



สำนักงานการบินพลเรือนแห่งประเทศไทย  
The Civil Aviation Authority of Thailand

# **TCAR OPS Flight Crew Training Program**

## **Operations more than one type or variant (Single/Mixed Fleet Flying: S/MFF)**

Flight Operations Standards Department

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# DISCLAIMER

The information in this presentation is sourced from TCAR OPS Subpart-ORO.FC. The extraction from the regulation is not exhaustive, and the material offers information pertinent to the targeted audience (Airlines operating with CMPA in MPO - multi-pilot operations).

Should any content in this material be found to contradict the applicable regulation, please consider the relevant regulation as the primary reference.

# Main Regulatory References

## Single/Mixed Fleet Flying: S/MFF

ORO.FC.125	Differences training and familiarisation training
ORO.FC.140	Operation on more than one type or variant
ORO.FC.145	Provision of training
ORO.FC.240	Operation on more than one type or variant
FCL.710	Class and type ratings – variants



# Terminology

**Base Aircraft:** an aircraft used as a **reference to compare** differences with another aircraft.

**Aircraft Type:** means an aeroplane or group of aeroplanes under the same **Endorsement License** that requires a type rating , **as defined in** the Operational Suitability Data (**OSD**) and that includes all aircraft with identical fundamental characteristics, including any modifications made to them, except those that result in a change in handling or flight characteristics [**variant**].



# Terminology

**Variant:** Variant of an aircraft type requiring training on **differences**

(example: **A330/A350**), or **familiarisation** training (example: A330-300/A330-200/A330-200F). Refer to the Type Ratings and Licence endorsement list and/or the OSD to determine if this is a difference or familiarisation.

Airbus	A330	- 300 series - 200 series - 200 F - 200 MRTT FAF STC	A330/350	X	X	MP	X	OSD FC A330/A350 OSD FC A330 MRTT FAF STC OSD A350-1000 and A330-900 dated 01/10/2018
	A350	- 900 series - 1000 series						

**/i\ FCL 710 (d)**, when completed difference / familiarization training, the licence endorsement is not required, However **differences training** in that variant **shall be entered in the pilot's logbook**.

# Difference Training VS Familiarisation Training

## [GM1 FCL.710 Class and type ratings – variants]

- **Differences training** requires the acquisition of additional knowledge and training on an appropriate training device or the aircraft.
- **Familiarisation training** requires the acquisition of additional knowledge.

# PEL Training Organisations under AOC

Some training programs can be delivered directly by an AOC

## FCL.710 Class and type ratings — variants

(a) ...

(b) The **differences training** shall be conducted at any of the following:

(1) an ATO;

(2) a DTO in the case of LAPL holder for the purpose of extension of privileges:

(i) to another class or variant according to FCL.135 (A);

(ii) to another type or variant according to FCL 135(H).

(3) an AOC holder having an approved **differences training programme** for the relevant class or type.



# Terminology

**Credit:** recognition in terms of **training, checks, or recent experience** based on commonality between aircraft (usually described in **OSDs**)

**ODR:** Operator Difference Requirements, are a formal description of the **differences between aircraft variants or types** (ODRs are either provided by the **manufacturer** or established by the **Operator** in the absence of publication).

## AIRBUS

A330 OPERATOR DIFFERENCE REQUIREMENT TABLES AND TASE  
FLIGHT CREW  
ODR Tables and TASE for Variants

ISSUE 3.0

DATE 16 January 2017

BASE AIRCRAFT : A350-900		CANDIDATE AIRCRAFT : A330-200 Enhanced		DIFFERENCE LEVELS		
SYSTEMS	DIFFERENCES	FLT CHAR	PROC CHG	TRNG	CHECK	CUR
22 - Flight Management Controls And Indicators Navigation Controls	The MCDUs display the IRS INIT page which contains the interface for defining and monitoring IRS alignment reference position.  The MCDUs display the POSITION MONITOR, IRS MONITOR, SELECTED NAVAIDS and GPS MONITOR pages which contain: <ul style="list-style-type: none"><li>- Interface for monitoring navigation accuracy</li><li>- Interface for monitoring FMS, Radio, MIXIRS, GPIRS, IRS and GPS positions</li><li>- Interface for selecting navaids.</li></ul>	NO	YES	B	A	



# Terminology

**MFF (Mixed Fleet Flying):** operation of more than one type by a group of pilots within an Operator.

- **Example #1:** Falcon 900EX EASy & Falcon 2000 EX (**two types**).
- **Example #2:** A330/A350 & A320 (under the OSD, two variants operated in Single Fleet, constituting a first and same type, and a second type).

