28-29 Sep 24

AGC Weekly News

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

From the CFI

The compulsory preseason brief will be on Saturday 5 October, starting 9:30am. This is an important catch up for all so, please make every effort to attend.

There will also be a Special General Meeting to approve the accounts which were unavailable at the AGM. This should not take long.

Currently the strip is just too wet for operations this weekend but with some good weather, the following weekend should be OK.

The forecast for this weekend is for SW winds, slightly stronger on Sunday. A trip to Matamata could be a good idea. If you are interested, please make a booking so we can make plans.

I have the 12th October tentative booked for the annual flour bomb and winch day, weather permitting. More info to come closer to the time.

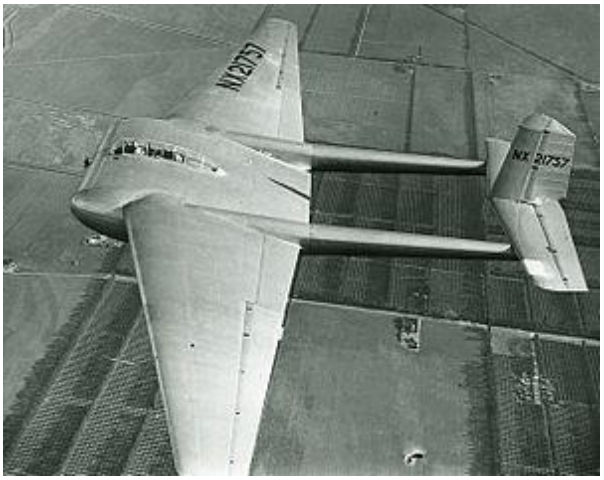
From Labour Weekend we have three groups of ATC visiting over the next consecutive weekends. Any help will be appreciated.

Anton Lawrence
CFI Auckland Gliding Club
021 280 188

Hawley Bolus

William Hawley Bowlus (May 8, 1896 – August 27, 1967) was an American designer, engineer and builder of aircraft (especially gliders) and recreational vehicles in the 1930s and 1940s. This followed his prior famed work as the Superintendent of Construction on Charles Lindbergh's aircraft, the Spirit of St. Louis. He also designed and constructed the innovative but unsuccessful XCG-16A in 1943.

The XCG-16 was a military transport/assault glider ordered by the United States Army Air Forces (USAAF), from General Airborne Transport Co., for competition against the Waco CG-13A at Wright Field. The XCG-16's preferred tow aircraft was the Lockheed Model 18 Lodestar.



Bowlus BA-100 Baby Albatros

(Ref: Wikipedia)

Navigating the Best Lift Underneath Cumulus Clouds

Adam Woolley
Courtesy Wings & Wheels

Not all areas under a cumulus cloud will provide equal lift, and the challenge is determining where the strongest thermals are!

Photo by Sean Franke

Cumulus clouds form when warm air rises, cools, and condenses into visible water droplets. Beneath these clouds, thermals create upward-moving air currents that we, as glider pilots, use to gain precious altitude. However, not all areas under a cumulus cloud will provide equal lift, and the challenge is determining where the strongest thermals are!

Factors in Identifying the Best Lift

1. Cloud Development and Shape
The first step in locating lift is analysing the development and shape of the cumulus cloud. A newly forming cumulus cloud usually offers the best lift, which signals an active thermal underneath. These clouds appear crisp, with well-defined edges and a cauliflower-like structure. In contrast, an older, decaying cloud has softer, less defined edges and may no longer indicate strong thermals as the rising air has already begun to dissipate.

So, always look for growing cumulus clouds with sharp features. These are more likely to have strong, sustained thermals beneath them.

2. The Upwind Side of the Cloud
Thermals are often influenced by wind direction. Air masses moving across the ground may affect where the thermal column rises beneath a cloud. In most cases, the strongest lift is found on the upwind side of the cumulus cloud. This is where the thermal initially forms and pushes upwards before the wind tilts the thermal column downwind.

To locate the upwind side, observe the cloud's movement in relation to the ground or look at wind indicators, such as farmers' lakes, smoke/dust, or

surface winds. Position yourself on the upwind side of the cloud, where the thermal is most likely to be intact and rising strongly.

3. Cloud Streets and Alignments
Cumulus clouds often form in linear arrangements called "cloud streets," which are aligned with the wind direction... These streets indicate long, continuous thermals providing sustained lift over a greater distance. Using a dolphining technique, we can use cloud streets to cover large areas without losing altitude. The best lift within a cloud street is usually found under the newest and most defined cumulus clouds along the line, typically on the upwind edge of the street. Flying along a convergence line? Usually, you'll find the strongest lift under the darkest flattest area (up to 5km from —>) rather than right up against the cloud base that is seemingly much lower.

4. Ground Features
The terrain beneath the cloud also plays a critical role in identifying thermals. Certain ground features absorb more heat and are more likely to generate thermals. Dark fields, asphalt roads, dry lakes, and other areas that heat up faster than their surroundings create rising air currents, which may eventually lead to cumulus cloud formation. Observing the terrain under the cloud lets you anticipate where thermals are most likely to form.

