PC-12 SERIES AIRPLANE
EASA OPERATIONAL SUITABILITY DATA (OSD)
FLIGHT CREW (FCD)

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LOG OF REVISIONS

Revision Number and Date	Page Number	Description
Initial Issue 06 Nov 15		Initial Pilatus PC-12 OSD FC evaluation

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ACRONYMS

ATO	Approved Training Organisation
BAZL	Bundesamt für Zivilluftfahrt (CAA Switzerland)
CS-FCD	Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue, 31 January 2014
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
FD	Flight Director
FFS	Full Flight Simulator
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
MDR	Master Differences Requirements
MFD	Multi-Function Display
ODR	Operator Differences Requirements
OSD	Operational Suitability Data
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-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
SET	Single-Engine Turbo-Prop
SP	Single-Pilot
TASE	Training Areas of Special Emphasis
TAWS	Terrain Awareness and Warning System
TCAS	Traffic Alert and Collision Avoidance System

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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.

Modifications and upgrades 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.

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))

The content of this document constitutes non-mandatory recommended data unless specifically identified as mandatory element "**[M]**".

2 OPERATIONAL EVALUATION PC-12

In the absence of an operational evaluation at the entry into service of the PC-12, a type-rating requirement was established by the JAA. Regulation (EU) No 748/2012 as amended by Commission Regulation (EU) No 69/2014 of 27 Jan 2014, requires that Operational Suitability Data for Flight Crew are established for aircraft requiring a type-rating when intended to be delivered to an EU operator on or after 17 February 2014.

An operational evaluation of the PC-12 models was conducted as a catch-up evaluation by EASA on 02-06 November 2015 in accordance with CS-FCD as certification basis, and the relevant requirements for pilot licensing and air operations which were applicable at the time of the evaluation.

The evaluation included an assessment of training documentation and of the type rating training syllabus for the PC-12/47E as approved by FOCA, as well as a review of relevant safety reports for SET aircraft. A partial T-5 test including the PC-12/47E aircraft was conducted at Pilatus in Stans. Differences between PC-12 models were reviewed.

The operational evaluation showed that pilot knowledge and skill required to operate the PC-12 models is consistent with requirements for the operation of SET class rating aircraft. Consequently, the PC-12 models were (re-)designated within the SET class rating.

In the following, the term "PC-12" refers to all PC-12 models, unless specifically indicated.

3 OPERATIONAL SUITABILITY DATA (OSD) – FLIGHT CREW

3.1 Aircraft Type Designation and Pilot License Endorsement [M].

With reference to Part-FCL, FCL.010 ('type of aircraft') and GM1 FCL.700, the Pilatus PC-12 has been evaluated for aircraft categorisation and license endorsement.

The PC-12 series models have been identified as variants, requiring differences or familiarization training as referenced in this document. The PC-12 has been classified as a single-pilot high-performance aeroplane within the class rating SET. The license endorsement is established as "Pilatus PC12 SET".

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	PC-12/47E (PC-12 NG) PC-12 PC-12/45 PC-12/47	Pilatus PC12 SET	X	—	SP HPA	X	Class Rating SET OSD FC PC-12, dated 07 Nov 2015

3.2 Aircraft specifics

3.2.1 Aircraft Description

The PC-12/47E is a single-pilot certified aircraft with a MTOW of 4740kg. It is equipped with a Pratt & Whitney Canada PT6A-67P engine, flat-rated at 1,200 SHP and a 4 or 5 blade Hartzell constant speed, full-reversing propeller. It has a 330 cubic foot pressurized passenger cabin with seating for up to 9 passengers, a maximum range of 1,800 nautical miles and a 280 knot maximum cruise speed. A high-lift wing provides good short-field performance. The retractable trailing-link landing gear supports grass and unimproved field operation. It has a standard forward passenger door and a large aft cargo door. The aircraft is equipped with a Honeywell Primus Apex avionics suite including two Primary Flight Displays (PFDs) and two Multi-Function Displays (MFDs), incorporating SmartView, a synthetic vision system. The PC-12 is certified for flight into known icing conditions.

