

LOOK OUT FOR A CLEAR WINNER

G Dale explains why complex instrumentation is often a handicap when you should be looking out, and why he is a big fan of ClearNav II and the CNv variometer

THE effect of automation is to reduce the pilot workload when the workload is already low, and to increase it when the workload is high.' – Earl Wiener, University of Miami and inventor of Wiener's Laws. Look it up!

What is the capital of France? Easy. What is 2 x 2? Simple. What is the recovery from a spin? You know it straight away.

What is 17 x 24. Hmm... you have to think a bit harder about that, don't you? Is it 103? Obviously not. Is it 25,000? Again, obviously not. It is in fact 408, in case you care...

Why am I asking you these questions in an article about flight computers and variometry? It is well understood that most of our moment to moment information processing is done by the unconscious mind, the part of you that "just knows" the answer. When do I round out? Where is the middle of the thermal? If you can fly, you don't have to think about these things, you do it automatically.

Complexity in digital variometers and flight computers can work to ease your workload if the interface between the pilot and the computer is well designed. However, in many cases this interface is so poorly designed as to make some computers almost unusable without a lot of study and practice – and even then they are difficult. What was 17 x 24 again? Easy, that's 408. OK, what's 23 x 35? Hmmmm.

If, at any time in a flight, you need to look inside for more than a couple of seconds

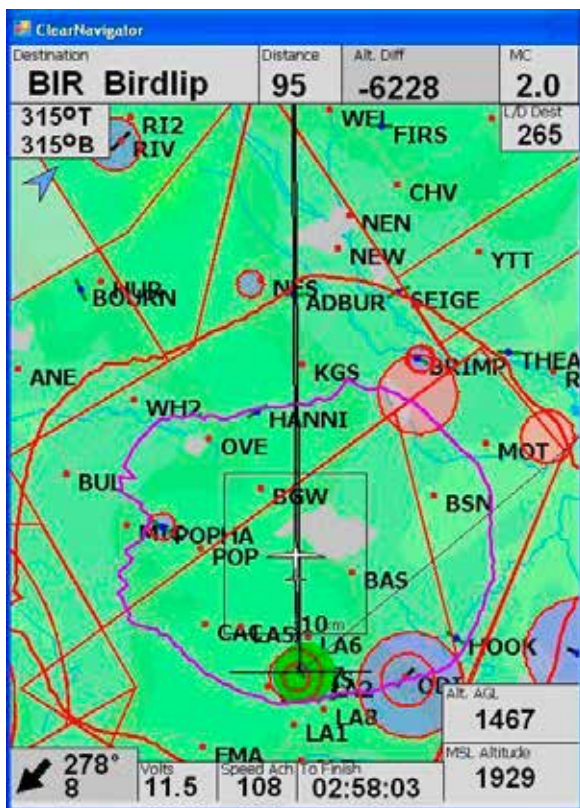
or think – at all – to work out what your computer or vario is telling you, it will slow your flying down. The sort of thinking that starts up when you are trying to work out how to get your computer to do something

is completely destructive to performance in the air. We simply can't do it when we are flying. I've spent many hours with students who became distracted by complex instrumentation. I've had to take over and dodge other aircraft when the pilot of my two-seater has been "head down", staring at the variometer or flight computer. I've heard many stories about pilots "missing the start line", or "falling off final glide", or "busting airspace" due to poor management of flight information systems. I have personally jumped up and down on a badly behaved PDA (what a great feeling, crushing it to death!).

So a quick summary, based on 30 years of racing and 25 years of performance coaching in gliders: complex instrumentation is often a handicap, not a performance booster. Looking outside, practising and cleaning out your systems so you have the minimum that works for you is the way to go. Unless, of course, you are an astronaut... or much smarter than me anyway. (To be fair, not uncommon...)

So to ClearNav. I am not unbiased here, I get a lot of support from the ClearNav company and help with the development of new products, so I am definitely "on their side". To be fair, the GB team get good support from Naviter and I work pretty closely with Shaun Lapworth at Navboys as well, so it's not all one sided. And I do use some of the other gear – SeeYou on the PC and some of the LX products. But back to ClearNav.

It's straightforward – I use it because it is the easiest system I can find. I don't speak Windows as a native language (born 1958 you see) so nav systems that have drop-down menus and half a dozen ways of doing the same thing don't appeal to me in the air. Fine on the ground, when you can stop and think, but not during a team strategy briefing or up in the air when it has to "just happen". And especially not when in a tight gaggle, or running up a mountain ridge hard against the rocks waiting to get to the turn round point in an AAT... just no time to look



Where can I reach in this wind, flying at my MacCready setting? Inside the purple line, at my preset circuit height; at the Red line I hit the ground

anywhere but outside.

The result of using a simple, clear system? I have not missed a start line, nor busted airspace, nor missed a turning point in a rated competition, nor lost a flight file, since I started using the ClearNav. Even the AAT planning is greatly simplified and works out most of the time! (Now, fate, there's a challenge...) This is why I use the gear, as simple as that. (No, I haven't won everything either – that's simply down to poor flying – d'oh!)

