

I think it would be fair to say that most of us like to get a new toy to play with, every now and then. The choosing of the said toy (I am talking aircraft here), can be quite a long and involved process. It often requires much research, plenty of canvassing of opinions, sometimes the odd demonstration flight, trips to see the friendly bank manager and even wooing your 'beloved' around to your way of thinking.

Then, once a decision has been made and the 'deal has been done', the waiting begins. It seems to me that the old saying, "good things come to those who wait", was first said by someone waiting for a new aircraft. The waiting is extended if you are importing a brand new aircraft, which is being built to your specifications and is a first of type to New Zealand. Bob Gray and brothers, Bruce and Peter Clulow, have just taken possession of a stunning new Cub Crafters Carbon Cub each. They have been through the process of choosing, importing and certifying the aircraft. The wait was well worth it and all are now enjoying flying their new beauties.

The Carbon Cubs are very similar to the PA-18 Supercubs but they still required the First of Type Certification from CAA. Being a 'first of type' in New Zealand had the potential for a few sleepless nights. Cub Crafters agreed to sell Bob one, conditionally, on it obtaining CAA approvals. It was 'touch and go', as the approvals did not come through, until the container was on its way to New Zealand.

The next job was to get a pilot approved to do the test flying and the type ratings for the three owners. Bob contacted Bill Henwood at Te Kowhai and Bill contacted Mike Tucker at CAA. Mike was happy to issue Bill with First of Type Approval based on his PA-18 and test pilot experience.

So, with everything falling into place and much impatient waiting, the Cubs were built and factory flown in the US. They were then put into containers and arrived into Auckland by ship in mid February. The containers were trucked to Paul Waterhouse's maintenance facility at Hamilton Airport for assembly. The staff at Central Aero got to work and very quickly the aircraft were ready for their test flights.

The terrible weather that has plagued our summer chose to make Bob and the Clulows wait a little longer. Strong winds and rain hampered the initial test flights for a few days. A break in the weather allowed Bill to take Bob's aircraft ZK-CSS for its first flight from New Zealand soil. A few days later ZK-BPC also took to the sky.

I had the pleasure of meeting Jim Richmond, the CEO and founder of Cub Crafters in the US. Jim and his wife Susan make a trip to New Zealand each February for a holiday and this year's trip coincided with the arrival of the two aircraft.

Jim is thrilled to have reached the New Zealand market with the aircraft. He has agents in Australia and is happy to report that 8 aircraft have been imported there in the last 12 months. This is interesting, as Australia has never had a large Super Cub population over the years.

Jim described to me how Cub Crafters came about. He is a passionate Super Cub man and has flown them all over the US and Alaska. His father was a pilot and he grew up around taildraggers but has flown most types of light aircraft. I joked with Jim that it would take a little convincing to get Bill to admit that the Carbon Cubs were as good as a *real* Cub. Bill is a bit of a purist and a Super Cub man through to the core. Jim laughed and said I was 'preaching to the converted'. His love of the Super Cub was how his company began. In the early 1980's he tendered for 3 surplus US Military PA-18 aircraft which were in Italy. He won the tender and all 3 were sold before he got them out of their crates. The 3 turned to 9 aircraft in total but a few needed refurbishment. As each aircraft was finished a buyer was waiting.

He sold his Home Insulation business to concentrate on what he really wanted to do. Cub Crafters was born.

Jim always felt that the Super Cub had never reached its full potential and was continually adding modifications and refinements. Over the next couple of decades his focus changed from rebuilding, refurbishing and modifying Super Cubs, to building new ones. The first of the Cub Crafters designed aircraft was the Top Cub.

The change in direction saw a new factory extension of 40,000 sq ft in 1997, at their base at Yakima, near Seattle. The Top Cub was so well received by pilots that the company went on to develop the popular 100 hp Sport Cub. It fitted the new LSA category beautifully and led to its bigger cousin, the Carbon Cub SS. It is this, 180-hp version that Bob, Bruce and Peter are the proud new owners of.

Cub Crafters has naturally grown over the years, as demand for their aircraft has gone global. They now employ over 100 staff and Jim explained to me that he tries to maintain a real 'family' feel to his workforce. He offers all his team access to company aircraft, which they can fly at very reduced rates. He sees the benefit of having pilots working on the aircraft. He believes that people with a passion for flying, have a passion for building great aircraft.