Older models of the PC-12 include the PC-12, the PC-12/45 and the PC-12/47 of different MTOW, all equipped with a Pratt & Whitney Canada PT6A-67B engine and different avionics equipment to the PC-12/47E.

3.2.2 All Weather / Low Visibility Operations (LVO)

PC-12 operations to lower than ILS Category I minima have not been evaluated.

3.2.3 Aircraft Approach Category

With reference to Part-CAT, CAT.OP.MPA.320(b) the approach category for the PC-12 is as follows:

Aircraft	Category
PC-12 models	**A**

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

3.3 Operator Differences REQUIREMENTS (ODR)

Generic differences between PC-12 models were reviewed by EASA, not including optional items that are applicable to particular operators.

Differences between the Pilatus PC-12 and other aircraft within the same class rating SET have not been evaluated.

4 MASTER DIFFERENCES REQUIREMENTS (MDR) [M]

MDR tables for the PC-12 variants are shown below.

Master Differences Requirement (MDR) Table					
	FROM AIRPLANE				
TO AIRPLANE		PC-12/47E (PC-12 NG)	PC-12/47	PC-12/45	PC-12
	PC-12/47E (PC-12 NG)	- - -	D / D / D	D / D / D	D / D / D
	PC-12/47	D / D / D	- - -	B / A / A	B / A / A
	PC-12/45	D / D / D	B / A / A	- - -	B / A / A
	PC-12	D / D / D	B / A / A	B / A / A	- - -

Definitions of the various levels for Training / Checking / Currency are those used in CS-FCD and apply to the PC-12 models as follows:

Level B differences training for PC-12 models are accomplished through aided instruction (e.g. instructor led or using CBT).

Level A differences checking for PC-12 models indicate that no check related to differences is required.

Level A currency for PC-12 models indicates that no separate maintenance of currency is required for an individual variant.

Level D training for PC-12 models is accomplished using an FFS or aeroplane of the relevant variant for the acquisition of knowledge and skill.

Level D checking for PC-12 models is accomplished by demonstration of proficiency in the particular differences, using an FFS or aeroplane of the relevant variant.

Level D currency is accomplished by operating the relevant variants on a recurrent basis.

5 SPECIFICATION FOR PILOT TRAINING

5.1 PC-12/47E Initial Class Rating Training

A personal Pilot Operating Handbook (POH), a Quick Reference Handbook (QRH) and a shortened Pilot Check List (PCL) should be used for training. A personal iPad with PDF Documents is also suitable.

5.1.1 Prerequisites

Pilots must meet the prerequisites mandated by Part-FCL, including requirements for the operation of High Performance Aeroplanes.

5.1.2 Theoretical Training

Theoretical training requires 7 days and should include 49 hours for pilots without previous experience in aircraft of similar equipment and/or performance.

Theoretical training should include the following elements:

- Honeywell Primus Apex System
- FMS (incl. database up-/down-load)
- Airplane and systems description (incl. airframe, flight controls, landing gear, engine and engine control, manual override (MOR), propeller, de-ice system, fuel, lighting, stall warning / pusher system, electrical power system, Environmental Control System – ECS, ACS and VCCS, Cabin Pressurization Control System – CPCS, pitot-static system, Air Data and Attitude and Heading Reference System – ADAHRS, comfort and cabin features, oxygen system, aural system, Aircraft Condition Monitoring System and Aircraft Diagnostic and Maintenance System)
- Performance & Flight Planning Limitations
- Weight & Balance
- Normal Procedures (using Flight Training Device or cockpit mock-up)
- Emergency procedures
- Automatic Flight Control System (AFCS)
- Interactive Navigation (INAV)
- Electronic Checklist (ECL), if applicable
- TCAS, TAWS, EGPWS
- WX radar

5.1.3 Practical Training

Practical training should be performed either in aircraft or an FFS. Complimentary training may be performed in an FTD and credit for practical training may be given if the FTD is qualified.

