



สำนักงานการบินพลเรือนแห่งประเทศไทย  
The Civil Aviation Authority of Thailand

# **TCAR OPS Flight Crew Training Program**

## **“LIFUS: Line Flying Under Supervision”**

Flight Operations Standards Department

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# Key Regulatory References

## TCAR OPS Air Operations Regulation

AMC1 ORO. FC.105 (b)(2);(c)	Designation as pilot in command/commander <i>Route, Area and Aerodrome</i>
ORO. FC.205	Command Course
ORO. FC.220	Operator Conversion Training and Checking
Part-SPA	SPA.LVO.120; ETOPs; EFB; SET-IMC.

## TCAE PEL Crew Licensing

ORO.FC.060	Recent Experience
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# Line Flying Under Supervision: LIFUS

## Introduction:

LIFUS (*Line Flying Under Supervision*) encompasses all flight stages conducted under supervision, as part of an **OCC**, a **Command Course**, or any **other suitable training program**. This includes, as applicable, the requirements of the **TR** conducted in **ZFTT** (Zero Flight Time Training).

## Case where LIFUS is Required:

- Operator Conversion Course (initial, change of operator, change Type/Class);
- Commander Course;
- **Certain cases deemed necessary by the Operator** (exceeded deadline, processing of failure, resuming activity, FCL.060, etc.)



# Line Flying Under Supervision: LIFUS

## Objective:

- LIFUS aims to help flight crew members become more skilled in the **company's procedures** for **their roles** and specific operations. By the end of LIFUS, trainees should be able to safely and efficiently perform their job during flights.
- The scheduling of flights should be **representative of the route network** and the **airports** served by the company.
- To move on to the Line Check, trainees must **meet the required level** at the end of LIFUS, and this **process should be defined in OM-D** (Operations Manual Part D).



# Development of a LIFUS Program in 'OM-D'

OM-D should contain the **relevant elements (procedure)** of LIFUS program, covering at a minimum:

- The definition of **objectives**, training program, and trainee logbook;
- **Progress** management;
- **Criteria for Line Check** presentation;
- **Handling** of **failures**; and
- Details of flight **safety precautions** and **procedures** (e.g., associated LTC briefings, safety pilot, event simulations, real-time failure scenarios, aircraft integrity maintenance, radio monitoring, TEM, etc.).



# LIFUS Volume (How many sectors)

## Regulatory Minimum:

- **First OCC (initial TR)** [GM1 ORO.FC.220(d)]
  - **100 Hrs. / 40 Sectors**
- **OCC Change of Operator** [ORO.FC.220(c), AMC1 ORO.FC.220 (f) (2)]
  - Based on **qualification & experiences of trainee**; specified in OM-D.
- **OCC Change type in Organisation** [AMC1 ORO.FC.220(f)(2)]
  - Possibility to refer to **OSD**.
- **Command Course** [ORO.FC.205, GM1 ORO.FC.220(d)]
  - **10 sectors / on type**
  - **20 sectors**

### 10.1 LIFUS following A320 Standard Transition Course

[M] After completion of the Standard Transition Course, a minimum of 8 route sectors of LIFUS shall be performed, followed by a 2 route sector line check.

[AMC] Where the change of aircraft type also implies a change of operating conditions or route structure this should also be taken into account and may need the addition of route sectors to cover these elements.

# LIFUS Volume (How many sectors)

Beyond the regulatory minimum, it is up to the Operator, based on **feedback** from the **training system** and the **SMS**, to define training volumes adapted to its operation.

Taking experience into account involves considering **several factors** that the Operator must integrate, including:

- *The timeframe in which the hours were accumulated.*
- *The individual's position and prior experience.*
- *The date of their last flight.*
- *Any intermediate activity on another aircraft type.*
- *The Operator's type and area of operation.*

# LIFUS reflect best practice of EU operators

As an indication, the following number of sectors reflects the current practices of the EU Operators.

	F/O		CPT	
	C/MH	LH	C/MH	LH
<b>1<sup>st</sup> OCC</b> (regulatory minimum)	100h/40 legs			
<b>N<sup>th</sup> OCC</b> Change of Operator	10	8 (14)	10	8 (14)
<b>N<sup>th</sup> OCC</b> Change of type and Operator	20	10 (16)	20	10 (16)
<b>Command Course</b> without Type Rating (TR) experience			20	16 (22)
<b>Command Course</b> with TR experience			20	10 (16)
<b>OCC CPT</b> without TR experience			20	14 (20)
<b>OCC CPT</b> with TR experience			10	8 (14)

*Table legend:*

- *LH: long haul*
- *S/MH: Short/Medium Haul*
- *( ): first long haul adaptation*

# LIFUS Volume in OSD-FD

There are some specific volume of the **LIFUS in OEM document**, AOC holder shall consider to adapt this number into OM-D **as a minimum** volume.

