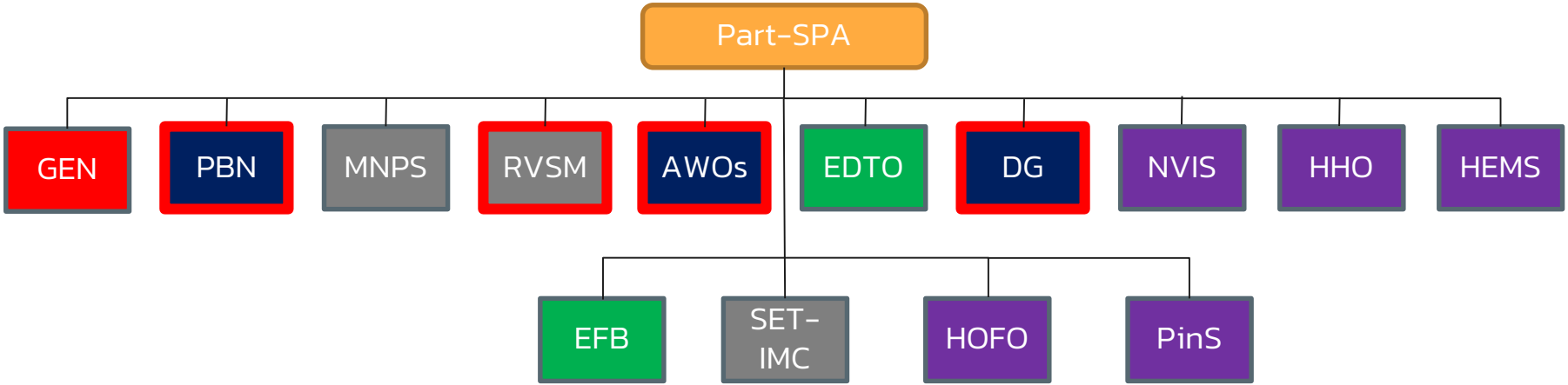
# SPO.SPEC.MCF.140 Systems and equipment

When a maintenance check flight is intended to check the proper functioning of a system or equipment, that system or equipment shall be identified as potentially unreliable and appropriate mitigation measures shall be agreed prior to the flight in order to minimise risks to flight safety.

# TCAR OPS Structure




# Part SPA: "Specific Approval"




GEN: General
PBN: Performance-based navigation
MNPS: Specified minimum navigation performance
RVSM: Reduced vertical separation minimum
AWOs: All weather operations & operational credit
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
PinS: Point in Space
SET-IMC: Single-engined turbine aeroplane operations at night or IMC
EFB: Electronic flight bags

# SPA.GEN.100 The competent authority

CAAT is the competent authority for issuing a specific approval:

- for commercial operator's which have their principal place of business in the Kingdom of Thailand;
- for the non-commercial operator, in the case whereby the operator is established or residing in the Kingdom of Thailand.