15-16 April

AGC Weekly News

The weekly newsletter of the Auckland Gliding Club at Drury, Auckland

2022-23 Summer Instructor Debrief

Ross Gaddes

It is with sadness we have farewelled the second instructor from the Auckland Gliding Club. I doubt there is anyone in the club who has not been impressed with the two candidates we welcomed to AGC in early January. Typically, Murphy's law ensured that we had some miserable weather almost as soon as Georg arrived in NZ. Miha was slightly luckier as our weather settled although we normally enjoy much more stable conditions by the second week of January.

Miha

The program which was muted as far back as 2012 has had almost entirely positive results. This involves voluntary instructors, from the Northern Hemisphere (normally), who stay and assist us at Drury anywhere between November and April during our busiest and driest period. The idea is that we can be open for business seven days per week rather than three days. The instructors can manage our operation Mon-Friday to ensure our members have more options.

The obvious benefits are many – we get to spread training of students and general flying over more days – we can introduce trial package members without conflicting regular training – we can run courses to accelerate student progress – we can offer continuity of training with known instructors – we take pressure off our hard-working instructors, allowing them to enjoy summer as a pilot or with family etc. Also (important from my view) is that we create more opportunities, for AGC members, to undertake longer XC tasks at home, or attend competitions and events when local instructors are either unable or unwilling to participate. This also utilises our dual XC aircraft whilst showing and teaching members what gliding is about at that higher level (as well as the pitfalls).

Georg

But there are other benefits too – we get to make good friends with pilots from other counties and we learn from their experiences and practices & culture.

I think Georg and Miha have shown that our program really works. Even with very poor weather we have managed to do a huge amount more than what would have been managed otherwise. Recently on Wednesdays it has been

difficult to offer an instructor or tow pilot/winch pilot and the two have resolved that problem. Their professionalism and ability to work together has been fantastic and much better than anyone would have hoped for.

I also believe them when they have assured me, they have had a fantastic time also. They honestly like our club; they have liked all those they have met and been involved with, and they have done as much flying as they expected and in fact even more than what they anticipated.

We have, the last few years, had a gap when this initiative has been unable to take place, due to Covid and travel restrictions, thank God this is behind us. But for those who are newer and not been around during the previous invitee instructors' visits, I truly believe it has always been successful. Of course, the personalities and traits of all our visitors have differed but, in every instance, they have been of obvious benefit to AGC. I have always had that humble feeling when I am told (by our visitor friends) that the benefits and satisfaction have been of mutual value.

I don't know if we are lucky or what, but I cannot thank Georg and Miha enough – I am proud that we could provide a fun and satisfying holiday for them and thankful of their professional and friendly assistance. I regard them both now as good friends and I know I am not alone.

May they enjoy a fun summer season for 2023 and onwards.

New Members

Keith Macy has informed me that we have a new tug pilot in **Spencer Beavis**. Welcome to the club, Spencer!

And another – **John Turnbull** joined a while back but I seemed to have missed him. John used to fly hang gliders and then gliders some years ago. Welcome back to gliding, John!

Expressions of Interest in DX Going South again

Ross Gaddes

Preliminary expressions of interest are now invited for a DX trip to South Island – similar to last year's trip. I have presented the idea to AGC committee for discussion at the next meeting, so I have yet to have the trip officially approved by committee. I would like to receive initial offers of interest now, please.

rsgaddes@gmail.com

Gliding New Zealand Annual Conference & AGM 10-11 June 2023

Submitted by Gerard Robertson

Please find attached details of the upcoming Gliding New Zealand annual conference and AGM in Wellington. Note that the AGM is on the Saturday morning, and the Pilots' meeting is on the Sunday morning.

There will be no hard copy posting of this notice. However, the usual hard copy 'Annual Report' booklet will be mailed out in late May, and it will also be available for download on the GNZ web site.

