

Bath Wilts and North Dorset Gliding Club



Ground Operations Training Handbook

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Figure 1 Winch Driver Training Card

Figure 2 Winch Simulated and Real Emergencies

Introduction

We are a team of amateurs facilitating a leisure activity where there are significant hazards if things do not go well. No two days are the same with the same club members present and the same weather conditions, so adherence to standard operating procedures and effective communication is critical to maintain safety of the operation. This document is a guide to how we manage ground operations at the Park to keep us all safe and is complimentary to the Club Operating Rules.

As with all modern flying organisations we employ a just safety culture. We recognise that mistakes are made, but we must be open to learning from our mistakes and the mistakes of others. Please be open to raising your safety concerns at any time and also consider being open to constructive feedback.

The topics in the Ground Operations Training manual link to the Ground Operations Training Card. Once a topic has been trained and understood it may be signed off on the training card by both the trainer and the member under instruction. Many duties and topics are fairly straightforward and may be signed off by any member authorised to do so on his/ her own card. Other duties such as LPC and Winch driving duties are more complex tasks and those tasks may be only be signed off by the relevant authorised trainers. Only authorised trainers may authorise young members to operate Gators or the Golf Buggy

The most important consideration is that if you are in any doubt during ground operations stop what you are doing and ask for guidance.

1. BGA Post Accident Guide

We strive for the highest levels of safety at the club, but we also have to be prepared to deal with events if things do not go well. The BGA Post Accident Guide is located in the caravan and the clubhouse. Should an incident arise the guidance within should be consulted, and familiarity of its contents should be gained.

- The guide contains immediate actions and immediate follow up actions. Please become familiar with these sections
- Stop all flying and take control of the situation so that no further accidents occur
- As per club operating rule 4, an emergency response Landrover should be positioned on the airfield with the crash kit having been checked as part of the daily Inspection (See 3.1 below). The crash kit includes a Fire extinguisher, First Aid kit, rescue tools (crowbar)
- The Gators and Golf buggies also have a compact crash kit.

- Club vehicles are not road legal or insured for road use. They are intended only for use on the airfield and surrounding land, which is accessible without public road use.
- There is a First Aid kit in the caravan, the Winch and also in the clubhouse kitchen.
- Fire extinguishers are in both Landrovers, the Gators and buggies, in the caravan, with the winch and within the clubhouse and hangar.
- The telephone in the caravan will not make outgoing calls, so use your mobile. The EE mast near the hangar picks up emergency calls even if your network does not normally have coverage.
- The Address is :-The Park, Kingston Deverill, Warminster, BA12 7HF
- What 3 Words gives an accurate location to emergency services www.what3words.com If the incident is off site, give the precise location to the emergency services ideally by what 3 words.
- Who to notify- Fire, Ambulance, Police, AAIB, CFI, Club Safety Officer, Club Chairman, BGA

2. General Ground Operations at The Park

The airfield is run by enthusiastic amateurs with a wide variety of tasks to be completed to ensure a safe operation. You are encouraged to participate and learn, however, when you are coming to The Park in the early days, some hazards may be obvious to you but others may not! These include gliders coming in to land silently and rapidly from unexpected directions, the cables that are laid on the ground and then used to winch-launch the gliders, and vehicles and aircraft moving around the airfield. Behind the tug is a long rope with metal rings on the end, which hangs low and oscillates at various heights below the tug.

In general we operate the airfield so that gliders take off and land into wind with the winch positioned at the upwind end of the field with high speed cables running along either the northern or southern edge of the runway to the caravan and launch point at the downwind end. We consider where cables and parachutes land when there is a crosswind so that they do not land in the adjacent crops. By the nature of the sport, gliders are silent and the tug is quiet, so a good look out before moving over the airfield is vital. Aircraft may approach from any direction, but primarily from downwind (i.e. from the East or West).

- Keep to the extreme edges of the field on the track. If driving do not drive on the edge of the field where the winch cables are laid out.
- Avoid running- there is rarely any rush to do anything.

Launch Point General

See also BWND Safety advice for Visitors [Microsoft Word - Safety.docx \(bwnd.co.uk\)](#)

- As part of the club you are also empowered to raise any safety concerns at any time and call STOP if you see anything that is dangerous.
- The Launch Point Controller (LPC) is the person in charge of safety and operations at the launch point and is the person to consult for guidance.

- The Log keeper is an important role. The log keeper will work with the LPC and instructors to manage the launch sequence.
- The coned off area is a safe area for visitors to wait and view ground operations.
- Please do not pick up or touch winch cables until trained.
- Beware of propellers on running aircraft and, in general, do not touch or turn any stationary propeller. This includes gliders with Turbo engines or electric sustainer propellers. These can be lethal and start unexpectedly. The Eurofox tug is an exception and, **under guidance**, can be pulled or pushed by the hub of the propeller.



- Regardless of your experience- if something looks unsafe, call STOP loudly and clearly.

3. Vehicle Operations at The Park

Club Order Book - Club Operating Rules, Rule 15. We operate 2 Landrovers, 2 Diesel Gators and 2 Electric Golf Buggies. These vehicles are used for a variety of roles. All vehicles should be given a daily check before being operated and driven carefully.

3.1 Daily Checks- Landrovers

- Landrover keys are in the small key safe in the kitchen, the combination is the first 3 digits of the club code
- Check the crash kit is in place Fire extinguisher, First Aid kit, crowbar, cutters.
- Check Fuel- If fuel needs to be added please refer to the refuelling guide below (3.4)
- Engine Oil- Check with dipstick add oil as necessary. **DO NOT OVERFILL!**
- Power Steering Check the level – add as necessary.
- Check clutch fluid level - add as necessary.
- Check brake fluid level - add as necessary.

- Tyres Condition and inflation. If required the club blue compressor may be used to top up tyre pressure. The correct tyre pressures are written on the wheel arch.
- Check coolant. If this needs to be topped up, Landrover coolant is ready mixed in a drum at the north hangar wall.
- Once the DI is complete, note fluid levels and sign the DI book in the Cab.

3.2 Daily Checks Gators

- Check Fuel- If fuel needs to be added please refer to the refuelling guide below (3.4)
- The Gator keys remain in the ignition. they are fragile so please handle with care.
- Tyres Condition and inflation. If required, the club blue compressor may be used to top up tyre pressure. The correct tyre pressures are written on the wheel arch.
- General condition – check for any damage and security of components.
Other checks are carried out monthly by a designated maintenance team

3.3 Golf Buggy Charging and Daily Checks

- Tyres Condition and inflation. If required the club blue compressor may be used to top up tyre pressure. The correct tyre pressures are written on the wheel arch
- The battery on buggy 1 is charged by plugging into the hanging power points installed in the MT area and verifying the green charge light is on.
- The Battery on Buggy 2 at the eastern end is connected with the blue connector. again ensure the green charge light is on.

3.4 Refuelling Diesel Vehicles

- Consider using gloves to protect yourself from diesel. These are located in the kitchen
- Refuelling is done with the refuelling battery trolley unit kept in the North eastern corner of the hangar.
- All (except the golf buggies!) use diesel, which is in the tank outside the hangar, north-eastern side.
- Unplug the trolley from the charger and position it beside tank.
- Unlock the tank using the club code and plug in the battery unit.
- Zero the gauge.
- Open the gate valve, switch on and pump gas.
- Close the gate valve.
- Record uplift on the diesel clipboard (Not the AVGAS Clipboard).
- Unplug trolley and return to Hangar where it should be plugged in to be recharged.

- When refuelling is complete, re-lock the tank and return the key to the key safe. It is important to replace the padlock in such a way that it is easily removed next time!

3.5 Airfield Driving- General

- Driving in General- When driving around the airfield it is vital to drive at an appropriate pace with a good lookout. This is important around the hangar particularly when reversing.
- In profile, a raised wing of a parked glider may be difficult to see, so take great care when manoeuvring close to parked aircraft and **NEVER** drive underneath a wing.
- Similarly a grounded wing may be hard to see from the driving position, so again use care when manoeuvring around parked aircraft.
- When driving on the airfield, use tracks where possible and avoid driving in a manner that damages the grass- particularly when it is wet.
- There are rough areas, not just on the tracks. Always drive with your thumbs on the outside of the steering wheel rim. The wheel can turn rapidly if the front wheels hit an unseen bad patch at speed.
- When parking on the airfield park all vehicles across the slope with front wheels pointing uphill (in case of park brake failure).

3.6 Landrover Operation

- The Landrovers are used as medium towing vehicles for the caravan and also to retrieve cables from the winch. They also have a crash kit.
- As per club rule 15, Landrovers may only be driven by members holding a full UK Driving licence, therefore Young members may only drive a Landrover having passed their driving test.
- The Landrovers are conventional diesel vehicles. To start check handbrake and neutral then turn the ignition key until the glow plug light goes out then start as per any other car.
- Do not select any other drive or Diff lock controls.
- Drive as per any other vehicle keeping to an appropriate pace.
- If reversing the caravan with a Landrover, you **MUST** have a banksman to guide you.

3.7 John Deere Gator Operation

- The Gators may be driven by any member 16 years and older regardless of driving licence status. However, as per club rule 15 those under 16 years old may drive the Gators having completed the club training syllabus for young drivers. (Please see Section 5 for further guidance.)

