

# AGC Weekly News

19-20 February

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## Weekend Roster

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### Saturday

Tug Pilot: James Bassett  
Instructors: Russell Thorne, Anton Lawrence  
Duty Pilot: Keith Macy

### Sunday

Tug Pilot: Andy Campbell, Dion Manktelow  
Instructors: Ross Taylor, Sam Tullett  
Duty Pilot: Matthew Joyce

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## Expressions of Interest Sought

Wayne Thomas



I would like to know if there are any like-minded people who would be interested in forming a syndicate (much the same as DSM was) to provide a backup tow plane for the Auckland Gliding Club at Drury. The aircraft that I would be proposing is a new Bristell which a group of us recently recommended to the committee as a future tow plane. See the following link:

<https://www.bristell.com/bristell-b23-turbo/>

The Bristell is a metal LSA with a 915iS Rotax 141 HP engine.

I would think a syndicate of about five to six people would be appropriate. If you could be interested or would like to discuss this further, please call me. Wayne Thomas 0276677004.

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## First Solo Cross-Country Flight

Keith Macy

I still consider myself to be very much a student pilot. I have some 90 hours total flying experience and have just crossed the two-year point from when I took my first flight in a glider. I have been solo for just over one year and last year I purchased Doug Henry's LS3a glider. My flying experience has been almost exclusively local, around the Drury area. Until this year's Task Week in January, I had only had one cross

country two-seater experience in the club's Duo Discus. Cross country flying was something that appealed to me but seemed so far away.

I had been solo on the top of the Bombay's many times but to branch away from one's home airfield, out of glide range, was a scary thing for me. It's fair to say that I am a conservative pilot but I still wanted to go and see what was on the

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“other side”. I had also never landed anywhere other than at an airfield, so the thought of just dropping into a farmers random paddock was completely foreign. Last week, that all changed when my friendly instructor decided it was time I experienced this thus effectively removing one of the last barriers to my first solo cross-country. It’s fair to say that all of the instructor training just came through in the circuit and the landing. I can now see the benefits of using the “that looks about right” and the “angle from glider to ground” that is drummed into us. Not once during my circuit, base or final did I look at altitude. I trusted my training. I did check speed a couple of times but the rest came naturally.

On Wednesday this week, I had the first solo flight back in my own glider after a few weeks of two-seater cross country at Nationals as well as the Matamata ridge training. What a joy it was to get back into my own ship.

At the end of the day, Georgia Schofield convinced me that flying conditions on Thursday looked good and we should both go flying. No mention of cross country though!

Thursday comes along and conditions are not too bad. Not as good as Wednesday but we are still going. Georgia being the more experienced cross-country student, immediately wanted to put a task into our phones and set about completing it. Umms and aahhs from me but I decided (with gentle encouragement) to go along with the plan. So, off we both went, Georgia in GXF and myself in GLL. The sky was not looking as favourable as I had hoped but that didn’t stop us from going flying. We both got to the top of the Bombay’s heading to Orton’s Corner as the first turn-point. Looking south there was not much to give me any confidence that we would get any lift. I also had difficulty getting my radio onto the Mercer MBZ frequency, so held back. Georgia advised by radio she was heading for the one cloud in the distance. She had the confidence to just go for it. By the time I had worked out how to program my radio, the sky showed some promise, so I pushed the stick forward and made a decision to just push on, and out of my comfort zone. We both were starting from a height of 4500ft so had plenty of altitude to play with. I could not see Georgia at this stage but we were in radio contact on a regular basis. I stopped for my first climb around Mercer and then just headed to Orton’s corner. Being new to setting tasks in my phone, I had not put a inserted a circle, so ended up going all the way to the actual waypoint. I knew Georgia was south of the swamp waiting, but thought she had already been to Orton, so I started out for the next

turnpoint. Georgia then headed in and rounded Orton as well. Turning from there, we began heading across the swamp towards Monument, on the other side of Twin Forests.



**Georgia in GXF looking south towards Te Kauwhata**

With no lift since my last climb at Mercer, I was getting low at 1500ft while heading into the swamp. It’s fair to say that my nerves were starting to raise a touch, so I was looking for a suitable paddock while still trying to find lift. Luckily, I found a very soft 1 – 2 knot climb on the edge of the swamp and managed to work that up to 4500ft. I do remember at every full circle, until I climbed to over 2500ft, I had two of my chosen paddocks in full view, with my planned circuit clearly in the back of my thinking. Again, I can thank my instructors for constantly pushing these parts of the training - it works. After pulling myself out of the near landout, I carried on over to Monument. By this stage there were some really nice clouds formed and some very strong 8 and 10 knot climbs. Georgia was quite keen to push on further south but conditions looking back towards Drury were deteriorating. This made me put on my “Mr Cautious” hat on and we both headed for our last turnpoint of Hotel Du Vin. Here we picked up a bit more altitude before heading to a very grey sky over Drury, with a final glide home over the back the ridge.

Total flight time was around three hours, which for the experienced cross country pilots is very slow. However, to break free of local flying and complete my first solo cross country was an amazing experience. It was also a huge amount of fun flying with another student pilot. We kept in contact during the whole flight and passed on lift information and even managed to fly in the same thermals a number times.