Deadlines are as follows:

10 May: Booking accommodation at the special rates (note that the hotel will release any unsold rooms to other guests on this date – so you need to book before then).

13 May: Remits, award nominations, Executive nominations.

4 June: Registration and delegate/proxy nominations.

Kind regards
Max Stevens
GNZ Executive Officer

Please note that Gerard will be overseas at this time (Ed).

Strategies When Low, Part 1

Roy Bourgeois
Courtesy of Wings & Wheels

This two-part article is about things to do (and not do) on a cross-country glider flight when you are well below your planned height band, have already selected a field or airport to land in, and are trying to stave off that landing. Within this subject, we must talk about thermaling low, which is a very dangerous practice - especially in windy and gusty conditions. It is also a controversial subject that some writers address by a blanket rule of "don't thermal below "X" altitude." While that may be reasonable, I believe the decision on when to abandon thermaling and execute the landing is an individual one that should be determined by the pilot after a careful inventory of many factors including experience, currency (both general and in a particular glider), wind and gust conditions, time of day, quality of the field or runway, approach obstructions, personal comfort, degree of tiredness, and (especially for pylon type motor gliders) whether there will be an attempt to start an engine before the land out -requiring more altitude in reserve. While I state no rule about this, it must always be remembered that a land out is just an inconvenience, and something quickly forgotten. But a crash is a disaster that at best reverberates throughout an entire flying career - and at worst ends that career entirely. If there is any question of safety, the decision must be made in favor of terminating the flight.

"Hope is not a strategy" - a note affixed to the instrument panel of Dick Butler's Concordia

If you fly gliders cross country, you will get to this place sooner or later: The flight has not gone according to plan, we are now low and approaching a land out (either at an airport or in a field) and have only a few hundred feet of altitude (before committing to land) to work with and save the flight. We have already selected our field or runway and decided the approach that we will use to get into it. We are no longer progressing on the course ahead. But there is still some time and spare altitude to work with. So, mindful of Dick Butler's pithy observation stated above, how can we use that limited time and altitude to maximize

the possibility of a “save”? Here are some ideas that have worked for me over the years and that you may find helpful.

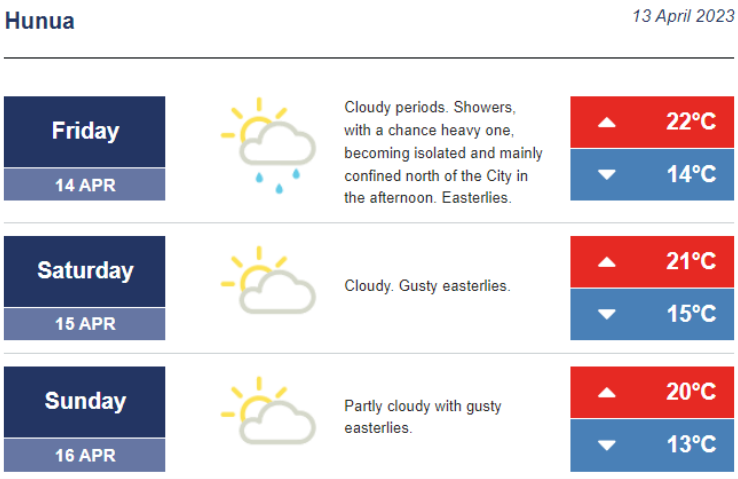
Prepare for the fight
It’s only natural to postpone physiological tasks like eating, drinking, and urine elimination until you are high, cool, and relaxed. But that can be a mistake if you have a long tough climb-out battle ahead of you, especially at a hot low altitude. Once you get below say, 2000’ AGL, do a quick inventory of these things and deal with them promptly before you get really low. We must stay hydrated and keep electrolyte levels up to fly well. And the constant pressure of needing to urinate can make the ground seem much more attractive than grinding out a 0.5 kt thermal.

