New Cavalon Gyro Lands in NZ

FORMED in 1999 and represented here in New Zealand by Tony Unwin and his company Gyrate at Tauranga, Auto-Gyro Europe has fast become the world's leading autogyro manufacturer. Based in Germany where virtually every component of their range of aircraft are manufactured in-house, the company now employs 50 staff and has produced well over 1000 aircraft. They are currently operating at a maximum capacity of some 300 aircraft per annum.

Their latest design is the Cavalon, a fully enclosed side by side model designed for comfortable cross country touring. Built in response to market demand and launched in 2012, more than 60 have already been produced (with currently a 3 month wait for a build slot). We already have 3 of those here in NZ.

The new Auto-Gyro Cavalon, offering side by side seating and very comfortable touring.

The design is revolutionary for a commercialised gyro. Cavalon has a fully structural carbon fibre monocoque body. The engine frame bolts directly to the body, as does the very short stainless steel mast. A firewall is incorporated between the cabin and rear fuel tank / engine installation. The undercarriage and tail are also carbon fibre, the strength of which can be demonstrated by four people standing on the horizontal stabiliser simultaneously.

The aircraft is powered by a standard Rotax 914 with an Airmaster constant speed propeller. The main rotor is 8.4m in length and made of extruded aluminium. All controls are by push-pull cables and pitch and roll trim systems are standard.

Payload is up to 235kg depending on engine options and the large cabin can accommodate most pilot sizes with a maximum seat weight of 110kg. A 100 litre fuel tank gives a cruising range of 6 hours at 80mph and with generous luggage space behind the seats, Cavalon can be considered a genuine cross country touring aircraft. Cruise speed is 90mph and Vne is 100mph.

Cavalon holds the British BCAR section T certification for gyro design and also recently won a prestigious Red Dot design award ahead of 4500 other products entered and voted on by a 30 member jury.

An Abundance of Features

Aside from being very user friendly and versatile, Cavalon offers great visibility, comfort and cabin space. Seats are fully adjustable in position and tilt, and pedals are also adjustable. Doors which include good sized air vents, are held open by pneumatic struts. There are high intensity LED head lamps, strobes and nav lights. A variety of instrument configurations are available, including the latest options in EFIS and MFD systems.

Flying the Cavalon

Your KiwiFlyer Editor has a good few gyro hours up his sleeve and it's fair to say, I was quite looking forward to a fly of the new Auto-Gyro Cavalon.

We start with a typical pre-flight as Tony also points out some of the features of the aircraft. An unavoidable first impression is that the Cavalon has been very nicely engineered and manufactured with a huge amount of attention to detail. It's very European.

I'm not used to fully enclosed gyros. My own is a completely open frame Dominator design and I enjoy the aspect of essentially having a chair that flies with nothing around you. I have flown partially enclosed Magni Gyros and the Auto-Gyro MTO Sport but this will be a new experience. I also have a fair amount of Robinson R22 time and am expecting the Cavalon cabin to be similarly 'cosy' (read cramped), especially for taller people such as myself. It's not. In fact it is remarkably spacious with plenty of shoulder room and fully adjustable comfortable seating.

We adjust the seat, more for the sake of it than because it looks necessary. Access is easy and the doors hold themselves open with pneumatic struts. With feet on pedals, knees are a little raised and this would be fine except that the pedals are easily adjustable by a very clever slide arrangement operated by reaching down to where your feet are resting. I can stretch my legs out and am already thinking that this cockpit would be comfortable enough to sleep in.

It only takes a few moments to acquaint myself with the quite large instrument panel. This aircraft is optioned with a fully functional Dynon EFIS which appears to monitor, calculate, store and display everything imaginable.

Visibility is excellent, even with the large panel taking some of the lower forward view that is always there in partially enclosed and open gyros. I can't look at the ground between my feet but there are many advantages that are outweighing this small compromise.

It's time to start and taxi to Tauranga's grass crosswind vector. Tony talks me through the process which is straight forward. Steering is by nose wheel and braking by a single lever coupled to the throttle for one handed operation. We're not hurrying but the suspension absorbs the bumps with no effort.

Lined up now, the pre-rotator is engaged electronically with a push of the stick mounted button, again making for safe and easy one-handed operation. With stick back the blades will comfortably self (i.e. auto) rotate in the wind from 100rpm so it's off with the pre-rotator and brakes and on with the throttle until we are balanced on the main wheels and ready to fly. Despite Tony's encouragement (more throttle, more throttle, more throttle) I'm being cautious with the progression as I get a feel for the aircraft's handling, and we use about half the runway to get airborne. Then we're into a steady climb towards the Mount for some handling exercises.

My first airborne impression is that being inside the fully enclosed cockpit makes this feel remarkably like a fixed wing flight. It's timely to note here that it is a hot day and that the cabin ventilation and door vents work very well, helped also by a retractable overhead sun-screen. We throttle back to a cruise speed and the noise from our full power climb diminishes. With noise cancelling headsets, the cabin is a pleasant place to be and communication is very relaxing. That's one big difference to an open frame gyro which usually requires shouting into the microphone for anything to be heard above the racket from the prop and wind.

