



# Ground Procedures Manual

V8.0 April 2022



## Ground Procedures Manual

### Introduction

This book provides GBSC members with information on club ground procedures, launch rules and recommendations, care and use of club equipment, glider pre-flight check lists and other fundamentally ground operation topics.

Other documents and material such as recommendations and procedures for *First Flights*, emergency procedures, the pre-solo flight test, the spring safety presentation and readiness exams are generally available from one of several sources including; i) the members only section of the club web site, ii) club instructors, iii) the club safety officer.

*Disclaimer* - The information provided in this manual is not a substitute for any part of a student's flight lesson program conducted by a CFI-G. Indeed, some of the material in this manual is subject to interpretation and can be best explained as part of a flight instruction program. Talk to an instructor for a full understanding of procedures and material presented in this manual.

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Second Printing	February, 2008	<i>information update</i>
<i>Third issue</i>	<i>March, 2017</i>	<i>On-Line version Only</i>
<i>Fourth Issue</i>	<i>December, 2018</i>	<i>Minor updates</i>
<i>V7.0</i>	<i>February, 2021</i>	<i>Removed instructions related to FBO hangar access, door operation, etc.;</i> <i>Consolidated tie-down instructions; simplified cushion storage instructions</i> <i>Revised instructions for removing a tow rope from service.</i> <i>Replaced text on rope adapters and links with reference to Membership Manual.</i>
<i>V7.1</i>	<i>March 2021</i>	<i>Updated launch signals images</i> <i>Replaced Part 830 definitions with reference.</i> <i>Added Definitions section</i> <i>Corrected tow signals image in section 10.</i>
<i>V8.0</i>	<i>April 2022</i>	<i>Added Operations Coordinator (OC) duties; OC replaces SFO and Logger.</i> <i>Replaced sections "Senior Field Officer (SFO) duties" and "Logger duties" with "General Club Member's Role"</i>

This **Ground Procedures Manual** is a companion to the **GBSC Membership Manual** available on the GBSC web site for download. It is critically important that all GBSC members be familiar with both. Together they provide much of the information necessary for a safe, efficient and enjoyable glider operations. They are useful references for both new members and veterans.

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Want other suggestions? Talk to club members, tow pilots, current pilots, owners and of course the club instructors. It probably goes without saying, but we will say it here anyway, make sure you also read and are familiar with the material in the pilot operating handbook (POH) for every glider you fly.

# *Welcome to the Greater Boston Soaring Club!*

## 1. Read This Material Every Year

- Always think **Safety!** *Everyone* is responsible.
- **5673** for all GBSC combination locks: office, shed, trailer. *Reminder:* matches the Bird Dog (L19) tail number: N5673B.

### Carts

- NEVER turn an electric cart on with the charger plugged in.
- When not towing a glider, stay off the taxiway; drive on the roadway side of the blue hangars.
- Drive very carefully around gliders, slowly and with full situational awareness!
- NEVER cross/enter a runway/taxiway area without looking for moving aircraft.
- NEVER drive over a tow rope. Not with a cart, not a glider .... Nothing!

### Glider Preflight and Towing

- UNTIE the glider, PREFLIGHT it and do a positive control check.
- NEVER leave an unattended canopy open.
- ALWAYS secure the elevator in preparation for tow out.
- BE ATTENTIVE to aircraft activity on the runway and taxiway.
- STOP towing when landing, launching or taxiing aircraft are passing.
- Put the runway side wing DOWN for launching and landing aircraft.
- YIELD to taxiing aircraft.
- NEVER overlap parked glider wings.
- ALWAYS block the glider main wheel and make sure that there is *absolutely no possibility* of one glider pivoting into another glider while parked.

### Grid

- Never walk onto the grid without checking for approaching aircraft.
- If you are not supposed to be on the grid (fetching ropes, moving gliders, crew, etc.), don't be there.
- No gridding unless a glider is pre-flighted and ready to fly!
- Pilots should be ready to go once their glider is #2 on the launch grid. If two tow planes are operating, pilots should be ready once their glider is #3 or #4.

### Rings and Launching

- NEVER put a Tost ring in a Schweizer hook.
- Connect Schweizer gliders with the short **white** Nylon rope adaptor link. (For 1-26, use **yellow** ¼" poly adapter as weak link).
- **Bird Dog:** use a **white** adapter link at tow plane end.
- **Tow Pilots:** never take up the last slack while the glider's wing is down.
- **Glider Pilots:** try to time your rudder wag with the end of slack

Only experienced or closely monitored club members may launch gliders.

- |                          |   |
|--------------------------|---|
| 1. <u>HOOK UP</u>        | <i>"Air brakes closed and locked?"</i>    |
| 2. <u>TRAFFIC CHECK</u>  | Check field and pattern, <i>carefully</i> |
| 3. <u>ANNOUNCE</u>       | <i>"Pattern and field clear!"</i> .       |
| 4. <u>THUMBS UP?</u>     | <i>wait for....</i> , then Lift Wing      |
| 5. <u>SLACK OUT</u>      | continue to monitor traffic               |
| 6. <u>RUDDER WAGGLE?</u> | <i>wait for....</i> , then Launch!        |

### End of Day

- Confirm that all pilots have returned safely
- CHECK the field – everywhere – all equipment retrieved?
- TIE DOWN gliders using a good SERIES of knots for redundancy
- Golf carts: clean, put away, turn off, and plug into chargers; top off the gas in the gas cart.
- Close the club hangar.
- Place paperwork in green mailbox in Battery Room
- One last look around.
  - Everything put away properly?
  - Everything secured?
  - Check launch area for towropes, adapters and weak links.

**Note:** The "Battery Room" is the GBSC room attached to the FBO.

## 2. Getting Started

- Try to understand **why** the procedure is described the way it is.
- If you don't know or are not sure, STOP and ASK. **Corollary:** you can't know everything about every glider, every operation, every procedure.

### Safety

- **Always consider and think *Safety*.** Safety for you and for others. Safety on the ground and in the air.
- EVERYONE is responsible for safety.
- Accidents are RARELY a result of a single event! Break the accident chain!
- Everyone MUST take responsibility for everything they do at the field.
- Be polite, be nice, be safe. *Don't be paranoid.*

Some of the procedures and rules described in this manual will vary depending on a pilot's preference, type of glider and so forth. Be careful to understand the difference between a ***need or requirement*** and a ***request***. The former (need) is a function of safety, type of glider or launch profile, or another factor that is quantifiable and unique to the situation. The latter (request) may or may not be a good idea. Judgment is extremely important.

**Note:** In this manual you will often see the words **NEVER** and **CLUB PROCEDURE**. Such rules and procedures are generally applicable, but it is important to keep one's brain engaged. There will be times when a procedure or a safety issue requires action contrary to a club procedure or a **NEVER** edict.

### **Getting Ready**

#### Locks

- **5673** is the combination for the locks on the Green Shed, Battery Room, GBSC Hangar, GBSC Trailers. *Reminder:* matches the Bird Dog (L19) tail number: N5673B.
- Emergency Keys for golf carts are located in the Battery Room beside the door, attached high on the wall.

#### Moving Carts, Gliders and Tow Planes in the Hangar

It is imperative that all hangar operations be done carefully with complete situational awareness.

