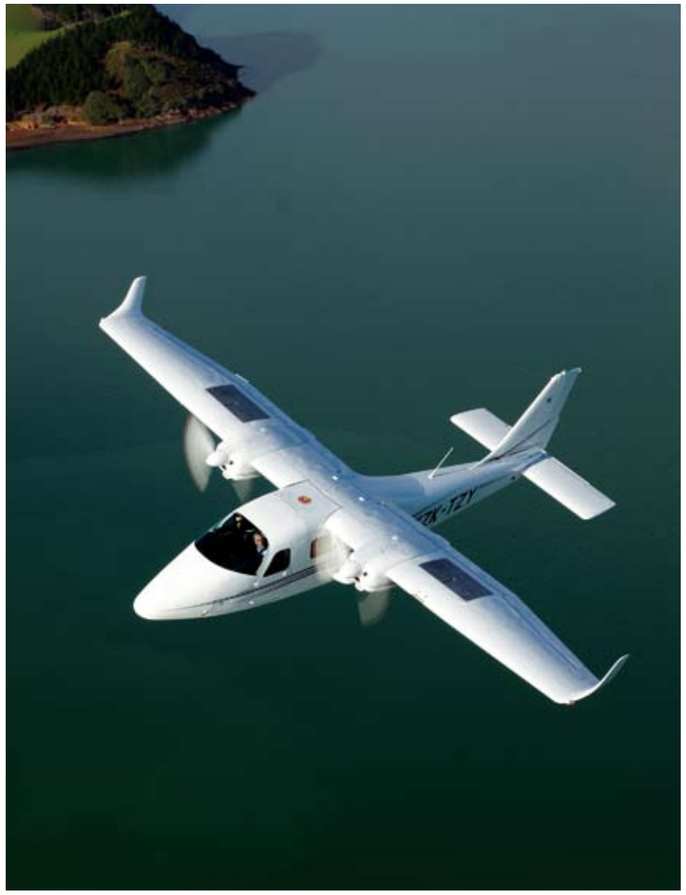
The Tecnam Twin Arrives

and leads the way into a new market segment

AFTER MUCH anticipation, the Tecnam P2006T has arrived in New Zealand. This first of type for Australasia was delivered to a private owner in Taupo during June. A second P2006T has also now arrived and will become the Tecnam demonstrator as soon as assembly is complete. (Doors of the two 40 foot containers that the aircraft is shipped in had just been opened as this issue of KiwiFlyer went to print.) That assembly process won't take long either, since the wing arrives fully assembled in a container of its own, simply requiring bolting to the fuselage and the connection of a small number of cable bayonet fittings, all of the fuel system and connections being self contained within the assembly.

KiwiFlyer spent a very enjoyable day with Ardmore based Giovanni Nustrini, (Director of Tecnam Australasia); Mary Patterson, (demonstration pilot for the P2006T and multi engine IFR rated with 3000+ hours experience) and; Mike Foster, (CEO of Eagle Flight Training and A Cat Instructor, with 28000+ hours experience from R22 helicopters to Lear Jets and most aircraft in between. Mike's appraisal of the new Tecnam from pre-flight to shutdown follows later in this article.



The first Tecnam P2006T for New Zealand was delivered to its new owner during June.

A first impression

Pictures of development and more lately, production examples of the P2006T have been around for a couple of years now so the shape and aesthetics of the aircraft are no surprise. But it somehow looks bigger in the flesh than pre-conceived notions suggested it might. Perhaps that is something to do with an image of Tecnam aircraft being small, light, and single engined. Not any more.

This is a mindset that will need to be undone throughout the aviation public. In fact Giovanni has already been asked whether the new twin is a microlight. Well, no. For one thing the aircraft has a maximum take-off weight of 2599lb (useful load is 880lb) and for the other, it's a twin and the microlight category requires that microlights have not more than one engine. (That actually means that even the diminutive Cri-Cri flies in the experimental category.) The P2006T is a certified GA aeroplane with full IFR capability. The Tecnam brand is evolving.

