Type Acceptance Report

TAR 10/21B/25

TECNAM P2006T

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Executive Summary

New Zealand Type Acceptance has been granted to the Tecnam Model P2006T based on validation of EASA Type Certificate number A.185. There is one special requirement for import; Service Bulletin SB149 (Pitch Trim Double Control Rod) or production equivalent must be embodied.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.191, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate Number 10/21B/25 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically, the report aims to:

(a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and

(b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and

(c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer:	Costruzioni Aeronautiche TECNAM S.r.l.
Type Certificate:	EASA.A.185
Issued by:	European Aviation Safety Agency
Production Approval:	IT.21G.0032

(b) Models Covered by the Part 21B Type Acceptance Certificate:

(i) **Model:** P2006T

MCTOW:	1180 kg (2600 lb) 1230 kg (2712 lb) when MOD2006/015 is embodied
Max. No. of Seats:	4
Noise Standard:	ICAO Annex 16, Volume 1 EASA CS-36
Engine:	BRP-Powertrain Rotax 912 S3 Type Certificate: E.121 Issued by: European Aviation Safety Agency
Propeller:	MT Propeller MTV-21-A-C-F/CF178-05 Type Certificate: LBA No 32.130/086 Issued by: Luftfahrt-Bundesamt

3. Application Details and Background Information

The application for New Zealand type acceptance of the P200T was from the agent, Mr Giovanni Nustrini, dated 6 May 2010. The first-of-type example was serial number 019 registered ZK-TZY. The P2006T is an all-new twin engine high-wing light aircraft of conventional design and construction with retractable undercarriage. (Tecnam model designations indicate the year they were introduced.)

Type Acceptance Certificate Number10/21B/25 was provisionally granted on 17 June 2010 to the Tecnam P2006T based on validation of EASA Type Certificate A.185, pending a certification validation visit to the manufacturer in Italy. The validation visit took place in May 2011, but final grant of type acceptance was only completed on 27 April 2018. The delay was due to correspondence with the aircraft manufacturer regarding compliance with CS §23.629(f) as detailed in CAANZ Issue paper D-01, and awaiting Tecnam response. As a result of CAANZ Issue Paper D-01, a special requirement for any P2006T aircraft imported into New Zealand is that Service Bulletin SB149 (P2006T Pitch Trim Double Control Rod) must be embodied. (This design change has been fitted in production by MOD2006/184 as standard from serial number 144 and on.)

Early examples of the P2006T aircraft used analogue instrumentation but design change MOD2006/002 introduces the Garmin G950 electronic flight instrument system. There is a flight manual supplement for this modification. Tecnam integrates this supplement into the main flight manual replacing existing pages, which means there are effectively two different P2006T flight manual versions. (Digital and Analogue) Because of hardware (LRU) obsolescence the current digital avionics option is now the Garmin G1000NXi system, approved under MOD2006/271. This version is marketed as the P2006T Mk II.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) State-of-Design Type certificate:

EASA.A.185 Tecnam P2006T issued 5 June 2009

EASA Type Certificate Data Sheet number A.185 at Issue 06 dated 09.06.2017 – Model P2006T approved 5 June 2009

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:

The certification basis of the Tecnam Model P2006T is EASA CS-23 original issue. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, because CS-23 is equivalent to FAR 23 which is the basic standard for Normal Category Airplanes called up under Part 21 Appendix C. There were four equivalent level of safety decisions, and two special conditions were prescribed for the Garmin G950 optional modification. One further Special Condition was applied to the lithium batteries in the Mid-Continent MD302 standby attitude module. These have been reviewed and accepted by the CAA. There were no non-compliances declared by Tecnam. As a result of CAANZ Issue Paper D-01, which queried compliance with CS §23.639(f), one special condition for import was prescribed by the Director under §21.23.

(ii) Special Conditions:

MOD2006/002 (Garmin G950); CRI B-52 – The installation was required to be assessed for Human Factors criteria – The design of the integrated flightdeck must adequately address the foreseeable performance, capability and limitations of the crew. This included consideration of the ease of operation, including automation; effects of pilot errors, including potential errors, in managing the aircraft systems; pilot workload in normal and abnormal operation; and adequacy of feedback (must be clear and unambiguous).