After seeing the two new arrivals, I think Jim has proved his point. They are both stunning. Their overall shape is that of a Super Cub but the carbon fibre cowls and forward fuselage are very sleek and new age. The finish on the aircraft is as good as it gets and the interior is state of the art.

The tandem seating has changed a little too. The rear seat in the Cub Crafters fleet is a 'sling' type seat, which can be detached easily from the floor and then stores in a pocket in the roof lining. This allows for larger items to fit in the cargo area. Very useful for those who enjoy the great outdoors.

Entry and exit from a traditional cub is somewhat of an art form. This has been improved in the Carbon Cub, which has bigger 'clam shell' doors. The left-hand sliding windows have been replaced by a one-piece window, which lifts up to mimic the door.

I watched in awe as Peter and Bill demonstrated its STOL performance. With brakes set and full power, this aircraft was flying within a few metres of its take off roll. Its great power to weight ratio and design means it just wants to fly!

Peter and Bruce were the first to head away in their new toy. They were itching to load up and fly south to Wanaka. This left Bob at Te Kowhai for a couple of afternoons to refresh his Cub skills with Bill. Bob hasn't flown taildraggers since the mid 1990's. He was a member of Ardmore Taidraggers and flew Super Cubs ZK-BQN and ZK-BOX.

I enjoyed learning Bob's story. Everyone's journey is different, even if the love of flying is shared.

Back in the UK, when he was in his early 20's, he had just joined BOAC. Like many of us, he started flying lessons but quickly found that finances and work commitments made it impractical to carry on.

It wasn't until he came to New Zealand in 1986 with his wife Mary and their young family, that his aviation interest was sparked.

A neighbour invited the couple for dinner and introduced Bob to the latest IBM PC, which had the very early version of Microsoft Flight Simulator. The blokes spent most of the evening playing pretend pilots and afterwards, Bob really wanted one of these new computers.

He recalled that these great new inventions cost around \$8000 and is grateful today, that Mary asked him what it cost to *actually* learn to fly. Bob had no idea and decide to drop in at Ardmore and find out. The Waitemata Aero Club assured him he could have a PPL within 6-12 months and it would be a mere \$5000. Bob was sold!

Once he had obtained his license, Bob joined a few different syndicates, which included C172 and Cubs. The most recent being C172 ZK- ELH of the Pukekohe Flying Group. This aircraft is based at Pukekohe East, in South Auckland, and the airfield is a downhill topdressing strip. This meant more new skills to learn, but the strip is close to where Bob lives.

The next challenge, was the purchase of a second hand, amphibious Zenair CH701 STOL. Bob has been everywhere with this little plane, including the Great NZ Air Safari a few years ago. This ability to go anywhere sparked his renewed interest in Cubs.

He toyed with the idea of building a kit, but quickly dismissed it. He didn't want to spend years locked away, building an aircraft, he wanted to fly.

After much research Bob decided on the replica Cub he proudly owns today.

Bob has nothing but praise for Jim Richmond's team at Cub Crafters. He cannot fault them for their responsiveness and diligence in keeping him informed. Every step of the build was photographed and sent through to Bob.

The paperwork process here in New Zealand at CAA eventually caught up with the build process and Bob would like to thank Tony Schischka, who ultimately overcame all the issues and certified both aircraft at the beginning of March.

On reflection, (with his first solo in the new beauty under his belt), Bob feels the whole process has been worthwhile. The thrill of flying a 180hp taildragger, that weighs a mere 600kg, is balanced by the understanding that the learning process has started all over again. He looks forward to the challenge and the new adventures ahead.

I asked Bill to tell me his thoughts on the aircraft after the test flights.

Bills first impression of the Carbon Cubs was that they looked very nice as new aeroplanes do, but without the history of 50 years of students sweat impregnated into the controls and furnishings. The instrument layout can be tailored to the individual owner's requirements, and these two in particular were at both ends of the spectrum. Bob's CSS was intended to have an iPad mounted into the panel, but the mountings were not available at build time. So it had a basic panel, much like our own 1957 BQV, but with modern reliability and look. The Clulows' Cub had a much more 'glass cockpit' feel, which made a new Airbus pilot feel at home.