Thermals tend to be stronger over areas of varied terrain or boundaries between different surface types, such as where a forest meets an open field.

Additional Considerations

1. Time of Day: Thermals are strongest in the late morning to early afternoon when the ground has had time to heat up but before the atmosphere becomes too unstable.

2. Cloud Spacing: Well-spaced cumulus clouds indicate individual thermals, while tightly clustered clouds may suggest weaker lift as thermals compete for air. A great rule of thumb is that the distance between the best thermals is 2 x the height of the cloud base.

To find the best lift under a cumulus cloud, start by analyzing the cloud's development, locating the upwind side, and noting cloud streets and ground features. Newly forming clouds with crisp edges offer the best thermals, and understanding wind direction helps pinpoint where the strongest lift will be. With practice, locating the strongest cores greatly helps optimize our flight, racing speeds, confidence, and enjoyment!

Safe circles, as always

Adam Woolley was born into the gliding world, being the 3rd generation in his family. Going solo at 15, his thirst for efficiency in soaring flight & quest for a world championship title to his name has never wavered. One big passion is sharing his experiences & joy with other glider pilots all around the world. Adam is an airline pilot in Japan on the B767 & spends his off time chasing summer around the globe. He has now won 7 national Championships & represented Australia at 5 WGC's & 1 EGC.

Gerard's latest video selection

Field landings of 2024

https://youtu.be/alb41zJhO9Y?si=42Sr8lgVEQYkRunh

Racing in the Flatlands - Gliding Highlights 2024

https://youtu.be/9crZ3soRpcE?si=-jc3wZBF3zHc6-vA

Motorglider Engine Failure

By Shawn Knickerbocker
Courtesy Wings & Wheels, USA

You will never know how the motorglider will react with partial power unless you have received some instruction and hands-on demonstration.

In one of my previous articles, Motorglider Endorsement, we discussed the three types of motor gliders and their basic designs. Let's run through a quick review and discussion of some idiosyncrasies with motor gliders (MG), especially the takeoff and engine malfunction areas.

We will discuss the operational issues a pilot should know while flying the MG. This can be a lengthy discussion, but I will highlight some basics. Regarding the three types of MGs, take-off performance is the primary issue we must review in the MG GFM. This mainly affects the TMG and the HPSL. For your remembrance, TMG = Touring MG; HPSL = High-Performance Self-Launching MG. Ok, back to performance.

Before takeoff, it is **IMPERATIVE** that the PIC review this information. Flying out of the same launch site every day, at the same elevation, etc., tends to help create complacency, which can result in an incident or accident. As PIC, I'd like you to make every attempt to review your takeoff performance. This little review may help with an insurance claim or legal action. Always use the whole runway length, especially on grass, if available.

Back to the performance topic. Conclusion here; know your performance numbers, or even better, create a TOLD (take-off & landing distance) card and record the data in use, maybe 4-5 conditions. Make copies and leave them in the MG where you can do a quick glance for review. Each card will have one set of numbers for seal level, 1000 feet, 2000 feet, etc. Temperatures like, 15 degrees, 20 degrees, 25 degrees, etc. It would include Gross Weight as well. You want to know if this thing will fly!

You must also factor in Density Altitude. This is NOT considered in the performance charts during

certification. The rule of thumb is what we refer to as the 3 H's (hot, humid & high). Ensure that you, as PIC, have a complete and accurate understanding of the proper procedures to apply if an engine malfunction occurs. Ask yourself this question: What training did you receive (or did you) in your MG? I bet your instructor never discussed or demonstrated a partial power failure. Everyone gets those engine failures, but how about partial power? The probability of a partial power reduction is a greater chance than a complete engine failure.

During the takeoff run and after airborne, slightly turn downwind about 20-30 degrees, just like the tow plane does when towing a glider. This allows a safe return (called the button hook) if you have to return due to loss of power, etc. This allows the MG to complete one turn into the wind and be aligned with the departure area. If you decide to track straight out and have to make a 180, it may get very complicated, especially with the engine extended. You will have to make two turns; the last one will be the alignment turn, which will be very low.

Scenario: Imagine yourself at 400 feet on climb out at 50 Vy KIAS (blue line/way below Vg) in your Arcus/Twin Shark and suffer a power loss from 6500 RPM to 3700 or so. You still have power, right? Enough to sustain? For how long? Why did the engine rollback? ECU? However, through your training, you will never know how the HPSL/TMG will react with partial power unless you have received some instruction and hands-on demonstration. You decide to turn back to the take-off area, just as taught, but during that LEFT turn with 3700 RPM, the HPSL may want to tuck due to P-factor (based on propeller rotation/away for the positive prop side, there will usually be a tucking (nose tuck) tendency/into the propeller side (lift) there may be a pitching up or climbing tendency) and either the left or right turn. There are many things to consider. I recommend a good discussion with an experienced MG CFI and other pilots to get some feedback.