Get the glider as far upwind of the landing target as possible
Leave enough altitude for a zig-zag flight path back to the target. This technique allows us to locate and work very weak lift and still drift with the wind toward the safe landing spot. If we search downwind of the landing spot for lift, a weak thermal will take us away from where we need to be and if the climb is unsuccessful, we can easily consume all of our altitude trying to get back upwind to a rushed landing. If your landing target is an airport runway then try to avoid the traffic pattern in your search area if you can, but still, get the glider upwind as the first order of business.

Do not cover the same ground twice
Your search upwind of the target field should be a triangle, a zig-zag, or a sideways “W” that takes you over likely thermal sources (infrastructure, tall buildings, farm silos, rail yards, towers, feedlots, junkyards, large power lines, and metal structures) that will trip or focus thermals. Avoid cool or wet areas like swamps, ponds, fields with puddles, or irrigated crops. You can collapse or expand the triangle or zig-zag flight path depending on changes in your altitude reserve. The problem with heading straight out from the selected landing field toward a single likely thermal source is that if it doesn’t work, you must cover the same useless terrain on the return trip. This wastes time and altitude. Frequently when I review a land-out flight trace for a beginner, I see something like a bow tie or shoelace knot pattern clustered around the ultimate landing spot. That thrashing around back and forth to the same point is a waste of time and altitude. Your final flight trace should not backtrack over itself.

Roy Bourgeois is a well-known US and South African glider pilot who served many years as the Chief Pilot for the Greater Boston Soaring Club and now lives and flies in Arizona. He has held several US national records, competed in many US and Canadian Nationals, and has flown over 300,000 XC kilometers in his 4400 hours of gliding. He can be reached at royb@bw.legal

Weekend Weather Outlook



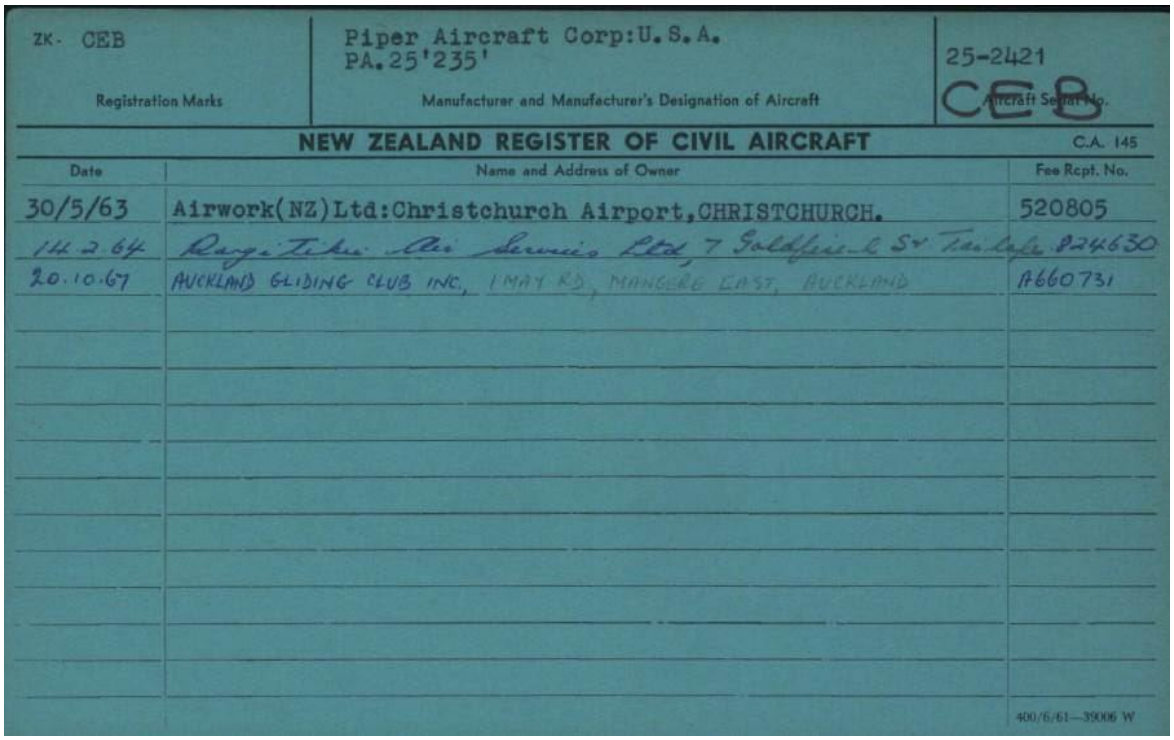
Showers for the east and north on Saturday, gradually easing. Northeasterlies winds pick up over the Far North, but a fine day for western areas.

