



If I won Lotto — Three at the top

Recently I was fortunate enough to be invited by Bruce Brownlie to compare the new Cirrus SR22 with other top-of-the-line light aircraft from past years, the Cessna T210R from 1985 and the 1949 Cessna 195. How could I refuse?

At first sight it is difficult to distinguish the fifth-generation SR22 from the G3 model of two years ago, much the same as it is difficult to detect differences between subsequent models of Cessna or Piper. What happened to the G4, I hear you ask?

Cirrus was working on the G4, an updated G3, when the decision was made to also pursue an increase in takeoff weight to 3600 lbs, which was in the original specification for the G1. The changes were so great that Cirrus decided to bypass the G4 in favour of incorporating all the changes in the G5 model. Hence no G4 (a bit like Apple bypassing the iPad3 I suspect).

In a nutshell the changes from the G3 to G5 include improved brakes, increased gross weight, lighter empty weight, increased parachute size to cater for the increased weight, redesigned undercarriage, flap limit speed for the first notch increased to 150 knots, and evolutionary changes to the avionics including ADS-B transponder and Garmin autopilot as standard fits.

ZK-CNZ, the company demonstrator delivered from Duluth to Feilding on 13 September, is the subject of our evaluation. It comes in at an empty weight of 2355 lbs, and our load of 40 US gals of fuel and two adults gave a takeoff weight of 2975 lbs. MAUW is 3600 lbs, an increase of 200 lbs over



by Bill Henwood
SAA SP1982

The fifth-generation Cirrus SR22's improvements are largely structural and incremental and it shows only slight external differences from previous models, but the overall look is sleek. Cirrus is now directly represented in New Zealand.

previous Cirrus generations. Bruce is an 8000-plus hour commercial pilot with a D category instructor's rating, very useful for being able to demonstrate the aircraft and type rate prospective owners.

ZK-CNZ has the GTS options including yaw damper, enhanced vision system, TCAS and TAWS, electronic charts, a premium paint scheme and leather seats fitted as standard, but with air conditioning instead of the flight into known icing (FIKI) capability.

Starting is conventional for a fuel injected normally aspirated engine, and the closely cowled engine warmed to normal temperatures in short order. Conditions were not ideal with wind gusting 30 knots and forecast to increase to 60 knots at 2000 ft. This would be a good test of aircraft and pilot!

Steering is through a castoring nosewheel, and taxiing in a crosswind resulted in full rudder and frequent use of the differential brakes



The Cirrus cabin is spacious and comfortable, but the quality and colour of ZK-CNZ's leather upholstery would discourage using the seat as a step for entry.

to stop the aircraft weathercocking into wind (almost like a taildragger). Using the electronic checklist helped ensure that the aircraft was safe and configured, with flaps at 50 percent for takeoff.

Takeoff roll was understandably



Primary flight display (PFD) and navigation display (ND) showing the RNAV approach to rwy 11 at NZWU. The PFD is set to show the "path in the sky" symbology (pink boxes), synthetic vision, TCAS (bottom left corner) and altitude and IAS scales. The ND is set to show the plan view of the approach. On the left of the display are the engine parameters, and the route from the database is on the right.



John King

ZK-TRO is an example from the last series of Cessna 210s, and in the opinion of owner Bruce Brownlie it is by far the best.

quite short and a steep climb ensued at a cruise climb speed of 90 knots. After a pause at 1500 feet to talk to Ohakea ATC we gained clearance to climb to 10,000 feet to find smoother air in a clear patch of sky. Through 7000 we were climbing at 110 knots, and 1050 ft/min at 79 percent power. Book figures are 1110 ft/min at 2900 lbs AUW at 88 KIAS for best rate of climb.

On reaching 10,000 feet the Cirrus settled to 142 KIAS, 167 KTAS with 67 percent power and 13.6 US gals/hr (about 51 lt/hr). Book figures in ISA are 64 percent, 173 KTAS, 16 GPH. The single lever power control is achieved by an automatic propeller governor set at about 2500 rpm, so the throttle controls manifold pressure and mixture sets fuel flow. A dynamically calculated green arc on the engine monitoring system allows for accurate mixture setting during all phases of flight, and we kept the fuel flow at the top of the green arc for climb and fine-tuned the mixture with the aid of the EGT gauge during cruise.

Steep turns were no surprise, although through 25 deg the full-time electronic stability and protection system (ESP) increased the force on the ailerons to remind me not to bank much further. This was helpful later on during our air-to-air photo

shoot when I was banking to join up with the camera ship and was a bit exuberant with angles.

This is the system protecting the pilot as designed. It is possible to overpower it, but the aileron force increases proportionately to bank angle. Similarly the elevators introduce a nose-down pitch force before the stall angle of attack is reached. Stalling was also standard, with no sign of wing drop unless abused.

