

What the GNZ Operations Team is Talking About . . .

A summary of key items discussed at the Operations Team on-line meeting on 7 October 2025.

David Moody (North), Roy Innes (Auckland), David Hirst (Central), Warwick Bethwaite (Interim Southern ROO) and Martyn Cook (NOO).

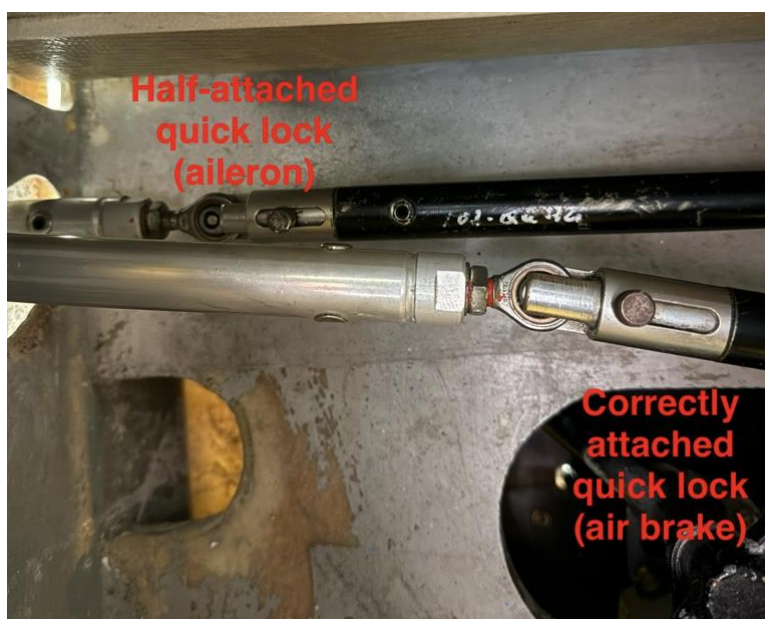
1. Incident Reports for May - September 2025

- trainee overshoot and came close to runway centreline while joining circuit mid-downwind
- tow pilot deviated from tow-out track due rain and poor viz - prior to informing ATC
- pilot descending after wave flight asked ATC for immediate join due risk of heavy sink
- aileron connector found to be not fully locked, after rigging and duplicate inspection
- stall on final approach, heavy landing, broken fuselage - fortunately no injury to pilot

Further Details (extracted from original OPS-10 reports and further investigations)

1.1 Rigging Error Found After Duplicate Inspection

The glider had been landed out and derigged for a trailer retrieve. It had been re-rigged and the duplicate control checks signed off, but not taped up or flown. A few days later the prospective pilot noted that, "As it was yet to be taped and I was first to fly this glider, I double checked the rigging. I found the left aileron's 'quick lock' was incorrectly attached in a half-closed position. It passed a positive control check, but the latch was not fully covering the pin and could have come undone in-flight." See annotated photograph below.



1.2 Stall on Final Approach

A stall or spin in the landing circuit is always serious, and often fatal, as the accident records show. In this case the pilot was very fortunate to escape injury, because the stall occurred about 20 feet above ground level. The glider - a single-seat flapped sailplane - landed heavily just inside the airfield boundary, and skidded sideways until coming to rest. The tail boom was broken and there was damage to the left aileron.

The pilot reported, "I was uninjured and somewhat surprised as to what had just happened. I thought I had enough speed over the fence but it would appear that it was insufficient and that I had stalled onto the runway into long grass". There were no witnesses on the ground at the time. The pilot was keen for a deeper investigation, and seemed genuinely puzzled.

The experienced pilot made a series of bad decisions:

- habitually not using landing flap (another pilot had recommended not to use it)
- starting the circuit low
- flying too far downwind
- approaching at a speed lower than the MRAS for that flap configuration

These resulted in him flying a low, slow, shallow approach, thereby using up any safety margin. He then elected to raise the nose and stretch the glide in order to land near his car, causing a stall from a height that resulting in major damage to the glider - thankfully not to the pilot. The pilot noted that the glider was 'somewhat unresponsive' at the time but still pulled the stick further back.

Unfortunately this is yet another example of what happens when the holes in the Swiss cheese line up. Landing flaps are there for a reason; MRAS applies under specific conditions for a reason; circuit heights and distances are taught for a reason. If these are ignored (by intent), or overlooked (through lack of situational awareness), then it only takes one further bad decision to cause a potentially fatal crash.

2. Review of MRAS and AoA

MRAS = manufacturer's recommended approach speed (yellow triangle on ASI)

AoA = Angle of Attack of the wing

Every glider manufacturer is required by CS-22 (the certification standard) to specify a recommended approach speed. It's not made clear how this is to be calculated, and different glider types appear to apply different safety margins. It's also not clear whether *approach* is defined as *final approach with wings level*, or whether *approach* applies to the entire circuit, including two medium-rate 90-degree turns. Several manuals seem to assume a 1-G loading, so wings-level.

The critical requirement is to maintain *a safe margin above the stall* in the landing configuration. We know a stall consistently occurs at a specified AoA. However, we don't monitor AoA directly. We use airspeed as a proxy, but it's a rather poor proxy because it only applies at a single configuration and wing loading. It doesn't apply in turning flight, nor with different wing loadings.

For example, a single-seat flapped glider might have an MRAS of 57 knots as shown on the ASI. The Flight Manual could specify the configuration at which this applies (e.g. wings level, undercarriage down, airbrakes fully open, full landing flap). But it could also specify that if landing flap is reduced (to give snappier aileron response) then MRAS must be increased (e.g. by *at least 3 knots*). And if no landing flap is used then MRAS must be increased even further.

MRAS is a poor proxy for maintaining *a safe margin above the stall*, except at one specified configuration. Airspeed and AoA are related, but are not the same thing when it comes to stall behaviour. A wing can stall at any speed. One option is to regularly put your aircraft into your chosen landing configuration and explore the stall behaviour at a safe height, noticing all the ways the glider 'talks to you' as the airspeed is reduced.

Another approach was described 80 years ago by the author of *Stick and Rudder*. This involves lightly pulsing the stick in the aft direction and sensing (using the seat of your pants) how *buoyant* the aircraft feels. If the glider feels 'unresponsive' then you have used up all your AoA margin.

Martyn Cook
National Operations Officer
Gliding New Zealand
14 October 2025