



**PC-24**  
THE CRYSTAL CLASS

# **EASA Operational Suitability Data Flight Crew**

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**Pilatus Aircraft Ltd**  
**PC-24**

**Operational Suitability Data (OSD) – Flight Crew**

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## **RECORD OF REVISION**

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## **TABLE OF CONTENTS**

Record of Revision .....	5
Table of Contents .....	7
Acronyms.....	9
Preamble .....	13
1 Introduction .....	13
2 Operational Evaluation PC-24 .....	13
2.1 PC-24 Initial Evaluation.....	13
2.2 Group Composition .....	13
Operational Suitability Data (OSD) – Flight Crew.....	15
1 Aircraft Type Designation and Pilot License Endorsement [M].....	15
1.1 High Performance Aircraft (HPA) Classification .....	15
1.2 Aircraft Type Designation and Pilot License Endorsement .....	15
2 Aircraft Specifics .....	15
2.1 Aircraft Description.....	15
2.2 All Weather / Low Visibility Operations (LVO) .....	15
2.3 Aircraft Approach Category.....	15
2.4 Maximum Altitude for SP Operations.....	15
2.5 Abnormal and Emergency Procedures – SP and MP operations [AMC] .....	16
2.6 Autopilot.....	16
2.7 Airborne Weather Radar .....	16
2.8 Head-Set [AMC] .....	16
2.9 MMEL/MEL – SP operations [M].....	16
2.10 Part-CAT, Subpart D – Instruments, Data, Equipment .....	16
3 Operator Differences Requirements (ODR) [M].....	17
4 Master Differences Requirements (MDR) [M].....	17
5 Specifications for Pilot Training.....	17
5.1 Pilot prerequisites and previous experience.....	17
5.2 PC-24 Initial Type Rating Training .....	17
5.2.1 Theoretical Training .....	17
5.2.2 Practical Training.....	17
5.3 [M] Training Areas of Special Emphasis (TASE) .....	18
6 Line Flying Under Supervision (LIFUS) / Supervised Operating Experience (SOE) / Familiarization Flights .....	18
6.1 Supervised Operating Experience (SOE) following PC-24 initial type rating training.....	18
7 Specifications for Recent Experience .....	19
7.1 Specifications for Recent Experience .....	19
7.2 Currency.....	19
7.3 Recurrent Checking (OPC and LPC).....	19
Appendix 1 .....	21
1 MP to SP Transition .....	21
1.1 Theoretical Training (4 hours) .....	21
1.2 Practical training, normally using an FFS (4 hours) .....	21
2 SP to MP Transition .....	21
2.1 Theoretical Training (4 hours) .....	21
2.2 Flight training, normally using an FFS (2 hours as PF and 2 hours as PNF).....	22
3 Mixed SP and MP operations .....	22
Appendix 2 .....	23

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## **ACRONYMS**

AFM	Airplane Flight Manual
AMC	Acceptable Means of Compliance
AP	Auto Pilot
ATO	Approved Training Organisation
BAZL	Bundesamt für Zivilluftfahrt (CAA Switzerland)
CBT	Computer Based Training
CS-FCD	Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue, 31 January 2014
CRM	Crew Resource Management
CPDLC	Controller Pilot data Link Communication
CS-FSTD(A)	Certification Specifications for Aeroplane Flight Simulation Training Devices of 4 July 2012
Difference Level	A designated level of difference as defined in CS-FCD for the evaluation of pilot training, checking and currency
DU	Display Unit
EASA	European Aviation Safety Agency
EFIS	Electronic Flight Instrument System
EGPWS	Enhanced Ground Proximity Warning System
EICAS	Engine Indication and Crew Alert System
FCL	Flight Crew Licensing
FCOM	Flight Crew Operational Manual
FD	Flight Director
FFS	Full Flight Simulator (Level C or D)
FMS	Flight Management System
FOCA	Federal Office of Civil Aviation (CAA Switzerland)
FSTD	Flight Simulation Training Device
GPWS	Ground Proximity Warning System
HPA	High-Performance Aeroplane
LIFUS	Line Flying Under Supervision
LPC	License Proficiency Check