**SFF (Single Fleet Flying):** operation of **several variants** of the **same aircraft type** by a group pilots within an Operator).

- **Example:** B777/787

# Operations more than one type or variant (S/MFF)

**General/Principle:** [AMC1 ORO.FC.230 and AMC1 ORO. FC.240; Manufacturer OSD and ODR]

- In context of **training**, **checks**, and **recent experience**, operators must adhere to standards & guideline provided by manufacturer's **OSD** and **ODR** standards;
- It is a responsible of operator to conduct **safety assessments** and **studies** to determine whether the variants or types are sufficiently similar for safe operation by the same group of pilots, using the **ODR**
- **Unless credited** in the OSD, **training**, **checks**, and **recent experience** should be performed separately for each type or variant.

# Operations more than one type or variant (S/MFF)

**Operational Procedure and Restriction:** shall be established in OM, and shall cover:

- Minimum level of **experience of FC** (e.g. total flight hour);
- Minimum level of **experience on one type** or variant **before starting** training on another type/variant;
- The **process** whereby FC **qualified** on one type or variant **will be trained** and **qualified** on another type or variant;
- The **applicable recent experience** requirements for each type or variant; and
- **Special cases** of operation (Operations as CPT on one type and F/O on another, operation on several variants/types within the same flight duty period, etc.).



# Operations more than one type or variant (S/MFF)

## Limitation and Restriction: [AMC1 ORO.FC.240]

Generally **limited to 2 type endorsement** (exceptional cases for class/type single-pilot aeroplane)

### Restrictions:

- 1) Specific (only) to **single-pilot aeroplane** (e.g. 3 types of SEP, 3 types of turboprop...);
- 2) Not more than 2 aeroplane types/variants (only **2 endorsement**) & **Same minimum no. FC crew for each type/variant**;
- 3) When conduct S/MFF + mixed operations (type)**SiPO** and (type)**MPO**, shall follow (2) + (4)
- 4) Mixed fleet for **MPO** or Mixed class SiPO + Type MPO:
  - Comply (2);
  - Minimum total flight experience **before exercise privilege**, Minimum experience **before training**, **Consolidated periods**.