By Sunday, it will be dry across the North Island, but cloud persists about the north and east.

The Piper Pawnee CEB – Part 1

By Ian Williams, with an introduction by Peter Layne

Peter Layne, Acting President of the Aviation Historical Society of New Zealand Inc, has provided some interesting detail about CEB that predate the Club's ownership, when it was used for aerial topdressing. It was entered onto the NZ register on 30 May 1963 so it is coming up to be 60 years old. According to the Aviation Historical Society of New Zealand records (extracted from CAA's records), its ownership with the Auckland Gliding Club commenced on 20 October 1967. Before that it had been in the ownership of Rangitikei Air Services and used as a topdressing aircraft. The image below shows the original registration card.



ZK- CEB — Registration Marks

Piper Aircraft Corp:U.S.A. PA.25'235' — Manufacturer and Manufacturer's Designation of Aircraft

25-2421 CEB — Aircraft Serial No.

NEW ZEALAND REGISTER OF CIVIL AIRCRAFT C.A. 145

Date	Name and Address of Owner	Fee Rcpt. No.
30/5/63	Airwork(NZ)Ltd:Christchurch Airport,CHRISTCHURCH.	520805
14.2.64	Rangitikei Air Services Ltd, 7 Goldfinch St Taihape	824630
20.10.67	AUCKLAND GLIDING CLUB INC, I MAY RD, MANGERE EAST, AUCKLAND	A660731

400/6/61—39006 W

Peter says: "I am one of those lucky people who have flown in CEB. For many years it retained its loader driver seat ahead of the pilot and after ferrying a glider back to Ardmore from Drury, about 1972, I got a ride back to Drury to collect my car."

A picture Peter Layne took about 1970 when the club owned Pawnee 235 (later upgraded) CEB, Pawnee 150 BWS and Tiger Moth ZK-AIA. The club bought from, and sold back to John Pheasant, now of Tauranga, ZK-AIA

Ian takes up the story from here…

I thought this may be of interest to club members… it is a history of the Pawnee's life with the AGC as seen by yours truly. So, I thought I would hone my literary skills and explain the technical issues and other interesting facts about this aircraft during my time as the Chief Tow Pilot. This presentation may spill over into a couple of newsletters which I am sure Peter will welcome. I will include any pictures I can find.

The prototype Pawnee first flew in 1957 and the Auckland club has owned CEB now for since 1968. While it may be a freak of design, have the aerodynamics of a powered brick and to the average glider pilot, just a means to an end, but for such and ancient design to still be performing well and providing a great service, puts it in a class of its own.

I was appointed the Auckland CTP in early 1987. I didn't ask for the job, rather just got a letter from the Committee informing me that I was it. My predecessor was Reg Trueman. I am not sure exactly what transpired but I think Reg had some personal issues. The club had just fitted a re-manufactured Narrow Deck O-540 A1B3 engine, 260hp, replacing the older 235hp O540. The term "narrow deck" means the flange on the bottom of the cylinders that bolts to the case is not as thick as the "wide deck" which also means the case is specific. Thus, a bit of an orphan engine which did present a few issues later on.

