

## Flight Test: Boomerang

By Rod Douglas

*The Whitney Boomerang launch aircraft has recently arrived at its first home in WA and is creating much interest for its proud new owner, Min Stokes operator of Minovation Flight Training.*

The Boomerang, named after Australian aircraft designer Bill Whitney and manufactured in Queensland by Dean Wilson Aviation, has been designed and built primarily as a training aircraft to replace the ageing and dwindling fleet of those sixties and seventies two seat trainers, the Piper Tomahawk and Cessna 152.

It was Min's choice for her company for several reasons, not least of which was the easy transition from the Tomahawk, which has long been Min's basic trainer, to the Boomerang and between the two, if necessary. The similarities between the two aircraft types are numerous; apart from both being low wing, tricycle undercarriage aircraft, their operating speeds are almost identical, flight attitudes similar and fuel usage much the same. She was also looking for a non-composite aircraft, suitable for training, with a control column: one of those wonderful, seemingly archaic items that have been swept into the wings, metaphorically speaking, in favour of the weight-saving and cost-cutting control stick. In addition, the Boomerang is Australian made which, as well as supporting Australian industry reduces freight, shipping or ferry costs and simplifies the registration process.

The arrival of a realistically priced, made for training aircraft is certainly long overdue. There has been a glut of new light aircraft over the past few years: both two and four seat; metal (rarely) and composite; analogue and digital; Australian and overseas built. However, most of them have been aimed at the recreational or private market and so have been designed and produced, either very well or quite dubiously, with that demographic in mind.

Alternatively the designers have tried to cater for the private and training markets using the same aircraft whereby the requirements of both have to be compromised to some degree. Not so with the Boomerang. There was no requirement to, as Min so succinctly put it, "build down to weight and price" so as to appeal to the light sport's aircraft and ultra light market.

In addition to this wonderfully refreshing concept and freedom from compromise was the marvellous idea of actually asking the training establishments what they would like to see in the new trainer and taking on board their recommendations. Brilliant. The result has been an affordable, robust and comfortable aircraft which has many of the tried and tested features of the old faithfuls with the security of knowing the airframe and components are corrosion free, non-fatigued and the whole aircraft has been certificated under the very stringent guidelines of FAR Part 23.

The airframe is of a modular design to enable it to be disassembled in parts for ease of maintenance and repairs. The airframe is built around the roll cage that surrounds the cockpit. Made of tubular steel it offers 12g forward protection plus roll over and side intrusion protection and gives a feeling of security simply because it's visible to the occupants in the cockpit. The cabin has plenty of room; it has far more width and height than the Tomahawk and Cessna 152, an effect that is enhanced by the canopy style of the front, side, rear and overhead windows - a definite improvement on the old style aircraft and one that affords excellent visibility.

The seats are proper seats set up off the floor of the cabin as opposed to the go-cart style seats found in so many of the new aircraft appearing now. For any height challenged pilot, this makes an enormous amount of difference to their comfort, visibility and, most importantly, their safety. As well as being thrilled with the seats because I did not have to use a bolstering cushion like a five year old, they offered the best comfort factor and the best back support that I have encountered in a training aircraft. This may not be of the utmost importance to the student conducting a typical one hour training flight but is a breath of fresh air to the instructor who may spend most of the day ensconced in the aircraft. They are fitted with a four point harness tested to 26g to add security to the comfort level.

The cockpit layout is very traditional. The centre console extending in front of and between the seats contains the fuel selector, an easy to use lever that selects either left or right tanks and which can only be moved to the shut off position by movement of a lever stop on the selector making it impossible to accidentally turn off the fuel supply. The trim wheel is located between the seats but with ample cabin width it's not a squeeze to actually use it. The trim does not move a trim tab on the elevator but has a spring bias that relieves control pressures by holding the entire elevator in place. Also located centrally are the quadrant style throttle and mixture controls with a friction lever on the right hand side of the console.

Min's aircraft is fitted with an analogue panel: to my mind a very sensible choice for a training aircraft. There is a glass cockpit option



available for the Boomerang but, unless we're fast tracking teenagers from trainer to airline in less hours than they spent at their Schoolies week location, then it's still more practical to learn in the more usual environment. The avionics panel is to the right of the flight instruments and includes Garmin avionics, navigation aids and a Garmin GNS430 GPS and transponder in the basic model. The lighting package enables the aircraft to be fully equipped for NVFR.