CRI F-01 – Protection against the effects of high intensity radiated fields (HIRF) – Each electrical and electronic system that performs an essential function must be designed and installed so each function or system is not adversely affected, or automatically recovers normal operation in a timely manner, during and after exposure to the defined HIRF environment.

SC-F23.1353-02 – MOD2006/212 (MD302 Alternative Stand-By Instrument); CRI F-58 Lithium battery installation – This calls up additional considerations, including the flammable fluid fire protection of JAR §23.863; new requirements to address the potential hazards of overcharging and over discharging; and procedures to ensure that batteries used as spares are maintained in an appropriate state of charge (SOC).

(iii) Equivalent Level of Safety Findings:

CS23.783(b) Main Door (CRI D-02) – There is existing FAA AC guidance material for ELOS for aircraft with doors close to the propeller plane. For the P2006T to meet this it required additional flight manual procedures and a door warning light, in addition to the locking solenoid activated by engine oil-pressure.

CS23.807(e) Ditching Emergency Exits (CRI D-01) – Because both side doors are below the waterline during a ditching, an overhead escape hatch is required. The P2006T hatch is less than the required size, which provides for up to 14 occupants, while the P2006T only carries 4. Tecnam carried out an emergency evacuation demonstration to show the smaller exit size was satisfactory.

CS23.865 Fire Protection of Flight Controls, Engine Mounts and other Flight Structure (CRI D-03) – Tecnam showed by analysis that the wing structure including the front spar, which is close to the engine firewall, was not affected by a 2000°F engine fire.

CS23.1061(b), CS23.1063 Liquid Cooling – Coolant Tank (CRI E-01) – The Rotax engines have liquid cooled heads and air-cooled barrels. The heads use an automotive-type state-of-the-art closed loop cooling system with an overflow bottle and an expansion tank. Ground and flight tests showed satisfactory operation of the engine cooling system.

(iv) Airworthiness Limitations:
Tecnam Report 2006/032 "Airworthiness Limitations and Instructions for Continued Airworthiness" – This document is listed on the TCDS.

The information is also given in the Maintenance Manual Section B, Chapter 4 – Airworthiness Limitations, and Chapter 5 – Component Time Limits.

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:
The P2006T has been certificated under ICAO Annex 16, Volume 1, Part II, 4th Edition July 2005, and EASA CS-36.

(ii) Compliance Listing:
Report No 2006/186 "P2006T Aircraft Noise Certification Test Results under ICAO Annex 16 and EASA-CS36 1st Ed Rev 0 dated Aug 2008.

EASA Type Certificate for Noise A.185 Issue 2 dated 17 May 2012

Take-off Noise level: 67.1 dB(A) (1180 kg); 72.8 dB(A) (1230 kg)

(4) Certification Compliance Listing:

Report No. 2006/200 – Aircraft P2006T Project Compliance Record

(5) Flight Manual: EASA-Approved P2006T Aircraft Flight Manual – Document No. 2006/044 – CAA Accepted as AIR 3141

(6) Operating Data for Aircraft:

(i) Maintenance Manual:
Tecnam P2006T Aircraft Maintenance Manual – Document No. 2006/045

(ii) Current Service Information:
Tecnam Service Bulletins

(iii) Illustrated Parts Catalogue:
Tecnam P2006T Aircraft Parts Catalog – Document No. 2006/046

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

CAA 2171 form signed by Tecnam Head of Design dated 5 May 2010.

(8) Other information:

P2006T – Report No. 2006/001 Main Features & Description Analogic Version

5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	***To be determined on an individual aircraft basis***
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:	
91.505	Seating and Restraints – Safety belt/Shoulder Harness		Integrated seat belt and shoulder harness assemblies with inertia reels are provided for the pilot and each passenger	
91.507	Pax Information Signs – Smoking, safety belts fastened		Not Applicable – Less than ten passenger seats	
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	CS §23.1303(a) * N/A – No Mach No.limitations CS §23.1303(b) * CS §23.1303(c) * CS §23.1305(a)(1) * CS §23.1305(b)(2) * CS §23.1305(a)(2) *	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/C Position (14) Ammeter/Voltmeter	CS §23.1305(b)(7) * CS §23.1305(a)(3) * CS §23.1305(b)(5) * CS §23.1305(b)(3) * CS §23.699(b) * N/A – Fixed undercarriage CS §23.1351(d)(1) *
	* Required equipment – see Aircraft Flight Manual Section 2-27			
91.511 Night	(1)Turn and Slip (2) Position Lights	Integral part of PDU Required equipment *	(3) Anti-collision Lights (4) Instrument Lighting	Required equipment * Required equipment *
91.513	VFR Communication Equipment		***Operational requirement – Compliance as applicable***	
91.517 IFR	(1) Gyroscopic AH (2) Gyroscopic DI (3) Gyro Power Supply (4) Sensitive Altimeter	PDU – Required Equipment * PDU – Required Equipment * CS§23.1331(b),(c) PDU – Required equipment *	(5) OAT (6) Time in hr/min/sec (7) ASI/Heated Pitot (8) Rate of Climb/Descent	PDU – Required Equipment * PDU – Required Equipment * Required Equipment * PDU – Required Equipment *
91.519	IFR Communication and Navigation Equipment	Full IFR Capability is standard, using Garmin G950 installation. Comprises: 2 X GDU1040 Display Units, 2 x GIA 63W Integrated Avionics Units, GDC 74A Air data Computer, GTP 59 OAT Sensor, GRS 77 AHRS, GMU 44 magnetometer, GMA 1347 Audio panel, GTX 33 transponder. (Per AFM S2-27, DME & ADF are required for IFR)		
91.523	Emergency Equipment: (a) More Than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible to crew (c) More than 61 pax – Portable Megaphones per Table 9		 First Aid Kit is Standard and Required Equipment * Port. Fire Extinguisher is Standard and Required Equipment * Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats	
91.529	ELT – TSO C126 406 MHz after 22/11/2007		ELT is Standard and Required Equipment *	
91.531	Oxygen Indicators – Volume/Pressure/Delivery		***Operating Requirement – Compliance as applicable***	
91.533	Oxygen for non-Pressurised Aircraft:		Not fitted as standard. (Maximum altitude not specified.)	
91.541	SSR Transponder and Altitude Reporting Equipment		GTX 33 Tx is Standard and Required Equipment *	
91.543	Altitude Alerting Device – Turbojet or Turbofan		Not Applicable – Not turbo jet or turbofan powered	
91.545	Assigned Altitude Indicator		***Operational requirement – Compliance as applicable***	
A.15	ELT Installation Requirements		***To be determined on an individual aircraft basis***	

* See Kinds of Operations Equipment List – Section 2-20 in the Aircraft Flight Manual

Civil Aviation Rules Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:
135.355	Seating and Restraints – Shoulder harness flight-crew seats		CS§23.785 (Required under §23.562)
135.357	Additional Instruments (Powerplant and Propeller)		Certificated to CS 23, including §23.1305
135.359	Night Flight	Landing light, Pax compartment	***Operating Requirement – Compliance as applicable***
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses	***Operating Requirement – Compliance as applicable***
135.363	Emergency Equipment (Part 91.523 (a) and (b))		***Operating Requirement – Compliance as applicable***
135.367	Cockpit Voice Recorder		N/A – Only for 2-crew helicopters with more than 10 pax
135.369	Flight Data Recorder		Not Applicable – Less than 10 passenger seats
135.371	Additional Attitude Indicator		Not Applicable – Not turbo jet or turbofan powered

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.

2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.

3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

Photographs first-of-type example serial number 019 ZK-TZY
Three-view drawing Tecnam Model P2006T
Copy of EASA Type-Certificate Data Sheet A.185
CAANZ Issue Paper D-01 (Proprietary)
Modification MOD2006/184 and Service Bulletin SB-149 (Proprietary)

Sign off

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David Gill — Team Leader Airworthiness

Checked – Greg Baum — Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
P2006T	Costruzioni Aeronautiche TECNAM S.r.l.	10/21B/25	17 June 2010 (Prov.) 27 April 2018 (Final)