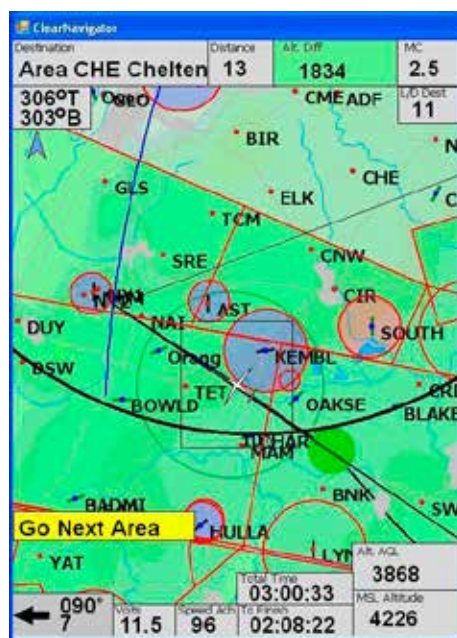
Critics have called the ClearNav oversized (yes, it has a big, bright screen, so I can see it...) and slow and clunky, with simple menus and a hand controller (so no fingerprints to clean off the screen, no need to reach up to the panel whilst pulling in a thermal, no false entries when you slip – I love my iPad, but hate a touchscreen when flying). To be fair, the response to data input is a little slow – so it's just as well that the company has just released an upgrade, ClearNav II, with brighter and clearer screen, much faster processor and the same old reliable simple interface. I've just spent the winter flying in NZ testing it and am looking forward to getting a production version.

ClearNav variometer

A little about the CNv – the new ClearNav variometer. I watched the development of this unit. The first tries didn't work very well and the company would be the first to admit that they were committed to producing the unit in a time frame they couldn't manage. However, the instrument I use at the moment is simply the best vario I have ever used, period. I gave away my Sage. Yes, read that again, I gave away my Sage, the one that cost me a whole month's wages! (To a good home, mind.)

Again, it's not perfect yet. David Masson has designed some really smart filtering software; I could tell you how it works, but then I'd have to kill you. In my Libelle, and in European conditions, it is unmatched for gust filtering, thermal centering, quick accurate averaging and display of airmass movement – netto. The netto function is supremely important when you fly a glider that runs as poorly as any glider at the bottom end of the Club Class.

In some conditions, powerful NZ wave and extremely high wind speeds, it may still throw up some spurious results occasionally – smart filtering software might do that, so there is always a bit more work to do. But overall, it's the best I have used. And there is



Where should I turn on an area task? If I maintain my current cross-country speed, and turn on the blue arc in this (and subsequent) areas, I should arrive back exactly on time

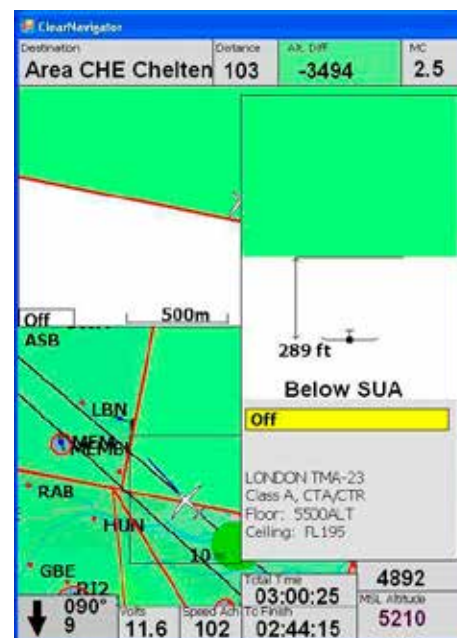
a simple standby nav system attached to it as well, compact and easy to use. It is the only vario in my glider.

By the way, here's a hint: throw away your pneumatic variors, your Cosims, your Winters, Bohlis and Sages. One good pressure transducer audio vario with averager and netto is what you need. If you run a flow meter vario (one with a bottle) and a pressure transducer vario on the same line, it's not going to work as well, with the bottle huffing and puffing into the line. And mechanical variors? What on earth is "looking inside the cockpit" going to achieve? LOOK OUT!!!! That's why you have an audio vario. And if you need two variors, then obviously neither of them are working correctly. Which one do you believe – the most optimistic one?

Redundancy? Yes, I have an emergency standby for nav and vario – a Colibri II. When the glider power dies, it will get me home and do me a valid flight file for scoring.

So there you have it: I recommend using simple, clear instrumentation as far as is possible, and that's why I use the ClearNav and CNv. It may not be the prettiest, it's certainly not the most complex or 'feature-dense', but it just works, really well, without me having to think too hard about it.

** and yes, you might see me using complex instrumentation as well, when flying two up and/or testing gear.*



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For further information and prices:

- www.clearnav.net
- www.afeonline.com



Gerrard (G to his friends) Dale has been gliding since the age of 20 and first trained at Dorset GC. Inspired by BGA coach John Williamson and later mentored by another coach, Chris Rollins, he went on to become a racing pilot and professional instructor. With about 7,000 hours gliding in Europe, the USA, Australia and New Zealand, G currently coaches for Glide Omarama in NZ each winter and is one of Lasham's DCFIs in the summer. He had a double Club Class win in the Pribina Cup and Flight Challenge Cup of 2010, and won the 2011 Club Class Nationals at Pocklington