- Moving aircraft inside the hangar requires great care and attention. Refer to the instructions posted in the hangar.
- Move carts in and out of the hangar VERY SLOWLY and have spotter if at all possible.

#### Getting Carts Ready

Carts can be damaged by improper power/charger management.

- **NEVER** turn a cart on with the charger plugged in.
- **NEVER** run over a power cord; the cord will be damaged and will eventually fail.
- Check tire pressure, broken items, missing parts, anything that is obviously in need of attention. Try to fix minor problems (inflate a low tire, for example) so that it does not get worse, but NEVER try to fix something if you are not competent to do so.
- Make sure that the OC knows of any cart issues (damage, repairs, etc.) so that they can be noted in the summary email at the end of the day and/or a responsible person can be notified to address the issue(s).

- When pushing or towing a cart, the Run/Tow switch must be in the TOW position. Failure to do so makes the cart harder to push AND may damage the controller.

### Driving the Carts

The reliability of the carts affects all phases of ground operations. The golf carts are assets of GBSC that cost real money (your dues!) to maintain, repair if damaged and significantly more money to replace if they die at a young age!

- Carts are not dune buggies. Avoid rough ground.
- Only club members may drive carts (required by our insurance).
- No outside riders on any carts.
- If not towing a glider, do not drive on the main taxiway. Instead, drive behind the hangars (on the Greenfield Road side of the hangars)
- **Carts are NOT for personal use** (please walk or use the Club Bicycle).
- If someone is driving irresponsibly, let the OC and/or instructor know immediately. Better yet, say something to the driver

### Driving Carts Around Gliders or Near Grid Operations.

- **NEVER** drive under a glider wing: go around gliders.
- **NEVER** cross or enter a runway or taxiway area without looking for landing, launching and moving aircraft.
- **NEVER drive over a tow rope.**

Don't aim a cart toward anything you don't want to pay for. ALWAYS approach a glider, person or other object in such a manner and direction that there will be no damage if the brakes fail or the cart slips.

**Real World Case:** a cart ran into the side of a glider (at very low speed) because the brakes were not working. Fortunately, no damage was done, but the bad judgement could have resulted in a severely damaged glider.

## 3. Preparation for Tow Out

- Check with the OC, instructor for the day and tow pilot to determine which end of the runway to use (no sense towing gliders to the wrong end).
- Ask if specific gliders should come out first
- Get a check list for the glider(s) you plan on taking out.
- LOOK at the glider. Is the glider damaged? Does it have a placard saying it is grounded? Was it put away incorrectly? Is there ANYTHING unusual about the glider that should be of concern?
- Talk to an instructor and resolve ALL issues BEFORE you take the glider out.
- Take a few moments to mentally think through what you are going to do so that all movements are done safely.

### Prepare to Untie a Glider (this is **NOT** a pre-flight check list!)

- Remove the **canopy cover**. If it is wet, hang it out where it can dry but will not blow away. If dry, put it behind the cockpit seat if there is space. Otherwise, fold it up and put it in the tie-down area where it will not be damaged, blown away, get wet or be difficult to find later.
- Remove all **control locks**. Put them on the ground where they will not be run over, damaged or lost. Generally, it is best to put mechanical control locks near the wing tie downs.

- Remove air system (static, pitot, TE) **protective devices**. These typically go into a pocket in the glider cockpit. If the device is a basting bulb, put it by the wing tie down but make it obvious so it is easy to find at the end of the day, after dark.
- Install the **TE Probe**. If it is removable and was left in, there may be water in the system if it rained.
- Put a **battery** in the glider.
- If seat **cushions** are not in the glider, retrieve them from the Green Shed.
- Are the **ballast weights** in the glider? Remove ballast weights unless directed otherwise by the next pilot to fly. When removed, the weights go near the operations desk.
- **NEVER** leave an unattended **canopy** open
- **NEVER** lift a canopy by the slide vent.
- **NEVER** reach through the slide vent to release a tow rope; open the canopy instead.
- Clean the canopy. There are kits and instructions for doing this correctly. See section §5 below.
- **UNTIE** the glider, **PREFLIGHT** it and do a positive control check (PCC).
- If in doubt or if there are concerns about **ANYTHING**, talk to an instructor or the OC.

#### 4. Glider Pre-flight Inspection

The pre-flight inspection is critical to safe operation of any aircraft. For GBSC gliders, detailed pre-flight instructions are in the glider's flight manual. Copies are stored in the gliders and are also available on the GBSC members-only web site.

The following is a suggested pre-flight check list.



# PRE-FLIGHT CHECK LIST

## Preparation

- battery, cushions, parachute(s)
- clean canopy
- check/fill tire to the proper pressure

## Overall

- untie ropes, remove locks
- install probes
- check static ports (not clogged)
- check body (damage, dings)

## Cockpit

- canopy (condition, clean, yaw string, emergency release, hinges, etc.)
- seats (adjustments, condition)
- belts (pins, condition, ends)
- instruments (set, operational)
- trim (works, no binding)
- airbrakes/spoiler
- radio (frequency set, works)
- airsickness bags
- proper documentation<sup>1</sup>
- ventilation (no bugs)
- pedals (adjustment, cable, slack)
- control stick(s) (slack, movement, binding, etc.)

## Wing

- main spar pin(s), spar pin lock
- wing gap properly sealed
- general damage, leading edge dents
- air brake (closes flush, smooth op, screws, safety wires, slack)
- wing wheel and wing tip
- shake wing (skin movement? noise?)
- aileron (tight fabric, movement, bearings, range, patches, slack)
- spoiler (flush closed, smooth op, screws, safety wires, slack)
- trailing wing root

## Rear Body

- condition, damage, dings
- inspection ports (wires, mice, water, other)
- tail wheel (bearing, spring, rubber surface, overall condition)

## Rudder

- fabric (tight, damage, wear, etc.)
- movement (do not force! cable connections, hinges)

## Elevator

- connections (installed correctly, safety wired if appropriate)
- L23: lift front gently, movement/slack, *do not torque end!*
- fabric (tight, damage, wear, etc.)
- elevator movement (end-to-end, full range, gently)
- trim tab (secure, fabric condition, cable condition, *do not move!*)

## Wing

- same

## Canopy, Hinges, Front/Wheel

- inspection door (cables, mice, water, dirt, etc.)
- front damage (skid, around wheel, dings, etc.)
- release mechanism (damage, anything amiss, smooth operation)

## Other

- **Positive Control Check (PCC)** daily; ASW-19 before EVERY flight.
- **Critical Assembly Check**

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1-800-WX BRIEF -- (800) 992-7433

<sup>1</sup> Airworthiness, Registration, Radio, Operating Limitations, Weight and Balance (ARROW)

**CRITICALLY IMPORTANT REMINDER:** It is imperative that absolutely no one pre-flight a glider until they have been taught how to properly do so, what to look for, how to check instruments, how to complete a positive control check (PCC) or how to perform a critical assembly check. Talk to an instructor or knowledgeable club member to learn how to do this, *and always use a check list!*

## 5. Canopy Cleaning

There are several reasons to clean a canopy

- A clean canopy is much nicer to look out of, especially when the sun is low in the sky.
- A clean canopy may save your life, when you don't mistake a converging airplane for a spec of dirt on the canopy.
- A clean canopy will last longer, the dirt will not build up on the canopy and the surface will be less scratched.