Practical training should include a block time of not less than 10 hours (aircraft and/or FFS), including basic VFR training (approx. 4 hours) and IFR training (approx. 6 hours) as PF for pilots without previous experience in aircraft of similar equipment and/or performance.

Weather, airspace availability, airport slots and also pilot experience and performance will affect the actual time required.

Practical training should include the following elements, as far as practicable:

Basic VFR training:

- SPA airmanship, limitations, airspeeds
- Weight and balance calculation, manual method and with iPad Application (as applicable)
- Performance calculation, manual method and with iPad Application (as applicable)
- Handling and servicing on ground, Outside check, Fueling, Fuel additive, Oil, Use of external power, Fire extinguisher, Cabin installation, Cargo loading and Pax door
- Aircraft preparation, Cockpit familiarization, Pilot seat, Foot position, Use of flap lever, Use of checklist including electronic checklist, Electrical power up and shut down, PFD, ADI, HSI, COM, NAV, MFD, FMS, INAV, ECS, CPCS, AFCS
- Engine start (internal and external PWR), use of PCL, CL, Taxi, Before departure, Line up, Standard take-off, Climb (Vx, Vy)
- VFR maneuvering, Turns, Trim change, Slow flight, Approach to stall, Stalls with stick pusher activation, DSB / FPS / Acceleration chevron (if installed)
- Cruise, Cruise Performance, Use of AFCS
- Descent planning and profiles
- Simulated circuits, Standard circuits, Touch and go landing, Go around and Full stop landing. Short field take-off and landing, Zero flaps landing, Crosswind landing
- CPCS Mode's, Max. altitude climb, Decompression, Pusher Ice Mode, Windshield heat, Elect Heat and Cool, VCCS (ACS), Fans, OXY system, Max rate descend
- Rejected Take-off, Turnback drills, Simulated forced landing, Engine shut down and restart (if practicable), use of MOR, LDG Emergency extension, Simulated electrical failures, DU reversion modes
- Recovery from unusual attitudes
- DEMO IFR APCH

IFR training:

- IFR airmanship,
- ATC Flight plan, ICAO Flight plan PC-12 specifics
- IFR Flight preparation, Checklist, Standby bus, FMS / INAV Route, SID, STAR, APP selection, COM and NAV equipment setting
- Taxi and Before Departure, Line up, Departure phase of flight
- Enroute phase, Cockpit organization (charts),
- Approach briefing and avionic setting, Descent, Initial approach and approach phase
- IFR Approaches flown with and without AFCS: Precision Approach, Non Precision Approach, LPV and/or LNAV/VNAV Approach, Circling Approach
- Missed Approach Procedure, Diversion to Destination Alternate
- Abnormal training: Reduced panel, DU failure
- Recovery from unusual attitudes
- Introduction to VNAV

- Introduction to Performance Based Navigation (PBN), RNAV vs RNP, GNSS, Augmentation Systems

5.2 PC-12 Differences Training

Differences training should be based on a comprehensive list of differences and address all elements at an adequate level.

5.2.1 PC-12 Differences Training from any PC-12 model to the PC-12/47E

Differences training to the PC-12/47E require 4 days and should include 28 hours of training, including theoretical and aircraft or FFS practical training.

5.3 Training Areas of Special Emphasis (TASE)

The following items should receive special emphasis during theoretical and practical training:

- Honeywell Primus APEX avionics suite, FMS and associated functions (incl. SmartView, if installed), for the PC-12/47E
- Procedures for engine-failure;
- Operation of WX radar, if installed;
- Operation in cold weather and flying in icing conditions;
- Short field operation;
- Aircraft loading configurations (e.g. for cargo).

6 SPECIFICATIONS FOR RECENT EXPERIENCE AND CURRENCY

6.1 Specifications for Recent Experience

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

6.2 Currency

Operators should consider maintenance of currency through operating variants at regular intervals when operating both the PC-12/47E and other PC-12 models, or when operating the PC-12 and other SET aircraft within the same class rating.