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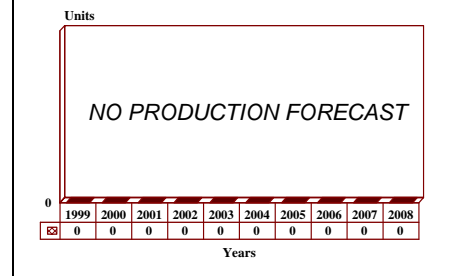
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Pilatus PC-7 Turbo Trainer - Archived 9/2000

Outlook

- No announced backlog; demand appears to have shifted to more advanced PC-9
- Pilatus expected to focus on PC-9 and PC-12 programs; no additional PC-7 production anticipated

10 Year Unit Production Forecast
 1999-2008



Orientation

Description. Single-engine, turboprop-powered basic/primary military training aircraft.

Sponsor. Pilatus.

Contractors. Pilatus Flugzeugwerke AG, Stans, Switzerland.

Status. Production complete. No additional orders anticipated.

Total Produced. Pilatus produced an estimated 511 PC-7s through 1998.

Application. Military primary, transition and aerobatic training.

Price Range. PC-7 Mk II estimated at \$2.6 million, fully equipped, in 1998 US dollars.

Technical Data

Design Features. Tandem-seat, cantilever low wing monoplane with conventional cantilever tail section; all of metallic construction. Some non-structural airframe components are fabricated in glass-reinforced plastic. Retractable tricycle landing gear is electrically actuated. Canopy slides rearward and is constructed of Plexiglas.

	<u>Metric</u>	<u>US</u>
Dimensions		
Length overall	9.775 m	32.072 ft
Height overall	3.21 m	10.528 ft
Wingspan	10.4 m	34.122 ft
Weight		
Basic weight, empty	1,330 kg	2,933 lb
Max gross weight (with underwing stores)	2,700 kg	5,952 lb

Performance

Max speed	500 km/h	270 kt
Ceiling (with underwing stores)	7,925 m	26,000 ft
Range ^(a)	2,630 km	1,420 nm

Propulsion

PC-7	(1)	UTC Pratt & Whitney Canada PT6A-25A axial-centrifugal turboprop engine, flat-rated to 410 kW (550 shp) (at S/L), driving a Hartzell three-bladed, constant speed, fully feathering propeller.
PC-7 Mk II	(1)	PT6A-25C turboprop, 522 kW (700 shp), driving four-bladed Hartzell constant speed, fully feathering propeller.

Seating

Tandem seating for student and instructor.

Armament

Six underwing hardpoints, stressed for loads of 250 kg (551 lb) on inner points, 160 kg (353 lb) on center points, and 110 kg (242.4 lb) on outside points. Center hardpoints are wet for carrying auxiliary fuel tanks.

^(a)At cruise power at 5,000 m (16,400 ft), 5 percent plus 20 minute reserves, in utility category (with underwing stores).

Variants/Upgrades

PC-7 Mk II. Variant ordered by South African Air Force and Brunei, this incorporates Martin-Baker ejection seats from PC-9 and two hardpoints in place of the standard six. Since 1996, it was built from common fuselage as PC-9.

Program Review

Background. The PC-7 has been one of three premier turboprop-powered primary military training aircraft in the Western world. The other two are the Beech T-34C and EMBRAER EMB-312 Tucano. Begun in the mid-1960s, the PC-7 was part of a Pilatus program to greatly improve the performance of existing piston-powered military primary/basic trainers. Subsequently, the company retrofitted one of its piston-powered P-3 trainers with a Pratt & Whitney Canada PT6A-20 turboprop engine. This aircraft, as the prototype PC-7, first flew in April 1966. However, Pilatus was several years ahead of its time. Lack of market interest resulted in cancellation of the program near the end of 1968.

The upward spiral of fuel prices began with the Arab oil embargo of 1973-1974, the appearance of Beech's T-34C, and the increasing obsolescence of existing trainers of the time served to revive interest in the PC-7. A second converted P-3 was flown May 12, 1975, with a fully aerobatic PT6A-25 for power. Flight testing was completed by the fall of 1977, and certification was gained December 5, 1978.

The PC-7, which is intended for basic, transition, and aerobatic training, fully meets FAR 23 requirements, and is designed to comply with USAF specifications. The aircraft's fuel system permits 30 seconds of inverted flight and the Turbo-Trainer is reported to have excellent spin recovery characteristics. For tactical training roles, the PC-7 can carry up to 1,040kg (2,293 lb) of external stores on six underwing hardpoints. A joint development of Pilatus and Martin-Baker, the lightweight Mk 15 ejection seat is available for retrofit to previously built PC-7s. The Mk 15 permits ejection at 300 kt and at 32,000 ft, as well as at 60-kt speeds at low level.

Sales Success. The air forces of more than a dozen nations have purchased PC-7s; customers and order totals are as follows: Angola (25), Austria (16), Bolivia (24), Bophuthatswana (3), Botswana (7), Brunei (4), Chile (10), France (5), Guatemala (12), Iran (35), Iraq (52), Malaysia (46), Mexico (88), Myanmar (17), the Netherlands (13), South Africa (60), Surinam (3), Switzerland (40), Uruguay (6) and the UAE (24).

Additional aircraft have been sold to air arms of unidentified nations. In addition, CIPRA of France has bought two, while Swissair and a private US owner have each ordered one aircraft. Three are leased to the Martini beverage company which sponsors a competitive aerobatic demonstration team.

African Air Force (SAAF) requirement. In June 1993, the SAAF selected this aircraft as the replacement for approximately 100 World War II-vintage piston-powered T-6 Harvard trainers, placing an order for 60 units. Initial deliveries took place in late 1994 and the order was completed at the end of 1996. An additional four aircraft were ordered by and delivered to Brunei.

Upated Mk II. In 1992, Pilatus launched development of the uprated Mk II variant, aimed at a large South

Recent Contracts

None noted.

Funding

Not available.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Spring	1975	Program announced
	1976-77	Prototype flight testing
Dec	1978	FAR 23 certification and initial deliveries
Aug	1983	FAA aerobatic certification obtained
Jun	1993	SAAF ordered 60 aircraft
Late	1994	Initial SAAF deliveries
Late	1990s	Production expected to end

Worldwide Distribution

(Identified military inventories only; does not include approximately 14 in private use. Data as of June 1, 1999.)

Angola	8	Malaysia	38
Austria	16	Mexico	71
Bolivia	20	Myanmar	15
Botswana	7	Netherlands	13
Brunei	4	South Africa	59
Chile Navy	10	Surinam	3
France	3	Switzerland	38
Guatemala	6	UAE	24
Iran	41	Uruguay	6
Iraq	29		

Forecast Rationale

No orders for the PC-7 have been announced within the past three years, and the uprated PC-9 may well have supplanted its predecessor in the Pilatus marketing plan. The PC-7 vied unsuccessfully for a Japan Air Self-Defense Force requirement last year, but lost out to an indigenous design (by Fuji).

However, as the Mk II and the newer PC-9 have been produced from common fuselages since 1996, it is possible that the former may still be produced on an on-demand basis.

We are not forecasting additional PC-7 sales or production.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Aircraft	(Engine)	thru 98	<u>High Confidence Level</u>				<u>Good Confidence Level</u>			<u>Speculative</u>			Total 99-08	
			99	00	01	02	03	04	05	06	07	08		
PILATUS PC-7	PT6A-25A	511	0	0	0	0	0	0	0	0	0	0	0	0
Total Production		511	0	0	0	0	0	0	0	0	0	0	0	0