## 10.3 LIFUS following A380 to A320 CCQ course

**[M]** After completion of CCQ A380 to A320, a minimum of 6 route sectors of LIFUS (5PF, 1PM) shall be performed, followed by a 2 route sector line check (1PF, 1PM).

**[AMC]** Where the change of aircraft type also implies a change of operating conditions or route structure this should also be taken into account and may need the addition of route sectors to cover these elements.

Operational Suitability Data – Flight Crew

B777 / B787

### 7.2 LIFUS following B787 Full Type Rating Training [AMC - 2]

In the case of Pilots completing Initial Type Rating for the B787 a minimum of 8 route sectors LIFUS should be performed, followed by a 2 route sector line check. Operation with and without the use of HUD in different phases of flight should be addressed.

In accordance with Part-FCL, a supervised exterior inspection on the B787 must be part of LIFUS following the Boeing B787 full type rating training. An unsupervised exterior inspection is not permitted until this requirement has been fulfilled.

# Other Case may involve LIFUS

**The ZFTT part of the LIFUS “LIFUS ZFTT”**: *phase comprising the first 4 take-offs and landings in PF under the supervision of a **TRI ‘LIFUS’***

*These steps are included in the count of the total number of steps following the **type rating**. The following steps may be performed under the supervision of an LTC [ORO. FC.220];*

**LVO Operations**: refer Table 1 [GM1 SPA.LVO.120(b)]

Table 1

Summary of initial training requirements for LVOs and operations with operational credits

Approval	Airborne equipment	Previous experience	Reference	Practical (FSTD) training <sup>1</sup>	LIFUS (if required) <sup>2</sup>
CAT II	Auto coupled to below DH with manual landing	none	<a href="#">AMC2.SPA.LVO.120(h) point (a)(2)(v)</a>	As required but not less than 6 approaches	3 landings or 1 landing <sup>1</sup>
		Previously qualified with the same operator, similar operations <sup>3</sup>	<a href="#">AMC2.SPA.LVO.120(b) point (b)(2)(ii)</a>	2 approaches	none
		Previously qualified with a different EU operator, same type and variant	<a href="#">AMC2.SPA.LVO.120(b) point (c)(2)</a>	2 approaches	none
		Previously qualified with a different EU operator, similar operations <sup>3</sup>	<a href="#">AMC2.SPA.LVO.120(b) point (c)(2)</a>	2 approaches	3 landings or 1 landing <sup>1</sup>

# Personnel provides LIFUS

- LIFUS may be conducted by **Line Training Captain: LTC** (commander nominated by AOC holder).

**NOTE1:** first 4 Sector of LIFUS (ZFTT) is not allowed to be conducted by LTC.

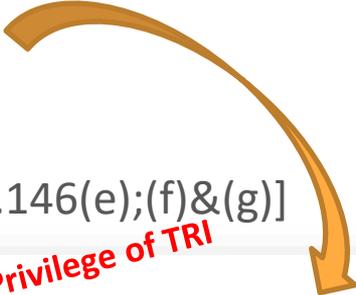
**NOTE2:** LIFUS to recover recency [FCL.060]

- LTC shall have received training on: [AMC1 ORO.FC.146(e);(f)&(g)]
  - techniques of briefing and debriefing;
  - CRM concepts and CRM assessment

**NOTE:** TRI can automatically be LTC.

## FCL.910.TRI TRI Restricted privileges

**Privilege of TRI**



- (a) General .If the TRI training is carried out in an FSTDs only, the privileges of the TRIs shall be restricted to training in the FSTDs .This restriction shall however include the following privileges for conducting, in the aircraft:
- (1) **LIFUS**, provided that the TRI training course has included the training specified in point FCL.930.TRI(a)(4)(i);
  - (2) **landing training**, provided that the TRI training course has included the training specified in point FCL.930.TRI(a)(4)(ii); or
  - (3) the training flight specified in point FCL.060(c)(2), provided that the TRI training course has included the training referred to in points (a)(1) or (a)(2).

The restriction to FSTD shall be removed if TRIs have completed an assessment of competence in the aircraft.

# Zero Flight Time Training - ZFTT

## Additional requirements:

- for the arrangements between the ATO and the AOC.