LST	License Skill Test
MDR	Master Differences Requirements
MFD	Multi-Function Display
MMEL	Master Minimum Equipment List
MP	Multi-Pilot
ODR	Operator Differences Requirements
OSD	Operational Suitability Data
OTD	Other Training Device
Part-ARA	Annex VI to Commission Regulation (EU) No 290/2012 of 30 March 2012 amending Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-ARO	Annex II to Commission Regulation (EU) No 965/2012 of 05 Oct 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-CAT	Annex IV to Commission Regulation (EU) No 965/2012 of 05 Oct 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-FCL	Annex I to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-ORA	Annex VII to Commission Regulation (EU) No 290/2012 of 30 March 2012 amending Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-ORO	Annex III to Commission Regulation (EU) No 965/2012 of 05 Oct 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
Part-SPA	Annex V to Commission Regulation (EU) No 965/2012 of 05 Oct 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (as amended)
PF	Pilot Flying
PFD	Primary Flight Display
PNF	Pilot Not Flying
PM	Pilot Monitoring

QPM	Quiet Power Mode
Route Sector	As defined in Part-FCL [“Route sector“ means a flight comprising take-off, departure, cruise of not less than 15 minutes, arrival, approach and landing phases]
RVSM	Reduced Vertical Separation Minima
SOE	Supervised Operating Experience
SOP	Standard Operating Procedure
SP	Single-Pilot
TASE	Training Areas of Special Emphasis
TAWS	Terrain Awareness and Warning System
TCAS	Traffic Alert and Collision Avoidance System
TCDS	Type Certificate Data Sheet

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## PREAMBLE

### 1 INTRODUCTION

Where references are made to requirements and where extracts of reference texts are provided, these are at the amendment state at the date of evaluation or publication of this document. Users should take account of subsequent amendments to any references, in particular concerning requirement for civil aviation aircrew and air operations.

Determinations made in this document are based on the evaluations of specific configurations of aircraft models, equipped in a given configuration and in accordance with current regulations and guidance.

Major modifications to the aircraft evaluated require additional OSD assessment for type designation, training / checking / currency, operational credits, and other elements within the scope of the OSD evaluations. Minor modification (21.A.263) and upgrades can be evaluated acc. Annex 1 of EU 748/2012 (Part-21) - latest amendment.

In accordance with Regulation (EU) No 748/2012 as amended by Commission Regulation (EU) No 69/2014 of 27 Jan 2014, the Operational Suitability Data contained in this document are identified as follows:

- [M]** Mandatory Operational Suitability Data, bearing the status of rule (see GM No 3 to 21A.15(d)).
- [AMC]** Non-mandatory Operational Suitability Data, bearing the status of Acceptable Means of Compliance (see GM No 3 to 21A.15(d)).

### 2 OPERATIONAL EVALUATION PC-24

#### 2.1 PC-24 INITIAL EVALUATION

An initial operational evaluation for the PC-24 was performed in February/March 2018 by an EASA evaluation team to assess SP and MP type rating qualification requirements.

The operational evaluation was performed in accordance with the Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue, 31 January 2014 as certification basis.

#### 2.2 GROUP COMPOSITION

Name	Organization	Function
Klaus Walkner	EASA	Team Leader
Oluf Heil	EASA	Team Member
Thomas Hartmann	EASA	Team Member

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## OPERATIONAL SUITABILITY DATA (OSD) – FLIGHT CREW

### 1 AIRCRAFT TYPE DESIGNATION AND PILOT LICENSE ENDORSEMENT [M]

#### 1.1 HIGH PERFORMANCE AIRCRAFT (HPA) CLASSIFICATION

With reference to Part-FCL, the PC-24 is designated as High Performance Aircraft (HPA).