However, June of that year, we decided to take CEB out of the air for a major airframe overhaul. It had clearly got to the stage of no return, looking really scruffy and uncared for. I guess it was just a tool to get gliders into the air and was treated as such. When we pulled it apart the real condition of the airframe became apparent. It was REAL BAD. Greg Ryan of Aerotech and I seriously were considering making it a basket case as unrepairable. However, we decided to rip into it so work began at Aerotech. At the time (and it's still the case today) I was operating a small electronic design and manufacturing business single handed, we were living in a shed at our property in Drury with three small kids. Yep, a great combination to cause a divorce (and it almost did). For the six month period, half my working day was in my workshop, with afternoons spent at Ardmore.

A downside with a Pawnee is that it was designed at a time when cotton fabric was the norm, so it was standard to replace it every five to 10 years, depending on use. This also enabled regular internal inspections. "Modern" Ceconite fabric tends to last much longer than the structure it is covering, so the internal structure can deteriorate significantly before a detailed inspection is made.

Work began in June 1987 and the first test flight was in December 1987. The scope of the work carried out was as follows:

The fuselage was completely stripped of everything, except the flap lever, and sand blasted. We found no less than six holes in the tube structure forward of the cockpit and behind the engine, caused by internal corrosion. I found out that early in its life, CEB had a crew window, which hinged up from below, allowing a passenger who rode in the little bay behind the engine, to have some limited vision. The hinge points for that window had not been welded correctly and were not sealed, allowing water inside the tube structure in that area. So, as well as replacing all affected tubes, we took the opportunity to remove all the equipment from that area which was not needed. This included the crew door and frame, the floor and everything else. A new stainless steel battery box was made for this area and attaching points welded to the airframe. All tubes were then internally filled/washed with linseed oil. New side panels were made, along with a new titanium alloy firewall (liberated from a well-known aircraft operator) and a new instrument panel was manufactured.

There were however two significant changes made. The first was to remove the wing tanks and install a hopper tank. The reason for this was a succession of engine stoppages on take off when using Mogas. Normally this would not have been a problem but an even earlier installation of a cowl flap changed the engine cooling outlet profile. This inadvertently subjected the two electric fuel pumps, mounted on the lower edge of the firewall, to excessive heat soak. This especially on hot days with prolonged ground engine running. With high fuel demand on takeoff and a little head loss through the delivery pipes from the wing tanks, fuel would vaporize inside the pumps. It was real heart attack material because the engine would croak generally just as the plane was leaving the ground. I can still remember that the fuel pressure would always drop to almost zero on take off. My view was that the fuel system was always a bit dodgy anyway, and Mogas just tipped it over the edge. We installed the 140L hopper tank from the ex-Bruce Drake Pawnee which crashed into a house at Ardmore and installed a Cessna fuel filter with just one pump on the inside of the firewall. With a

combination of gravity feed and just the one electric pump, the resultant high demand fuel pressure drop was minima, so the problem was solved. Except we then went away from using Mogas.

The other significant change was with the cockpit doors. Some years earlier, we had another Pawnee, CIW. A young tow pilot called Jim Neald was flying it from Drury to Ardmore for a refuel. While in the air, it is suspected a door hinge broke. The door then entered the cockpit, disabling Jim, and the aircraft crashed close to Ardmore. It was a sad day and an avoidable accident. So, with CEB, we added a third hinge for each door, plus welded gussets for the door, to provide solid "stops" for each door to shut against.

The wings and all control surfaces were inspected, control cables replaced and recovered. The aircraft was totally rewired, a new radio installed, fuselage recovered and the whole thing repainted, using the standard dope finishing process.