### ORA.ATO.330 General

- Approval for zero flight-time training (ZFTT), as specified in Part-FCL, shall only be given to ATOs that also have the privileges to conduct commercial air transport operations or ATOs having specific arrangements with commercial air transport operators.
- Approval for ZFTT shall only be given if the operator has at least 90 days of operational experience on the aeroplane type.
- In the case of ZFTT provided by an ATO having a specific arrangement with an operator, the 90 days of operational experience requirements will not apply if the type rating instructor (TRI(A)) involved in the additional take-offs and landings, as required in Part-ORO, has operational experience on the aeroplane type.

/i\ **Conditions** of the organization (AOC holder) to apply ZFTT

[AMC1 ORA.ATO.330]

#### INITIAL APPROVAL

For an initial approval to conduct ZFTT, the operator should have held an air operator's certificate for commercial air transport for at least 1 year. This period may be reduced where the operator and the ATO have experience of type rating training.

# Zero Flight Time Training - ZFTT

→ for the **type of FSTD** and to the experience of the AOC on type.

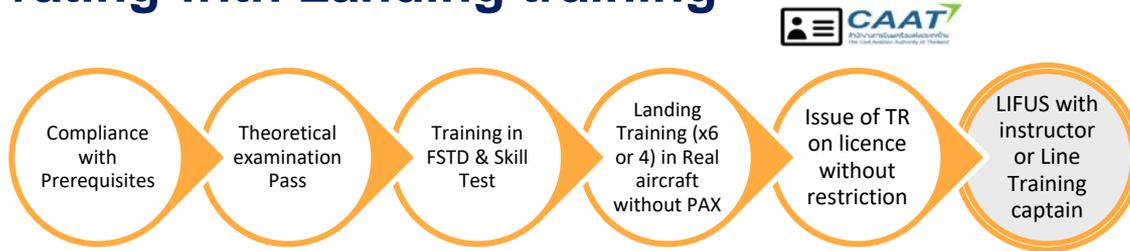
## **ORA.ATO.335 Full flight simulator**

- (a) The FFS approved for ZFTT shall be serviceable according to the management system criteria of the ATO.
- (b) The motion and the visual system of the FFS shall be fully serviceable, in accordance with the applicable certification specifications for FSTD as mentioned in ORA.FSTD.205.

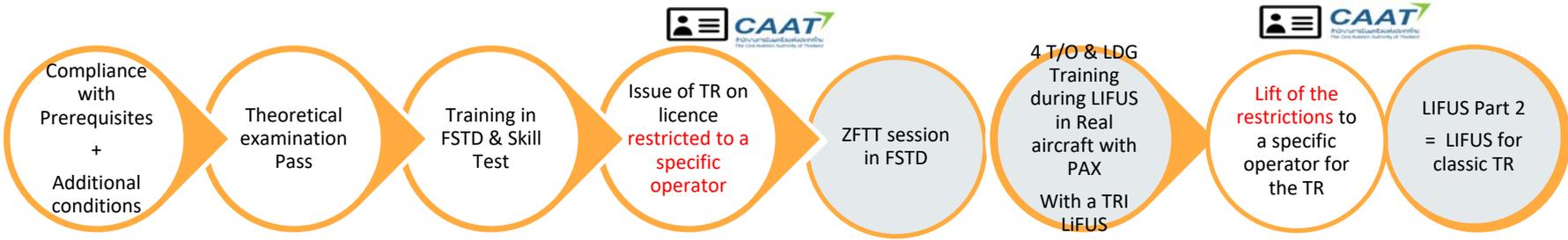
# Zero Flight Time Training - ZFTT

Performed under the operator's responsibility in accordance with Air operations requirements

## Type rating with Landing training



## Type rating ZFTT



# Zero Flight Time Training - ZFTT

**Additional prerequisites** for ZFTT compared to traditional Type rating.

## **FCL 730.A Specific requirements for pilots undertaking a zero flight time type rating (ZFTT) course — aeroplanes**

- (a) A pilot undertaking instruction at a ZFTT course shall have completed, on a multi-pilot turbo-jet aeroplane certificated to the standards of CS 25 or equivalent airworthiness code or on a multi-pilot turbo-prop aeroplane having a maximum certificated take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers at least;
  - (1) if an FFS qualified to level CG, C or interim C is used during the course, 1 500 hours flight time or 250 route sectors;
  - (2) if an FFS qualified to level DG or D is used during the course, 500 hours flight time or 100 route sectors.
- (b) When a pilot is changing from a turbo-prop to a turbo-jet aeroplane or from a turbo-jet to a turbo-prop aeroplane, additional simulator training shall be required.



**Not for First Type rating** and with appropriate experience on a type.

Experience required **depends on the FSTD used** qualification for the ZFTT training.

