

UNITED KINGDOM CIVIL AVIATION AUTHORITY

Number: FA 80
Issue: 2
Date: June 2020
Type: Pilatus PC-21
Variants: MSNs 310 and 311

TYPE CERTIFICATE DATA SHEET NO. FA 80

This data sheet which is part of CAA Type Certificate No. FA 80 prescribes conditions and limitations under which the Annex I product for which the type certificate was issued, meet the airworthiness requirements of the Civil Aviation Authority.

TYPE CERTIFICATE HOLDER (AND ADDRESS):

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MANUFACTURER (AND ADDRESS):

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AIRCRAFT TYPE DESIGNATION:

Pilatus PC-21

VARIANT/MODEL:

Pilatus PC-21 Configuration 9, MSNs 310 and 311

SECTION 1: TYPE CERTIFICATION

I. General

1. CAA Validation Application Date: February 2017
2. Airworthiness Category: US 14 CFR Part 23 ("FAR 23") Acrobatic Category
US 14 CFR Part 23 ("FAR 23") Utility Category
3. CAA Approval: Airworthiness Approval Note 29477

II. Certification Basis

1. Airworthiness Code: Swiss FOCA Type Certification Data Sheet F 56-35:

US Federal Aviation Regulation Part 23, Acrobatic Category, including amendments 23-1 through 23-54, effective December 13th, 2000.
US Federal Aviation Regulation Part 23, Utility Category, including amendments 23-1 through 23-59, effective December 23rd, 2009, as defined in CRI A-1.

Swiss Regulation 748.215.1 dated 18. September 1995 regarding aircraft airworthiness (Verordnung über die Lufttüchtigkeit von Luftfahrzeugen –VLL).

Swiss Regulations 748.215.3 dated 10. January 1996 regarding emissions from aircraft (Verordnung über die Emissionen von Luftfahrzeugen –VEL).
ICAO Annex 16, Chapter 10.
2. Certification Review Items:
 - Regulations: FOCA No. A-1, A-3, A-4, A-5, A-6.
 - Special Conditions: FOCA No. A-2, B-2, C-1, C-3, C-4, C-5, C-8, C-9, C-10, D-2, D-4, D-6, D-9, D-10, D-12, E-1, F-5, F-6, F-7, F-9, H-1, H-3.
 - Equivalent Safety Findings: FOCA No. B-1, B-3, B-4, D-1, D-3, D-5, F-13, G-1, G-3, H-2.
 - Deviations: FOCA No. C-2, C-6, D-8, D-13, F-10, H-4, H-5.
 - Reversions: Nil
3. CAA Validation Certification Action Items: CAI No. 00-01, 00-02, 00-03, 00-04, 00-05, 00-06, 00-07.

III. Technical Characteristics and Operational Limitations (see Note 2)

1. Type Design Definition: Pilatus PC-21 P/N 500.00.21.310 and P/N 500.00.21.311
2. Basic Description: The PC-21 is a single engine, low-wing swept monoplane with a stepped tandem cockpit.
The primary structure is aluminum and elements of the secondary structure are made of composite material.
The aircraft is intended for the following roles:
 - Basic Flying Training
 - Advanced Flying Training
 - Mission System Management Training in the Fighter Lead-in Role

The aircraft also features the ability to carry underwing hardpoints, to enable installation of external stores including Underwing Fuel Tanks (UWT) or External Smoke Generators (ESG) (**see Note 4**).

3. Equipment: Refer to Airplane Flight Manual

4. Dimensions:

Span	9.108 m	(29 ft 11 in)
Length	11.233 m	(36 ft 11 in)
Height	3.749 m	(12 ft 4 in)
Wing Area	15.221 m ²	(163.848 ft ²)

5. Engine: Pratt & Whitney Canada PT6A-68B turboprop engine.
TCA TC E24

Engine Limits: Refer to Airplane Flight Manual

6. Auxiliary Power Unit Not applicable

7. Propeller: The propeller is a variable pitch, feathering propeller, non-reversing with composite blades, aluminum hub and composite spinner.

Type: HC-E5A-2 hub with 5 Hartzell E9193B or E9193K blades, constant speed type.
FAA TC P20NE

Propeller Limits: Refer to Airplane Flight Manual

8. Fluids and Capacities (Fuel/Oil/Additives):

Fuel: Acceptable fuels according to Pratt & Whitney Canada Specification (P&WC Service Bulletin No. 18104)

Oil: (Engine and Gearbox) Oils meeting the requirements of specification MIL-L-23699, Type II (5 Centistokes) or specification PWA521, Type II (5 Centistokes), are fully approved (P&WC Service Bulletin 18101).

9. Fuel Capacities: The fuel system is fully automatic and maintains fuel supply during all operations. Fuel is contained in two integral wing tanks with a total usable capacity of 675 litres (178 Imp Gal).

[The acrobatic tank allows 45 seconds of inverted flight, at less than zero g.]

