What the GNZ Operations Team is Talking About . . .
A summary of key items discussed at the Operations Team on-line meeting on 27 February 2024.
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1. Incident Reports for January - February 2024
- tow plane power failure on launch at 30 feet AGL, glider and tug landed in next field, lucky
- tow plane power loss after take-off, landed two paddocks away, air leak in fuel system, lucky
- tow pilot abandoned launch due to low manifold pressure, turbo waste gate was stiff to operate
- damage on outlanding after engine failed to start, glider went through fence not visible from air
- very low final approach, glider landed across runway, engine was extended but failed to start
- pilot observed to make a very low sustainer engine start with no landing field available
- pilot climbed to altitude far in excess of EDS limits with no prior study and minimal briefing
- tow pilot declined to tow after last-minute call by contest director to land tugs back towards grid
- gear retracted on winch launch roll, lever probably unlocked during exit/entry, checks added
- gear retracted on aerotow launch after encountering small bump, same glider type as above
- near miss prior to start, two gliders circling in opposite directions in adjacent thermals
- brief airspace infringements at Taupo Nationals (4 instances), some challenges with map screens
- thermalled above 4500 ft at contest, breached airspace for 3 mins, complex airspace boundaries
- airspace breach due to pilot not correctly reading on-board screen, demarcation line too faint
- pilot entered GAA believing the airspace was open, controller had not opened it as requested
- landed uphill on strip, wheel brake not holding, raised gear to prevent sliding back into gully
- outlanding during contest, failed to lower undercarriage due to rushed checks, minor damage
- outlanding in undulating paddock, wing touched and glider slid sideways, superficial damage
- bird strike to wing during landing, no damage to glider, fatal to spur-winged plover
- daily inspection not signed for 2-seater used for training, submitter assumed it had been done
- busy launch grid, poor radio comms between towplane lining up and self-launching glider
- private power plane taxied out onto runway without giving way to tow plane on short final
- delay in launch, canopy opened for air circulation, latch not fully closed, canopy opened in flight
- right wing broke off glider part-way up a winch launch, pilot killed, cause under investigation

Further Details on Selected Incidents (details extracted from the original OPS-10 report)

1.1 Towplane Engine Failure After Takeoff: There have been three recent instances of a tow plane losing power on or shortly after take-off. These are critical situations that we all need to be prepared for. One experienced pilot of an affected glider supplied the following candid report, which clearly illustrates a willingness to face the facts:
"Normally, during takeoff and climb-out to a safe circuit height (approx 600ft AGL), I am at a heightened mental state, and generally verbalize my actions in case of a tow failure. On the day in question I did get slightly distracted changing the flap setting from a negative value to the neutral position, looking down momentarily. When I looked up - just as I lifted off - I was catching the tow plane up. Immediately, I thought I had done something wrong - airbrakes, etc.

By this time I was over the upwind threshold at 10 or 15 ft. I still believed we would climb away. I guess I was in denial about the whole situation. There was no indication from the tow plane. I believe there was a power line somewhere, but I don't remember it. I floated across the first large ditch - then applied some positive flap, floated across the second ditch, rolling a short distance on the incredibly rough paddock. The tow plane was always in my periphery vision and we probably stopped at the same time some 20m apart. I know that releasing the tow rope should have been automatic, but in this instance it wasn't - for me or the tow pilot. No excuses."

The suggestion has been made that the pilot's left hand should be lightly grasping the yellow release knob during an aerotow launch, just as it is for a winch launch.

1.2 Sustainer Engine Operation: Three incidents have been reported in which a sustainer engine either failed to start or was only started at a very low height. In one case there was no landing option available.

The height loss associated with an air-start needs to be added to the height required for an unrushed circuit. If an engine start requires 500 feet (before the attempt is abandoned), and a circuit into a field requires 1,000 feet, then the decision to start the engine needs to be made at 1,500 feet AGL and within range of a landable area. This means that a task flight needs to be abandoned 500 feet higher for an engine retrieve - compared to selecting a field and landing out.

One pilot reported that, in the stress of the moment, he missed a critical step in the start sequence and was forced to land out. He did abandon the attempt to start the engine at an appropriate height and made a normal approach into what looked from the air like a large, safe field with machine marks running the full length. Unfortunately, after sowing the crop the farmer had erected a wire fence across the middle, which the pilot did not see until after he had landed and was rolling quickly towards it. Significant damage was done to the glider.

If there is one type of OPS-10 report that can be guaranteed to appear year after year, it is damage to a turbo glider due to a rushed landout after a failed engine start. If you think it won't affect you (as a turbo or self-launch owner) you're wrong. Please ensure that you are well-trained and well-practised in starting your engine (even under stress) and in what to do when it doesn't start as expected. Include at least one landing with the engine extended but not running - the reduction in glide performance is noticeable. Some instructors have suggested that a very thorough type-conversion process is necessary, especially for a pilot's first motor-glider.