**Additional training when moving from turbo-prop to turbo-jet** or opposite way.

# Zero Flight Time Training - ZFTT

## On OPS Side:

If a pilot followed a ZFTT training course and was granted a TR (Restricted to the operator) then the **operator conversion course** shall include the **ZFTT session in an FSTD to train to Take-off & Landing in normal operations.**

Then during the LIFUS, the **first 4 T/O & Landings** shall be performed under supervision of a **TRI(A)/r LIFUS.**

## ORO.FC.220 - Operator conversion training and checking

- (e) In the case of aeroplanes, pilots that have been issued a type rating based on a zero flight-time training ('ZFTT') course shall:
  - (1) commence line flying under supervision not later than 21 days after the completion of the skill test or after appropriate training provided by the operator. The content of that training shall be described in the operations manual;
  - (2) complete six take-offs and landings in an FSTD not later than 21 days after the completion of the skill test under the supervision of a type rating instructor for aeroplanes ('TRI(A)') occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT. If those take-offs and landings have not been performed within 21 days, the operator shall provide refresher training the content of which shall be described in the operations manual;
  - (3) conduct the first four take-offs and landings of the LIFUS in the aeroplane under the supervision of a TRI(A) occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT.

# Zero Flight Time Training - ZFTT

**Conditions** for the Flight training during the **ZFTT session in a FSTD:**

- **varying operational conditions** to be considered during the session;
- At least one full-stop landing for **taxiing techniques**

## AMC2 ORA.ATO.125 Training programme

TYPE RATING COURSES – AEROPLANES

FLIGHT TRAINING

(k) Aeroplane training with FFS

(2) courses approved for ZFTT

- (i) During the specific simulator session before line flying under supervision (LIFUS), consideration should be given to varying conditions, for example:
  - (A) runway surface conditions;
  - (B) runway length;
  - (C) flap setting;
  - (D) power setting;
  - (E) crosswind and turbulence conditions; and
  - (F) maximum take-off mass (MTOM) and maximum landing mass (MLM).
- (ii) At least one landing should be conducted as full-stop landing. The session should be flown in normal operation. Special attention should be given to the taxiing technique;

# Zero Flight Time Training - ZFTT

## Licence endorsement for ZFTT

### AMC2 ORA.ATO.125 Training programme

#### TYPE RATING COURSES – AEROPLANES

#### (k) Aeroplane training with FFS

#### (2) courses approved for ZFTT

- (v) The licence endorsement should be entered on the licence after the skill test, but before the first four take-offs and landings in the aeroplane. At the discretion of the CAAT, provisional or temporary endorsement and any restriction should be entered on the licence.

# Zero Flight Time Training - ZFTT

TCAR OPS Part ORO.FC.220 (e) defines **two 21-day periods** to be respected:

- 21 days **between the skill test** and the start of LIFUS
- 21 days **between skill test and the “ZFTT specific simulator session before LIFUS”**.

**Note** : 21-day periods begin on the day of the skill test.

**In case of non-compliance with one of these requirements a related training must be described in AOC OM part D**

## Zero Flight Time Training - ZFTT

**Note 2:** The “ZFTT specific simulator session prior to LIFUS” should be placed as close as possible to the start of LIFUS flights (see [AMC2 ORA. ATO.125 § \(k\) \(3\) \(ii\)](#)). That means, it is not possible to start flights under supervision before the specific ZFTT simulator session, the purpose of which is to consolidate the handling of the aircraft in the take-off and landing phases in order to limit the potential problems that may arise during the first flights under supervision.

## Zero Flight Time Training - ZFTT

**Note 3:** AMC2 ORA. ATO.125 § (k) (2) provides that the ZFTT-specific session shall take place prior to the commencement of LIFUS flights.

This means that if the 21-day period is not respected for point ORO.FC.220 (e)(2), it is not respected for point ORO.FC.220 (e)(1).

That means [“ZFTT specific session in the simulator before LIFUS” + first flight of LIFUS] must be done within **21** days.

# Zero Flight Time Training - ZFTT

**Note 4:** The operator must endeavor to comply with the periods defined in ORO.FC.220 (e) (1) and (2),

Exceedance should not be systematic.

In the event of non-compliance with one of the two deadlines: It is the operator (the airline, not the ATO) that must provide the **appropriate and or refresher training** defined in Part D.

The training programs described in OM-D must be approved by the CAAT

# Zero Flight Time Training - ZFTT

The acceptable “standard” (*short disruption*) in this area can be a simulator session of **2 hours** per trainee (i.e. 4 hours for a pair) during which a review of the fundamentals of TR (**appropriate training**) and/or a revision of the specific ZFTT session (**refresher training**) in the simulator before LIFUS are planned.