- The Gator is a left hand drive vehicle with a diesel engine. It has automatic transmission (no clutch). One hazard is tipping. Be careful when manoeuvring on a slope and ensure you corner at an appropriate speed.
- The controls are: Start Push Button; Guarded Ignition Switch; Foot Pedals; Foot Brake; Accelerator; Gear Selector; Handbrake.
- Always use both hands for steering.
- Both pedals are operated with the right foot only.
- These are the only controls that you need to use – do not touch any other controls.

Starting the Gator

- Check that the handbrake is applied;
- Check that the gear selector is positioned at N for Neutral;
- Un-gate the Ignition Switch and select On, pause until the orange warning light (heaters) on the panel (second from the left) goes off....then press the Start Push Button. Do not use any throttle. Release as soon as the engine starts.
- If the engine does not start in five seconds, select the Ignition Switch to off and wait about 10 - 15 seconds for the battery temperature to stabilise before attempting another start sequence. If the vehicle does not start after 3 attempts, seek advice.

Moving Off

- With the engine idling select drive:
- The revs must be at idle before selecting any gear, to avoid damage.
- L for Low is used for towing gliders at walking pace; H for High is used to move forward when not towing; R for Reverse is used to move backwards.
- Release the handbrake. (In situations where delicate manoeuvring is needed, it can help to manually apply the handbrake until the drive engages, as per hill starts).
- Move the vehicle by gently pressing the accelerator.
- It can be difficult to select L, be sure that the selector is in exactly the right place. If the lever does not move fully forward select H and then go back to L.

Stopping the Gator

- Release the accelerator and apply the foot brake;
- When stationary apply the handbrake; (The handbrake will be applied more firmly if the foot brake is pressed at the same time.)
- Position the gear selector at N for Neutral;
- Stop the engine by turning the Start/Stop Key Switch anticlockwise.
- (Note- it is better practice to keep the engine running whilst awaiting a glider to be connected to the tow rope to save a start cycle on the starter and maintain battery condition)

Driving Technique

- Do not turn sharply when driving at speed or on uneven ground, the Gator is not stable under these circumstances.
- The seat has a lap strap which you are encouraged to use when driving at speed.
- Extreme care is required when reversing – it is not easy to reverse the Gator smoothly. Look over your right shoulder before moving and use both mirrors to remain aware of what is behind.
- With handbrake on and gear in Neutral it is permissible to briefly step out of the vehicle with the engine running, to look round for aircraft or to assist with attaching a glider, provided that you are on level ground. However, the vehicle must not be left unattended with the engine running.
- On all slopes, the gator should be parked parallel to the slope with the front wheels pointing up slope.

3.8 Golf Buggy Operation

- The Golf Buggies may be driven by any member 16 years and older regardless of driving licence status. However, as per club rule 15 those under 16 must have completed the club training syllabus for young drivers before driving the Buggy. Please see Section 5 (Young Members) for further guidance.
- The golf buggy's tow hook **MUST NOT** be used to tow any trailer, only towing Gliders
- Check surrounds are clear. Turn the key to desired position F = Forward, R = Reverse, N= Neutral - (Caution it may roll if on a slope in Neutral.) Off = Park this engages the park brake
- Check there is sufficient charge for the mission intended.
- Gently press the accelerator with your right foot to move off. Stop by using your right foot on the brake pedal. To park select OFF, this engages the park brake. Do not leave in F or R if vacating the buggy. (inadvertent pressing of accelerator may cause the buggy to move unexpectedly)
- When steering beware that this is a top heavy vehicle, so sharply turning particularly on a slope could result in tipping the buggy.
- At day's end, the green Buggy (No. 1) is to be parked at the western end of the hangar and should be plugged in to the hanging power point to charge. The Red Buggy (No. 2) is kept at the Eastern end of the hangar and it should be driven forwards into the hangar and plugged in using the blue cable and connector which remains with the buggy.

3.9 Caravan

- The Caravan keys are on the key rack in the stairwell.
- The caravan should have a daily inspection before being towed out to the launch point.
- Verify that both Tyres are inflated correctly and the stability stands are wound in.

- Fill the water container from the outside tap at the western end of the hangar and place it inside.
- Prior to moving, verify that the training record card file is locked and that the roof vent is closed use no more than finger pressure only (if open) and there are no loose articles within the caravan.
- To reverse out of the hangar ensure that a banks person is present to guide you. Use one of the Landrovers to tow the caravan.
- Tow gently to the Launch point using the tracks. The caravan tyres are narrow and high pressure and will badly damage the airfield surface if the ground is soft. See also Winter Rules.

Caravan Set Up

- Position the caravan on the airfield as directed by the LPC ensuring the door faces the inside of the airfield. When positioning at the NE corner next to the hangar the stop light end of the caravan should be no further east than abeam the steps to the hardstanding. This is to ensure the safety of pedestrians and to maximise the visibility of 'the dip.'
- Manoeuvre the caravan onto the large chock to level it laterally and chock the wheels. Then deploy the stability legs onto wooden spreader boards and level it longitudinally. It is important to ensure the caravan is level so that the galley can be used safely.
- Disconnect the Landrover.
- After unlocking the door, use the red battery key to turn on electrics under the bench.
- Extend the Wi-Fi aerial above the door and boot up the computer.
- Remove chairs, tables and sunshades as required.
- Plug in the winch signal lamp and establish communications with the Winch driver to test the signal lamps. Check that the up slack, all out and stop light signals work.
- Set up the cones to remark the safe area and place the Cable information board, 1.5m from the front of the caravan down track (on the crop side of the track).
- Display the daily Met and NOTAMs and write the duty names on the board.
- Switch on Gas and water as required.

Caravan Packing

- Once flying is complete, tidy away and secure all tables, chairs and cones etc.
- Lower Wi-Fi aerial and shut down the computer.
- Switch off electrics and gas.
- Tidy away the signal lamp.
- Ensure the roof vent is closed use no more than finger pressure only (if open) and the training record file is locked.

- Connect Landrover before retracting stability legs
- Retract stability legs, remove the wheel chocks, then manoeuvre the caravan off the levelling chock and verify the area is clear before carefully manoeuvring the caravan back to the hangar.
- Hang the key up in the stairwell.

4. Glider Manoeuvring

4.1 Glider Handling & Parking

- Only one person (normally the pilot or instructor) should be in charge of a glider being manoeuvred. That person should give timely and clear instruction to others involved.
- The Launch Point Controller will give direction on where the glider should be parked at the launch area.
- One wing (and one wing ONLY), is held by a wing walker. The wing walker is responsible for steering. Normally the into wind wing is held, (but see slope considerations below).
- If it is necessary to change wings, there is a procedure as follows: -
 1. Person in charge of the aircraft calls 'Change Wings'.
 2. New wing walker holds the other wing firmly, and when in control calls 'My wing'.
 3. Original wing walker checks visually that the other wing is held securely, then releases the wing and calls 'Your wing.'
- This procedure ensures that the wing is under control at all times by one individual only -there can be only one driver!
- It is important for the wing walker to keep the nose of the glider pointing at the Gator/ Buggy as much as possible. The tow hook is designed for a load directly ahead and large angles may cause damage or cause the rope to become detached.
- Glider canopies are exceedingly expensive and fragile. Always treat canopies with extreme care particularly in strong winds. Never leave an open canopy unattended regardless of the wind conditions. If you are leaving a glider, please ensure the canopy is closed and latched. If rain is present close the DV window too.
- If you are unsure of where to push on a glider then please ask. Some structures are fragile and you may cause damage if you push in the wrong area. Do not push on weak trailing edges, tail surfaces, or control surfaces.
- For wooden gliders with fabric covered wings, push where directed- usually on the fuselage. The club K6 is manoeuvred with 2 people using the strap stored in the cockpit to lift the tail.
- For Fibreglass gliders it is acceptable to push at the wing roots and fuselage

- Some gliders have a tail dolly fitted. Be careful when fitting tail dollies that you do not bump or damage probes protruding from the tail fin. It is easier to fit dollies to club Astirs if an assistant pushes down on the nose (approximately midway between the nose hook and the canopy). Always remove the dolly after the glider has been parked. This is to prevent the glider being turned by the wind.

Parking on launch line.

- Club Puchacz -In light to moderate winds raise the into wind wing. If strong and / or gusty wind conditions are present, consider lowering the into wind wing placing a tyre on it. If necessary, the nose wheel should also be chocked. Normally a club decision will be made on this by the LPC in consultation with the duty instructor.
- Club Astirs - In up to moderate winds raise the into wind wing. If strong and gusty wind conditions are present, consider lowering the into wind wing placing a tyre on it. Normally a club decision will be made on this by the LPC in consultation with the duty instructor. When parking an Astir always remove the tail dolly.
- Club K6- For wooden gliders always park with the into wind wing down and a tyre over it to stop it lifting in strong winds.
- In cold weather it may be necessary to leave the south wing down (if conditions permit) to reduce the chance of frost or condensation formation.

Parking off line.

- Gliders should be parked with the wind from slightly behind the glider (110 – 130 degrees from the centreline) so that the wing is not producing lift. The into wind wing should be down, and as many tyres as conditions dictate placed on the wing (tyres should be fully on the wing, not half on the wing, half on the ground). Nose chocks should be fitted on Puchacz aircraft. If conditions dictate, all gliders should have tyres either side of the tailwheel / skid, and also either side of the rudder to stop it banging.