Not a lot of work was done on the engine, except fitting a 65 Amp alternator to replace the 15 Amp generator. It was completely rewired along with the airframe. The original wiring in the engine bay was well past its use-by date with bare wires exposed

After six months of marginal self employment profitability and the threat of a divorce if I did it again, CEB was ready for its first flight. It just so happened that it coincided with a December committee meeting and I had a real close view of the clubhouse chimney that evening (the throttle fully open of course). I guess when any project is undertaken like this in a club situation, a lot of armchair experts appear and this project was no exception. I did get a lot of flak and pressure from the committee - "when will it be ready"??!! It was a nice way of raising the index finger. For its first flights it was totally white with black registration letters. Once the flight testing was completed, I used stick on stripes to dress it up a bit.

CEB continued towing at Drury until January 1988. Then one day while towing at Matamata, it had a heavy landing, which broke the rubber undercarriage bungies. The resultant prop strike meant a bulk strip. Fortunately, there was no damage to the engine, as it only had 160 hours. The prop was bent but it was straightened and refitted. Fortunately, the was no wing damage. So, CEB was reassembled to live for another day – but that day too was limited.

The Pawnee at Matamata before Linsay Stephens repainted it in yellow.

After 622 hours, in April 1990 after refueling at Drury, the towpilot started the engine and taxied forward into a Ferguson tractor that somebody had parked in front of the Pawnee. The damage was quite extensive. The prop tried to tie itself in knots rather dramatically and the crankshaft flange was bent. The engine mount was broken and lower cowl bent beyond repair. The engine was repaired using a replacement crankshaft and centre main bearing, and a new engine mount fitted. The little Ferguson needed a new tyre, mudguard and steering wheel and lived to see a

lot more days. We borrowed a prop from Bruce Drake and were back in business. However, rightly so, after a while Bruce wanted his prop back. This forced the issue about the prop and what to do, especially with regard to prop noise and the increase of local population around Drury. We did a lot of work and investigation into four-bladed props and ended up purchasing a Hoffman from Germany. I decided that the right size would be the 120cm pitch model, which was the highest pitch available (110, 115 and 120cm). This was also the only one which had a US STC at that time. The prop duly arrived and was installed using the German LBA certificate for approval. Not really the proper way to do things, but to cut a long story short, I would like to thank David Gill of NZCAA) for his help there in obtaining an official NZ mod approval. This prop has been a saga which will be expanded further down this story. To be quite frank, I have actually never been totally happy with it. The overall performance really did not change much as compared with the standard 82 inch diameter 52 inch pitch metal prop. Maybe it gave a little more thrust on take off. There were a few noticeable characteristics, the main one being a slight elevator vibration when climbing at full power at a low airspeed. However, the reduction in noise was quite dramatic, much to the pleasure of the local community.

In March 1991, after 622 hours, during a 100hr inspection, evidence of metal in the oil was found during an oil contamination test. We continued operating but with constant engine monitoring until the time came when we could not continue. The engine was stripped and it was found that some cam lobes were trying to change from being egg shaped to being perfect circles. Once the cams hardened surface has been damaged, the transition to circular cams is quite rapid. This is a real problem with Lycoming engines, where the camshaft is above the crankshaft and depends on splash feed lubrication. So, tug pilots note: with a hot engine and low oil viscosity, after a glider tow the pilot should ensure that the RPM is kept up to keep a good splash oil supply to the cam lobes. The cam and bearings were replaced with new ones and at the same time the engine was fitted with a new set of rings. The engine then performed OK except that we had an ongoing problem with magnetos. One even came mechanically apart while in flight. The capacitor inside the magneto has a small wire from it to the points and that wire was continually breaking. We even had both mags hiccup during a launch, which gave the pilot a strong urge to get back on the ground and fast.