**GLL in the distance looking south to twin Forests**

Now that I have broken the shackles of Drury, I can't wait to go flying south again. I'm hopeful Georgia and a few of the other solo students will be keen to do some shared tasks. With the two-seater cross-country flying recently, my instructor in the back seat paddock landing, and a gentle

push from a fellow student, I now have the confidence to explore, knowing that a well selected paddock is just another airfield you have not landed on yet. Here are a couple of pictures from our shared flight, thanks to Georgia's mobile phone.



**GLL on GXF wingtip coming back over the Bombay's by Hotel Du Vin**

To other students, hit up an instructor for a cross country experience flight in the club's Duo Discus. It is inspiring.

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## Ask G

G Dale

*"My variometer doesn't seem to work correctly. How do I check the system? Maybe the newest pressure transducer variometers with wind gust algorithms have better results?"*

### Variometer System Check

Go back to basics for a moment: remember that a pilot should be able to discriminate between going up because he's in lift, and going up because he's pulled the stick back. That's the point of the Total

energy system, and if it doesn't work properly then you can't soar properly.

If you have a modern, pressure transducer computer variometer it can measure the speed through the pitot system, measure the height through the static system, and use a super-fast processor to compensate for speed changes, giving a reasonably accurate indication of rising air. Well, it should be easy but...it isn't. The math and physics are simple, but it is really hard to

build good pressure transducers and then filter the output so the signal isn't drowned out by noise (turbulence). And - the glider has to have an accurate pitot / static system. This is not as easy as you might think: some types are certified with pretty big errors. To get around these problems:

Fit a modern variometer - which should have good filtering and fast processing.

If the airspeed system is poor, fit a second pitot/static probe to the top of the fin and use that to drive the variometer.

If there are no leaks anywhere, and if the pitot/static signal is accurate - then it will all work.

### System Leaks

However, most gliders still use a Total Energy (TE) probe to drive the variometer system, because most gliders still use a mechanical variometer as a backup in the panel, which would be no use at all without TE. The TE probe is a clever solution in that only one port - one tube with holes or slots in it - can supply a summation of speed-driven pressure and height-driven pressure to the vario system. I'm not going to get bogged down here in explaining the mechanics of how the air moves around in the system and why, because that requires more space - and besides, I've written about that extensively in "The Soaring Engine" volume four, so if you want to know, get hold of the book. But one thing is very important: there must be no leaks between the total energy probe on the tail and the variometer system in the cockpit. Therefore it is vital to check the system for any leaks at the start of, and occasionally during the season.

### Testing

If you're not familiar with the hardware then you could easily damage the variometer in the process of leak-checking, so I'm not going to give you instructions for doing that. You'll have to get the information from your local maintenance shop, or from someone who can show you have to do it without breaking things. This goes double if you're running a Sage vario - they are incredibly easy to damage. But what you can do is to check the system in the air.

You'll need to take a high tow early in the morning when the air is still. Pretend you're Dick Johnson doing flight tests. Accelerate smoothly from 60kt to 100kt: the variometer should go down, down, down, and eventually bottom out at the commensurate sink rate for 100kt. Then raise the

nose, and watch the variometer creep slowly upward until it returns to show a knot or two of sink at about 60kt. If the needle moves sharply down when you lower the nose, or sharply up when you pull the nose up - your TE system has a leak between the probe and the vario. It should never read above zero.

If the vario reads "up" when you pull up, there is a leak between the probe and the vario. If the vario reads "up" all the time then you have a leak between the mechanical vario and the flask. Take the glider to the shop and get it fixed before you fly it again because your glider is unserviceable without a good TE system, period.

### TE System Alternatives

There is a third option and brand new for the up-to-date pilot who has to have the latest and best gear: the new "HAWK" algorithm from LXNAV. This is a combination of clever filtering, accelerometer data, GPS information, and fast processing that makes it possible for the computer to deduce the air mass velocity at lightning speed. That means it can see the wind (the horizontal component) and the lift (the vertical component) and display both. It isn't exaggerating to call this a paradigm shift. This should remove a lot of the errors that come with conventional TE systems (I haven't even started on those - see volume four) and give you a variometer that truly does tell you if you're going up or down. As a bonus, it will give you an accurate and instantaneous wind. What you do with the information is your own problem...

I hope this is helpful. If you have difficulties with this article - or with your TE system - then get hold of volume four and see if that helps you understand what's going on. Reichmann's "Soaring Cross country:" and Welch and Irving's "New Soaring Pilot" also contains the information you need. If you still have questions then you could "Ask G".

*G Dale is the popular author of The Soaring Engine book series. He follows the endless summer, working for the British Gliding Association, The Gliding Association of New Zealand, and the Gliding Federation of Australia, always teaching cross country flying. He's also flown and worked at various gliding clubs around the world: at Nympsfield as Chief flying instructor, at Booker again as CFI, at Lasham as DCFI and soaring coach, and at Glide Omarama as head coach, with visits to Minden, Serres, Takikawa, Narromine, Lake Keepit, and many other clubs as a peripatetic soaring instructor and mountain flying coach.*