4.2 Towing from and to the Hangar

The Hangar sits at the bottom of a slope which presents some issues when manoeuvring Gliders. If you are unsure of what you are doing or if you see a hazard, call STOP! loudly and clearly.

Towing out

- Neither Gators nor the Golf Buggy should be driven into the hangar.
- Once a glider is on the gravel clear of the hangar it may be hooked on (the concrete apron slopes downwards). For Club gliders use the belly hook. Normally use the back release to hook on or use the yellow release handle if circumstances dictate. If using the yellow release handle please open the canopy to gain access, **do not** reach through a DV window to pull the release.

- The Gator driver should gently take up slack using the LOW gear (Low to tow) It is preferable to use electric buggies when manoeuvring close to the hangar.
- The wing walker walks the Southerly wing;- ie upslope. Take great care that the opposite wing does not strike any vehicles on the track (a wingtip watcher should be used to assist) and ensure the wing walker does not lift too high as the downslope wing may scrape the ground.
- Manoeuvre the aircraft into the desired position for the Daily Inspection, parking across slope and if required, leave room behind for other club gliders. Reverse a couple of metres to remove the tension on the rope.
- Release the tow rope at the glider by back releasing then the rope should be coiled loosely and stowed in the hopper then jammed on the cleat at the back of the hopper before the Gator/ Buggy moves off.
- Once the Glider DI is complete the glider may be moved up the slope and onwards to the launch point. Employ the same procedure for hooking on and towing with the wing walker taking the upslope wing.
- If the tow rope breaks or becomes detached, the wing walker may be startled! Just stand still and keep holding the wing and the glider will pendulum across slope to a standstill. Do not panic or let go.
- In Northerly winds take care that rudders (particularly of the Puchacz) do not slam over as the tail passes through the wind. You may need to have a third person hold the rudder as you come through the wind or stop and ease it over.
- If towing to the far western end of the airfield then the wing walker should walk the into wind wing which may mean stopping at the top of the slope to change wings.

Towing In

- When returning Gliders to the hangar it is necessary to tow down slope to the hangar. In this case someone must walk at the left wing root and use their backside to slow the glider if required. From this side the canopy may be opened and the cable release may be operated if required. If shorthanded it may be necessary to detach the glider from tow, move the buggy / Gator out of the way and use the driver to assist with pulling the glider down the slope manually. This is not difficult given the downhill element.
- In a southerly wind, be careful the rudder does not slam over as you pass through the wind. Consider having someone ease it over.
- The wing walker will change (if necessary) to the left wing prior to commencement of the westbound turn towards the hangar. (Be careful of rudder slam).
- Again, if the tow breaks, do not panic or let go, just stand still and keep holding the wing and let the glider pendulum to a stop with the brake person assisting.
- Detach the tow on the hard core and let the Gator/ Buggy move clear, then physically manoeuvre the glider onto the concrete apron for parking. Exceptionally, the glider may be towed to the front of the hangar if there are NO OBSTRUCTIONS WHATEVER (aircraft or vehicles) on the hardstanding.

4.3 Glider Retrieval

At The Park we conduct winching and aero towing from a relatively narrow strip of land. It is really important that all movements involving vehicles on the airfield are conducted in a disciplined manner. In particular, movements of vehicles and towed gliders should be as close to the side of the airfield as possible. Retrieves which are not close to the side cause landing gliders to land further into the field. This can easily cause significant delays to aero towing and, in a crosswind, winch launching. In the event of multiple landings the restriction of the landing area caused by thoughtless retrieving can quickly lead to a difficult situation for landing pilots.

If we maintain airfield discipline at all times, even on quiet days when it may not appear to be necessary, then we can be sure of conducting a safe and efficient operation on those important busy days from May to September.

General Considerations

When you are retrieving gliders you are driving a vehicle across an active airfield. On the area that is used by aircraft for landing or taking off the aircraft have absolute priority.

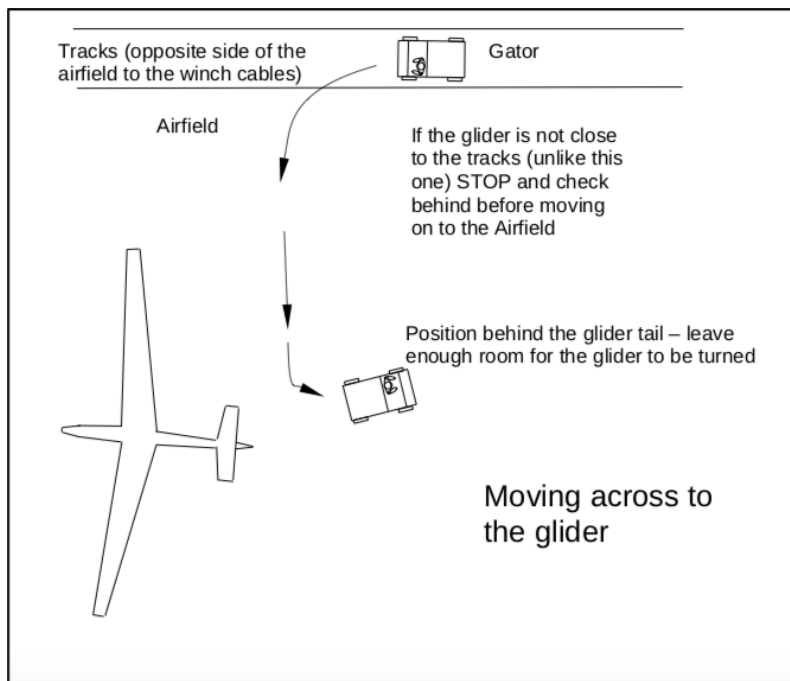
The tracks which are on each side of the airfield are for the use of vehicles. On the tracks the movement of vehicles is priority and aircraft are required to avoid them. You should, therefore, as far as possible, remain on the tracks when moving a vehicle on the airfield. Do not expect towed / taxiing aircraft to move away from the track if there is an aircraft on the approach. It may be necessary for both you and the aircraft to stop. Drivers of vehicles which are moving towards the launch point have a good view of the approach and base legs; they can easily check that it is all clear for them to move into the field when this becomes necessary. Drivers of vehicles moving up the field, away from the launch point, do not have such a good view and need to be absolutely sure that it is clear before moving into the field. In a strong crosswind be aware of the potential danger of being hit by a falling cable. Under these circumstances the safest place for you to be is in the cab of the Gator.

In the daily briefing, the duty instructor will describe field conditions. Even though we are on a hill, in wet weather the ground can become saturated and can be damaged easily. Summer rules permit us to rotate the glider on the spot for retrieval. Winter rules do not permit this and gliders have to be turned whilst on tow.

The procedure for retrieving gliders is as follows:

- Before moving off from the launch point check that there are no aircraft on the approach and base legs. Have a good look before you enter the cab, alternatively turn the vehicle to face downwind. If it is clear then proceed across the airfield and drive on to the track on the opposite side of the airfield.
- Move along this track until you are abeam the glider you want to retrieve. Faster moving oncoming vehicles, including cars and gliders with tow-out gear, should give way to you, allowing you to stay on the tracks. If you meet a Gator or other vehicle towing a glider using a rope and wing tip holder, you will have to move off the track to pass them. It is essential that you do not move off the track and onto the field unless either: a) Someone in the oncoming vehicle or retrieve party indicates that the

- approach is clear (thumbs up sign); b) You stop the vehicle, turn round in your seat, to the left and then to the right, to look behind and check that the approach is clear.
- Move back onto the track as soon as you have passed the oncoming traffic.
- Keep clear of the landing strip until the glider has landed.

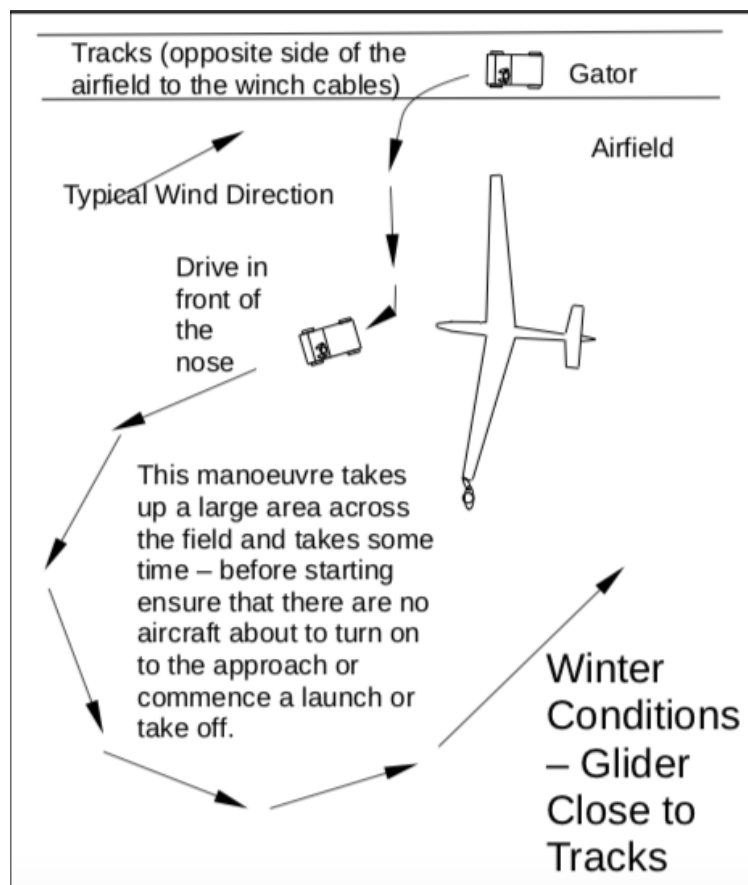


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Summer Rules:- When are abeam the glider you want to retrieve, the glider is close to track, turn and move towards the tail of the glider. If the glider is further into the field stop while on the

tracks, turn round in your seat, to the left and then to the right, to look behind and check that the approach is clear. You are checking for any aircraft that may be landing between you and the glider you want to retrieve. Position the Gator behind the glider so that the tow rope will reach the glider nose hook when the glider is rotated through 180 degrees or so. This may involve a short reverse, do not reverse closer than 6 meters. It is preferable to leave the engine running on the Gators to avoid possible stranding and reduce starter wear. The Buggy should be switched OFF. Assist the glider pilot to turn the glider, if turning the tail through a moderate wind, guard the rudder so that it does not slam across. Hook onto the Gator, follow their instructions and be careful that the wing tip of the glider does not strike the Gator cab roof when the glider is turned. If the glider is further into the field check the approach again before moving off.