#### 1.2 AIRCRAFT TYPE DESIGNATION AND PILOT LICENSE ENDORSEMENT

With reference to Part-FCL, FCL.010 ('type of aircraft') and GM1 FCL.700, the Pilatus PC-24 has been evaluated for aircraft categorisation and license endorsement.

The PC-24 has been classified as a single-pilot high-performance aeroplane requiring a pilot type rating. The license endorsement is established as "PC-24".

#### EASA Type Rating & License Endorsement List – Aeroplanes:

Manufacturer	Aircraft Model / Name	License Endorsement	Variants	Complex	SP/ SP HPA/ MP	OEB FC REPORT / OSD FC available	Remarks
Pilatus Aircraft Ltd.	PC-24	PC-24		X	SP HPA	X	OSD FC PC-24

### 2 AIRCRAFT SPECIFICS

#### 2.1 AIRCRAFT DESCRIPTION

Refer to OEM PC-24 documentation.

#### 2.2 ALL WEATHER / LOW VISIBILITY OPERATIONS (LVO)

PC-24 operations to lower than ILS Category I minima have not been evaluated.

#### 2.3 AIRCRAFT APPROACH CATEGORY

With reference to Part-CAT, CAT.OP.MPA.320(b) the approach category for the PC-24 is as follows:

Aircraft	Category
PC-24	B

This category is based on the approach speed provided by the manufacturer and need to be reconsidered if operators increase the approach speed.

#### 2.4 MAXIMUM ALTITUDE FOR SP OPERATIONS

The aircraft volume is very small and a decompression will lead to a fast reduction of pressure in the cabin and cockpit. When pressurization is lost, the time of useful consciousness without additional emergency oxygen decreases rapidly with increasing operating altitudes.

**[AMC]** Operators should establish a maximum altitude for SP operations when not permanently wearing the oxygen mask.

## **2.5 ABNORMAL AND EMERGENCY PROCEDURES – SP AND MP OPERATIONS [AMC]**

The Emergency / Abnormal procedures in the manufacturer's QRH and AFM, provide guidance to operators and should be followed as closely as possible.

A QRH should be available for all operations.

Operators should ensure that appropriate Standard Operating Procedures (SOP) and realistically achievable Normal, Abnormal and Emergency procedures are available for SP as well as for MP operations.

The SOP should include clear instructions on the termination of a flight in case of an emergency / abnormal situation during SP operations, taking into account the increase of workload for the single pilot. Part-CAT, AMC5 CAT. ORMPA.110(8) contains aerodrome operating minima for SP operations.

**Note:** Normal and abnormal procedures are specifically designed for SP operations, to be conservative and simple, without cumbersome troubleshooting steps for abnormal procedures. Differentiation for MP operations should focus on incorporating the crew coordination of checklist execution in the operator's SOP. The FCOM gives adequate guidance for how to conduct crew coordination during MP checklist operations.

## **2.6 AUTOPILOT**

Part-ORO, ORO.FC.202 contains provisions for SP operations under IFR or at night which include pilot experience and currency, conversion and recurrent training, as well as checking requirements.

In accordance with Part-CAT, CAT.IDE.A.135, an autopilot with at least altitude hold and heading mode is required when operating under IFR in SP operations.

**[AMC]** If, during Single Pilot IFR or Single Pilot night operations, there is total failure of the autopilot system or at least one autopilot is no longer available, the flight should be terminated as soon as practical.

## **2.7 AIRBORNE WEATHER RADAR**

In accordance with Part-CAT, CAT.IDE.A.160 and AMC1 CAT.IDE.A.160, an airborne weather radar is required when operating the PC-24 at night or in IMC in areas where thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather detecting equipment, may be expected to exist along the route.

## **2.8 HEAD-SET [AMC]**

For SP operations, a head-set should be carried for "hands free" communication.