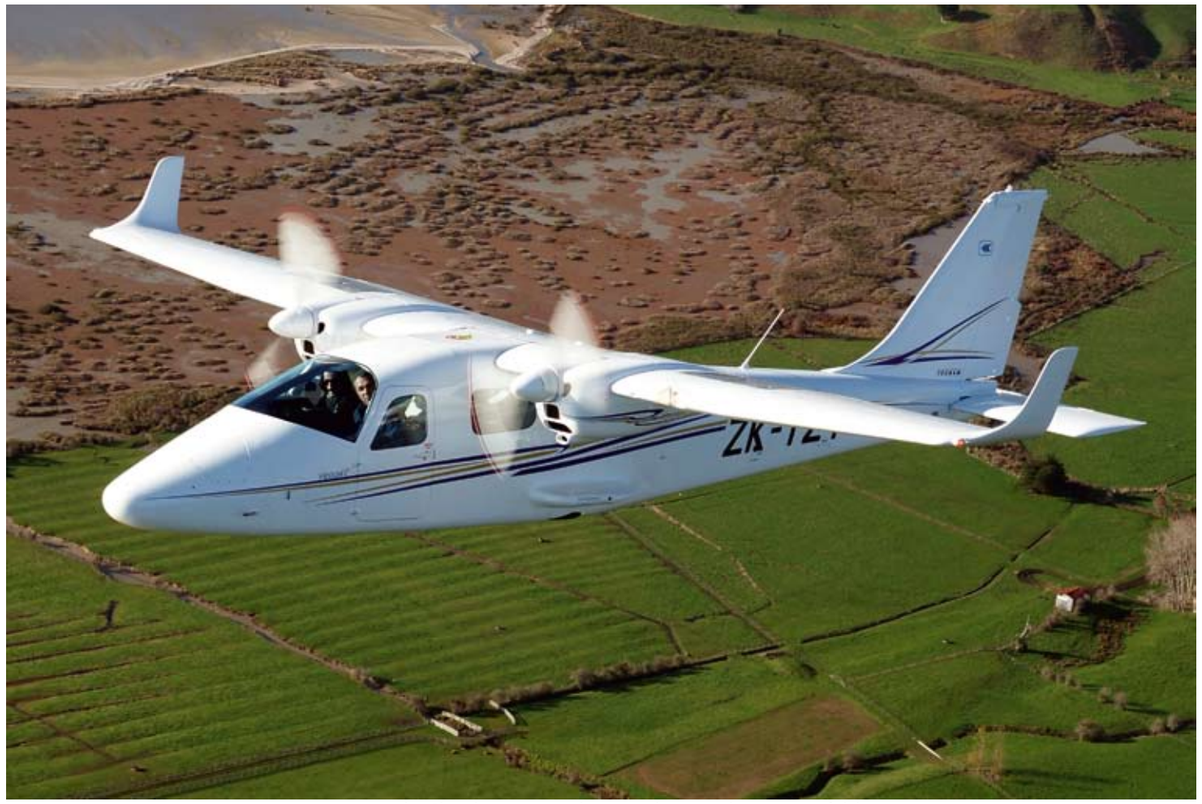
A first walk around of the P2006T shows that it is beautifully constructed. Climbing inside (actually you step inside rather than climb in), you will notice the room – there is a lot – and the technology. This example includes an optional full glass cockpit with Garmin G950 (to all intents the equivalent of a G1000) and autopilot.

Most aviators will also notice that the aircraft looks like a Partenavia. There's a fair reason for this which is that the designer of the Partenavia P.68 (and co-founder of the Partenavia company with his brother Gino in the 1950's), Professor Luigi Pascale, is also the designer of the P2006T. Tecnam's CEO, Paolo Pascale is Professor Pascale's nephew. The Tecnam is obviously smaller than a P.68, having four seats instead of six, and two 100hp Rotax engines instead of two 200hp Lycomings. In terms of price and performance the P2006T is closely comparable to competing four seat single engine aircraft. The Tecnam's trump card is that it has an extra engine and very acceptable single engine performance of 230 feet per minute best rate of climb at 80kts with a single engine service ceiling of 7500 feet (twin engine ceiling is 15000 feet).

Comparing the P2006T to competing new twin engined aircraft yields numbers that show the P2006T as having approximately half the purchase cost and half the running costs. Fuel burn in the Tecnam is around just 18 litres per hour per engine. Comparing the P2006T to a second hand competing twin engined aircraft may skew the purchase price comparison but won't change the fact that operating costs are essentially halved in the Tecnam.

Why a twin ?