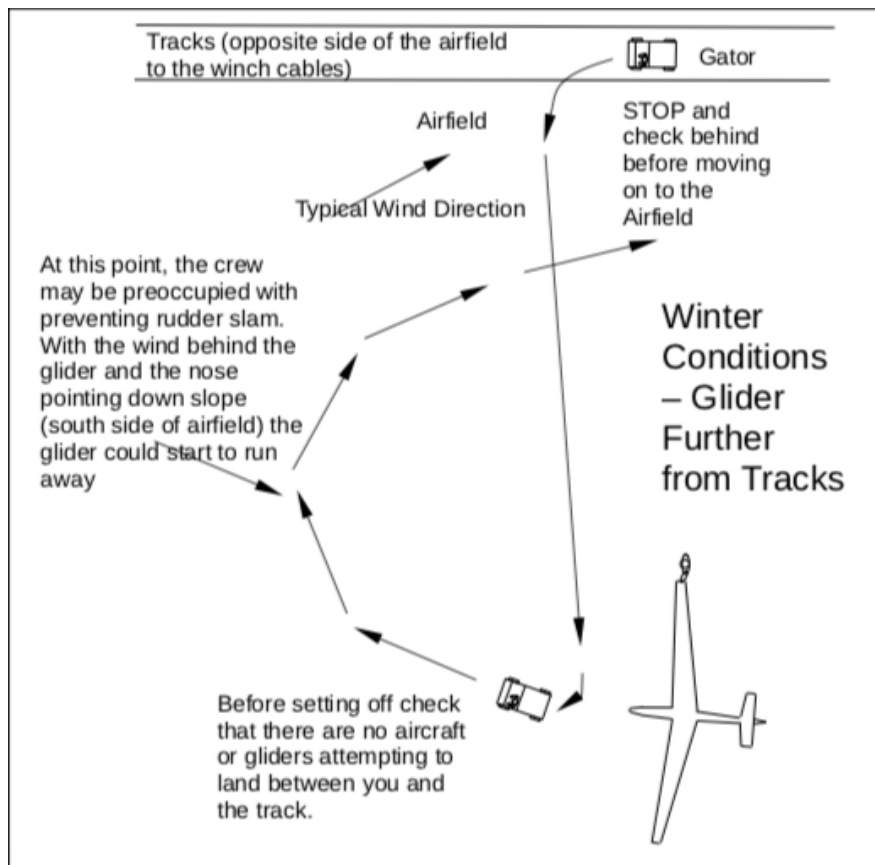
- Winter Rules:- Position the Gator in front of the nose of the glider. Follow the instructions of the glider crew and perform either of the following manoeuvres:
If the glider has landed close to the track it will be necessary to turn through an arc of 180 degrees before moving back towards the track. The manoeuvre takes up a large area and takes some time, you must ensure that there are no aircraft about to turn on to the approach or commence a launch or take off. If there is any doubt – wait. (For the Puchacz in moderate winds the rudder should be held to avoid slamming. If insufficient crew, consider turning the nose through the wind.)



If the glider out in the necessary to degree arc Check into the cab aircraft

has landed further field it may be perform the 180 towards the track. before climbing that there are no attempting to land

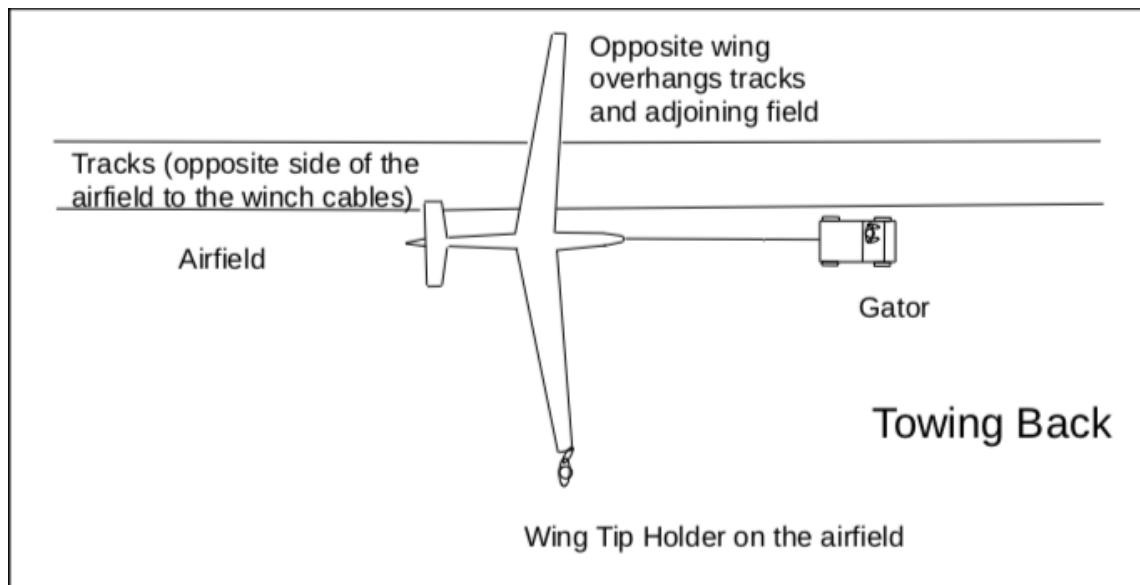
between the glider and track. Be aware that, if it is windy, a two-seater glider crew may be preoccupied with preventing the rudder slamming. Also, when turning to the south in the middle of the field, the glider may be pointing downwind, down a gentle slope, and may start to run away. Take it very slowly, try to avoid slack developing in the rope, be aware of what is happening behind you and be ready to stop immediately.



Return to Launch Point

- Using the L (Low to tow) gear setting, set off down the airfield towing the glider, move as close to the tracks as you can. The wing tip holder will be on the airfield and the opposite wing of the glider will be overhanging the tracks and the adjoining field. Maintain a walking pace and frequently check behind that the wing tip holder is comfortable with the speed.
- For safety, the glider should follow directly behind the tow vehicle and not to one side.
- Once you are proceeding down the field towing the glider it is not necessary to stop for aircraft performing a normal approach and landing on the airfield. It is more important to clear the field as quickly as possible.
- When you are abeam the launch point check that it is all clear on the approach and base legs, if so turn and move across the airfield to the launch point.
- Avoid final positioning of the glider while a launch is in progress. A STOP call could be confused with a STOP the launch call.
- Take directions and position the glider on either winch or aerotow launch queues. Be extremely careful as you get close to other gliders not to drive over a wing tip or strike the top of the cab on a wing. The wing tip holder may start to turn the glider, stop at this point before the tow rope reaches an extreme angle to the nose of the glider while under tension (**no greater than 30 degrees**) Reverse to reduce the tension on the rope to allow back release.

- Once the glider has released, move the Gator a short distance forwards, sufficient to allow the glider to be turned and pulled on to the line, and then stop. Place the rope in the hopper, jamming it in the jam cleat so that it cannot fall out. You can then move the Gator to the parking position and shut down. The Gator / buggy should be parked parallel to the runway, facing the approach / base leg and no further into the airfield than the line of cones.



5. Young Members

- We greatly appreciate the enthusiasm of our young members defined as are those between 14 Years and under 18 Years, in wanting to participate fully in club activities by helping out with the Ground Operations. Club safety concerns, and the requirement that we have a thorough training regime, mean that we have to place some restrictions on what our youngest members can do.
- As a club we encourage young members to engage with ground operations to help them develop, learn and remain engaged with the operation. There are, however, some tasks that are not appropriate for young members to undertake such as Winch Driving and Launch Point controller.
- For members under 16 years of age, Gator/ Buggy Driving requires extra training, but once training is complete, and signed off by an authorised Trainer Young Members may operate those vehicles with the following restrictions:-
- The permitted driving area is anywhere within the boundaries of the airfield with the following exceptions:
 - a) Not inside the Hangar;
 - b) Not on the grass within 15 metres of the cutting that surrounds the Hangar.
- You must not drive a Gator on public open days (including friends and family days).
- You must not carry other young people under 16 as passengers.

