Tecnam's new dawn in twins

Tecnam's P2006T is the twin which could lure many up from singles, and give many schools their first twin trainer.

Stan Hodgkins *straps in to fly*

TECNAM claimed to have spotted a gap in the market when it first revealed the P2006T: to have produced a twin-engined four-seater that is lighter and more economical than many of its single-engined competitors. But, how so?

The magic ingredient isn't some unobtainable substance cooked up in an alchemist's lair, but something rather well-known to aviation already – Rotax's successful Rotax 912, now the engine of choice for light aviation world-wide.

The model has drawn large interest from schools and private buyers who are enchanted by the concept of a two-is-cheaper-than-one aircraft for their fleet or personal use, and the first in the UK – G-ZOOG – is already in busy service with Airways Flying Club at Booker.

The club's parent company, Airways Aero Associations, (AAA) who operate Wycombe Air Park, is the UK and Ireland's sole agent for the Tecnam range. Boss Tim Orchard – an old friend – kindly flew G-ZOOG into Old Buckenham where, after the usual friendly insults were exchanged, he couldn't wait to enthusiastically show me his new toy.

It certainly turned a few heads up here in the backwoods; it just looks modern and, to me, obviously Italian, something of which I am a big fan. With its neat retractable undercarriage, sexy swept fin and swoopy lines, it is a seductive little minx!

Obviously based on his P68 Partenavia, designer Luigi Pascale has taken advantage of the amazing little Rotax and produced a scaled-down, incredibly efficient little flying machine. The maturity of the Rotax 912 is beyond doubt and the current versions have a TBO of 2000hrs/15yrs. Even the old traditional Rotax engines have a calendar life of 12yrs. It powers numerous types – including almost all the new US Light Sport Aircraft – and when it was selected by Dick VanGrunsven for his RV-12, I thought its time really had arrived. Up until then, he had recommended any engine for his aircraft... as long as it was a Lycoming.

TOP: The cabin is spacious
RIGHT: The pilots have their own port side door

THE DESIGN

Of conventional aluminium construction, the low-drag lightweight airframe combined with lightweight fuel-efficient powerplants gives quite exceptional performance and economy, plus the peace of mind of an additional engine.

The airframe is a very clever design from the loading point of view. The wing is built around two wing spars that form a rigid torque box and the engine mounts are bolted to the front spar. This partly 'buries' the engines in the wing, reducing drag and saving weight, and also ensures a very stiff structure that concentrates the mass of the engines and fuel near the centre of gravity. The two 100l fuel tanks are located between the spars outboard of the engines. Below the spar is the spacious cabin and baggage compartment.

G-ZOOG sports the 'Chatham Dockyard' tail livery (British Airways) with the 'flag' up the fin and swooping blue and red cheat-lines along the fuselage, which further emphasise its natural curves.

Approaching the P2006T, I start to put it in proportion: for a twin, it is small, with a wingspan of 37.4ft (11.4m) – only slightly more than a PA28 Warrior. It sits close to the ground on its sturdy sponson-mounted undercarriage which is very reminiscent of the Dornier 228.

> *"Entering the cockpit is easy as the seats slide rearwards a long way and there is no need to clamber over cockpit equipment*

The cabin is quite spacious, and has a door on the port side for the pilots and one on the starboard side for the passengers and baggage. The engines are neatly cowled and the props are MT and fully feathering.

The doors are very close to the propeller arcs so there is a clever solenoid-operated interlock so that they cannot be operated while the engines are running.

Winglets are fitted and the wing section is a laminar-flow design to reduce drag.

The laminar-flow wings feature frise ailerons, electrically-operated slotted flaps and winglets. Strangely, the fuel tanks are not painted, but have been left in natural aluminium finish, apparently an EASA requirement for minimising the risk of lightning strike... Tim doesn't get it either!

The stabilator is very Piper, being all moving with an anti-balance tab that also doubles as a trim tab. The fin and rudder are conventional and of generous proportions. »

INSIDE THE TARDIS

Entering the cockpit is easy as the seats slide rearwards a long way and there is no need to clamber over cockpit equipment. The flat floor helps in this respect. Entrance to the rear seats is equally easy and the baggage compartment – capacity 176lb – is readily accessible as the rear seats fold forward. With pilots' seats adjusted, there is plenty of leg-room for passengers.

The cabin interior is tastefully trimmed in cream with a dark blue-grey carpet, and there's an escape hatch provided in the cabin roof in case of ditching – which is a very good idea in a highwing aeroplane.