The "approved" method to clean a canopy is simple and will not result in any harm to a (very expensive) glider canopy.

1. Start with plenty of water. Simply wash off the dirt and grit on the canopy. Make sure you use *lots* of water.
2. Finish with clean, soft towels (not paper, unless the paper towel is a laboratory cleaning towel).
3. After the canopy is dry, use an approved canopy cleaner on the inside and outside surfaces. Again, use non-scratching (soft) towels or, better, clean dry cloth wipes.
4. **Never** use an ammonia or alcohol-based product on a canopy. These materials will eventually cause the canopy to dull and cloud, or worse.
5. If you drop a towel on the ground, put it aside and use a clean towel on the canopy.
6. If you see damage on a canopy, tell the OC, flight instructor of the day and others who can help you judge the nature of the damage and whether it would be a reason for grounding the glider until fixed.

## 6. Ground Tow

Three people are needed to safely tow out a glider: one in the cockpit, one at the front, one on the upwind wing, and 4 or more on a very windy day to ensure the safety of the glider and personnel.

The cart tow ropes are 35' long so that if the glider turns abruptly, the wing will not hit the tow cart. All cart tow ropes have both Schweizer and Tost rings. Use the correct ring for the glider.

At a minimum you need one person in the cart, one on a wing, and one at the nose of the glider. However, you will often see only two people walking a glider (cart and wing). This *may* be acceptable on a very calm day.

**DO NOT TAKE CHANCES.** It is better to have too many people than too few when towing out a glider.

Remember the following.

- SECURE the **elevator** in preparation for tow out by using the safety harnesses to hold the control stick back. For dual seat gliders, always secure the front control stick. **NEVER secure the rear control stick.**
- NEVER tow a glider out without first carefully moving the glider away from the tie-down location. Do this by hand, not with a cart. This is to prevent ground damage when moving a glider away from its tie-down spot.

**Real World Case** - Many glider rear wheels have been damaged by overzealous ground operators pulling the gliders away from their tie-down locations with a cart without first moving a glider clear of ground anchors, control locks, cushions, and similar obstacles on the ground.

## Which Wing do I Walk?

- One suggestion is to walk the wing on the runway side of the glider. If a glider starts to weathervane as a result of a crosswind, the wing walker can prevent the glider from turning into other gliders or obstacles. Several accidents have been prevented by in-control wing walkers when a glider has started to weathervane.
- Another suggestion is to stay off the active runway and walk the “obstruction side”. This puts a large mass between you and an incoming aircraft, gives you a better escape route, and allows you to see your wing tip’s proximity to obstructions. There have been several accidents in which the opposite wing tip of a glider collided with obstructions (including other gliders) when walked from the runway side. Some were expensive for the wing walker.
- Of course, the question always comes up about “*What if a launching glider ground-loops or a landing glider is in imminent danger of colliding with my glider or with me?*” The answer is of course: Run Like Heck!
- Situations arise that make one rethink conventional wisdom. For example, which wing would you walk if taking a glider to runway 34 with a strong crosswind? Answer: have enough people on hand to safely and fully control the glider.
- There should be a person at each wingtip, but only one person should hold a wing. There should be a positive verbal exchange such as “**YOU have the wing!**” and the reply “**I have the wing!**” to ensure that there is a positive change of control.

**Real World Case** - I was helping bring out the L-13 Blanik and I was walking the wing away from the runway. As we were crossing the cross-field taxiway, the glider started to roll forward and the tow vehicle stopped. I held the wing back to prevent it from hitting the tow vehicle, but all that did was cause the glider to rotate towards the power plane tie-downs. Fortunately, everything came to a stop with 2 feet to spare, so there was no damage. But I did learn that the runway side is best, and if you need to stop a glider, *drop the wing tip and do the stopping from the wing root.*

## Cart Drivers and Wing Walkers

- WATCH for traffic, both on the ground and in the air.
- STOP towing when landing, launching or taxiing aircraft are passing.
- Put runway side wing DOWN for aircraft landing and departing on the grass.
- YIELD to taxiing powered-aircraft by first moving the glider away from the taxiway and then lowering the wing nearest the taxiing aircraft.
- CHECK for clearance and any safety situations as **powered aircraft pass**. It is also a GOOD PRACTICE to walk to the taxiway (stay clear of the powered aircraft of course!), check for clearance and clearly indicate to the power pilot that there is clearance by giving a very positive and obvious thumbs up to let him/her know you are watching and that the glider is clear of the passing power aircraft.
- Cart drivers MUST observe the wing walkers and MUST watch for other traffic. Wing walkers and cart drivers should be able to talk to each other (put away that music player!).
- When approaching the grid **ask** the OC (or Instructor) where to put the glider.
- **NEVER** walk onto the grid without full situational awareness. You are crossing an active runway; check for landing traffic.

## Parking or Moving a Glider into Final Position

- Release the tow rope when in position, turn the glider **by hand** and move it as the SFO directs. There are many variations on this and it is perhaps best to demonstrate how to do this in its many forms and with sufficient help. The glider must be FULLY UNDER YOUR CONTROL at all times.

- When pushing a glider backwards the rudder is extremely vulnerable. **It is imperative that there be a person watching the bottom of the rudder for clearance.** STOP immediately if you see anything that the rudder bottom might not clear.
- **DO NOT** push an L23 backwards without lifting the tail wheel off the ground.
- **NEVER** push a Schweizer backwards without first tying the stick back or lifting the tail. It is far too easy to snag the low hanging elevator.
- Similarly, **NEVER** rotate a glider while a wing is on the ground if that wing will be going backwards. The trailing edge of the aileron can catch on the ground and be damaged.
- Only ONE person should be walking the wing of a glider. However, on the grid, it is not uncommon to have a second wing walker near the other wingtip for safety reasons, or to help position a glider.
- DO NOT try to steer any glider (except one with a pivoting tail wheel or dolly) by pushing or pulling on the wing as you walk a glider. The side-load can damage the rear wheel housing and assembly. For gliders with pivoting tail wheels, it is always best to take some pressure off the rear wheel first (have someone sit on the cockpit rail of an L23 for example).
- **NEVER** overlap parked glider wings.
- **ALWAYS** make sure that there is *absolutely no possibility* of gliders pivoting into each other while parked on the side of a runway.

### Which Wing to Put Down?

- If it is particularly windy you may elect to put a weight on a wing to keep the glider from being bounced around by the wind. Put a tire (NOT A PARACHUTE) on the wing. NEVER put tires on a glass ship! The tire can scratch the finish of a glass ship.
- Different ships will behave differently when parked and exposed to a crosswind. Club ships with mid and high wings will probably be best served by keeping the **upwind** wing **DOWN** and weighted to minimize cross section. This is, however, not always the case. As a result,

The *best* policy is to have someone near the parked gliders keeping an eye on them during windy conditions. On the flight line, **NEVER** leave a glider unattended.

### What about Extremely High Wind Situations?

**Real World Case #1** - The best solution is to have one person on the wing, one on the nose and a licensed pilot in the aircraft. At least one GBSC member had the exciting (?) experience of flying a 2-33 from the wingtip on a gusty day. The glider got nearly 10 ft off the ground before it settled down and landed on the main wheel.