After an RNAV approach at Wanganui we cancelled IFR and proceeded VFR to Feilding, arriving there after about eight minutes with the strong tailwind aiding our progress. This time must be a record by a single-engine aircraft not achieved since the A4K Skyhawks left the Ohakea skies over a decade ago!

As we expect from Cirrus by now, the finish of the aircraft was exemplary, with very comfortable leather seats and plenty of leg room

for the rear seat passengers. Initially I thought the pilot seats a bit hard (don't stand on them when getting in otherwise you can damage the honeycomb), but two sessions of nearly an hour each did not result in a sore bum as expected.

The side stick also seems odd at first, with an in-and-out motion like a yoke for the elevator but rocking motion side to side as a normal stick for the ailerons. However, it takes only a couple of minutes of flight to become accustomed to the action.

Cessna 210

Cessna produced 112 examples of the Cessna T210R in 1985 and 1986, the last of the popular C210 range. Total C210 production from 1957 to 1986 over 26 models was 9240, firstly as a 260 hp four-seater with wing struts, then as a six-seater with a strutless cantilever wing.

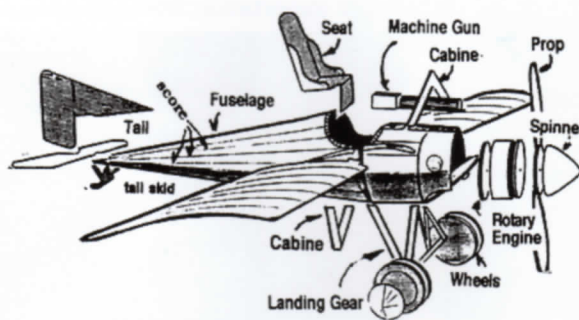
The original C210 was basically a C182 with retractable undercarriage, and Cessna obviously went back in time when it produced the C182RG in 1978. ZK-TRO was in the last batch, powered by a turbocharged 325 hp TSIO-520 Continental. With its low drag profile the Centurion rightly deserves its reputation as a hot ship, and more than one pilot has accidentally pulled the wings off in a recovery from a high-speed dive. As with any aeroplane, maximum manoeuvring speed needs to be respected.

TRO is IFR equipped with an Aspen PFD (primary flight display), Apollo MX20 GPS and 115 US gal long-range fuel tanks for 1250 nm at FL200 and 7.2 hours' endurance

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Bill Hemwood

ZK-TRO's instrument panel includes an aftermarket Aspen PFD/ND.

at 12,000 feet, 55 percent power. Compared to previous Cessna 210s that I have flown, TRO was delightfully light on the controls, due to the factory removal of the interconnection between ailerons and rudder. This means the pilot has to coordinate the controls in a turn, but makes crosswind landings much more manageable as you are not fighting the weight of the interconnect mechanism.

On departure from Feilding we obtained a clearance from Ohakea Control for a climb to 12,000 feet. Takeoff weight with Bruce and me and about half tanks was 3400 lbs giving another 700 lbs available for more fuel/payload. The undercarriage must be raised (or lowered) at less than 165 knots, but we can go up to 200 knots once the gear is locked down.

Passing 9300 feet at 115 KIAS we were climbing at 850 ft/min, with 30 in MP and 2600 rpm, (approximately 76 percent), against book figures of 107 KIAS 1460 ft/min, full throttle (33 in, 2700 rpm). Once established in cruise, with 31 in, 2400 rpm, mixture leaned to 73 lt/hr we showed 157 KIAS and 191KTAS. Stalls and steep turns were conventional, with the elevator loading up in the steep turn as I remembered from previous C210s. Stalls both clean and with flaps down showed about 11 knots reduction with full flap and very little tendency to drop a wing.

Bruce said he had flown TRO to Australia and the Pacific Islands, as well as numerous trips to the South Island, an indication of its utility and range. Book figures show a range of



John King

The Cessna 195 pilot sits with head forward of the main spar carry-through structure, but a copilot is useful when taxiing in confined spaces.

1250 nm at FL200 (20,000 feet), with a maximum endurance of 8.7 hours at sea level, 45 percent power, or a more practical 7.2 hours at 12,000 feet, 55 percent power. Without the benefit of being able to get up and walk around mid-flight, even the latter would be a bit bum numbing!

Best cruise speed is an impressive 214 KTAS at 71 percent power and at FL280, well above most weather but obviously requiring oxygen.

Cessna 195

Finally the Cessna 195. The previous day was not one to sample such a classic in strong winds, but Sunday dawned clear with no wind. It was all on for flying the C195 and some air-to-air photography with the Cirrus and C210.

On initially approaching the C195, one is taken back to a bottomless oil barrel, gentler but still busy time. From the front, the aeroplane shows an imposing presence by the size of the 275 hp Jacobs R755 radial engine. The C195 and its smaller-engine sibling 190 were originally designed as fast business aircraft to carry 5 adults in comfort. Including military production, a total of 1180 Cessna 190/195s were built between 1947 and 1954.