Despite this, we kept the engine going, despite the magneto issues, until May 1994 (at 1660 engine hours). We then replaced all six pots with new ones (not remanufactured ones). This was done because of an increased problem with oiled up plugs and changing them was getting out of hand. This was also, because CEB was to go the World Gliding Champs at Omarama at the end of that year. We figured that continually having to change and clean plugs would not be a good look for the Auckland Gliding Club. The aircraft performed well at Omarama. The only interesting thing was draining about 600ml of water from the fuel filter the day after I arrived there. One thing I did find down there was that it would not go above 9500 feet towing a glider (but that's another story). *To be continued…*

Flight Test of Gliders and Powered Gliders

Gerard Robertson

Flight Test of Gliders and Powered Gliders

Ronald Blume
Type Certification of Gliders and Powered Gliders
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Presented at the *Motorless Flight Symposium*, 8-10 October 2004, Varese, Italy

Abstract

For the certification of an aircraft, it has to be shown, that it complies with all parts of the airworthiness code (e.g. CS 22 or JAR-22 in the case of gliders and powered gliders). The subparts 'Flight', 'Design and Construction', 'Operating Limitations and Information' as well as the Flight Manual have to be assessed by pilots, to allow a statement about the compliance with the relevant paragraphs. For the subpart 'Flight', test flights have to be carried out to show the compliance and to verify the relevant parameters of the pilot operating handbook. Example of necessary flight test procedures and instruments will be presented and samples of retrieved data and sources of error will be shown.

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Member's Ads

PW5 KF for sale. Current Annual until Dec 2022. Ready to fly. Approx 800 hours flying. Radio, altimeter, airspeed indicator, electric and mechanicals varios. Includes open trailer. **Priced to sell at $8,000**. Ideal for single ownership or cheap syndicate. Reason for sale is that glider is surplus to requirements. Phone Murray on 0275 875 438

This newsletter was compiled by Peter Wooley wooleypeter@gmail.com

Roster

	Instructor 1	Instructor 2	Tug Pilot	Duty Pilot	Winch Driver
April					
Sat 15	Anton Lawrence	Keith Macy	James Bassett	Kevin Johnson	Bradley
Sun 16	Ross Taylor	John Robertson		Kyle Mackie	Grahame
Sat 22	Roy Innes	Graham Cochrane		Lois Kok	
Sun 23	David Moody	Frank Excell		Lance Feldwicke	
Sat 29	Jonathan Cross	Keith Macy	James Bassett	Matt Findlay	TBA
Sun 30	Nigel McPhee	John Bongrain		Matt Kerrigan	TBA
May					
Sat 6	Russell Thorne	John Robertson		Michael Alexander	
Sun 7	Paul O'Neill-Gregory	Graham Cochrane		Nathan Montano	
Sat 13	Roy Innes	John Bongrain	James Bassett	Nigel Caigou	
Sun 14	Nigel McPhee	Frank Excell		Patrick Lalor	
Sat 20	Russell Thorne	Graham Cochrane		Peter Himmel	
Sun 21	Ross Taylor	Keith Macy		Shery Nichols	
Sat 27	Jonathan Cross	John Robertson	James Bassett	Peter Wooley	
Sun 28	David Moody	Anton Lawrence		Tristan Harvey-Smith	
June					
Sat 3	Paul O'Neill-Gregory	Graham Cochrane		AJ Dudley	
Sun 4	Russell Thorne	Keith Macy		Allen Pendergrast	
Sat 10	Roy Innes	John Robertson		Dylan Watson	
Sun 11	Ross Taylor	Anton Lawrence		Caleb Rosvall	
Sat 17	Nigel McPhee	John Bongrain		Geoff Green	
Sun18	David Moody	Keith Macy		Geoff Gaddes	
Sat 24	Jonathan Cross	Frank Excell		Andy Campbell	
Sun 25	Anton Lawrence	John Robertson		Anton Lawrence	
July					
Sat 1				David Moody	
Sun 2				Dion Manktelow	
Sat 8				Frank Excell	
Sun 9				Graham Cochrane	
Sat 15				Grahame Player	
Sun 16				Hugh Warren	
Sat 22				John Bongrain	
Sun 23				John Robertson	
Sat 29				Jonathan Cross	
Sun 30				Keith Macy	