**Real World Case #2** - A GBSC instructor has had the distinction of "launching" an L23 from behind a tow cart on a windy day. Think about watching that in your cart mirror!

A glider is YOUR responsibility until you “hand it off” to another person.

## 7. Glider Movement on the Grid

Moving a glider onto the grid can be an interesting (another word might be “harrowing”) experience on a busy day. The OC decides when and where gliders are put on the grid.

- The OC should be consulted before moving gliders onto the grid.
- Never walk onto the grid without checking for approaching aircraft.
- Ask visitors to move to the side of the runway.
- If you are not needed on the grid, why are you there? Volunteers are appreciated, but too many volunteers can be a safety hazard.

### Other Grid Movement Issues

- **Never run over a tow rope!** Not with a cart, not a glider ... nothing!
- Watch for prop blasts: they can turn a glider and kick up stones.
- KEEP YOUR EYES OPEN for ground loops, short landings and any other potential safety issue.

**Everyone** on the grid is responsible for situational awareness. If you see a situation developing, see a safety issue or are concerned about anything, **speak up!**

**Real World Case** - Several GBSC pilots have had airplanes and people walk across the landing zone when they were on final approach. What if one of those glider pilots was particularly short on landing (it happens, just watch!) or lost significant altitude as a result of wind shear near the end of the runway? Don't take chances!

## 8. Helping Pilots, Rings and Ropes

- To expedite launch operations **pilots (and students) should be in their ship**, ready to go when their glider is #2 on the grid. When two tow planes operating, the glider in the #3 position should be also be ready.
- Pilots in gliders cannot move themselves. Help out where and when you can.

NEVER use a wing to turn a glider without first lifting the tail.

NEVER push on the trailing edge of any wing.

**Each Glider is Different.**

**Make sure you know the procedures for each club glider.**

- Some pilots will ask for a Positive Control Check (PCC); help if asked. Keep in mind, however, that gliders should not be on the grid unless they are ready to fly. Not completing a PCC means that the glider is not ready to fly!

- If you are the OC ask if the PCC has been completed well before hook-up.
- Ask the PIC if there are any special considerations (water ballast, unassisted take-off, PTTT test, etc.).
- The PIC may ask you to align the glider with the takeoff strip. Ask for direction.
- If the glider has a removable tail wheel or dolly, confirm that it has been removed.

### Rings and Ropes

- NEVER put a Tost ring in a Schweizer hook (includes the tow plane).
- Do you know the difference between an adapter (**white** rope and a Schweizer ring) and a 1-26 weak link (**yellow** rope and a Schweizer ring)?
- Do you know how to close the Bird Dog tow release?
- Do you know the three things to look for when inspecting a rope?
  1. No knots.
  2. Tell-tale visible.
  3. Rope ends in good condition. This is a bit of a judgment call. If unsure, ask. A few strands broken are ok. The PIC has final say.
- When putting a rope away, never simply coil a rope – it will be the devil to unravel later. Either use the hose reel or the rope buckets (hand-over-hand).
- Any questionable ropes should be placed in the “old rope” bin in the Green Shed, tagged with a carabiner clip with a "Bad Rope - Do not Use" tag. Clips and tags are found on a nail by the windows. Do not cut the rope. The rope team will determine if the rope is repairable.
- Don't repair a rope unless you are confident that you know what you are doing. These ropes are our “lifelines”.

Take the time to "learn the ropes" !

Refer to GBSC Membership Manual, sections 4.3.4.2 and 4.3.4.3 for more on ropes, weak links, and adapters.

## 9. Hook Up and Launch

*Only experienced or closely monitored club members should launch gliders.* “Closely monitored” means that someone watches what the person is doing, makes suggestions for how to complete the different procedures, and ensures that all procedures and decisions are safe and follow standard practices.

### Hook Up

- When the tow plane is ready to taxi onto the grid, **watch** for traffic, on the ground and in the air. If you see traffic that the tow pilot is not aware of, get the tow pilot's attention and indicate the direction of the traffic. If you see traffic or a situation developing, you *must* say something to the grid personnel.
- Check the rope for knots as you walk back to the glider for hook up.
- Present the rope end to the PIC for approval prior to connecting it to the glider.
- Make sure the tow rope is not entangled on anything on the ground, especially your feet!
- Once the tow plane is hooked up and you have the rope ready for glider hook up, **wait** for the PIC to confirm that s/he is ready for hook-up. **Do not interrupt the pilot's pre-flight check if in progress.**
  - Although problematic on hot days, one should refrain from hooking up a tow rope if the glider canopy is not closed and latched.

- When particularly hot, it will be important to plan for a quick, but safe launch as soon as hook up is accomplished.
- Make sure no one is in front of the glider wing before hook up.
- Ask if the PIC wants a release check.
- Hook up the glider.
- Walk to the wing tip
- Look for pattern traffic (power and gliders), field traffic (cross taxiway, down-field landed aircraft, other obstructions to take off) and people (no one in front of the wing or down field in an unsafe position).
- Once everything is clear, yell "**Pattern and field clear**" to the PIC.
- **Wait** for the PIC's thumbs-up. **Ask** the PIC for thumbs-up if not given quickly.
- Ask in a loud and authoritative voice "Canopy and Air brakes locked?" Wait for confirmation from the PIC. Some pilots will have their air brakes open on purpose for brake and aileron control reasons, but at least ask.
- **Lift** the wing and hold where there is no up or down force. Note that if there is a crosswind, the upwind wing will be lower to achieve balance. (NOTE: if the glider is carrying water ballast, you will almost certainly be asked to keep the wing level at all times so that the water does not shift within a wing and unbalance the glider).
- **Slack Out** Make sure NO ONE is in front of the glider wing or elevator! Remain observant of the pattern. Balance glider for no up or down loads.  
**Note:** if required to hold at the end of slack out, use standard SSA signal.
- **Immediately after slack is out, look** for the rudder waggle (listen for radio chatter too). If the PIC does not give the rudder waggle in a reasonable amount of time **ask** for it - *do not launch* without a positive rudder waggle.
- The wing runner signals the tow plane "clear for takeoff" with a full circular arm motion. Stay vigilant to developing situations.
- How much you **run** with the glider depends on factors such as wind speed and direction, type of glider, if the glider has water ballast, how physically fit you are and how attentive or experienced the PIC is.
- Finally, when running with the wing tip do not push it, pull it, lift it or shove it down. Just **release** it from a neutral position as you run with it and as the PIC gains lateral control as the glider accelerates.

NOTE: Use the FLAG to signal the tow pilot. Using your hat is not adequate, the tow pilot cannot see the hat very well.

**If a safety problem develops, such as a runway incursion, or a person in front of aircraft or under aircraft, place wing back on the ground and call "Release, Release, Release" to the pilot.**

## *Memorize This*

1. **HOOK UP** Check canopy closed/locked. Ask "**Air brakes closed and locked?**"
2. **TRAFFIC CHECK** Check field and pattern, *carefully*. (scan a full 360 degrees, look down-runway for obstacles, scan all approaches)
3. **ANNOUNCE** Say to the glider PIC "**Pattern and field clear!**".

Watch for PIC thumbs up; if no thumbs up ask PIC if s/he is ready

4. **THUMBS UP?** Ask ""Canopy and Air brakes locked?"  
Lift Wing
5. **SLACK OUT** Make sure NO ONE is in front of the glider wing or elevator! Remain observant of the pattern. Balance glider for no up or down loads.  
  