- You must not reverse Gators closer than 6m to any aircraft/vehicle/person to the rear.
- You must not retrieve solo pilots under the age of 16 without additional supervision.
- Those between 16 and 18 just require standard Gator/ Buggy training as per any other member.
- Young members who have passed their driving test may drive the Club Landrovers having completed the standard training.

5.1 Check List for Trainers to Authorise under 16s to Drive a Gator/ Buggy

Before authorising a young driver under 16 to drive a Gator or Golf Buggy, and conduct retrieves, Trainers must ensure that the following steps have been completed:

1. The candidate should have been assessed for their maturity and whether they are physically able to reach and operate the controls of the vehicle. The candidate's ground training record card must be signed to this effect.
2. The candidate's parents/guardian should be fully aware of the club policy regarding Young Drivers (Light Utility Vehicles), which is available on the club website, and signify their approval by signing the candidate's ground training record card
3. The above course material must have been delivered by an authorised trainer during practical demonstrations on the airfield;
4. A final oral test should be conducted by an authorised trainer that the candidate has received and understood the above training. In particular the safety aspects and restrictions;
5. Finally, an authorised trainer should sign the candidate's ground training record card to record that he/she is approved to drive the Gator / Buggy.

6 Parachutes

Parachutes are vital items safety equipment and should be treated with care. They are stored in a cupboard in the clubhouse, beside the Bar. Club parachutes are all red and stored on the first two lower shelves of the cupboard. You may find a parachute with a white tag stating that it should be used last, but is serviceable. This is a way of rotating the parachutes to manage usage. Any parachute found to be defective should be labelled (labels on store cupboard door), placed in the briefing room and the duty instructor notified.

General Care

- Always handle Parachutes with great care.
- Always transport parachutes to and from the glider in their bags
- DO NOT place them on the ground or anywhere wet. Consider placing them on a Glider wing as you open the canopy
- Avoid contaminating a parachute with oil or grease
- If it is sunny, consider covering the parachute with its bag, to protect it from UV or moving the parachute, in its bag, from a parked glider to prevent UV or heat damage. Otherwise, it is recommended to put the parachute harness side down in the cockpit.

- As you don or doff a parachute stand clear of the glider and take care that the buckles don't swing into the glider and cause damage

Daily Check

- Remove the Parachute from the bag and check the general condition of the parachute
- Examine all webbing straps and look for any damage to straps or frayed stitching.
- Examine each clip and buckle for condition.
- Examine the end cap on the D ring wire for its security.
- Open the black Velcro flap and check the 2 stainless steel pins are through the release mechanism and that the start of the pin – cable joint is just inside the guidance tube.
- Check that the pilot chute at the rear has not partially deployed.

Donning

- Put one arm through then the other- just like a waistcoat.
- Fasten the leg straps BEFORE the chest strap (If it inadvertently deploys you will avoid being choked).
- Fasten the chest strap.
- Adjust the leg straps snugly then the chest strap.
- Tuck away any loose ends.

Doffing

- Unfasten the chest strap first.
- Unfasten the leg straps one at a time; once the leg is released, re-clip the buckle to avoid swinging buckles damaging the glider.
- Remove the parachute and gently place it back in the cockpit, on sunny days consider laying it "inside" down with the buckles covered to avoid it becoming uncomfortably hot.

7. Wing Running

Hooking on and Wing Running are SAFETY CRITICAL TASKS

Club Order Book – See Winch Launching in a Crosswind at The Park

Please also view the Excellent BGA YouTube video on safe winch launching

<https://www.youtube.com/watch?v=tafeBaZqfZU>

The hooker on / wing runner is in the ideal position to trap and neutralise any potential safety threats before and during the early part of the launch. Both tasks are to be carried out by the same person.

If numbers permit, it is most efficient to detail a dedicated 'hooker on' for a timed 'stint.'

7.1 Winch Launch

- Do not let anyone approach the cable if the winch lights are flashing / launch is in progress.
- Inspect the cable fittings and parachute for knots, frays or weaknesses, especially at splices and joins. Check that the parachute webbing is not tangled up.
- Select the correct weak link strop for the glider. Check that it is in good condition and the weak link(s) is/are not distorted. If using a strop with the 2 link (reserve) system, please ensure that both links are present.
- Pull the rings clear of the blue pipe (it could back release otherwise) and check that the rope through the rings is not frayed.
- Minimise the bow in the cable by pulling the parachute / cable in line with the glider. It is recommended that the parachute is pulled across first, followed by the shock cord / strop.
- If the pilot is carrying out checks, do not distract him / her. Instead, use the time to check that everything is as it should be with the glider at this stage. Have a look around, and see if you can spot any potential conflicts on the ground or in the air. Listen out for radio calls from aircraft in the circuit. Without being intrusive, be aware of the checklist sequence and whether the checks have been carried out.
- Alert the LPC to the fact that the launch is imminent if necessary.
- If a dual glider is being flown solo, check that the radio is on, the rear harness is fastened, rear straps tidied and the DV panel is closed.
- The pilot should initiate the hooking on sequence / DCBL checks. Let him / her do so – do not pre-empt the checks as this can rush the pilot at a critical time. Ensure the pilot verifies the canopy resists upward pressure and that the airbrake handle is pushed closed by the pilot and the airbrakes look flush – get the pilot to double check if not. (Make sure that the pilot actually applies pressure to the canopy frame and airbrake lever to ensure that they are locked.)
- Hook on to the correct hook! In the Puchacz, it may be necessary to feed the strop behind the nose wheel when hooking on to the winch hook (i.e. when the cable run is on the left-hand side).
- For winch launching the south wing is normally run.

- Have a good listen and look around above and behind as you walk to the wing tip - keep the lookout going until the slack is being taken up. Two pairs of eyes are better than one.
- Hold the wings balanced as per the flying orders for South Side operations. The down slope wing may have a light load but no more than can be held by one finger. This is to ensure any updraft is not lifting the wing.
- The wing tip is best held at the trailing edge in a light 'V' grip.
- If there is a significant upwards or downwards force on the wingtip – STOP THE LAUNCH by calling STOP! STOP! STOP!
- Without hanging on, make sure that you actually run as much as is needed to support the wingtip and let it leave your hand.

7.2 Aerotow

- Beware of the Tug's propeller as you retrieve the rope. Consider using the long metal hook to hook the rope and pull it towards the glider. Ensure the rope is laid out neatly with no coils or tangles.
- The Eurofox aero-tow rope has a 2 staple type 'Mity' weak link at the tug end and a double number 7 green TOST link at the glider end – It is imperative that the wing runner ensures that both TOST links are intact before hooking on.
- The preparation for an Aerotow launch is much the same as for winch launching however communication may be more difficult with the Tug's engine noise.
- In general, run the southern wingtip, but for south side operations the pilot may request the northern tip be held if the slope is a minimal factor (on flat ground the downwind wing is normally the wing which is run).
- The main difference when launching an aerotow is that YOU MUST RUN with the wing as the acceleration is much slower than the winch. Do not hold back the wing, just run and support the wing until it leaves your hand.
- Again If there is a significant upwards or downwards force on the wingtip – STOP THE LAUNCH by calling STOP! STOP! STOP! and raise your arm to the vertical (you may not have been heard over the noise from the tug).

8. Cable Retrieval

- For the first drawing out of cables of the day, Cables should be hooked on to the lower shackles on the Landrover with the strop and parachute placed in the back of the landrover.
- Subsequent retrievals may use the upper hook assembly. In wet / soft field conditions consider placing the strop/ parachute in the back of the LandRover, on dry days they may be trailed behind.
- In very wet conditions consider using the Gator to retrieve cables.
- The single most critical aspect of cable retrieval is to draw the cables out with gentle acceleration and deceleration. Tow out should start with the Landrover in second gear (it will easily pull away in that gear) and no gear change should be made on the tow out to avoid a cable overrun at the winch. Initially take up slack gently, then once slack has been taken up, accelerate away on a direct path towards the launch point.
- Do not weave left or right, but look to the distant Launch point and drive directly towards it at no more than 20MPH. Second gear is as high as you need.
- As you approach the launch point, gradually remove pressure from the accelerator and let the Landrover gently come to a stop. You should not need to apply the brakes.
- Gently reverse to release tension and then unclip to use the cable drop lever to drop the cables. Ensure that the outriggers return flush to the Landrover.
- Drive a few feet clear, then check behind to make sure that nothing is hung up. Make your way back to the winch on the opposite side of the airfield keeping to the track. In wet/ winter conditions, it is imperative to keep the speed down to avoid damaging the track.

9. Hangar and Apron

Unpacking and packing the hangar is very much a team effort requiring clear leadership, effective communications and care. In general the hangar is packed with club gliders packed at the rear with one each side then one in the middle and with the Motor glider and Tug parked at the door.

9.1 Unpacking

- One person should be in charge of moving each aircraft and give clear direction (Too many cooks....!) However if there is doubt about collision anyone may call STOP. Assess each aircraft position for potential collisions before lifting a wing or moving.
- Consider assessing main, or tail wheel inflation state before moving aircraft on to the grass. It's easier to assess and inflate tyres in the hangar.