# Operations more than one type or variant (S/MFF)

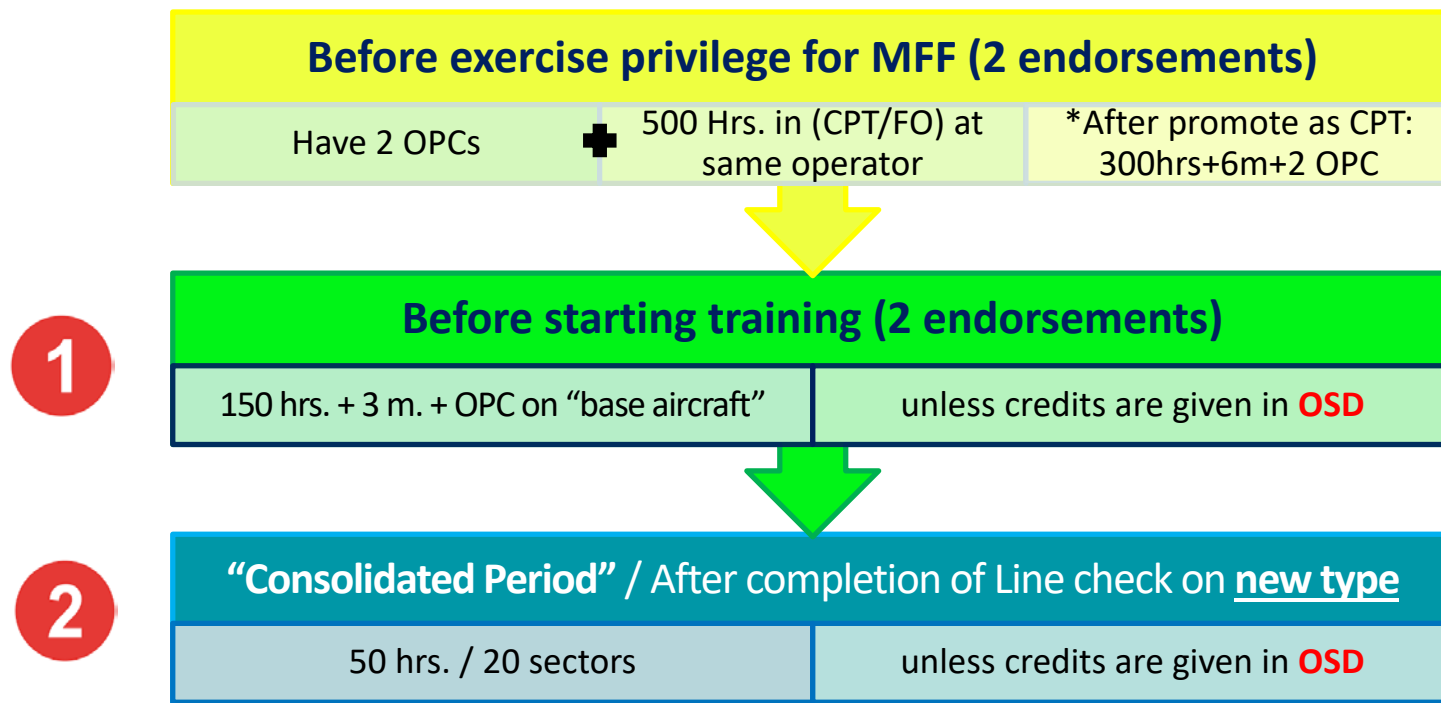
## Limitation and Restriction: [AMC1 ORO.FC.240]

Combination of:	Classes single-pilot	Type Single-pilot jet engine	Type multi-pilot
Classes single-pilot	(1)	(2)	(2)-(4)
Type Single-pilot jet engine	(2)	(2)	(2)-(4)*
Type multi-pilot	(2)-(4)	(2)-(4)*	(2)-(4)

\*Subsection (3) is not included in the table as it refers to subsections (2) and (4).

# Operations more than one type or variant (S/MFF)

## Limitation and Restriction: [AMC1 ORO.FC.240 (4)]



# Example of Pre-requisite from OEM'OSD

## ● 'Before Training' Prerequisite/qualifications:

### 7.1.2 A320 CCQ

Possible A320 CCQ courses include:

- A330 to A320
- A340 to A320
- A380 to A320

**[M]** The A320 CCQ courses are designed for pilots qualified and current with minimum of 3 months and 150 flying hours on the base aircraft.

*Note: In the sentence above Base Aircraft is either A330, A340 or A380.*

**[AMC]** Appendix 7 shows the footprint of the course at the time of grandfathering (2015).

*Note 1: It is highly recommended that operators ensure that crews have a very good knowledge of base aircraft systems prior to commencing a CCQ course, as the training program only presents the differences between the 2 types.*

*Note 2: Pilots without a valid LPC on the base aircraft may be eligible for CCQ via a refresher programme to be approved by their NAA.*

## ● 'Consolidated periods':

### 9. Specification for Operations on More Than One Type

#### 9.1 Prerequisites

Operation on more than one type or variant is addressed in Part-ORO, ORO.FC.140, and ORO.FC.240 and associated AMCs.

Specific evaluation for operation on more than one type or variant between the 737 300-900 and

OSD-FC Boeing 737 CL / NG / MAX  
Document D626A014 – Revision A

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ECCN: 9E991

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#### 12.2.1 Setting up an MFF operation between A320 and A330/A350 (or A340, or A380)

With reference to Part-ORO, no credits are granted for the completion of 3 months and 150 hours flying on the base aircraft that is required by AMC1 ORO.FC.240(a)(4)(iii) before commencing training for and operation of another type.