Once comfortably installed, the impression is one of neatness. The panel is dominated by the two large screens of the Garmin G950 Integrated Flight Deck System, with the GMA 1347 audio panel sitting between the big screens. I wasn't familiar with this equipment, but it reminded me of the Garmin G1000, and, as I understand it, the G950 is similar but without the integrated engine monitoring system or embedded autopilot, and less able to be customised. In ZOOG, the engine instruments are an analogue cluster (including the fuel gauges) to the right of the main panel, nicely angled towards the pilot.

Flying controls consist of U-shaped yokes and normal rudder pedals with toe-brakes. The ailerons are cable operated in the cabin area and connect to pushrods in the wing, while the tailplane is pushrod operated and the rudder with cables. All controls are low friction and pleasant in operation.

> *"There's an escape hatch provided in the cabin roof in case of ditching – which is a very good idea in a highwing*

Peace over an empty Norfolk beach – and relatively little noise from the silencer-equipped motors out on the wings

Centrally placed below the Garmin screens is a row of instruments – three standby flight instruments, a clock and a couple of fuel pressure gauges. To the left of the pilot's yoke are cockpit light dimmers, cabin heat controls, pitot heat switches and trim indicators. Below the control yokes there are two sub-panels on the pilot's side: an ADF and the landing gear switch and indicator lights.

The undercarriage is electro-hydraulically operated, and has an emergency system that uses a nitrogen bottle to send extra hydraulic fluid into the lines. The gear should also extend by gravity alone. The two emergency selectors are under an access panel on the floor in front of the pilot. Three greens and a red in-transit light are adjacent to the switch.

The lower right-hand sub-panel contains the flap operating switch and indicator, plus external light switches. Two circuit breaker panels are on the cockpit side-walls. Below the left circuit breaker panel is another sub-panel containing emergency power supply switches for cockpit lights and the standby attitude indicator.

The centre quadrant has the usual three pairs of levers. As there are no mixtures to play with – the Bing carburettors deal with that – you just have throttles and props with carburettor heat between. In front of them is a panel containing rocker switches for the electrical system – master, two alternator fields, L & R cross buses and L & R avionics. Below the levers are choke controls, windscreen demist cock and parking brake.

Between the seats to the rear of the pedestal is the rocker switch for rudder trim and the manual trim wheel for the all-flying tail. Curiously, this is calibrated, but there is no pointer – trim position being shown on en electrical indicator on the pilot's left panel. A central overhead panel contains switches for engine start, ignition, fuel pumps and the fuel cocks. Each engine has its own Andair fuel cock, which can be selected to either left or right tank.

The seats are very comfortable and all controls can be reached from either seat. The view forward is excellent, but the view to the sides is a bit restricted by the windscreen arch. With just Tim and myself and 60l a side, our all-up weight was about 2250lb (1020kg), leaving a further 350lb (159kg) available for passengers and/or fuel. This little twin does not claim to be a 'heavy hauler,' but it has other advantages, such as a spare engine!

GOING PLACES

Starting the Rotax engine is more like starting a car – after selecting fuel, pumps, and ignition, both engines started instantly without choke and settled into a smooth hum. The noise level in the cockpit was pleasantly low with the silencer-equipped motors out on the wing, so now it was time to go flying.

Taxiing out onto Runway 25 steering was simple, with the nose-wheel turned by the pedals and no need to use differential power to turn. With some final checks and a run-up of the engines to 1650 propeller rpm – the propellers exercised in the normal way including feathering – we were ready for the off.

Takeoff provided no surprises. Acceleration at our weight was brisk and the aircraft rotated at 65kt. Unstick occurred immediately at 70kt and we climbed away at 80kt, which is both Vy and Vx. The rate of climb was about 1100fpm and the nose attitude quite high. A speed of 95kt is recommended for an en-route climb, giving a better view ahead with only a small penalty in the rate of climb. The low propeller rpm (max continuous is 2265) also gives a quiet climb.

As usual, photographer Dave wanted a dramatic background for his pictures so we levelled at 2000ft and followed the Cessna cameraship up to the lovely north Norfolk coast. This gave me a little time to get comfy.

Cruise power of 24"MAP and 2000rpm was set, which gave 125kt IAS. The aircraft was straightforward to fly with nothing out of the ordinary to remark on – how undramatic this sounds, yet how nice it is to experience!

The Rotax engines were smooth and easy to synchronise using tiny adjustments on the blue levers and, on joining formation, the controls were responsive so holding station was no problem.