The above statistical comparisons suggest that the P2006T is in a class of its own. It is this market opportunity that was the primary reason behind the aircraft's development. Giovanni tells of a time back in 2005 when Paolo phoned one evening. Giovanni happened to be taking a break in Whitianga and recalls standing outside on the deck with his mobile phone, looking at the stars and walking backwards and



ZK-TZY over the Clevedon River Mouth near Ardmore on the morning of delivery.

forwards while they discussed what Tecnam should develop next. That the project was a four seat aircraft was a given. In question was whether it should be a single or a twin.

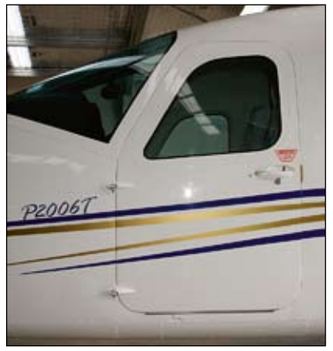
Giovanni's instant opinion was that they should develop a twin first. Paolo countered with the consideration that the fleet of four seat single engined aircraft available for Tecnam to replace was much larger than the current twin market. Giovanni held his position with the argument that everyone else made four seat singles, nobody else made a twin, and that Tecnam was the best placed manufacturer to develop one and lead the way to a new market. The discussion continued for over two hours into the late evening.

Later, Giovanni found out that Paolo had a similar discussion with Tecnam's Spanish dealer. They had both argued the same points and the result today is that a twin was developed. In fact it was only four months after that discussion, during one of Giovanni's visits to the Tecnam factory that he first sat in a wooden mockup of the new twin with Professor Pascale. Their plan at the time was to be in the market within two and a half years. This could have been achieved if it had not been for a multitude of delays resulting from "certification bureaucracy" in Europe.

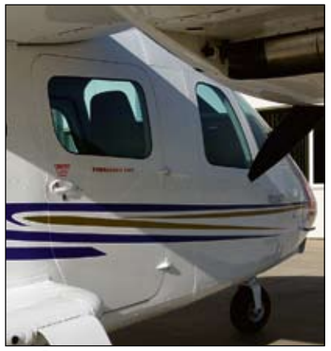
Features of Note

Aside from the aforementioned two engines, room and technology, the P2006T has many features that should endear it to a broad range of operators and applications in the marketplace.

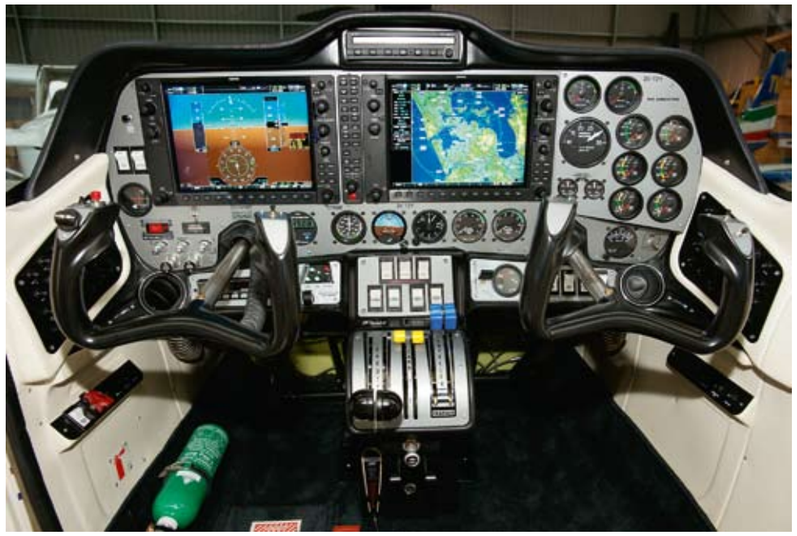
Of note is the retractable undercarriage. This is particularly robust and designed to allow the aircraft to operate out of less than smooth strips. With trailing links and shock



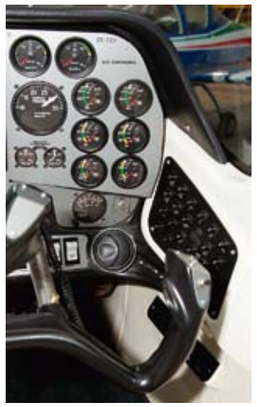
Access to the cockpit is particularly easy. Pilot and Co-Pilot enter by the port side door, the Co-Pilot sliding across to the right hand seat.