**Note:** If required to hold at the end of slack out, Use SSA signal
6. **RUDDER WAGGLE?** Launch! (watch for rudder waggle; if no rudder waggle, **ask** the pilot for the waggle - don't assume!)

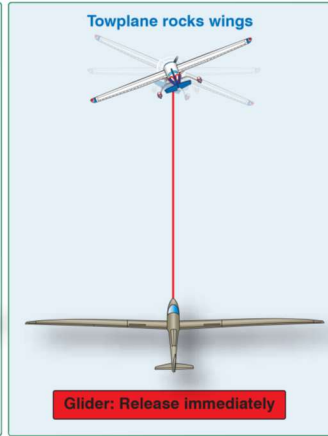
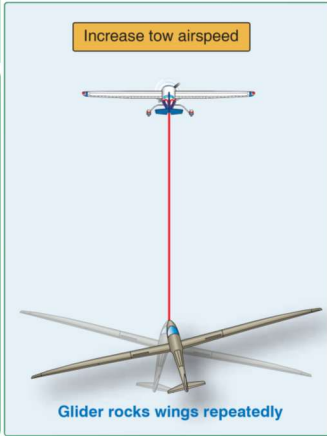
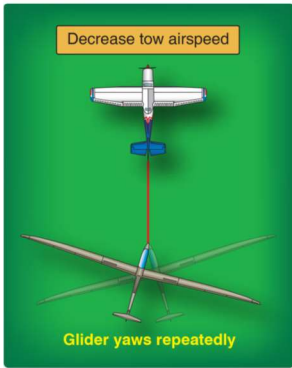
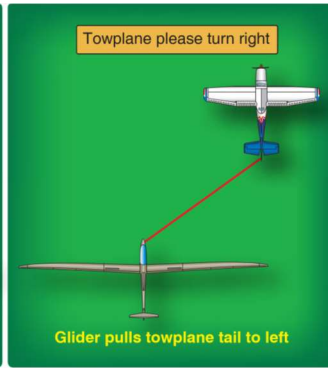
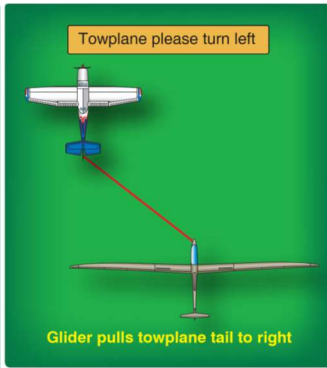
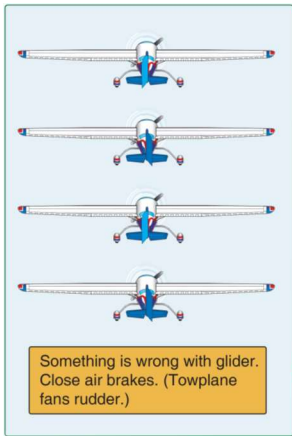
If you are unsure about how to safely and correctly launch a glider, ask for help.



# 10. Launch and Tow Signals

Taken from FAA Glider Flying Handbook, Chapter 7 and corrected per the published errata.





## 11. Grid Safety

There are numerous other topics that should be covered in any ground handling and procedures course related to grid safety.

- **Ground loops** - you can be seriously injured or killed by a wing of a ground looping glider.
- **Short landings** - always cause for concern. When they happen, they ALWAYS call for a reevaluation of procedures, methods and PIC training.
- **Power traffic** - although gliders are supposed to have the "right of way" we share the air with power traffic and need to be respectful of all traffic, both in the air and on the ground.

**Real World Case** - A power pilot taxied across the midfield taxiway as the glider was touching down on the grass. What would you do? Did you think it could not happen? What could have been done to minimize or prevent this from happening? How about the helicopter that turned over, burst into flames in the middle of the grass runway while gliders were in the landing pattern?

- **Rope drops:** how close are you willing to be? Stay behind or under a wing for protection.
- **Help on the grid:** there is a time and place for training on the grid. During peak launch times, too many helpers can be a hazard to operations.
- **Visitors and equipment:** Things not needed for launch should be moved off the grid, whether visitors or equipment.

NOTE: *There are often too many visitors on the grid.* We all need to be aware of this and move our guests and ourselves to the side of the runway.

## 12. Notes on Handling of the Club Fleet.

- Before ground tow, tie the stick back with the safety harness to hold the elevator up. It's a good practice to tie the stick back immediately upon exiting the glider, unless you expect to use the harness to pull the glider off the runway.
- The Schweizer gliders have fixed tail-wheels which can be damaged by improper handling. Holding a wing back to turn the glider during ground tow exerts a large side-load on the tail wheel. To turn the glider, stop the tow and raise the tail by either pushing down on the nose rod (for the 2-33) or by sitting on the cockpit rail (for the 1-26 and 1-34). *Do not* push down on a Schweizer's nose cone.
- Even on ships with a pivoting tail-wheel like the L23, care must be taken to avoid putting side loads on the tail by pushing the tail sideways or by holding back on a wing. Unload the tail wheel by lifting the tail by the handle just in front of the fin (if present) or by weighting the front of the ship. Sitting on the cockpit rail with the canopy open is an effective way to accomplish this.
- The L33 has a removable tail dolly. Use the tail dolly for all ground handling. Remove it once the ship is placed on the grid.
- Do not leave an unattended canopy open. A wind gust can slam it shut causing bent rails and latching mechanisms, or even a shattered canopy.
- When putting the 2-33 away, before getting to the tie downs, line the glider up first and then back in. DO NOT rotate the glider at the tie down.

## 13. Putting Gliders Away

- Moving gliders into the hangar requires great care and attention. Refer to the instructions posted in the hangar.
- At night it is difficult to see obstructions in the tie-down areas. WALK the area when you get close. Locate all tie-down points, wheel tubs and obstructions BEFORE you move a glider into the tie-down area.

- Use a good SERIES of knots for redundancy to secure the gliders. The tie-down ropes need not be so tight that the ship cannot move, but they must be **snug** and secure so that they don't come lose during the week.
- NEVER tie a glider down with rope around a wing, tail or elevator. Every glider in the club fleet has specific tie-down points for the wings and tail area. Ask where to tie the rope to if you are not sure.
- Remove battery, take it to the GBSC Battery Room, and put it on a charger.
- Generally, cushions remain in the glider, and canopy vents are left open.
- However, if a glider is tied down (outside) without a canopy cover:
  - Remove the cushions and store them in the Green Shed.
  - Close the canopy vent.
- Canopy covers should be put on carefully. Check for dirt so that you don't scratch a canopy.
- Check and double check everything.

**Real World Cases** - I have seen i) rope tied around a rudder, ii) ropes tied so loosely that the wings could flop a good foot or two, iii) canopy covers inside the cockpits (does a lot of good there), iv) dead batteries and equipment still turned on in club ships, v) canopies not secured, vi) cushions in the middle of the grass runway (in the rain), vii) tow ropes and ring adapters on the side of the runway, viii) radios left on picnic tables, and ix) cushions in gliders with the side vents open soaked so badly I wondered if they were destroyed.