However, I did discover that coarse throttle movements could easily cause a surge in rpm and thrust. It was essential to 'wriggle' the throttles for corrections, just like handling the two Derwents in the Meteor! Once Dave had taken his customary 700-800 shots we then climbed up to 3000ft for some slow flight and stalling.

SAY CHEESE!

If you recognise our cameraship pilot, it's because he was featured in last month's Hangarchat! Aside from being one of the great characters at Turweston, and getting to fly an Aladdin's Cave of great aircraft, Jez is one of the best cameraship guys in the country – a brief before a picture sortie with him or Stan Hodgkins is like being party to a dawn raid, it's that well detailed.

ON THE SHOULDERS OF GIANTS

THE UK arrival of the P2006T comes just as the Italian manufacturer announced plans for another new design, the P2010 four-seater, targeting Cessna's 172. It helps cement the firm's position as one of the giants of European GA.

The firm's lineage dates back to 1948 – coincidentally the same year the Airways flying Club which bought the first UK twin was established – and is based near Naples.

Tecnam has always worked in parts manufacture for other firms such as Boeing, Douglas, Agusta, Dassault and Dornier, and steadily grown its own range over the years to now encompass 13 varied models in the certified single and twin segments, and the LSA and Ultralight classes.

It is renowned for using new materials and innovative techniques, and its mix of high- and low-wing designs predominantly come from the pen of chairman Luigi Pascale, one the greats of Italian aircraft designers.

www.tecnam.com

CONFIDENCE INSPIRING

Manoeuvring at low speed can be done with a feeling of confidence and turns produced little adverse yaw and little need for rudder to keep the ball in the middle. In the Garmin 950, the balance ball is a small rectangle just below the bank angle pointer. More of that later.

Approaching the clean stall, the warning horn sounded at 68kt followed by light buffet at 61kt and the full stall at 59kt. Recovery was immediate on relaxing the back pressure with power the loss of height in the region of 300ft. With approach flap and a little power, the stall occurred at 52kt with a gentle drop of the right wing. All trim changes with flap and gear are mild and easily coped with.

Next, a few steep turns were flown without difficulty. In the cruise, the aircraft seemed very stable. No autopilot is fitted as this machine will mainly be used for multi-engine pilot training, but Tim said that on the delivery flight from Italy he did not really need one – it just holds its attitude.

In typical cruising flight at 3000ft with 75% power set, a true airspeed of around 138kt is achieved with a fuel burn of 38l/hr. With full fuel and realistically two occupants plus adequate baggage, this gives safe range of around 650nm. In the cruise, it's smooth, quiet and roomy and generally a very civilised way of travelling.

We then looked at the single-engine performance, something which in flamboyant displays at shows (such as Oshkosh) ground viewers have been very impressed with. After simulating an engine failure, I was impressed by the lack of obvious yaw and instinctively applied far too much rudder – once I had located the slip indicator I realised this. That large fin and powerful rudder, coupled with the close inboard location of the engines, does make dealing with the asymmetric problem very easy compared to some other twins.

Reducing to the 'blue line' speed of 80kt we carried out touch drills, and Tim set zero thrust on the dead engine to simulate feathering the propeller. It was hardly necessary to trim out the rudder force – and with full power/maximum rpm on the good engine, the rate of climb settled at 270fpm. This compares well with most light piston twins I've flown.

While such benign single-engine handling is a valuable safety feature, student pilots should be made aware that other, older, light twins are not so pilot-friendly!

Returning to the circuit, we descended at a reduced power setting of 14"MAP at 120kt and joined downwind. Setting 20"/2000rpm the first stage of flap and gear were selected and the speed reduced to 90kt.

Reducing power to 16" on base leg gave an initial approach speed of 80kt, reducing to 70kt and full flap on finals. Full flap produces a lot of drag and the airspeed soon reduces to 65kt. The landing was straightforward; a demonstrated crosswind limit of 17kt is listed in the manual. I am sure that much higher crosswinds would be no problem with experience on type.

Single-engine approaches are made at 80kt (blue line) with just the first stage of flap until a committal height of 300ft, when full flap is selected. VMCA is 62kt.

THE GRAND COMPARISON

Compared to its main competition, the short field performance of the P2006T is outstanding. The takeoff and landing rolls are given as 225m and 180m respectively and the obstacle clearance distances 420m and 340m. There would be no problem flying from a short grass field, and Tecnam say they fly from a potato field!

As I said at the beginning, this remarkable aircraft was made possible by the availability of a light, small, economical and, most importantly, reliable modern piston engine. However, the P2006T also achieves it performance due to its modern efficient design. Its lightweight airframe is also built using conventional light alloy construction, which also makes it reasonably priced.