Its content is defined by the airline according to:

- The organization chosen by the company for the OCC;
- Delay between the skill test and the specific ZFTT session in the simulator before LIFUS;
- Delay between the specific ZFTT session in the simulator before LIFUS and the start of line flights.

# Zero Flight Time Training - ZFTT

## Conclusion:

The objective of the “**Appropriate Training**” is to maintain or bring the trainee back to the level of skills required at the end of Type Rating (TR) and thus facilitate his on-line operations (revenue flight).

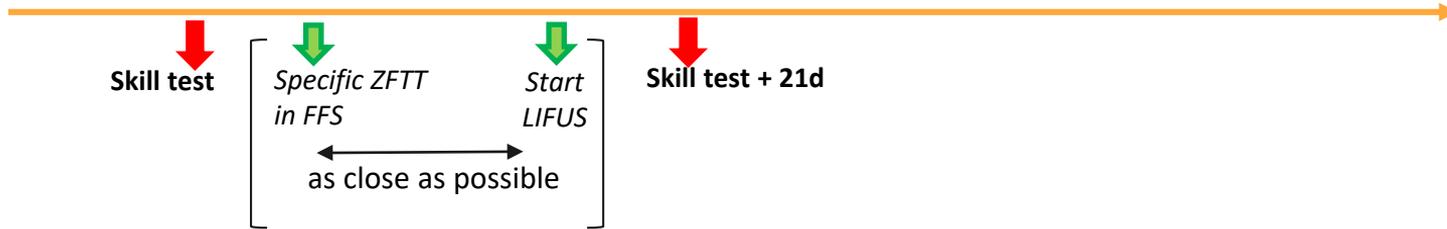
It should therefore recall **normal procedures**, include the treatment of one or more **abnormal situations** and include manual piloting exercises. This session should preferably be carried out with a constituted crew.

Another aspect related to “**Refresher Training**” is to recalled the **skill** to perform safety takeoff and landing in normal operations.

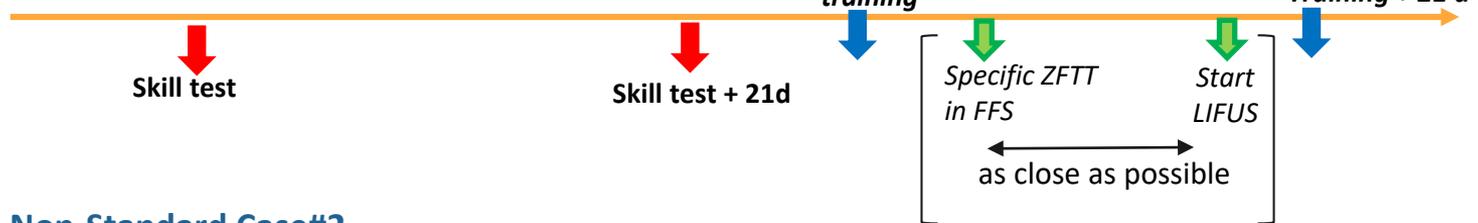
# Zero Flight Time Training - ZFTT

Different cases to be considered

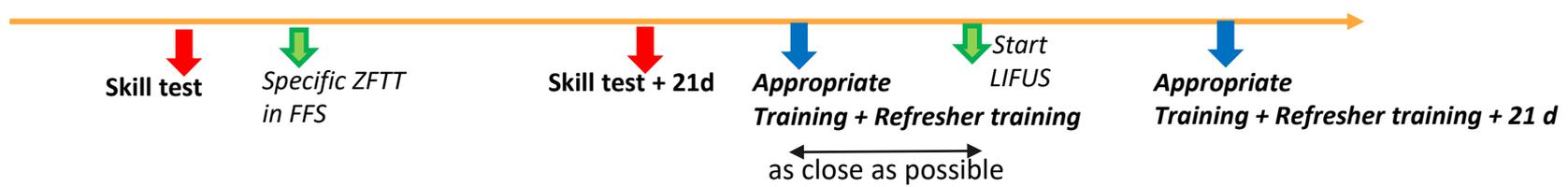
## Standard Case:



## Non-Standard Case#1



## Non-Standard Case#2



After this **appropriate training**, the first flight must take place no later than the end of a further **21-day period**.

## **/i\ Non-Standard Cases:**

Appropriate training and Refresher Training must be described in OM-D and be approved by the CAAT.

If not,

A specific approval must be granted by the CAAT.

### **Example for specific cases:**

- Medical reasons;
- Pandemic;
- Etc.