#### Tie-down checklist (not in hangar):

- wings secure
- tail tied down
- aileron and rudder locks on
- elevator secured with the harness, or preferably with a proper control lock
- pitot tube covered
- canopy down and locked
- turkey baster bulb (or equivalent) inserted into the air intake in the nose of the Schweizers to prevent insect nesting
- canopy cover on
- Do a thorough walk around after the tie down is completed, just to make sure nothing is forgotten.

#### Putting Carts Away

Use caution when putting carts away at the end of a day. It can be dark and hard to see in the hangar, so turn on the hangar lights.

- Clean the carts, removing water bottles, paper towels, cans, etc.
- Fill the gas tank (Yamaha gas cart only).
- Put all carts in the GBSC Hangar
- Drive in VERY SLOWLY.
- Do NOT run over any power cords.
- When in position turn the key to OFF and put the parking brake ON.
- Connect the battery charger (Yamaha gas cart excluded)

## 14. End of Day

Do a final walk-around inspection or even be the last one to leave the field.

- **Check the Field:** is everything off the field? Ropes, weights, links, radios, cushions, adapters, etc.?
- Has **equipment** belonging to a private owner been left on the field (dolly, parachutes, radios, and clothing)?
- Have the **tow ropes** been put on a plastic spool and then put in the shed?

## 15. Tie-down Knots

One would think that it would be easy to remember a few simple knots, right? It has unfortunately been proven over and over again that club members who put gliders away at the end of a day regularly fail to secure a glider in a manner that will prevent it from being damaged in winds with tie-down knots that are easy to remove yet will not loosen up over time.

RULE #1 - Learn the knots shown below.

RULE #2 - Use them.

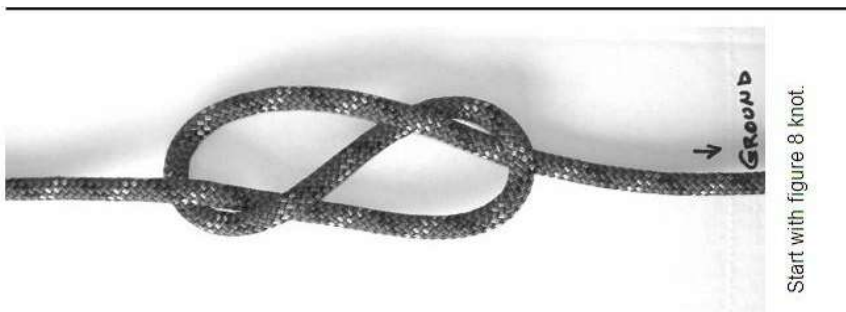
Need some additional help? Check out this excellent web site: <http://www.netknots.com>

### Ground Tie-Down Knot

#### Figure 8 Knot

Probably the all-around best knot for securing a **tie-down rope to a ground anchor** is the **Figure 8**. A figure 8 knot is exceptionally strong and reliable, used almost exclusively by climbers to tie a rope to a harness, and is easily removed.

Pass the end of the line thru the ground anchor eye, tie a figure eight knot in the end of the line, then an overhand knot around the anchor eye, and pull tight.



## Wing Tie-Down Knot

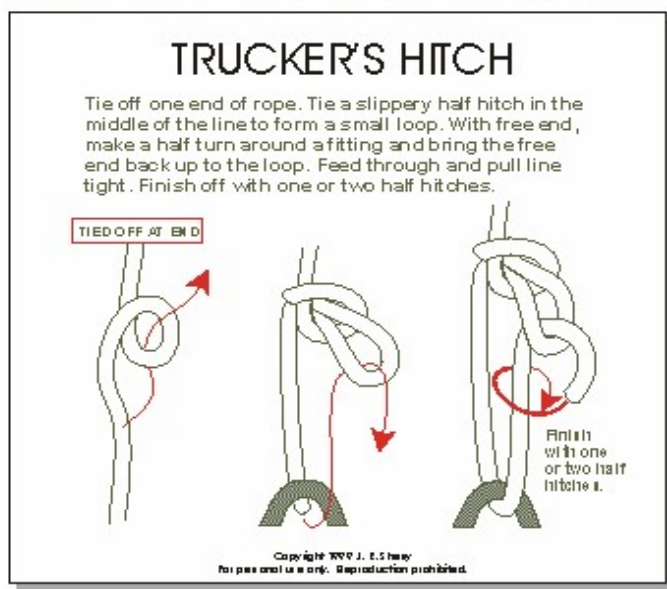
The recommended knot for a wing tie-down is a **trucker's hitch**. A trucker's hitch is reliable, won't come loose in high-winds, is easy to tie, and will hold up to heavy loads (it is, after all, a *trucker's hitch*!). An excellent source to understand the trucker's hitch is the following web site:

[https://www.netknots.com/rope\\_knots/truckers-hitch](https://www.netknots.com/rope_knots/truckers-hitch)

where the knot is explained as follows.

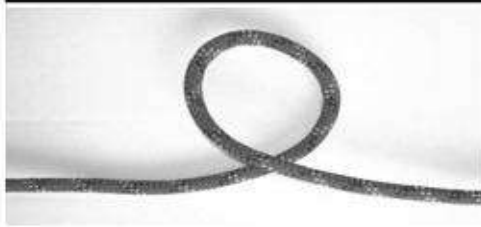
### TRUCKER'S HITCH

The Trucker's Hitch is one of those knots that once you learn it, you wonder how you ever got along without it! Use this knot to cinch down a load on your car top, boat, horseback, you name it. This combination of knots allows a line to be pulled tight as a guitar string!

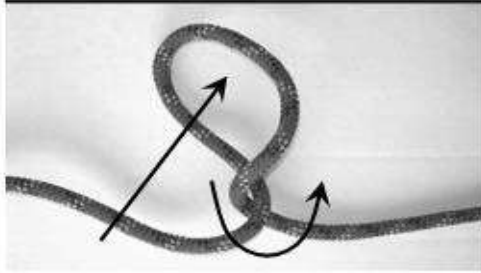


Generally, you do not want to pull the wing tie-down rope too tight (the trucker's hitch acts like a pulley and can easily put significant stress on the wing), but you also don't want the wing to be flapping in the breeze. Simply snug down the tie-down rope, not tight, not loose (no slack).

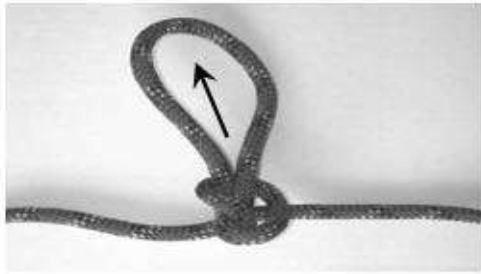
The following page shows (again) how to use a trucker's hitch to secure a wing tie-down point.



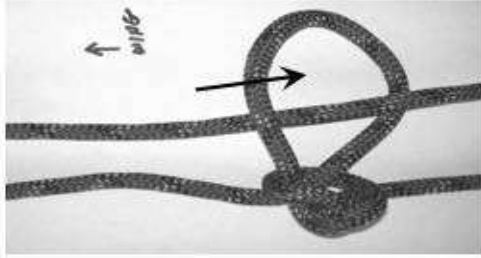
Start with a simple loop.