## **2.9 MMEL/MEL – SP OPERATIONS [M]**

With regard to MMEL/MEL, SP operations require specific considerations of some items, such as:

- Both Autopilots are required for dispatch for SP operation;
- Automatic pressurization control is required for dispatch for SP operations.

## **2.10 PART-CAT, SUBPART D – INSTRUMENTS, DATA, EQUIPMENT**

EU operators must show compliance with applicable elements of Annex IV to EU Regulation 956/2012 (Part-CAT, Subpart D), prior to beginning commercial transport operations.

The PC-24 is compliant with Part-CAT, Subpart D.

Operator specific items have not been evaluated. Operators must demonstrate to the competent Authority, compliance with Part-CAT, Subpart D (Instruments, Data, and Equipment) relevant to their aircraft prior to entry into service.



### **3 OPERATOR DIFFERENCES REQUIREMENTS (ODR) [M]**

Reserved.

### **4 MASTER DIFFERENCES REQUIREMENTS (MDR) [M]**

Reserved.

## **5 SPECIFICATIONS FOR PILOT TRAINING**

### **5.1 PILOT PREREQUISITES AND PREVIOUS EXPERIENCE**

**[M]** Part-FCL, FCL.720.A applies regarding experience requirements and prerequisites for type ratings for SP high performance complex aeroplanes and for MP operations. In addition, pilots must have a minimum of 500 hrs. total flying experience when operating a PC-24 as SP or as PIC in MP operations.

**[AMC]** Prior knowledge on advanced EFIS, FMS operation and integrated avionics is recommended for PC-24 initial type rating training. Pilots without this previous experience in such systems should be offered additional training either integrated into the Initial Type Rating course or prior to entry into the training programmes described in this report.

**[AMC]** Pilots with limited or no experience of high performance aeroplanes will benefit from additional training which should be completed before starting the type rating course: a High Performance Airplane Course or ATPL Theory Course will suffice.

**[AMC]** ATOs should have a method of determining if additional training is necessary in case of little or no experience with automatic flying (FMS, PFD, glass cockpit) and/or high performance aeroplanes. This can be accomplished through a pre-screening process or a signed declaration / pre-requisites form by the applicant that verifies automatic flying experience.

**[AMC]** Pilots undergoing training as MP crew should have completed an MCC course, before commencing MP training for a PC-24 type rating.

**[AMC]** For MP operations CRM and MCC aspects should be incorporated throughout the theoretical and practical training.

**[AMC]** ATOs should review their training courses when applicable aircraft modifications occur.

### **5.2 PC-24 INITIAL TYPE RATING TRAINING**

#### **5.2.1 Theoretical Training**

**[AMC]** Theoretical training should include classroom / CBT training and System Integration using a suitable OTD device. 44.5 hours are recommended for classroom / CBT training and 6 hrs are recommended for additional System Integration. Theoretical training should include a method to ensure a level of knowledge and competency.

**[M]** Theoretical training must include the following elements:

- Ground training (G) such as CBT/OTD;
- Systems Integration (SI) training such as in the FTD/OTD;
- Flight training (F) that includes operation of the Flight Management System (FMS) with a suitable device.

**[AMC]** Thorough knowledge of the ACE Honeywell pilot guide is recommended in order to fully understand the avionic system.

#### **5.2.2 Practical Training**

**[M]** SP Operations. Practical training for a PC-24 initial type rating requires of a minimum of 16 hours as PF.

**[M]** MP Operations. When combined with the initial type rating training, practical training for MP operations requires 32 hours which includes, no less than: 16 hours as PF; 4 hours as PM.

**[AMC]** For pilots current on the PC-24 for SP operations, including completion of SOE/LIFUS (if required), practical training for MP operations should be conducted in accordance with Appendix 1.

**[AMC]** Practical training should be performed using an FFS (Level C or D). FFS time may be reduced if other qualified FSTDs are used as described in AMC2.ORA.ATO.125.