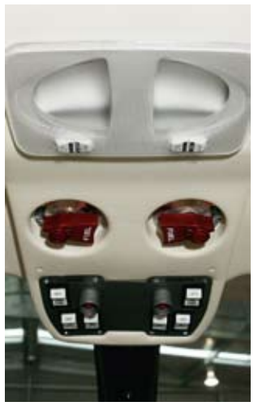


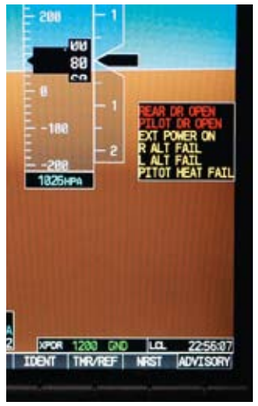
Passengers enter by the starboard side door. Tecnam have designed a spacious cabin with plenty of leg room for tall passengers.



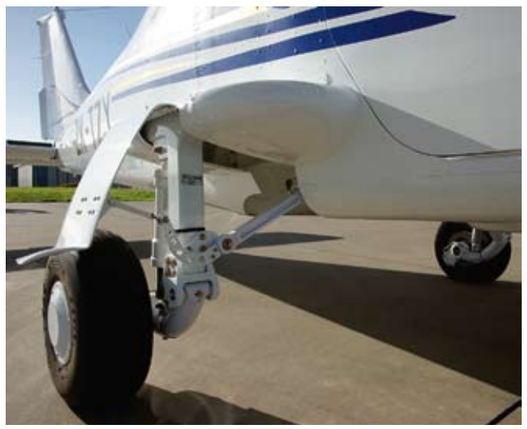
This IFR capable aircraft is equipped with the optional Garmin G950 (essentially a G1000) full glass panel plus auto-pilot. A basic model with traditional instrumentation is also available.







Left: Engine gauges are traditional. Circuit breaker panels are located within easy reach on both forward side panels. Centre: The overhead console includes left and right side cabin lighting controls, fuel shut off valves, as well as fuel pump, magneto and starter controls for each engine. Right: An annunciator on the panel warns of a variety of conditions including rear or pilot door open, external power connection, low coolant level, instrument and system warnings, and more.



Retractable landing gear is very robust and suitable for less than smooth strips, providing a very comfortable ride during taxiing. Powered by a reversible electric pump, the system is of trailing link design with oleo-pneumatic shock absorbers. The nosewheel is connected by push rods to the rudder pedals.

absorbers, the P2006T doesn't have the 'waddle' characteristics of the Partenavia's spring steel system. With props high on the wing, it is also possible to taxi over some quite large steps without concern.

Short and rough field performance is particularly good. Takeoff distance is stated as 274m, approach speed is 70kts and touchdown speed is just 55kts.

The well proven Rotax engines are worthy of special mention, offering unique benefits to the aircraft. One is their low (and drag reducing) frontal area of just 0.15m2 each. Another is that they can be run on automotive fuel, a particular advantage for some operators and especially in the Pacific Islands.

Pilot (and co-pilot) entry is by the port side door, with plenty of room and seat adjustments for all shapes and sizes. The door, as with everything about the aircraft, has a solid feel to it. Attention has been paid to the smallest details. Once in and adjusted, visibility is excellent and all controls fall to hand as expected.

An emergency escape hatch in the roof was a certification requirement for the aircraft, assumedly due to the door configurations (one for pilots and one for passengers) and the high wing.

Construction is essentially all metal with wings of traditional mono spar configuration. Slotted aluminium flaps are electrically operated and allow for a stall speed below 48kts. The horizontal stabilator is an all-moving structure with trim that is electrically and manually operated. Rudder trim is electrically operated. Position indicators for both are included on the instrument panel.

Winglets on the wingtips are there for much more than style and aesthetics. Their design improves single engine climb performance by over 100 feet per minute.