The flight manual was very comprehensive, and emphasised the Light Sport Aircraft aspects of the regulations. This is the first LSA that Bill has flown, and it is good to see a back to basics approach.

For instance the engine is based on the Lycoming O-360, but Cub Crafters have gone to a lot of effort to lighten the engine to fit in with the 1320 lb (600kg) weight limit for LSAs. Fitting lightweight starter, alternator and replacing Magnetos with an electronic ignition is a large part of this effort. Even the aviation type spark plugs have been replaced with ones that look like they should be in a lawnmower.

The ignition system deserved some study prior to flight. It is totally battery powered, so if the battery goes flat, so does the engine. An emergency backup battery is supplied, which will give 30 minutes flight in the event of the main battery failing. Obviously it is important as part of the run-up checks to ensure that the emergency ignition system will work. The main battery should be kept in good condition, and should be capacity checked at the annual check, and replaced every two years. Cheap insurance.

On one of Bobs test flights the ignition check showed a RPM drop, consistent with a failed plug. However when the engineers took the cowlings off to change a plug, the problem quickly became evident of simply a wire that had come off one of the ignition coils.

The preflight check showed that a lot of modifications that had been fitted to Super Cubs in the past had been incorporated. Examples include vortex generators on the wings, baggage door behind the main entry door, 50° flaps and hydraulic shock absorbers (versus Peter's bungees).

The cockpit showed more efforts to reduce weight, the rear seat 'hammock' arrangement for instance. Gone are the traditional heel brakes, replaced by toe brakes more familiar to modern pilots. The elevator trim is electric, but with no cockpit indicator, replaced by a takeoff range painted on the rear fuselage, which should be checked during the preflight. It is possible to line up the elevator and horizontal stab from the cockpit, but requires some contortions to be able to view.

Starting is standard for the carburettored engine, and settles quickly during the warm-up. There is no ammeter or voltmeter to check during the run-up, just ignition (including emergency backup), and carb heat. Cowl flaps are 3 position, ground adjustable so will normally only be changed with change of season. During the test flights with the cowl flaps open and 21° days the engine ran at the bottom of the oil temp green range. Closing the flaps to their lowest position still only just brought the temp into the green range. Taxiing is easy with the Maule or Scott tailwheels fitted, as with all Cubs. The steering responds well to differential braking to tighten the turn.

The first takeoff, WOW!! With only 10 knots of headwind, and deliberately only using 80 of the 180 hp available from the engine the takeoff roll was spectacularly quick. Bill estimates only 2 – 3 aeroplane lengths. Full power for the climb then produced over 500' above the runway 07 threshold at Hamilton. Although the best ROC speed is published as 57 knots, 80 was a more comfortable angle and still produced over 1000 ft/min climb rate.

Steep turns were normal, stalling at no flap and power, was a typically benign Cub, but full flap and 1500 RPM gave a good wing drop, and quite a sharp nose drop. It would be a keen pilot to be operating in this range close to the ground with a stall speed of about 25 knots indicated. All perfectly manageable by a typical PPL though.

Stalls in the turn showed a tendency to roll out of a left turn and into a right turn. Once again perfectly controllable.

The aircraft both did about 2 hours of test flying in Yakima before being freighted to NZ, so the engines are still being run in. The requirement to operate at high power settings on a regular basis gave the opportunity to test the high speed cruise range. Normal cruise speed at the maximum continuous setting of 80 hp for an LSA gave 93 knots, just in the bottom of the

yellow airspeed arc. Increasing the power to 2400 RPM produced 110 kts, 2500 RPM 113 kts, and 2700 RPM (redline), gave 120 kts, with Vne 122. BPC with a finer pitch prop produced about 5 kts slower through the range.

Back into the circuit, by this time the wind had increased to 24 kts, showed normal Cub techniques can be successfully adopted. On CSS Bill carried out a wheeler, flapless and flapped 3 pointer with no issues. The 3 pointer only took about 10 metres of ground roll in the conditions. Taxiing in with the tailwind showed up the lightness of the tail compared to our Cub, but was perfectly controllable provided the controls were handled correctly and brakes used sparingly. During the flying on BPC Bill carried out a landing on the seal, which showed the typical Cub need to keep a tight rein on the directional control.

Overall Bill found the aircraft a delight to fly, the finish and fittings were very well done.