- Beware of propellor danger! Before moving the tug or Motorglider, ensure the ignition is off. Avoid manoeuvring the Motorglider by handling the propellor.
- The Eurofox should be moved with care using the HANDLES and propellor only (Make sure that electrical power is OFF first). Do not push or pull on any strut or fabric. It should be moved out onto the airfield if required, if not needed it should be moved forward to allow other aircraft to be removed from the hangar, brakes applied and chocked.
- The Motor Glider is steered by someone using the rudder. It may be pulled with the strops attached to the stirrups (either by hand or by Gator / buggy) or pushed on the wing leading edge only. The motor glider is often temporarily parked on the south side of the apron if it is not to be used.
- Club gliders should have canopy covers removed and placed in the canopy stowage bin prior to moving them from the hangar. Consider installing the battery and placing the parachute(s) in the cockpit prior to moving from the hangar if this does not cause a delay.
- Puchacz Gliders should have the nose chock removed taking care the tail does not lift into the wing of another aircraft.
- Under direction and with care, gliders may be manoeuvred on to the middle of the hangar, marked with a white band, and out onto the hardcore where it may either be physically moved out onto the airfield or it may be hooked on to the Buggy/ Gator to be drawn onto the airfield. The uphill (south) wing should be walked,

9.2 Packing

- The last glider commander should be in charge of repacking his/ her aircraft.
- Before you start, consider where your glider will end up. In general we pack one glider either side and then one in the middle. Gliders at the edge of the hangar should have the wing at the hangar wall down, resting on a cushion, the other wing should not be left over canopies of other gliders.
- Place a cushion where you expect the wing to be. In general if a Puchacz tail is beside a vertical girder, the cushion should be 1 3/4 girder partitions away. For a single seat glider the cushion will be 1 1/2 girder partitions away.
- Neither Buggies nor Gators should tow onto the concrete (exceptionally, if the hardstanding is COMPLETELY CLEAR of aircraft and other obstructions gliders may be towed in front of the hangar. Great care must be taken that the starboard wing is clear of cars and the hangar doors. The Gator / buggy should be parked clear of the south door and the engine / motor switched off). Gliders should be manhandled towards the outside of the hangar and then turned on the spot with the tail facing inward.
- Ensure first that the hangar doors on both sides are fully open.

- Under direction of the pilot, the team should slowly manoeuvre the glider into the hangar, initially straight back onto the marked hangar centreline and then towards its final parking position.
- If parked at the side, there should be sufficient space to walk along the hangar wall behind the tail and wingtip.
- If a wing is over another aircraft, use a trestle to restrict its movement, avoid the wing being over a canopy. There should be a 100 – 150mm gap between the trestle and a Puchacz wing when the nose chock is in – the wing lowers when the glider sits on the nosewheel.
- Parachutes and batteries should be removed and stowed/ charged. Make sure that all S80 variometers and the single seater radios are switched off individually before turning the battery master switch off – expensive damage can be done otherwise. The Puchacz radios should be left on!
- Puchacz gliders should be carefully chocked.
- Astirs should have the tail dollies removed and left beside the tail.
- All canopy covers should be fitted.
- The motor glider is returned to the hangar by pushing on the wing leading edge. Once in position place the drip tray under the nose.
- Once the Eurofox is packed away ensure the drip tray is in position. Neither the Venture nor the Eurofox should be chocked.
- Parking brakes fitted to any aircraft must not be set in the hangar.

10 Launch Point Controller Duties

The safe and efficient running of the airfield is the primary concern of the LPC who will work with the duty instructors. This role is a specialist role which can only be undertaken by pilots who have flown solo. The training for this role may only be done by designated LPC trainers.

As with many aspects of airfield operations teamwork, delegation and effective communications are key. As LPC, do delegate tasks so that you have the capacity for oversight of the entire operation. During launching a safe launch is your prime concern. Do not be distracted.

10.1 Before Flying

- Ensure the windsock is erected so that the duty instructor can assess the wind
- During the pre-flying briefing duty instructor will decide where the launch point should be

- Direct a team to prepare gliders, batteries and parachutes and move the aircraft from the hangar to the DI Position in accordance with the plan decided at briefing.
- Organise a team to tow out and set up the caravan. Ensure that there is sufficient water loaded before moving.
- Direct a team to prepare Gators & Buggies.
- Ensure you have the weather, NOTAMS, daily flying list and log sheet, the VHF radio and 2 FM radios for winch Communications (one in the cable retrieve vehicle). The Duty Instructor will normally have printed the weather and NOTAMS off at home prior to the brief. However, if they have not, the LPC should delegate this task to a club member.

10.2 Launch Point

The Safety of the operation is your prime concern. Do not be distracted from this. Keep an ear open on the VHF airband radio to monitor downwind calls to build your Situational awareness. Encourage others at the launch point to help you by keeping a look out. If you hand over LPC duties to anyone else, do make a positive hand over and advise the duty instructor team who is the LPC.

- Ensure that the caravan is set up correctly. Verify communications with the winch have been established and light checks have been done.
- Delegate someone to act as log keeper.
- If visitors are expected direct a member to look after visitor safety.
- Ensure the winch cables are present and not crossed.
- Ensure that there are sufficient stops with correct weak links available.
- Consult with the duty instructor team the launch sequence if necessary.
- Ensure the Launch queue is nose to tail and that gliders are positioned far enough forward so that the second cable may be used. The winch hook of the second glider should be just forward of the front line of cones.
- Keep the launch queue moving forward, and make sure that pilots are ready to launch as soon as a cable is available. Have any aircraft which are not ready pushed offline rather than hold up launching.
- Ensure the aerotow launch queue is towards the centre of the field with the first glider in that queue abeam or just beyond the caravan. There should be about a 5m gap between the downwind wingtips of the winch line and the into wind wingtips of

the aerotow line. An excessive gap will reduce approach options, so it is important not to allow the lines to 'migrate' towards the centre of the airfield.

- Delegate a members to retrieve gliders before they land (i.e. after the downwind call. If numbers permit, it is useful to detail dedicated retrieve crews for timed 'stints.

10.3 Winch Launch Procedure

Note. The LPC should only carry one radio at a time – either the winch radio or the air band radio. This is to ensure that the aerotow is not hazarded by the winch cable. It also reduces the chance of confusion.

The safe Launch of the glider is your prime concern. Do not be distracted and if something is not right stop the launch. Encourage and empower others at the launch point to spot aircraft and bring their position to your attention to help with your situational awareness.

Crosswinds present a problem at The Park, particularly with the dip being invisible from the winch. A falling cable could be fatal if it strikes someone and may cause significant damage to aircraft. If gliders have landed and you are unsure whether or not it is safe to launch then stop and consult the winch driver. Each day will be slightly different, so account should be taken of where the cable is falling on that day. Safety is always the priority before expeditious launching.

- The glider should be positioned so that it's winch hook is just beyond the front of the caravan. (With 2 cables available the rearmost glider should be in this position.)
- Ensure that the wing runner is competent and has manoeuvred the parachute in line with the glider's nose with the correct weak link attached.
- Before the Launch, establish communications with the winch. On a windy day consider shielding the microphone to lessen wind noise but do not shout into the radio; it has automatic cut-off circuitry. Specify any special requirements. eg. simulated cable breaks, or specific power settings from the pilot. (Please see winch driver duties section 11 for a list of training scenarios).
- “ Park winch Park Launch, the next glider online is a Puchacz Request winch initiated / pilot initiated simulated cable break at 500 ft” or “Park winch Park Launch, the next glider online is an LS7 Request C+ Setting”
- When the canopy is closing advise the winch that the canopy is closing and re confirm type of the next glider on line. This allows the winch to warm up.

- “Park winch - Park launch, the next glider online will be a Puchacz. Canopy Closing”
- Verify that the cable has been connected to the correct hook and the wing runner is holding the southern wingtip
- Verify that the log keeper is “Ready on lights”
- Take your time and systematically verify that all is clear ahead, above and behind. Announce clearly “All Clear above and Behind” Don’t just say it- you must LOOK! Continue to maintain your Situational Awareness. Be prepared to stop the launch if other traffic becomes a threat
- Radio the winch. “Winch Puchacz online take up slack, take up slack” **See radio calls section, flying orders.**
- When the cable moves loudly announce “Cable Live”
- If slack is still being taken up when a glider on approach commences its final turn, STOP THE LAUNCH. Give the tug an even greater margin, as airborne cables will not be visible to the tug pilot if a go-around is necessary.
- Once slack has been taken up radio the winch “WINCH, ALL OUT, ALL OUT” It is imperative that you keep the Press to Transmit button depressed after this call as there is a delay between button press and microphone opening. Should you need to call stop then the mic will be open.
- If you need to call stop the call is “STOP! STOP! STOP!” The winch should stop and then call “Park Launch Park Winch Cable Stopped” but NB above, resist the temptation to shout into the radio; it can cut itself off at that vital moment!

Contingencies

Should there be a need to wind in the cable over the field it is imperative that this is done safely. The dip in the field is not always visible, so consider dispatching the retrieval LandRover (Callsign “Park Mobile”) to verify that it is safe for the winch to winch in cables. Do not allow the winch to recover the cable if the parachute is not visible or clearance from aircraft, vehicles, electric fence or people is in doubt.

At the launch point, should anyone call stop ensure that the pilot releases the cable. Once ready to go ensure that communications are re-established with the winch and the DCBL checks are done again. Be meticulous, unrushed and methodical.

10.4 Aerotow Launch Procedure

Do not allow a launch if there is a cable airborne or lying across the airfield.