As with all Tecnam aircraft, flight behaviour is conventional and predictable, and easy recoveries can be made well within safety limits if required. This helps the aircraft to excel in a training environment

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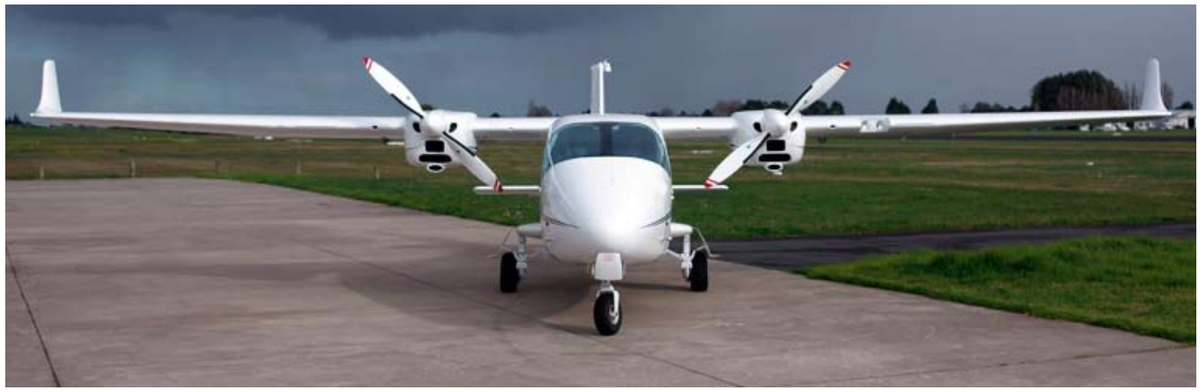


The P2006T has obvious Partenavia pedigree. Both aircraft were designed by Professor Luigi Pascale. Tecnam's CEO, Paolo Pascale, is Professor Pascale's nephew. Noteworthy in this picture is the low frontal profile of the Rotax 912S3 100hp engines which can be run either on Avgas or automotive fuel.

especially also considering the robust landing gear and slow approach speed capability.

One final advantage is that as a fully certified GA aircraft, design and takeoff weight has been dictated by the Designers rather than Regulators in the sense that it was not necessary to adhere to an arbitrary weight limitation. Construction has therefore essentially been without compromise and with great pedigree courtesy of the Partenavia P.68 history.

Passengers and Luggage

Suffice to say there is a very generous amount of space for passengers and for luggage. Designers often tend towards letting one of these attributes compromise the other, but not in the case of the Tecnam.

Passenger access via the starboard side door is free of difficult contortions and leg room is plentiful. All seats have headrests and three point inertia reel seat belts.

A ventilation system features a separate vent for each occupant and the heating system incorporates a defrost manifold to prevent the windshield fogging up at any time including when taxiing.

Access to the large luggage area is easy, with capacity quoted as 350 litres.

Specifications and Performance

The aircraft delivers very well across a wide range of performance criteria (see the Flight Appraisal later in this article). The following provides a brief statistical summary of its capabilities. Full details of specifications and performance can be downloaded from www.tecnam.co.nz

Maximum level speed at sea level is specified as 148kts and 75% cruise at 7000 feet is specified as 140kts. Best rate of climb at 80kts is 1140 feet per minute, reducing to 230 feet per minute on a single engine. Stalling speed with flaps is 49kts. Vne is 168kts.

Empty weight is 1723lb and useful load is 880lb for a MTOW of 2599lb.

Fuel capacity is 194 litres usable for a maximum range of 620nm (65% power and a 30 minute reserve).

Twin engine service ceiling is 15000 feet, reducing to 7500 feet on one engine.

Standard takeoff run is specified by Tecnam as 274m and the landing run is specified as 200m.

The wing span is 11.4m and overall length is 8.7m.

Applications in the Marketplace

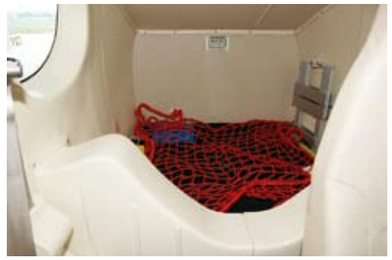
This aircraft has an obviously broad multi-mission appeal that extends well beyond the training market. Apart from private owner enquiries, Giovanni has been receiving interest (sight unseen) from flying schools, coast guard operators, Australian mineral survey companies, and Pacific inter-island transport operators. The latter are particularly interested due to the Rotax engines ability to use automotive fuel. Mineral survey companies are keen to fit the aircraft out with radar devices and survey electronics. Coast guard and flying school operators are attracted by running costs that are half of competing twin engined training or observation aircraft.