### **5.3 [M] TRAINING AREAS OF SPECIAL EMPHASIS (TASE)**

All TASE items must be included in initial and in recurrent training, unless specified otherwise.

TASEs must receive special emphasis as indicated, during

- Electronic Displays, normal, reversionary and degraded operations
- Computerized AFM Data, mass and balance
- OEI operation and engine failure in different flight phases, including transition between manual and automatic flying
- Primary Flight Display (PFD), Flight Director (FD)
- Flight Management System (FMS)
- Flight Path Vector vs. Flight Director
- Electronic Checklist (Normal and Non-Normal procedures)
- Autothrottle operations
- Abnormal Flightcontrols, i.e. flap failures
- Weather Radar function on ground and in flight
- Rudder Bias and Yaw-Damper function
- MFD Dropdown Menu
- VNAV operation
- Handling of Emergency Brake

## **6 LINE FLYING UNDER SUPERVISION (LIFUS) / SUPERVISED OPERATING EXPERIENCE (SOE) / FAMILIARIZATION FLIGHTS**

LIFUS should be performed in accordance with ORO.FC.220 and AMC1 ORO.FC.220(e). Furthermore, GM1 ORO.FC.220(d) provides guidelines for operators to use when establishing their individual requirements.

Supervised Operating Experience (SOE) may be established in accordance with Part-FCL, FCL.720.A (g) through the operational suitability evaluation.

**[AMC]** In addition to the license and experience prerequisites the SOE/LIFUS requirements in the table below shall be met.

**[AMC]** Where there is a change of operating conditions or route structure this should be taken into account and may need additional route sectors to cover these elements.

### **6.1 SUPERVISED OPERATING EXPERIENCE (SOE) FOLLOWING PC-24 INITIAL TYPE RATING TRAINING**

**[M]** In accordance with Part-FCL, FCL.720.A (g) the exercise of the privileges of the PC-24 type rating for SP operations or MP operations as PIC, is initially limited to flight under supervision by a pilot current on the PC-24 as follows:

	License and previous experience requirements	SOE / LIFUS
SP Operations or MP Operations as PILOT IN COMMAND (PIC)	ATPL(A) and previous turbo-jet aircraft type rating	none
	PPL / CPL / ATPL(A); and ME Rating + IR Rating; and Minimum of 1000hrs. total flying experience	25 hrs
	PPL / CPL / ATPL(A); and ME Rating + IR Rating Min. 500hrs total flying experience	50 hrs
MP Operations as CO-PILOT	PPL / CPL; and ME Rating + IR Rating Min. 200hrs total flying experience Min. 70Hrs PiC License endorsement: "Co-Pilot only"	0 Hrs

Flight hours under supervision shall be entered in the pilot's logbook or equivalent record and signed by the supervising pilot. The limitation is removed when the pilot demonstrates that the required hours of flight under supervision have been completed.

If the training course and skill test have been performed in MP operation, the type rating should be restricted to "MP operations only".

No SOE requirements have been established for MP operations as co-pilot.

**[AMC]** Flights under supervision should include a representative cross-section of the normal operation of the aircraft.

**[AMC]** SOE may be replaced by an equal number of flight hours of LIFUS (as PF) when engaged in commercial air transport operations.

## **7 SPECIFICATIONS FOR RECENT EXPERIENCE AND CURRENCY**

### **7.1 SPECIFICATIONS FOR RECENT EXPERIENCE**

Recent experience requirements are contained in Part-FCL.

### **7.2 CURRENCY**

Requirements are contained in Part-FCL.060 and Part-ORO.FC.230.

Differences Currency is not applicable.

### **7.3 RECURRENT CHECKING (OPC AND LPC)**

Recurrent checking is addressed in Part-ORO, specifically in ORO.FC.130, ORO.FC.220, ORO.FC.230, AMC1 ORO.FC.230, GM1 ORO.FC.230, ORO.FC.240, and AMC1 ORO.FC.240.