The running costs can be drastically reduced by running on mogas, which is also better for the engines, but, of course, this opens up the endless ongoing debate on the availability of mogas without all the additives that governments are forcing upon us.

It's all very well being able to run on mogas with less than the 10% alcohol that EASA says we are allowed, but that's not much use if it is just not available. It seems to me that until we are provided with an aviation-approved alternative to 100LL,

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"After simulating an engine failure, I was impressed by the lack of obvious yaw

Clockwise from top:
Wing is built around two wing spars that form a rigid torque box – engine mounts are bolted to the front spar;
Neat retractable undercarriage;
Pilot and passengers have separate doors;
Plenty of room for baggage;
GMA 1347 audio panel sits between Garmin G950 Integrated Flight Deck System

FLYING THE FLAG

THE Airways Flying Club at Wycombe Air Park, which runs the Tecnam P2006T, is one of the longest-established and best-known flying clubs in the UK.

It was established in 1948 by and for pilots belonging to some of the great names of commercial aviation: BEA, BOAC and BSAA, using Tiger Moths. Many know it more recently as the British Airways Flying Club, which can be hinted at by the distinctive tail livery on many current AFC aircraft.

The flying club is now open to pilots of all types, not just BA staff, and has a thriving membership – which attests to its glowing reputation.

Aside from flight training for PPL and NPPL, supplemental training is available in aerobatics, night flying, tail-wheels, IMC, instructor ratings, and – of course – twins.

Its fleet includes seven PA-28 Warriors, a PA-28 Dakota, a Chipmunk, a recent Tecnam Sierra single, and now the P2006T.

The social side sees many events throughout the year, including barbecues and fly-outs.

www.airwaysflyingclub.co.uk

it would be a violation of our human rights to remove it. Also it has to be available on the airfield – and not just at your local Tesco.

Having said that, even on 100LL, this machine is still very economical and I am sure it has a great future for that reason as well as its twin engine safety.

It probably has three markets. Firstly, the obvious one is for twin-engine training. At a basic price of around €300,000 it is half the price of a new Diamond DA42 and two-thirds of a Seminole. Running costs are far lower than either of these competitors and it is an obvious choice for a flying school, as it should halve the cost of twin training. Airways Flying Club's current rates reflect this.

Also, there is a high chance that some private pilots would purchase one for themselves when they get their rating, and it would be an attractive group-owned aircraft.

The second group of potential buyers are private pilots who currently operate a single-engine aircraft. For a similar price, they can have a twin with all the increased safety that it affords.

The fuel burn for the two Rotax engines is much the same as for a C172 or Archer and you can relax when you're on a long sea crossing! A fixed-gear version is also available – which would offer further savings, both in purchase and maintenance costs.

Thirdly, there are the existing owners of twins. These aircraft are notoriously heavy on the wallet, both on fuel and maintenance. For the private owner, the Tecnam will do almost everything that a Seminole or a Cougar can do, but at a fraction of the cost. Baron- or DA42-owners could sell their aeroplane and buy a new Tecnam with modern avionics and hugely reduced running costs.

Quite frankly, I wish I was in the market for one of these babies. It may well turn out to be the right aircraft for today for quite a few people. It is not hugely fast, nor yet a flying truck, but it is a cheap-to-operate and very practical machine and, I think, the perfect introduction to twin-engined flying for the PPL.

Oh yes! And as I couldn't help noticing as it took off... it's quiet, pretty, and – Italian!

The P2006T is certainly a head-turner with its modern looks, and is based on the P68 Partenavia

> *"Even on 100LL, this machine is still very economical and I am sure it has a great future for that reason*

DATA FILE TECNAM P2006T

AIRCRAFT
Base price// €295,000
Tested price// €340,000

POWER
Engine// 2 x Rotax 912S, four-cylinder, producing 98hp each
Prop// 2 x MT 2-blade constant speed, full feathering

DIMENSIONS
Wingspan 10.6m
Wing area 14.4sq-m
Length 8.66m
Height 2.85m
Cabin width 1.2m
Seats *4*
MTOW 1180kg
Empty weight 760kg
Max payload *420kg*
Fuel capacity *two 100l fuel tanks*

PERFORMANCE
Vne 168kt
Cruise 145kt
Range 710nm
Ceiling 15,000ft (single engine 7000ft)
Takeoff roll 225m
Landing roll 180m
Rate of climb 1260fpm

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All specifications and performance figures are supplied by the manufacturer. All performance figures are based on standard day, standard atmosphere, sea level, and at gross weight unless stated otherwise.