A basic medevac configuration is also available with back and co-pilot seats removed to accommodate a stretcher.

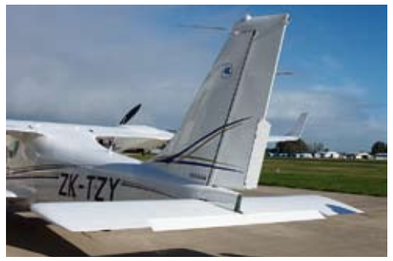
Attractive Pricing

With the current NZ dollar value against the Euro, a new P2006T in basic configuration can be purchased ex factory for little more than $500,000 plus freight, assembly and gst. The example we reviewed with full Garmin IFR glass cockpit and auto-pilot, landed in New Zealand and ready to fly away can be purchased for approximately $650,000 plus gst. Whichever way the competing alternatives are compared, the Tecnam is an attractive proposition. With its features, pricing and pedigree, it is essentially creating a new market segment of its own.

Winglets do more than just look attractive. They improved the single engine climb rate by 100fpm.



Luggage space is substantial with 350 litres available behind the rear seats.



The rudder has an electrically operated trim tab with a position indicator on the instrument panel.

Tecnam P2006T Flight Appraisal

MIKE FOSTER was one of the first local pilots to sample the P2006T and (with more than 28000 hours of airborne experiences behind him) an ideal person to appraise the aircraft and comment on its place in the market. KiwiFlyer spoke with Mike after the flight to record his observations in the following:

Pre-conceptions and Pre-flight

Mike says that he endeavoured to start the evaluation without pre-conceived thoughts, although primarily his focus was towards the Tecnam's utilisation from a training perspective. Preflight was straight forward with nothing unusual encountered. Extra items to check on this aircraft include the emergency escape hatch and a pressure check of the emergency gear extension blow-down bottle located in the rear fuselage. Another additional consideration is engine coolant (the Rotax engines being water and air cooled) for which an annunciator on the instrument panel provides a warning when the level is low.

An immediate observation, particularly from a training perspective was the prop to ground clearance. Issues of care when taxiing a Beechcraft Duchess for example are not present with the high wing Tecnam. A parallel observation was that the doors lock once the engine starts and only unlock when the engines stop – a certification requirement given that the propellers are so close to the egress points.

Controls are all conventional and Mike says that the general construction of the aircraft looks excellent, and quite racy especially with the winglets which play a significant role in the aircraft's very good single engine performance.

Mike particularly noted how easy getting in and out is – you just step in and slide across – and this is much easier for "inflexible pilots" than climbing up on the wing with a Duchess for example. Once inside, Mike described his first look at the glass panel as being "just wonderful" and vastly different from the normal training twins in use that are equipped with steam gauges. We then debated the merits of each system (glass is an optional extra in the Tecnam) and concluded that the training industry is probably in something of a transition phase in this regard. Some schools have customers on a career path that will take them straight to airlines in which case training on all glass is a preference. Others have students that will be planning to progress through the ranks of smaller charter operators and are thus more likely to find their first jobs behind traditional instrumentation. Giovanni points out that schools who are uncertain of the choice to make can always put two aircraft on line and have a different configuration in each.

Mike considers the seating to be excellent, with travel to accommodate either of very tall or very short pilots ("it feels as roomy as a Duchess"). Visibility is very good, especially as the seat can be raised and lowered as required.

Starting is conventional, although non Rotax pilots may be unfamiliar with a choke. Run-ups are conventional, and Mike mentions that taxiing was noticeably smooth due to the sturdy and shock absorbing landing gear.

Mike notes that pilots who can understand a G430 will soon transition to the G950 in the Tecnam, also noting that there appears to be no immediate difference to a G1000 (the difference is in the manner of installation and autopilot integration).