Each additional optional Underwing Tanks, when installed, has a usable capacity of 250 litres (66 Imp Gal) (**see Note 4**).

10. Air Speed Limitations: Equivalent Air Speeds (EAS) at maximum operating weights in Acrobatic and Utility Category:

Max. operating speed (VMO)	370 kt
Max. operating Mach no. (MMO)	0.72 M
Design diving speed (VD)	420 kt
Design diving Mach no. (MD)	0.77 M
Design cruising speed (VC)	370 kt
Maneuvering speed (VO) ailerons	370 kt
Maneuvering speed (VO) rudder, elevator	220 kt
Max. speed with flaps and/or L/gear extended (VFT, VFL, VLE)	180 kt

11. Maneuvering Load Factor Limits (g)
- | | | |
|--|---|---------|
| | <u>In the Acrobatic Category (clean wing and with 2 ESGs)</u> | |
| | Max. positive | + 8.0 g |
| | Max. negative | - 4.0 g |
| | <u>In the Utility Category (with 2 UWT)</u> | |
| | Max. positive | + 5.0 g |
| | Max. negative | - 2.5 g |
| | With flaps extended in take-off or land position | |
| | Max. positive | + 4.0 g |
| | Max. negative | 0 g |
12. Maximum Operating Altitude: Refer to Airplane Flight Manual
13. All weather Capability: Category 1
14. Maximum Weights: (see Notes 1 and 4)
- | | | | |
|--|--|---------|-----------|
| | <u>In the Acrobatic Category (clean wing and with 2 ESG)</u> | | |
| | Max. ramp weight | 3120 kg | (6878 lb) |
| | Max. take-off weight | 3100 kg | (6834 lb) |
| | Max. landing weight | 3100 kg | (6834 lb) |
| | Max. zero fuel weight | 2750 kg | (6062 lb) |
| | Min. flying weight | 2330 kg | (5136 lb) |
| | <u>In the Utility Category (with 2 UWT)</u> | | |
| | Max. ramp weight | 3620 kg | (7964 lb) |
| | Max. take-off weight | 3600 kg | (7937 lb) |
| | Max. landing weight | 3600 kg | (7937 lb) |
| | Max. zero fuel weight | 2750 kg | (6062 lb) |
| | Max. weight of stores | 500 kg | (1100 lb) |
- For the weight limitations for a particular aircraft, refer to the Airplane Flight Manual.
15. Centre of Gravity Range: Refer to Airplane Flight Manual
16. Centre of Gravity Datum: 3000 mm in front of the firewall
17. Mean Aerodynamic Cord (MAC): 1.785 m (7 ft 0.3 in) MAC
(Per the Airplane Flight Manual)
18. Leveling Means: Marks (colored rivet heads) on each side of the fuselage.
19. Minimum Flight Crew: One pilot (Solo Flight is limited to front cockpit). 2 pilots are required for civil IFR operations if no autopilot is installed.
20. Maximum Approved Passenger Seating Capacity: The PC-21 has a tandem cockpit seating for pilot training. The rear seat can be used as a passenger seat.
21. Exits: The PC-21 is provided with a single, right hand hinged, side opening canopy assembly.

22. Baggage/Cargo Compartments: Baggage compartment in the AFT fuselage left hand side: Maximum 25 kg (55 lb) at 7100 mm

IV. Operating and Service Instructions

1. Aircraft Flight Manual: FOCA Approved Airplane Flight Manual Pilatus PC-21 MSN 101 AND UP (incl. Equipment List and applicable Supplements) - Report No. 02255
2. Aircraft Maintenance Manual: Report No. 02257 (Airworthiness Limitations Section FOCA approved)
3. Structural Repair Manual (SRM): Report No. 02258
4. Illustrated Parts Data (IPD): Report No. 02259
5. Placards: All required placards must be installed in the proper locations.
6. Service Life Limits: Life limited airplane components are listed in the Chapter 5 of the Aircraft Maintenance Manual (AMM), and must be replaced as indicated therein (see Note 2)

V. Notes

1. Current weight and balance data, loading information, and a list of equipment included in empty weight must be provided for each aeroplane.
a) Basic empty weight includes engine oil of 19 kg (35 lb) at 1.718 m (65 in).
2. The Aircraft Flight Manual for each aircraft acts as the master reference document for operating limitations for that aircraft.
3. Airworthiness Limitations are contained in the FOCA approved Airworthiness Limitations Section in the Chapter 5 of the PC-21 Aircraft Maintenance Manual (AMM). These Limitations may not be changed without FOCA approval.
This section contains mandatory maintenance actions called Certification Maintenance Requirements (CMR), which must be performed at specific intervals to compensate for latent failures, as identified during the System Safety Assessment process.
4. MSN 310 and 311 approved for clean-wing configuration only under basic approval of CAA AAN 29477. CAA acceptance of underwing hardpoint use to be addressed through Modification process.