When setting up a Mixed Fleet operations of A320 and A330/A350 (or A340, or A380) the following steps are to be applied:

- a) Pilot prerequisite: qualified and current on the A330/A350 (or A340, or A380), and type rated on the A320 (Refer to §7.1)
- b) Operational training modules if required (HUD, EFB, LVO, ...)
- c) LIFUS as applicable (Refer to § 10.2)
- d) Initial line check on A320 (refer to §10.2)
- e) Consolidation period as per AMC1 ORO.FC.240: 50 flying hours or 20 sectors solely on A320
- f) Mixed Fleet Flying of A320 with A330/A350 (or A340, or A380) can start.

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# Other related information (maintenance of privileges)

- **Recent experiences:** [as defined in FCL.060]
  - May be credited by OSD.
- **Operator Proficiency Check (OPC):**
  - Two (2) OPC / aircraft type are required;
  - May be credited by OSD.
- **Line Check:**
  - One (1) line check per year/aircraft type.
  - May be credited by OSD.
- **Emergency and Safety Equipment training & checking.**

## Importance Note: [FCL.710]

If the variant has not been flown within a **period of 2 years** following the differences training, **further differences training or a proficiency check** in that variant **shall be required** to maintain the privileges, *except for types or variants within the single-engine piston and TMG class ratings*.

# Example in OSD related “maintenance of privileges”

## 12.2.4 A320 and A330/A350 (or A340, or A380) MFF recent experience requirements

Recent experience requirements are contained in Part-FCL, FCL.060.

[M] With reference to Part-ORO, ORO.FC.140(a), credit is granted for recent experience requirements when operating both the A320 type and the A330/A350 (or A340, or A380) type as specified in the following table:

MIXED FLEET FLYING AIRCRAFT TYPES	CURRENCY/RECENT EXPERIENCE REQUIREMENTS
A320 and A330/A350	- 3 takeoffs and landings as PF in either A320 or A330/A350 within a period of 90 days - 1 takeoff and landing as PF in each type <b>every 45 days</b>
A320 and A340	- 3 takeoffs and landings as PF in either A320 or A340 within a period of 90 days - 1 takeoff and landing as PF in each type <b>every 45 days</b>
A320 and A380	- 3 takeoffs and landings as PF in either A320 or A380 within a period of 90 days - 1 takeoff and landing as PF in each type <b>every 45 days</b>

*Note 1: When operating A320 variants in SFF, recent experience requirement in para. 9.1 is applicable.*

*Note 2: Re-establishing currency /recent experience: When currency is lost, currency may be re-established by a training flight or use of a flight simulator of the aeroplane type to be used*

## 10. Recent Experience Requirements credits for Operation of More than One Type

Recent experience requirements are contained in Part-FCL, FCL.060.

### 10.1 Common Take-Off and Landing Currency (CTLC)

[AMC-4] CTLC recency of experience. Take-offs and landings performed on the 787-8/-8200/-9 may be credited towards the take-off and landing requirements for the 737-300 to 737-900 as specified in the following table.

Table 4 – Credit for Recent Experience

Credit for recent experience in accordance with Part-FCL, FCL.060	
From aircraft	To aircraft
B787-8/-9	B737 300-900: 1 take-off and 1 landing may be credited in the preceding 90 days

CTLC credits are applicable from the 787-8/-9 to the 737 300-900.