Now at the Mount, we're due for a reminder that we are indeed flying a gyro. That comes by way of travelling just below the summit on the lee side in 15-20kts of breeze. Buffeting is there, but it's minimal and not at all uncomfortable – a trait of gyros which easily handle wind conditions that would ground most other microlight

Captions above right:
Cavalon heading towards Mount Maunganui. Insets show door open and LED headlight detail.

aircraft. The other reminder comes by way of Tony demonstrating some typical gyro manoeuvres. We turn on a dime to fly in the other direction, then turn back again for an orbit of the Mount. I take control again and try the same, expecting that yaw and pitch control will require more attention than I'm used to in a gyro, due to the fully enclosed cabin presenting so much surface area to the relative wind – typically a problematic handling issue for pusher configured gyros. It's not too bad though, and quite a lot easier than I expected to maintain coordinated flight throughout a range of manoeuvres, although I didn't try to upset things by deliberately flying poorly.

On approach to runway 07 at Tauranga. Top right: Seat backs are easily adjustable for tilt. There is also ample luggage space behind the seats. Bottom right: Pedals can be quickly adjusted for reach.

We return to Tauranga and I manage a normal approach (discovering that the aircraft is indeed slippery and not all that initially interested in descending) and typical gyro-style low speed landing into wind again on the grass vector. Later as part of a photo flight, Tony sets us up for a crosswind landing onto the seal (the EFIS suggests about 18kts worth). That's no mean feat in a gyro and we land, albeit with a bump (sorry Tony I had to mention it), demonstrating both Tony's confidence in the aircraft and its flight envelope versatility.

Taxiing back to the hangar, I'm wearing my normal gyro grin. Pre flight, I had wondered whether flying in a fully enclosed, luxurious gyro such as this would rob me of the 'fun' experience that gyro flying is. And it didn't. It's not like the open-air motorcycle in the sky I'm used to, but it is still very enjoyable and simultaneously quiet, comfortable, and warm. You can talk to your passenger easily, open and fold a map, even have a cold drink. This is a serious cross country proposition that you can comfortably fly in moderate winds and have plenty of fun doing so. If you've been avoiding gyros for reasons of perceived comfort, you need to call Tony and go for a fly in the Cavalon.

For more information

For all enquiries about gyro sales or flight training, contact Tony Unwin at Gyrate in Tauranga on 0800-FLY-A-GYRO, email: fly@gyrate.co.nz or visit **www.gyrate.co.nz**

contributed by Jill McCaw

In Praise of Local Fying

MY gliding stories often involve amazing feats of derring-do and awesome records broken – gliders going higher, further, faster. I am worried that readers of my column will get a skewed idea of what the sport is all about.

> " The joy is in the flying. Where you go or what you do while you are flying doesn't matter one little bit. "

A while ago I got involved in an email conversation with a Taupo Gliding Club member, Warren Pitcher. That sentence above is his words and I couldn't have said it better myself. I am a local pilot myself. I only rarely fly cross country, and even then it barely rates as cross country flying compared to what some of my friends and family are doing. I tip-toe away from the airfield and if I'm out of glide range of my home airfield I'm a little bit nervous and I won't do it if I haven't got complete confidence in the weather conditions and know that I can get home again. I'm not saying I couldn't land out. I know the land out areas around Omarama and Springfield where I do most of my flying and I'm quite confident I could land in any of them safely. I just really don't think it's worth the bother.

I do fly cross country with other more experienced pilots and it is a glorious experience. I've flown hundreds of kilometres and climbed to lofty heights with legends and friends. I've even had 'epic landouts' on some of these trips. (An 'epic landout' is one in which the retrieve is more of an adventure than the flight – for instance landing on the surf beach at Raglan and taking 5 hours to get the glider back to the airfield 2 km away.) The thing is I don't want to go through any of that on my own. I like just pottering around in the air. I don't need to go a long distance to enjoy my flight.

Warren described it perfectly in his email and I'll going to leave the rest of the column to him.

"I really enjoyed getting away from the home strip on the odd few occasions I flew cross country. But if I am truly honest, the hassle of retrieve crews and all the extra work, not to mention risk taking, higher stress levels, etc of that sort of flying meant that I enjoyed my flying far more if I could spent the flight close to home base in familiar territory, knowing I would be safely tucked up in my own bed after just a brief walk back from the hangar to my tent.

"I remember a flight in Taupo; I flew over four hours, always in sight of home and chatting happily to Christchurch control most of the time, as I mooched about high above Lake Taupo, well above seven thousand feet. I could have gone in any direction for miles, but the place was so beautiful and the lift that day was weak wave, silky smooth and simply delightful. When I finally landed I was met by many stories of cross country flights that had ended far away in paddocks with many folk involved in long dreary retrieve drives. I had had a wonderful time and ended up back home with my glider beside my tent and my un-driven car collecting dust under the tree the other side of my tent. Such contentment!

Sometimes all you want is a nice safe view of your local airfield (Omarama).

Landing on the beach at Raglan was no big deal but created an epic retrieve.

Airborne above Lake Taupo is a very scenic place to be.

"Never feel you have to apologise for flying locally, when you may have been able to fly many miles cross country in some other person's opinion. I know lots of pilots with a great many hours in their logs and far better pilots than I'll ever be, who have never flown away from home base, they are all just as much in love with gliding as the fanciest cross country pilots. Each to his/her own I say."

Thanks Warren. I enjoy my thermals and my familiar view of the world from on high, every bit as much as those who have made it past the curve of the earth. Gliding is an amazing sport that really does provide something for all pilots. If you'd like to give it a go, get in touch with your local club. Find the details on the (newly upgraded) Gliding New Zealand website. www.gliding.co.nz

I'm Jill McCaw. For aviation, gliding and rugby photos, plus subscriptions to SoaringNZ see our (also new and upgraded) website: www.mccawmedia.co.nz

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