Take-off

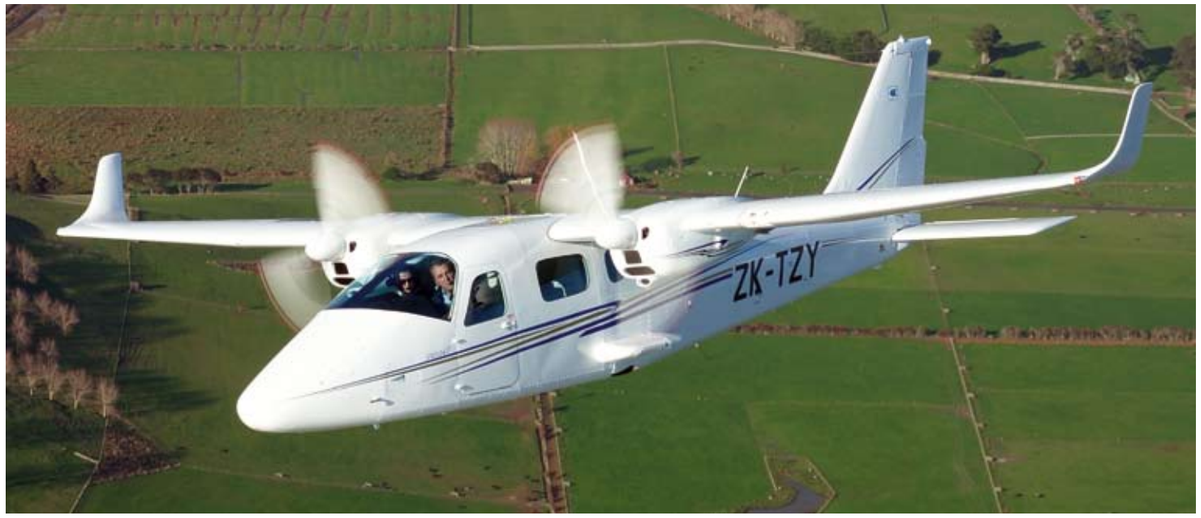
Take-off was "pretty short" (Tecnam specify 274m) and initial rate of climb with two people on board felt "very good" (Tecnam specify 1140ft/min). Of note was that Tecnam specify flap for take-off, something we decided was probably due to the high wing configuration and perhaps lower drag on this aircraft.

Mike says that gear retraction (and extension) isn't as fast as a Duchess and thus care is required to avoid exceeding the gear down speed (93kts) until it has retracted on climbout, even though best rate of climb is specified at 80kts.

Synchronising the props is "quite easy" and once in sync, they stay there with very little pitch control adjustments required.

At Altitude

Everything behaves conventionally, although with no engine or nacelles in the forward field of vision for attitude reference, some pilots may need to find alternate assistance to help their attitude awareness. A big advantage here is that visibility is excellent.



Tecnam P2006T over the Clevedon Valley east of Ardmore.

Stalling is "very conventional" and within a knot or two of the published airspeed (49kts with flaps). A right wing drop was followed by a standard recovery.

Failing an engine was also a docile experience with the aircraft being very easy to trim out and easy to manage once this was done even though conditions during the flight were "quite rough". Typical smaller twins require full rudder at best rate of climb on one engine but this was not the case for the Tecnam. General handling on one engine was described as being fine. Of minor note is that a mid-air restart requires shutting down the glass panel in order that enough current be made available to the starter - so pilots need to be flying on the backup instruments before commencing the procedure.

Emergency gear extensions can't be practiced due to the system operating by blow down bottle of pressurised nitrogen into the hydraulic system, though this is not unusual and simply requires that such matters are covered by ground training.

Circuits and Conclusion

The MBZ at Ardmore has a 120kt speed restriction, requiring slowing down on entry. In many aircraft you might put flap on or the gear out. In the Tecnam, power is reduced as the initial flap speed is 119kts. Changes in speed and power don't create normal issues with engine cooling due to the Rotax engines being water cooled.

The circuit is entered with 10 degrees of flap then slowing through to 93kts and gear down. This is done at the start of the downwind leg to allow sufficient time (25 seconds) for the gear to extend and lock.

Mike completed several circuits with an overall impression that the aircraft is "very nice to fly" and "ideal for training". Mike considers that students will find it much easier to manage than other common training twins and says that he is very much looking forward to spending more time in the aircraft.

More information

Demonstrations in the new P2006T will be available in New Zealand during July. The aircraft will then travel to Australia for dealership launches and a demonstration tour in August. For more information or to organise a demonstration flight at your airfield, phone Giovanni on 021 832 626 or email: gnustrini@tecnam.co.nz Further information and full specifications can be downloaded from **www.tecnam.co.nz**