The 200-foot rope (glider) break versus the 200-foot MG engine failure is quite different. Most MG GFM will not give you a minimum altitude due to the various situations. Reduce angle attack immediately (within 1-2 seconds at most); remember that the engine creates drag and increases stall speed considerably, especially with a 45-degree bank turn added! Due to this drag component, the MG must have the angle attacked reduced substantially. Increase airspeed to at least Vg. Plan! I would never consider a 180-degree turn in a HPSL below 300 feet! It MUST be automatic for the pilot to react if you have to start thinking you may have a problem. Use the Tom Knauff method during takeoff: straight ahead, straight ahead, straight ahead; when you reach your decision altitude, then, you say out loud: turn right, left, etc.

Even with a complete power loss (engine failure), what is the minimum altitude for your 180-degree turn to start? For example, the Arcus GFM states if the engine fails and remains extended, your L/D is approximately 13;1 with a 450 FPM decent started! Not good! Most of the HPSL GFM will require the pilot to retract the engine (even with the prop turning), which helps reduce some drag. With the prop still turning creates more drag, ideally, the prop should be stopped! Again, a thorough review of your GFM is needed. These steps/procedures should be applied by memory!

Most GFMs refer to landing with the engine extended (they do not differentiate between running or static engines) as an emergency-type landing. If you land with the engine extended (not running), ensure you touchdown smoothly, and beware of control buffet or inference with the rudder and elevator. Use airbrakes at a minimum and carefully!

We need to mention the Sustainer. This discussion would also apply to the sustainer, except regarding takeoffs. DO NOT! End of discussion.

What is the Engine reliability for the TMG/HPSL/Sustainers? Actually, it is very good if you comply with the GFM. The TMG should be very simple since it is often flown like an airplane. The HPSL/Sustainers are entirely different and require additional input from the pilot. Please review your GFM again. You see I refer to the GFM very often, because; it's your bible of flying your make & model! Again, Review!

How many people do you know have an HPSL/Sustainer who has ended up landing in an off-field landing? During a cross-country flight, you should have all switches and values already set for engine start. Then, all you do is select one or two switches and bingo, the engine is extended and starts; you will be saved by the "Iron Thermal!" Then we found out a couple of things: the HPSL/Sustainer fuel was empty or inadequate, the fuel value was in the close position, and the engine had not been started in 6 months (contaminated fuel). Yes, I have seen and heard all of these, plus others.

In conclusion, it is best to keep in the books (GFM) and ensure that your engine is working and has proper maintenance. If you own a high-performance self-launch, when your flight review comes up, I recommend taking it in your own HPSL with an experienced CFI. If that is not available, have a thorough discussion with your CFI on some of these topics. My last word: Run your engines at least monthly. They will work when needed. Fly Safe and often!

Shawn Knickerbocker has been flying gliders since the mid-sixties and provides motorglider training. Is a retired FAA DPE who held designations in Airplanes, Helicopters and Gliders for all rating, including the elusive CFI initial, plus numerous type ratings, he has over 62 FAA authorities as a DPE/SAE/SMFT. He also possesses a TCCA (Canada) License with ATP Ratings for airplanes, all classes (SMELS), plus numerous type ratings and Aerobatic Instructor (ABI) in Gliders for Canada. He was the SME for the FAA in rewriting the Airplane Handbook, Helicopter Handbook and the Glider Handbook and PTS in 2000. He was instrumental in developing the CAP Glider Program for Florida back in the mid 90's to include the "wing runner & tow pilot manual" and has developed many other training programs for the military and US Government Aviation Agencies. He is the current Program Manager for the SSA Cross-Country Instructor Pilot Program. Shawn been flying 58 years, a FAA Master Pilot with over 25,000 hrs. Shawn lives at Seminole Lake Glider port. Email; faadpe1604@aol.com. C- 904.382.9614

Members Ads

Mini Nimbus C, ZK-GKS

Well cared for by present owner since 1990. 1600 hours TT, no damage history. Panel includes Trig TT22 transponder (ADS-B out), Flarm Power Mouse, Flarm LED display, LX-NAV S80, panel-mounted Oudie 2, new Winter altimeter, Winter mech vario. Ilec extended length TE probe, twin LIFePO batteries with twin chargers, Mountain High Ox system, reliable and clear Dittel FSG40S radio, tow hook rebuilt by Tost in Germany, replaced Gadringer lap and shoulder straps fitted. Good tow-out gear, full set outdoor covers, full set indoor covers, spare wheel doors, spare hub/wheel brake. All documentation since new. Imported closed Karl Pheifer GRP trailer with rego and WOF (completely rebuilt 2013) and always garaged. $45 500.00.

IMI Power Rigger. New IMI battery-powered electric, remote-controlled Power Rigger. $3180

This edition of the newsletter was compiled by Peter Wooley