Located above the avionics panels and in a fairly central location is the tachometer. This sensible positioning allows the student to simply glance inside to check power settings without leaning down, forward or sideways to find a cleverly hidden tachometer while the whole big picture outside the aircraft changes rapidly. Easy too for the power to be set accurately from both sides of the cockpit without the annoying parallax problem. A fine example of the little things that make an aircraft an effective training vehicle.

The right hand side of the panel contains the ammeter, circuit breakers and the electrically operated flap toggle switch and indicator. The light switches, fuel pump, primer and master switch are all located under the flight instruments. This positioning of the latter two are one of the very few things that Min is not sure about as they aren't easily reachable from the right hand seat. However, for anyone used to flying Cessna's, it's simply ops normal. In all it's a tidy panel with easy to locate and reach (mainly) switches and gauges.

The very comfortable, padded dual control columns are unobtrusive enough not to block any readouts. The elevator and ailerons have stainless steel cables while the flaps have pushrods. The rudder pedals also operate the hydraulically activated toe brakes. Completing the cockpit layout is a sizeable baggage area behind the seats limited though to 20kg of baggage. Not a huge load of luggage compared to some aircraft of this size but baggage isn't usually a major consideration when training.

The fuel tanks are contained in the wings and hold a total of 138 litres of usable fuel giving an endurance of five hours plus reserve. With a maximum take off weight of 825kg full fuel is not normally an option for dual training but its endurance with two people on board works out much the same as any other comparable trainer. The additional weight of this aircraft makes it less susceptible in flight to the effects of turbulence which is not always the case in the lighter, composite aircraft. Not that important in areas with calmer conditions but around Victoria and West Australia, for a large proportion of the year, conditions are turbulent and can make it a battle to keep the aircraft on its intended flight path. It is much easier for the student's progress to have a relatively stable aircraft in which to learn the ropes.

Manoeuvring the Boomerang though presented no problems. It climbs well even at higher cruise climb speeds using maximum power. The best rate climb speed is 65kt with a high nose attitude similar to the nose attitude in the C152. Climbing at 75kt achieved a rate of climb of 600 fpm and did give slightly better forward visibility. Levelling out at top of climb and setting the correct attitude for the cruise was easy with the responsive controls and easy to use trim wheel. A fairly low nose attitude in the cruise was great for forward visibility and, correctly trimmed, stayed exactly where placed even through a few bumps. The claimed 95kt cruise speed was proven. Reducing power from its normal cruise setting of 2500rpm back to 1900rpm allowed me to get the feel of the aircraft in a slower cruise. Even with 15° of flap extended, the controls weren't heavy or unresponsive and gave a speed of 65kt. Perfect for precautionary searches and following the old, slow trainers on the circuit.

Turns were effortless and needed little, if any, back pressure to keep level. The Boomerang has co-ordinated aileron and rudder movement but care must be taken to further co-ordinate both in turns as per normal and to keep the aircraft in balance in straight flight. This is not an aircraft that will allow a student to fly out of balance. It was however, very easy to set up for the approach. Bringing the power back to 1500rpm initially and taking 15° of flap in the turn onto base, brought the airspeed back to 70kt, to give a manageable and controlled trip along base and final. Once power is brought back to idle over the runway, the aircraft will want to land almost immediately and requires a healthy dose of back pressure to keep the nose from bumping down too firmly. Something that anyone who has flown a Piper Arrow, Warrior, Seminole or Seneca will be familiar with.

Powered by the ever reliable O-235 Lycoming engine with a recommended TBO of 2400 hours, with a two year guarantee on components and a purchase price of under \$AUS 200,000, the Boomerang is a very affordable training platform. One of the benefits for Min and for any other operator considering upgrading from their fleet of old Tomahawks or C152s is undoubtedly the savings to be benefitted from the reduction in maintenance expenses. The operator can budget for the eventual overhaul and routine maintenance without the unknown factor of the latest ailment to hit one of the old birds. Min's lucky students are able to fly the Boomerang for a miserly \$15 more than they would pay for the Tomahawk. That's a bargain as far as I'm concerned.

Even though this aircraft would do quite nicely as a touring aircraft with its good cruise speed and particularly its comfort, it was designed as a trainer and hopefully Min's students will be the first of many around Australia to benefit from having a training aircraft that was designed to be just that.