1.3 Airspace Breaches: Controlled airspace has not been designed for ease of use by glider pilots. In some regions of the country it has turned into an obstacle course. The pressure of contest flying, and tasks set near or through areas of controlled airspace, further increase the likelihood of an accidental breach. Special opening of airspace for a contest task can be a further complication.

Most pilots now have moving map displays, so the technology is available for pilots to always know their position relative to airspace boundaries. But in several reports these pilots were not able to make use of their screens to prevent incursions because they lacked practice in the use of these systems, or the screens weren't set up correctly, or there was too much or too little information.

A further issue is that not all information relevant to a glider flight is available on a single paper map. One example is the so-called "wonky banana" in the south-west of Rotorua airspace, which is not correctly shown on either the B- or C-series of official charts, although it is correctly defined in the airspace files supplied for the Taupo Nationals (2023 NZ AIRSPACE V3.cub). The key point is that in some cases there is no single, definitive data source identifying all airspace. This means that pilots may need to mark up by hand their charts or task sheets on the day, to provide a paper backup that identifies the applicable airspace boundaries and height limits.

1.4 Oxygen and High Altitude Flight: A visiting instructor wanted to fly in a club single seater, so obtained a type conversion briefing from an instructor. The glider was fitted with an EDS oxygen system and this was included in the briefing. Without declaring his intention the pilot then flew the glider to an altitude above 28,000 feet, relying only on a cannula and with no oxygen back-up. He was tracked, and a text sent to call him down to a safer altitude, which he did respond to.

This pilot took an extreme risk. The club CFI reported that "the pilot was not experienced or knowledgeable about high altitude flying" and that in future he "will not permit any high altitude flight or use of oxygen system unless all relevant syllabus items of *Alpine Pilot* are completed.

There are many factors involved, not just use of the oxygen system. A briefing at the aircraft just prior to flight is not acceptable."

There is more information on the limitations of the EDS oxygen system in Gliding NZ *AC 3-07 Carriage and Use of Oxygen*, Appendix A. There is also a sample list of oxygen-related incidents in New Zealand in Appendix D. Incidentally, time of useful consciousness at 28,000 feet without oxygen is typically less than 3 minutes, with considerable variation between different individuals. EDS cannulas are certified to 18,000 feet. There is a view that a cannula has proved adequate up to 25,000 feet, provided that the pilot maintains awareness of breathing style and breathes steadily and consistently through the nose. This awareness is not easy in flight, as experienced pilots will attest.

1.5 Undercarriage Retracted on Launch Roll: Two similar incidents with two different Twin Astir gliders. It appears that the undercarriage lever can be unlocked on the ground without the wheel collapsing - at least until the ground roll starts. With occupants getting in and out during training one submitter observed that "some pilots are putting the right hand lap strap beside the gear lever while they get in to the cockpit, so as they sit down they may be dragging the strap and buckle back and unwittingly catching the lever and unlocking the gear."

It has been suggested that witness marks be applied if the existing labels are not clear, so the "locked" positions are visible to the pilot. The pilot can then apply both a visual and tactile check that the wheel is down and locked.

In a further comment, "We will encourage pilots to check the gear lever is fully forward (locked down) once they are strapped into the glider . . . to eliminate the possibility of it having been moved aft (unlocked) during the strapping in process."

2. Pilot Training Program

2.1 Endorsement for Daily Inspection: It has been pointed out that the DI Endorsement in the PTP is specific to the aircraft, whereas the privileges and limitations in Part 9 of Advisory Circular *AC 3-01 Daily Inspection* authorises the holder to " carry out the DI . . . of a glider or powered glider, on which they are rated to fly". The PTP has been amended to make it consistent with the terminology in the Advisory Circular.

2.2 Feedback on "Safe Speed Near the Ground": The Ops Team has received feedback on the way this topic is treated in the Pilot Training Program. The basic complaint is that the topic is more complex than presently treated, and that it should include guidance relevant to different stages of training - without being too complex in those early stages.

The argument goes that at the *To Solo Pilot* stage we need "a good speed margin that is easy to remember". A typical value of 60 knots or 1.5*Vs (plus wind and gust allowance) could be used as the base speed, depending on the aircraft. The context is "speed in the circuit", and keeping that speed fairly constant to provide a stable perspective. The yellow triangle (manufacturer's recommended approach speed) - plus wind allowance - can be applied on final approach.

In the *To Soaring Pilot* section safely and effectively using ridge lift is a typical SSNG context. Here the guidance is still to maintain "a margin above the stall" but there are further factors to take into account, including local turbulence, flying in tight circles close to a ridge, crossing spurs and saddles, and always keeping an escape route open to a landable area.

Different factors would apply to the aspiring *Cross-Country Pilot.* In this section the emphasis would be on safely thermalling when low to the ground, plus making an out-landing in a field chosen from the air.

Pilots need to know and use the lowest safe speed over the threshold fence/hedge/power line to achieve the shortest possible ground roll. This would take into account that the wings were level, the glider would be in landing configuration (hopefully without water ballast), and there could be a wind gradient or localised wind disturbances.

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