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## **APPENDIX 1**

### **[AMC] PC-24 Transition Training SP to MP (and vice versa)**

The following syllabus contains a minimum training for pilots when transitioning from MP to SP or from SP to MP operations.

#### **1 MP TO SP TRANSITION**

The theoretical knowledge instruction shall be conducted by an authorized instructor holding the appropriate type/class rating or any instructor having appropriate experience in aviation and knowledge of the aircraft concerned, e.g. flight engineer, maintenance engineer or flight operations officer and shall cover the applicable syllabus, as appropriate.

##### **1.1 THEORETICAL TRAINING (4 HOURS)**

The transition course should start with theoretical training to address the following subjects:

- SP psychology, decision making, communications and limitations;
- SP task, resource and workload management and personal organization;
- SP operation and management of avionics suite, including charts and ECL, as applicable;
- Differences between MP and SP Abnormal and Emergency procedures;
- Emergency Phraseology; and
- SP operations in icing conditions.

##### **1.2 PRACTICAL TRAINING, NORMALLY USING AN FFS (4 HOURS)**

The practical training should include the following subjects:

- Use and setup of avionics suite, PFD and MFD, including selection of display
- Use of Flight Director and Autopilot, monitoring of modes;
- Engine failure after take-off;
- In flight restart of failed engine;
- Operation of TCAS;
- Sequencing of CAS messages regarding subsequent/secondary failures;
- Loss of cabin pressure control and Emergency Descent procedures;
- Instrument flying on standby instruments;
- Failure of trim system;
- Smoke procedures, including smoke removal;
- Approaches/Landing with reduced flap setting;
- Approaches/Landing with failed engine;
- Engine Fire on the Ground;
- Emergency Evacuation; and
- Use of the ECL, if applicable.

#### **2 SP TO MP TRANSITION**

MCC procedures should be defined in the operations manual and be introduced during the transition training.

##### **2.1 THEORETICAL TRAINING (4 HOURS)**

The transition course should start with theoretical training to address the following subjects:

- Multi Crew psychology, decision making, communications and limitations;
- Multi Crew task, resource and workload management and organization, MCC procedures;
- MP operation and management of avionics suite, including ECL/optional and Charts;
- Differences between SP and MP Abnormal and Emergency procedures;

- Emergency Phraseology;
- MP operations in icing conditions.

## **2.2 FLIGHT TRAINING, NORMALLY USING AN FFS (2 HOURS AS PF AND 2 HOURS AS PNF)**

The flight training should address the following subjects:

- Use and setup of avionics suite, PFD and MFD, including selection of display
- Use of FD and AP; monitoring of modes;
- MCC Procedures;
- Operation of TCAS;
- Sequencing of CAS messages regarding subsequent/secondary failures;
- Loss of cabin pressure control and Emergency descent procedures;
- Instrument flying on standby instruments;
- Smoke procedures, including smoke removal;
- Trim failure;
- Engine Fire on the Ground;
- Emergency Evacuation; and
- Use of ECL, if applicable.

## **3 MIXED SP AND MP OPERATIONS**

Training should also address aspects of mixed SP and MP operations by the same pilot.

## APPENDIX 2

Day 1	Day 2	Day 3	Day 4	Day 5
Classroom	Classroom	Classroom	Classroom	Classroom
Day 6	Day 7	Day 8	Day 9	Day 10
Classroom	Classroom	Classroom	Classroom	Theoretical Knowledge Exam
Day 11	Day 12	Day 13	Day 14	Day 15
FFS 1	FFS 2	FFS 3	FFS 4	FFS 5
Day 16	Day 17	Day 18	Day 19	Day 20
FFS 6	FFS 7	Skill Test		

All FFS must be completed in a Level C or D simulator.

System Integration Training should be arranged according Training Schedule.

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