- Using the airband radio, establish communications with the Tug and transmit requests from the glider pilot. (Bear in mind that the airband radio is not “Private” nor is there any transmit delay)
- Ensure that the wing runner is able to run with the wing.
- The aerotow should not be started before being level with the caravan and any aircraft on the winch line. It may be necessary to “up slack” forward a little. Ensure all parties are aware of this.
- Take your time and systematically verify that all is clear ahead, above and behind. Announce clearly “All Clear above and Behind” Don’t just say it- you must LOOK!
- The Eurofox aero-tow rope has a 2 staple type ‘Mity’ weak link at the tug end and a double number 7 green TOST link at the glider end – It is imperative that the wing runner ensures that both TOST links are intact before hooking on.
- Call “Golf-Lima Yankee, all clear above and behind, Take up Slack”.
- When slack has been taken up.
- “Golf Lima Yankee All Out All Out”.
- Again, do not hesitate to call “STOP! STOP! STOP!” if required.

10.5 Motor Glider

Do not allow a launch if there is a cable airborne or lying across the airfield.

Ensure that VHF Airband communications are established with the motor glider and that the log keeper has noted POB and intentions.

When the motor glider calls ready for departure, conduct your “All clear above and behind checks” Don’t just say it- you must LOOK! Transmit “ Golf Kilo Uniform all clear above and behind” or, if not clear. ‘Golf Kilo Uniform HOLD’

10.6 Packing up

Again, delegation is the key!

- Radio the winch and advise the winch of the number of Launches.

- If required, liaise with the winch the winding in of spare cables. Attach the tyre and ensure all is clear before asking the winch to draw in the spare cable.
- Delegate a team to pack up the caravan. If it is to remain on the field ensure that it is locked and everything inside secured for towing.
- Delegate someone to remove the windsock.
- Ensure all radios are switched off and placed on charge in the hangar, with the charge lights illuminated. Ensure all Logs and paperwork are removed to the hangar. Logs should be posted in the letterbox once members have noted their flight times.
- Check that the hangar and clubhouse is securely locked, including the windows and bar. The Landrover keys should be placed in the key safe and the safe locked. It is important that all hangar door bolts are FULLY ENGAGED. If leaving early, the LPC must positively hand over this task to another member.
- In winter, the water system must be drained down in accordance with the procedure written in the kitchen.
- Turn off the lights / electrics using the panel by the kitchen door. Ensure that the door is properly locked.

11. Winch Driver Duties

Winch driver training is undertaken by experienced winch drivers following the items in the training card (see Fig 1.) Club policy is that they will have previously qualified as an LPC. In addition all winch drivers should read the Sky Launch winch hand book and the various BGA Safe Winch Launching resources. Routine maintenance is carried out by a separate team. Any issues should be noted in the log book and reported.

11.1 Tractor and Winch Daily Inspection

- Tractor – Check fuel, oil and coolant levels. Do a visual check on the tyres. If necessary top up the Diesel fuel from the tank outside the north side of the main hangar doors. The key to the tank is in the key box fixed to the nearby hangar door girder and the pump is powered using the battery trolley from the east end of the hangar. Oil is available from the drum on the right of the North side hangar doors. Pump some out into one of the jugs and use one of the funnels. Coolant is available ready to use from the drum next to the oil. The tractor key is attached to the winch power switch handle and is kept on the key board at the bottom of the club house stairs. These are kept together to ensure the winch cannot be towed back to the hangar and left at the end of the day with the power still switched on.

- Winch - In the engine bay check the oil and coolant levels. Spare oil is kept in the plastic container in the cab – only this oil must be used. Top up coolant is available ready diluted. The precise gearbox oil level should be checked when it is warm. However, it should also be checked before start to guard against an extreme leak.

Check the free movement of the cable rollers paying particular attention to the set screws marked with yellow paint on the bottom rollers to ensure they have not loosened off.

Check the winch tyres visually.

Ensure the winch brake is off.

Open the rear cable drum doors and check the Dyneema cable is laid properly on the drums without snags.

Check the indicator pointers on the drum bolts are aligned with no sign of them coming loose. When closing the covers ensure they are pushed fully home against the rubber bungs.

Open the rear hatch and visually check the axle and braking gear. There is an oil level bubble in the centre of the drive axle. It is usual to have a small amount of oil splatter from the open section on the right hand side of the axle. Finally check the LPG tank gauge to see if it needs a top up. NB. Even when full it generally only reads about 80% on the dial.

It is generally better practice to start the winch engine and complete the DI log outside the hangar.

11.2 Reversing the Winch out of the Hangar

- Always use a Banksman to assist you with reversing the winch out of the hangar. This is a mandatory safety requirement. The no parking area opposite the hangar doors is there to facilitate this exercise.
- Before starting the tractor make sure you look and check the position of the clutch and footbrake controls in relation to your own left foot in order to ensure you don't confuse them in operation. It is likely that this has been a factor in two incidents in recent years. Ensure the hand throttle is set to the minimum. When reversing be guided by the Banksman and be prepared to stop at once if required.

11.3 Refuelling.

If the winch needs refuelling do this as soon as you can and preferably before briefing to avoid blocking the removal of gliders from the hangar.

- Take care when towing along the side of the hangar due to arriving cars and people around the parking area. During manoeuvring to the LPG tank avoid tight turns (e.g. onto the hangar apron) with the winch as it has double axles and will tend to drag wheels unless the turn is wide. Park with the back of the winch opposite the LPG pump handle.
- When in position earth the winch by clipping the winch earth cable to the cable attached to the tank, take the fire extinguisher from the cab and position it away from the winch, upwind. Unlock the tank filler head cover using the key attached to the winch ignition key. The emergency cut off valve under the tank should be left open and only closed in an emergency. (This is advice from FLOGAS to prevent airlocks. There is a big label on the tank saying leave open) It is advised to wear protective gloves whilst handling the LPG filler head and these should be available in the winch. Screw the filler head onto the winch tank taking care to support it to avoid damage to the brass threads of the tank valve and open the pistol grip valve. Fill the tank using the hand pump until the action locks solid and no more can be transferred (tank gauge will read about 80%). Do not close the emergency cut off valve and carefully close the filler head valve by squeezing and releasing the pistol grip valve. Take care as at this point some liquid gas in the head will evaporate and escape as a small amount of vapour. Unscrew the filler head again taking care to support it on the valve threads. Unclip the earthing lead and return the fire extinguisher to the cab.

11.4 Positioning the Winch on the Field.

The position of the winch for launching gliders will be decided at the morning briefing. It will normally be close to the tracks at either end of the field although, X-wind allowing, it may be moved more to the centre of the strip (up to 15m?) depending on the state of the ground to avoid running retrieve vehicles over any soft areas, especially on the south side. This may also be considered if the wind direction is variable. When driving the winch it is recommended that the ear protectors hanging in the cab are worn. However, note that ear protectors will reduce your ability to hear from observers. Prior to moving off with the winch arrange for someone to follow with the cable retrieve vehicle to pull out the first set of cables.

- The tractor has two forward gears and one reverse gear coupled to a high/low ratio box. You will notice that third gear has been blocked off. Normally towing is carried out in high ratio starting off in first gear and changing up to second when on the move. Never tow the winch directly up the grass slope from the hangar, always use the hard entrance trackway until it is opposite the required

side of the field at the east end of the strip. The north track should never be used for towing the winch to and from the far western end of the field as this track can be easily damaged. However, if the winch is required to be at the north east end of the strip it may be towed into position along the short section of grass track leading from the road and turned around in a wide circle on the grass. For all other positions on the field use the south track either a short way for the south east edge or all the way down for the south west corner and cross the strip at the far western boundary to reach the north west corner. Position the winch as outlined above, the 'normal' position being about 3 Landrover widths from the track. The new EVO winch has more fully articulating pay out gear so in strong cross winds it does not need to be angled slightly down wind like the previous winch but should be positioned directly up the strip.

- When positioning the winch at the east end of the field remember to leave a safety margin to the trailer parking and rigging area which can get busy on a Summer's day. If on the north east corner (by the hangar), do not position to the east of the steps. This is to give maximum visibility of 'the dip.' If at the west end remember our field has no end fence and is adjacent to a bridle way which is used by horse riders and walkers who need to be given some leeway. Once the winch is in position the general setting up procedure is as follows: -

Put the tractor in gear and high ratio and apply the hand brake. Apply the winch hand brake and wind down the tow bar support onto a block of wood (normally kept in the winch) placed on the ground. This is required even though the winch remains attached to the tractor as the tow bar is not designed to take excessive vertical movements. Push the earth spike into the ground and clip on the earthing wire. Block both wheels with the rubber chocks. Take the fire extinguisher from the cab and place it in a safe position upwind of the winch. Also take the cones from the cab and position them to form a barrier around the winch. Insert the winch power key attached to the tractor ignition key and turn on the power. Both cables can now be pulled out from the front of the winch and parachutes attached to await the retrieve vehicle.

11.5 Winch Operation and Glider Launching.

When the power to the winch is turned on it automatically opens the gas flow valve on the fuel tank and normally both the digital ground radio and the air band receiver are activated at the same time. Always remember from the time the transmit button is pushed the digital ground radios takes a few seconds to establish a signal to the receiving radio; so push the transmit wait 3 seconds and then talk otherwise the first few words will be clipped.