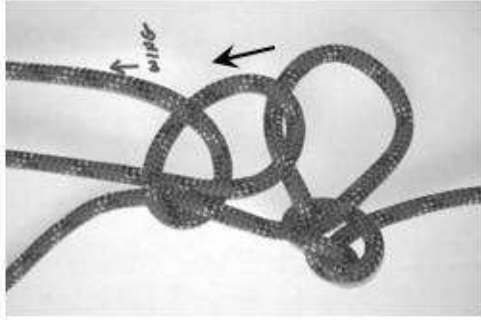
Put in a half twist and pull the upper rope through the loop formed.



Pull the loop tight so that there is no slack in the loop knot.



Pass the upper rope through the wing tie down, then back down through the loop formed.



Snug down the tie-down rope, then finish with two or more half hitches around both upper loop ropes.

## 16. Parachutes

Parachutes serve two purposes. First, they save lives. Second, in some gliders they are designed to be the "seat cushion" as well.

- Never let a parachute get wet or come in contact with oil or grease.
- Never store a parachute out of its case.
- Never store a parachute in a glider - mice will enjoy the nesting material.
- Never leave a parachute in the sun for any length of time - UV will eventually damage the parachute.
- Never use a parachute for a wing weight, wheel block, or other dumb application.
- Never put a parachute directly on the ground - it can get wet, dirty and banged around. Would you want to trust it with your life?
- Always put a parachute down on the side with the straps.
- If you see a problem with a parachute, tell the OC, Instructor or Tow Pilot.

**Real World Case** - I thought a fellow club member was going to have a heart attack one day when he saw a parachute, not in a bag, lying on the wet ground. He didn't, but he sure had a lot to say (not very pleasant) to the member who left it there!

## 17. Guests and First Flights

Guests should be directed to stay at the side of the launch area in the general vicinity of the operations desk until their flight is ready. Under no circumstances should guests be permitted to wander around the field or back and forth to the flight line, unescorted.

*First flight* procedures are outlined in the GBSC MEMBERSHIP MANUAL.

## 18. Operations Coordinator's (OC) Role

Overall, the OC keeps watch on the operation looking for gaps, directing people to fill the gaps, and stepping in when needed. The OC makes sure that all the work gets done and the operation is safe. The bulk of the operation is managed by members present. The OC should not run the flight line. The flight line will manage itself, with all members contributing to the tasks and duties on the following pages.

- Oversees operations for safety and efficiency and coordinates activities as needed
- Ensures launch procedures are followed correctly
- Enforces No-Fly List
- Keeps list of, and awareness of, flights aloft
- Supervises Juniors and assigns tasks
- Is main point of contact for
  - Emergencies
  - Interaction with non-members
- Monitors club cell phone/radio
- Has authority to suspend operations if critical tasks are not performed



- At end of the day
  - Assures all pilots have returned
  - Remains at the field until all Juniors have left
  - Gathers Intro Forms, payments, and FAST coupons and places them in the “Payments and Forms” box the Battery Room (on the inside window sill)
  - Confirms that end-of-day tasks have been completed (see end of next section)
  - Audits LoggerStation entries the following day and reminds members who have not logged their flights to do so

The OC may delegate any of these duties, as appropriate.  
The OC role may be transferred to another member during the day.

While members are responsible for logging their own flights, a best practice is to also maintain a written flight log at the flight line. This log keeps you aware of flights aloft and helps you establish that all pilots have returned at the end of the day.

## 19. General Club Member’s Role

- Start-of-day tasks: open hangar, inspect ropes, get ops cart in place, preflight club gliders
- Provide ground handling
- Manage flight operations: fetching ropes, moving gliders, launching gliders, maintaining the log sheet, etc.
- Members must log their own flight(s) on the same day as flown
- Host visitors and new members.
- Talk with visitors regarding Intro Flights, provide paperwork, ensure its completion and accept payments.
- (Guest forms are the PIC’s responsibility).
- End-of-day tasks: put away all equipment, tie down gliders, close and lock hangar and battery room

The following sections provide additional detail.

### **Start-of-day Tasks: preparing all equipment for operations**

- Morning crew should arrive at the field by 9 a.m. for a 10 a.m. start of operations.
- Select the active runway based on the weather and forecast.
- Enter hangar by side door and open hanger door (instructions by hand crank)
- 5673 is the combination for the Hangar, Green Shed and Battery Room locks – *Reminder:* matches the Bird Dog’s tail number: N5673B)
- Carefully move tow plane out of the hanger to access gliders
- Have at least one 2-place glider preflighted and ready to fly by 10 a.m.
- Get ground radios and cell phone from the Battery Room
- Put out the operations desk and Signup sheet as soon as possible.
- Place Stop the Bleed kit on the operations desk. The OC should remind members of the kit’s location and use.
- Erect canopy tent over operations desk
- Put gas generator near operations desk (check gas level)
- Get clipboard and fresh log sheets.

- Start a log sheet; write today's date and the names of the Juniors present
- Get ropes and adapters out and inspect. This is a good job to do with the juniors
- Review launch signals with juniors.
- Place pylons to prevent people walking onto the taxiway or tow plane pads.
- Set up Welcome sign & one pylon to block cars while allowing Visitors & Guests to approach the operations desk.
- Setup "Glider Rides Here" sign on road near entrance.
- Have remaining ground tow vehicles retrieved and put to use.
- After tow pilot has done a warm-up flight, get a verbal report on flight conditions.
- If all previous steps are taken, and there are no issues with flight conditions, start operations.

### **Flight Operations from Start to Peak**

- Maintain the sign-up sheet.
- Use the sign-up sheet to determine who is next to fly a club ship.
- Allow pilots and ships to grid from staging area in the sign-up order. Confirm PCC completed.
- Manage the grid and run the launch procedure
- Ensure that pilots on the grid are prepared for flight. Pilots should be in their ships, ready to go at least one glider ahead of the glider ready for launch; two gliders ahead on busy days.
- Instructional flights should be scheduled 2:1 (two non-instructional flights for each instructional flight) or, if backlogged, 1:1.
- Only essential people are allowed on grid – pilots, passengers, instructors and students.
- NO unauthorized gathering of people on the grid.
- Ensure ropes dropped on the runway are retrieved *immediately* - but exercise caution with the active asphalt runway!
- Ensure landing gliders are retrieved as quickly as possible. Club gliders used for training should always be given priority for retrieval.
- Tow vehicles are not permitted on taxiway when not towing gliders.
- Ensure gliders and tow vehicles transit grass strip quickly and safely.

**Changing the active runway:** Downwind takeoffs are strongly discouraged. If downwind conditions develop, the OC should immediately consult with the tow pilot and instructor. If either is uncomfortable with wind direction, the OC should send someone to consult with the FBO or flight school (if available) on weather conditions and request changing the active runway. The OC may halt operations until a decision is reached. If the FBO approves the change, immediately inform all gliders aloft that the active runway changed. Move operations to the now-active runway.

### **Flight Operations at Peak Times**

- If it is a busy day and there is only one tow plane operating, “draft” another before noon.
- For a very busy day, encourage a third tow pilot, if possible. Note that a third pilot is usually only needed for a short time to clear the grid.
- During peak launch period, you are strongly encouraged to restrict everyone to 2,000-foot tows.
- Tightly enforce in-cockpit readiness for 3 ships at head of the line.
- When grid is down to several ships with few waiting, release additional tow pilots.