# Example in OSD related “maintenance of privileges”

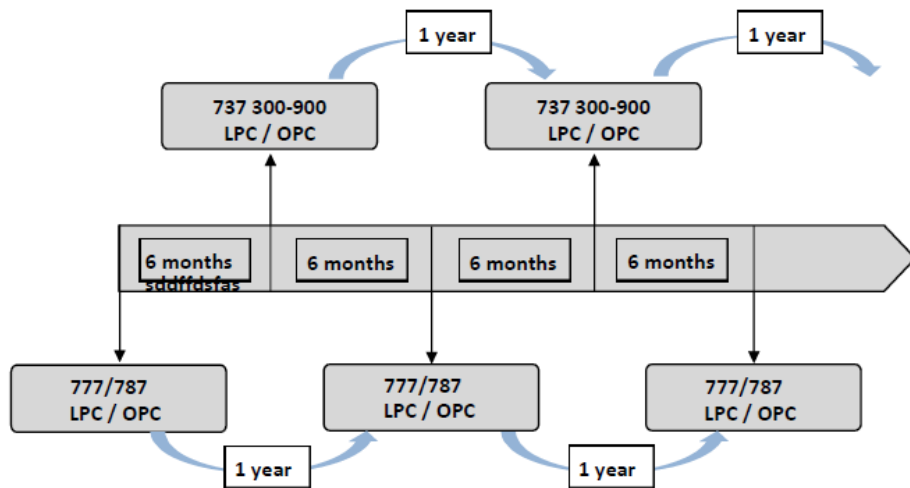
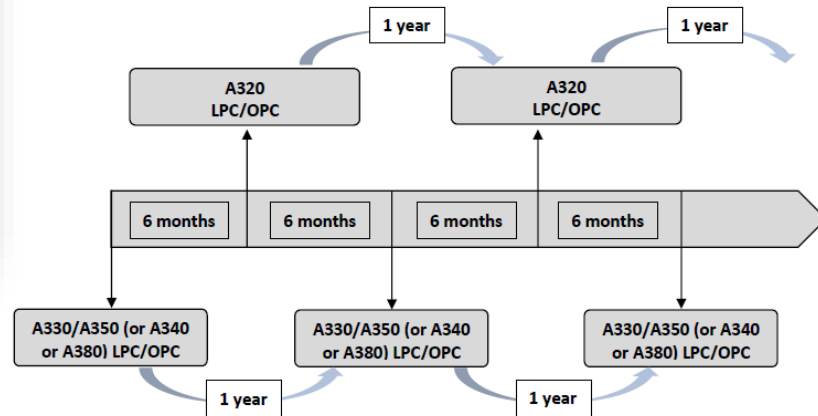


Figure 1 – Example of alternating checking between 737 and 777/787 variants

## 12.2.3 Example of A320 or A330/A350 (or A340, or A380) MFF recurrent training /checking

With reference to Part-ORO, AMC1 ORO.FC.240(a)(4)(vii), an operator proficiency check performed on either A320 and A330/A350 (or A340, or A380) revalidate the operator proficiency check for the other type.

[AMC] Proficiency check should alternate as follows, for A320 and A330/A350 (or A340, or A380) MFF operations:

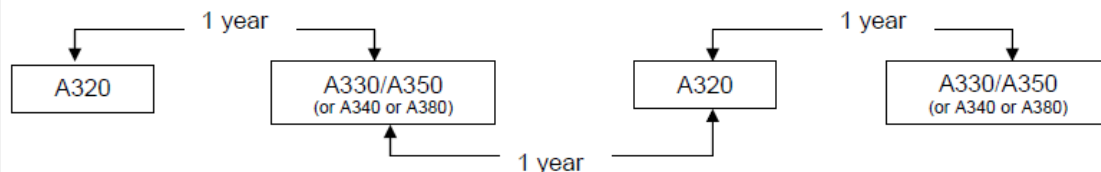


# Example in OSD related “maintenance of privileges”

## 12.2.2 A320 and A330/A350 (or A340, or A380) MFF Line checks

With reference to Part-ORO, AMC1 ORO.FC.240(a)(4)(vii), a line check performed on either A320 and A330/350 (or A340, or A380) revalidate the line check for the other type.

**[AMC]** Line check should alternate as follows, for A320 and A330/A350 (or A340, or A380) MFF operations:



Each line check revalidates the line check for the other type flown under MFF.

## 6.2 Line Checks

With reference to ORO.FC.240, AMC1 ORO.FC.240:

**[AMC-4]** A line check performed on any 737 variant is valid for all variants.

**Recall** : Mixed fleet operation on more than one type or variant, on aircraft operated or certified Multi-pilot operations

### Example:

- Cessna CJ3 certified SP and operated in **MPO** and Cessna Latitude certified and operated by **MPO**; or
- Airbus **A320** and Airbus **A350**.





**Recall** : Mixed fleet operation on more than one type or variant, on aircraft operated or certified Multi-pilot operations

### What to be considered?

- Limitation/Restriction:
- Minimum (overall) Ex, before flying MFF operations:
- Before Starting training:
- After initial Line Check (Consolidated periods):
- Recent Experience:
- Recurrent Training Checking (OPC, LPC, Line Check ESETC):