ZK-BEB was externally restored before importation from Canada,

and the interior was completely refurbished by National Aircraft Interiors at Nelson shortly after delivery. Obviously BEB has been kept in nice condition since, as befits such a classic.

The single cabin entry door on the right-hand side of the fuselage is of solid construction and is linked to a fuselage mounted entry step that retracts when the door is closed. Closing the door produces a satisfyingly solid thunk, as with a luxury car. A separate baggage door is located just aft of the main door. The interior leather upholstery gives a luxurious feel, and once established in the pilot's seat everything comes to hand nicely.

During the pre-flight check the all-important procedure of clearing the radial engine is carried out. Two full engine revolutions are required to ensure no cylinders contain leaked oil, which could result in a cracked con rod if not drained out. Otherwise the preflight is standard for a metal aeroplane.

Optional dual controls are fitted to BEB with the standard fit a throw-over type control column. Starting is a little more complicated than the modern piston engine. The Jacobs requires two to three strokes of the primer, regardless of the temperature of the engine or outside air. Two ignition systems are fitted, one supplied by battery power (B Start) and the other a conventional magneto system (M).

The B Start is used for start, with Both Run selected after start. Starting requires engaging the starter while three blades turn, then selecting the ignition to B Start. The



Bill Henwood

ZK-BEB in cruise at 1200 feet, 1900 rpm, 21 in MP, 55 percent power, burning 31 lt/hr at 140 mph.

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engine fires readily if the pilot carries out the correct procedure, and 800 rpm is then set for the warm-up.

After start the propeller is set to the high rpm position (fine pitch) once the oil pressure has been in the green for at least 30 seconds. This action fills the propeller hub for normal operation.

During taxi out Bruce and I discussed the brake system, a Cleveland system instead of the original units. The Clevelands are much more effective so there is a possibility of the aircraft nosing over if they are used too enthusiastically. Steering is effected up to 21 deg by springs connected to the rudder, and at more than 21 deg the tailwheel is fully castoring through the use of differential braking.

Takeoff is performed in a tail low attitude at full power, attitude then set to climb at 75 mph, full throttle, for obstacle clearance, or 100-120 mph for a cruise climb with power set at 23 in MP and 2000 rpm. Cruise power is 1900 rpm, 20 in MP, 55 percent power, giving a cruise speed of 140 mph and fuel flow of 49 lt/hr. Maximum range is 900 nm at 10,000 feet and maximum endurance is 6 hours at 10,000 feet, 55 percent power.

We found some clear sky at 2500 feet to explore the handling. Steep turns were a delight, with the controls not loading up much, and although the windows look small from the outside, visibility is sufficient when using the overhead windows to clear inside the turn. Stalling was a non-event, gently dropping the nose at about 64 mph, no difference with the electrically operated full flap selected, increasing drag but not lift.

As the aeroplane was not certified for IFR (why would you?) we searched for the camera ship for the air-to-air photos attached to this article. The formation position was easy to keep in this aircraft given its lovely handling, not much turbulence having developed by mid-morning.

Photos finished, we returned to Feilding for a three-point landing. No mention is made in the POH to wheeler landings except for during crosswinds, but the three-pointer worked well. The aircraft can be sideslipped with full flap, and we approached at 80 mph, aiming for 75 mph over the fence. A short field landing is carried out power on at 70 mph.

During taxi in the engine is required to be idled at low rpm (coarse pitch) for two minutes before shutdown, so we stop, set the rpm to 1500 to enable coarse pitch to be set,



John King
"Only a few more seconds and we can relax, lads."

then continue taxiing to the hangar. After the aircraft is safely in the hangar we can relax.

Progress

All three aircraft have similar engine sizes, so although they have different weights and seating arrangements, I feel it is fair to compare their performance. I put an example four passengers, 13 lbs of bags and fuel to MAUW in each to compare range and endurance of all three (no reserve).

The Cirrus G5 can carry the load for 1169 nm and 5.96 hours' endurance, burning 552 lbs (348 lt) of gas; the C210 carries the load for 1061 nm in 6.12 hours, burning 586 lbs (370 lt) of gas; and the Cessna 195 carries the load for 900 nm in 6.0 hours while it burns 456 lbs (288 lt) of avgas.

Considering the differences in

MAUW, the heaviest aeroplane with the biggest engine burns most fuel for the payload, and the lightest aircraft and smallest engine burns least for the payload. Not a big percentage difference, though, even with 65 years of progress.

If I won Lotto and I had the opportunity to own any of the aircraft, which one would I chose?

If I wanted a trans-Pacific capable aircraft I would choose the Cessna 210. If I wanted an aircraft for business on regular trips the length of New Zealand, I would choose the Cirrus. And if I wanted an aircraft for pleasure, to take out on fine Sunday afternoons and special events, the Cessna 195.

All three are the top of the line in their respective roles and eras. All could be considered to match up to expectations.

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*Note: all gross weights for the three models are with utility category strength—not standard category.