## **Flight Operations from Afternoon to end of flight day**

- Ensure a commercially licensed pilot is available for each intro flight.
- As end of day approaches, remind last pilots signed up for club ships to “land long” to ease putting ships away.
- The last pilot to fly a club ship should return it to the tie-down area and tie it down.

## **End-of-Day tasks: putting away and securing all equipment**

- Confirm that all pilots have returned
- Log landing time of last flight.
- GRID AREA
  1. Remove all towropes from grid and wind upon reel
  2. Return launch flag (or paddle), weak links/adapters and rope reel to Green Shed
  3. Remove weights, cushions, trash and personal items and return to proper location
- OPERATIONS DESK AREA
  1. Put clipboard and unused forms back in the Logger Box and return to the Battery Room.
  2. Return operations table, chairs and canopy and generator to the Green Shed
  3. Remove traffic cones and put in Green Shed (if operating on runway 34)
  4. Lock Green Shed
  5. Empty Trash Can into the dumpster next to main hangar.
- GOLF CARTS
  1. Return all carts to hanger and confirm all are in “OFF” position
  2. Plug in all electric carts to charger(s)
- HANGER
  1. Carefully move towplane into hanger after gliders have been properly put away
  2. Lower hanger door and secure pavement anchors
  3. Lock side door
- GLIDER TIE-DOWNS
  1. Confirm all gliders have been tied down and put away properly
  2. Put away any gliders that are not tied down
  3. Return all batteries to Battery Room
- BATTERY ROOM
  1. Put handheld radio and cell phone on their chargers in the Radio Room
  2. Make sure all batteries and phone have been returned and plugged into chargers
  3. Lock Battery Room

## **20. Common Operations Questions**

### **Q: Where are tow vehicles allowed to drive?**

A: Ground tow vehicles are NOT allowed on the taxiway and grass landing area – except when towing. Ground tow vehicles must transit the airport BEHIND the blue hangars – except when towing. Ground towed gliders must promptly make way for taxiing power traffic when it is safe to do so.

### **Q: Who is “essential” on the grid?**

A: Duty personnel, and pilots and passengers of ships on the grid. Visitors are not allowed in the operational area without an escort.

**Q: Who can operate club property?**

A: Only GBSC members may operate club property.

**Q: What is GBSC policy regarding signup. Who *must* sign up?**

A: Pilots who wish to fly should place their names on the signup sheet. Of course, some private pilots may arrive before the signup sheet is out, so some pilots' names may not appear on the list.

**Q: Who gets launched when?**

A: The sign-up sheet is a source of information for determining launch order on the grid. It is especially helpful for determining order of flights of club gliders and instructional flights. For private ship owners, it is primarily "first come, first serve." Also, some private pilots arrive before a sign-up sheet is out, so some pilot's names won't be on the sign-up sheet. Pilots in the staging area who are ready (fully prepared to fly) get moved to the grid ahead of pilots who are not ready. This is true of all flights – those ready and present move to the grid. Do not hold up the operation to look for "missing" pilots. Loggers keep the sign-up sheet current by "scratching" pilots from the list when they takeoff.

**Q: Am I responsible for getting private ships towed to the staging area?**

A: All club members should have access to the club's tow vehicles. Do not ignore their requests for ground tows.

**Q: May the OC temporarily halt ground tows to the staging area?**

A: Try to keep the operation operating as smoothly as possible and allow ground-towed gliders to safely travel to the staging area. If, however, the grid and staging area have reached capacity, you may *temporarily* halt ground-tow traffic and request that they hold north of the cross taxiway ( "Sterling" painted on the pavement). Allow two or three gliders to clear the grid, then commence ground tows. In general, make any ground tow halt as brief as possible.

**Q: What if someone says they should be moved to the grid before someone else?**

A: Are they ready? Whoever signed up first and is ready gets to the grid first.

**Q: May instructional flights get moved to the head of the line?**

A: Yes. GBSC uses a **2:1** ratio (non-instruction : instruction) to facilitate instruction when multiple tow planes are operating and private pilots wish to launch.

**Q: What if a pilot is on the grid but not ready to fly?**

A: You may move their ship off the grid and to the staging area until they are ready.

**Q: What if I see an unsafe and/or short landing in the area of operations?**

A: Find the instructor of the day and/or OC and inform them.

**Q: Who decides to change runways if the wind changes?**

A: Downwind takeoffs are strongly discouraged. If downwind conditions develop, the OC should immediately consult with the tow pilot and instructor. If either is uncomfortable with wind direction, the OC should send someone to the FBO to consult on weather conditions and request changing the active runway. The OC may halt operations until a decision is reached. If the FBO approves the change, immediately inform all gliders aloft that the active runway changed. Move operations to the now-active runway.

**Q: Who makes safety decisions on the field?**

A: Safety is the responsibility of *all* members. If as OC you have a question about safety, consult with the instructor(s) of the day, the tow pilot, and with a member of the club safety committee if one happens to be at the field. The point is: don't hesitate to consult with these members. If a situation is deemed unsafe, you should halt operations at any time.

## 21. Incident Reporting

*In the event of an incident or accident at the airport:*

- *Notify the Airport manager & OC*
- *Notify the GBSC club president, Chief Pilot, & Duty Instructor*
- *Follow the GBSC Emergency plan*
- **DO NOT** *notify the FAA. A club officer will determine if it is a reportable incident.*
- **DO NOT** *call 911 unless there is a serious injury*

The full requirements for reporting are found in 49 CFR Part 830, "Notification and Reporting of Aircraft Accidents or Incidents...".

Club contacts may be found on the GBSC web page "Contact Us" tab:

Sterling Airport: (978) 422-8860

## Overdue or Missing

If an aircraft is overdue or missing, have the tow plane(s) try to make radio contact from altitude on Sterling Unicom (122.9 MHz) or the air-to-air glider frequency of 123.3 MHz while making a visual search of the local area.

Pilots should call the GBSC cell phone, **978-944-0801**, if they land out and need a retrieve, or the airport telephone number, **978-422-8860**.

If unable to locate the missing aircraft, notify the FAA and if necessary, the State Police. Also, if necessary, call the GBSC President or Chief Pilot and the emergency contact for the person(s) involved.

FAA Flight Service Station: (800) 992-7433  
State Police, Holden Barracks: (508) 829-8420 or 911

## 22. Definitions

Battery Room: the GBSC structure attached to the FBO

CAC: critical assembly check

FBO: fixed-base operator (the airport office)

Green Shed: small storage building near the parking area nearest runway 34.

Grid: the area at the start of the runway where gliders are lined up for launching.

OC: Operations Coordinator; the person responsible for the day's operation

PCC: positive control check

PIC: pilot in command; this term comes from FAA regulations, see 14 CFR § 91.3.

POH: Pilot's operating handbook (aircraft flight manual)

PTTT or PT<sup>3</sup>: premature termination of the tow, more commonly known as a "rope break"

SFO: Senior Field Officer; the person responsible for the day's operation. This role was eliminated in 2021 when the OC role was implemented

## 23. Final Thoughts

There is a lot to learn, but remember that every single person in the club started out not knowing anything about club operations. We have all helped each other to learn proper procedures. We depend on each other, we need each other and we support each other by learning how to be safe through adherence to standard, accepted and safe procedures.

*Welcome to the club!*



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