- Before starting the winch ensure the drum selector is in the central position (no drum selected) and the gearbox drive lever is in neutral. Crank the engine by turning the ignition key whilst holding about half throttle. Once the engine fires hold it at no more than a fast tick over. The manufacturer's advice is that it is important that the initial warm up is at no more than a fast tick over otherwise the engine may suffer damage. After a minute or so the engine will tick over with the throttle closed. During this time the winch driver should make radio contact with the launch point to establish clear radio communications and to carry out a lights check. This is also a good time to ask for feedback after the first few launches.
- The winch has automatic cable pay out brakes which operate with or without the engine running so with no drum selected both cables can be pulled out at once and no action is needed by the winch driver. CAUTION – If cables are pulled out with a drum selected, mechanical damage can be done. Consequently on a quiet day the winch driver can pull the cables out and then return to the winch for launching. The Dyneema has proved itself to be very reliable so it is no longer normal to walk the cables before launching to inspect their condition.
- All winch drivers are capable of delivering acceptable normal full height launches especially after constructive feedback from the first few launches of the day.
- Some general notes to always bear in mind. During launching operations radio transmissions between the winch and Launch Point should be kept formal. The digital radios are less likely to suffer cross talk from other users but this cannot be guaranteed so using the prefix Park reduces the risk of a misunderstanding. A few minutes before a launch the LPC may let the winch driver know what type of glider is next to go. This is useful as it gives time to restart the engine (if stopped), select the drum and the correct power setting for the glider from the list on the panel; if the glider type is not listed call the Launch Point for advice. It is also a good time to look above and around the winch to check on any gliders that may be too close to launch. When the winch is positioned at the western end of the runway and particularly on the NW side the winch driver should, prior to any launch, check behind to ensure that there are no horse riders on the bridleway or about to enter the bridleway. They should consider pausing the launch to enable the horse riders to clear the field if necessary.
- LPCs are also encouraged to give a "Canopy Closing" call to avoid delays, especially when there is a risk of canopy misting. The take up slack call Winch - Launch, Puchacz, take up slack, take up slack. The winch driver should read this

back as follows: Puchacz, take up slack, Winch. After the slack is taken up the next expected call would be Winch, all out, all out. The winch driver does not respond to this call but carries out the launch. The speed of club gliders is monitored on the Winch Launch Assist gauge, which is useful for launching a Puchacz, but at all times during a normal unbriefed launch respond to a too fast signal by reducing the power. Any deviations from the normal launch conditions for a particular glider, e.g. increased the power setting from C to C+ should be included in the radio call from the launch point. The launch sequence would now be: Winch Launch, LS7 online launching on a C+ setting – take up slack, take up slack. The winch driver should read this back as follows: Launch, LS7 on line launching on a C+ setting – take up slack, Winch. After the slack is taken up the next expected call would be Winch, all out, all out. The winch driver does not respond to this call but carries out the launch. One feature of the Dyneema cable is it has very little stretch compared to rope so care is needed to avoid snatching lightweight gliders into the air. To avoid this it is suggested that the throttle is opened to the stop over four seconds compared to the normal three.

- During the winter months (October to the end of March) a morning winch duty lasts until 1pm whilst during the summer months (April to the end of September) it lasts until 2pm. The morning winch driver will brief their relief about any winch, weather and other issues raised at the morning's brief.

11.6 Cable breaks and Launch Exercises.

- Whilst under training the winch driver will demonstrate the ability to deal with real launch emergencies and deliver launch training simulations. Figure 2. describes real and simulated launch emergencies and the immediate vital winch actions to be taken with real situations and a systematic approach to delivering the same range of simulated launch training exercises (excluding cable hang ups). This is to ensure that when a particular exercise from the list is requested by the instructor both they and the winch driver know what is asked for and how it will be delivered.

11.7 Winching and Retrieving Cables With Special Reference to the 'Dip'.

- If the winch is operating from the north east edge of the field the sloping nature of the ground means that looking diagonally down the field to the left there is a surprisingly long section of the southern track and runway that is

hidden from view. This is called 'The Dip' and it has been involved in a number of incidents over the years. The main issue is that it will hide a glider or the tug from the winch driver's view. Consequently when operating in a northerly or north westerly cross wind great care has to be taken due to cable drift after a launch and recovering a cable when the parachute is not visible. When operating in these wind directions the winch driver should not agree to a launch if there is any doubt that the dip is clear. It goes without saying that a launch should not be started by the LPC if there is a glider that may not be visible by the winch driver.

Irrespective of where the cable is laying the winch driver should not recover the cable if the parachute is not visible or clearance from aircraft, vehicles or people is in doubt. Particular care should be taken when 'flying' the parachute, as it is very difficult to judge whether the parachute has passed the obstruction or not. If the cable cannot be retrieved, inform the LPC immediately by radio and await clearance from the launch point.

11.8 Packing Up

Packing up at the end of the day will almost always be done by the afternoon winch driver so ensure any special instructions from the morning brief are passed on.

- If there is an unwanted cable left after the last launch this should be attached to a tyre and after clearance from the LPC slowly drawn back to the winch. The number of launches for the day should be obtained from the LPC and entered into the winch log. Similarly total engine hours shown on the counter should be recorded in the log. Packing up is a reversal of setting up but don't forget to close the cab air vents. The winch should be towed back to the hangar using the south track or the short distance along the north track if the winch is at the north east corner. Take care when towing down the road track past the trailer park towards the bend. Stop adjacent the East end hangar doors to assess if it is safe to continue to the hangar North side doors and the parking area is empty. Park up and replace the drip tray under the tractor engine. Return the tractor ignition key and the attached winch electrical switch key back to the key board at the bottom of the stairs.

Winch Operator Training Record Card

V4/Sept2022

Name:				
I have read the sections relating to winch operations in the following documents (sign):-				
Winch Operators / Skylaunch Manuals		Club Order Book		
BGA Laws & Rules (24-30, 35, 36). Managing flying risk (Sect 9)		BGA Safe Winch Launching (booklets and website videos)		
Topic	Date	Remarks (Cable repairs, S/C/B Procedures etc)	Trainee	Trainer
DI (Winch)				
DI (Winch Tractor)				
Refuelling and Gas Safety				
Towing Winch (including reversing)				
Setting Up (Cross Wind & Variable Wind)				
DI (Dyneema Cable & Parachutes)				
Radio and Light Signals				
Cable Retrieve				
Launch Procedures :-				
Lookout and When Not to Launch				
Normal Launch				
Acceleration Rates / Hazards				
Winch Assist				
Coping with Cross Winds and Tail Winds				
Crop / Electric Fence				
Strong Headwinds and Light Gliders				
Importance of Feedback especially during your First Few launches				
Emergency Procedures :-				
Described in more detail on reverse				
Ultra-Low Level Cable Break (by discussion or experience)				
Low level Cable Break				
Mid height cable break				
Gradual Loss of Winch Power				
Too Fast Signal				
Cable (Dyneema) Repair				
Toolkit Contents & Discussion on Guillotine Resetting				
First Aid Box Contents				
Closedown Procedure				
Recent Issues				
Refresher Training (including recent changes to equipment and procedures)	Date	Compliance	Trainee	Trainer
Safe retrieval of cable following actual or simulated cable break with particular reference to ‘the dip’	Sept 2022	If parachute is not visible from the winch and there is any doubt about clearance from aircraft, vehicles or people inform LPC and obtain clearance from the launch point before retrieving		

Winch Operations: Simulated and Real Launch Emergencies

V4/Sept2022

Launch Emergency - Actual Situations:

1. Ultra-low level cable break.
2. Low level cable break.
3. Mid height cable break.
4. Gradual loss of winch power.
5. Too fast signal and abandon launch.
6. Cable hang-up.

CABLE BREAK

IMMEDIATE ACTIONS

Power - Off

Drive - Neutral

Brake - Hard on

- The vital reaction to all these situations is as follows: Immediately the glider detaches pull the drive lever to neutral and apply the brake hard allowing the cable to drop and hit the ground should the glider land ahead. Monitor the glider and if it turns take the opportunity to recover some cable ensuring that the cable is on the ground as the glider turns final.
- Do not recover the cable if the parachute is not visible or clearance from aircraft, vehicles or people is in doubt (particular reference to 'the dip'). If the cable cannot be retrieved, inform the LPC immediately by radio and await clearance from the launch point.
- If the winch involuntarily starts to lose power without any mechanical distress open the throttle further to try and maintain the climb as high as possible. If power still fades keep a close eye on the glider to spot the point at which it releases then immediately pull the drive lever to neutral and apply the brake.
- If the power fails with obvious mechanical trauma stop the launch and winch immediately to avoid any further damage.
- If the glider signals 'too fast' reduce the throttle slightly and continue the launch. If the signal is repeated reduce the throttle again. The glider may choose to abandon the launch in which case treat it as a cable break.
- If the cable becomes hung up on the glider immediately operate the guillotine to cut the cable. Should the guillotine fail there is a set of manual cutters in the winch which should be used only if it is safe to do so.

Launch Training Simulations:

1. Ultra-low level cable break.

A normal start to the launch but cut the power after 4.5 secs (3 secs to open the throttle then 1.5 sec power). Immediately apply brake hard and pull drive lever to neutral. The cable will normally be retrieved by hand / Gator back to the launchpoint following co-ordination with the LPC.

2. Low level cable break.

A normal launch until the glider reaches about 150 – 300ft at which point either the instructor pulls the release or the winch power is chopped as described above by prior arrangement. Immediately apply brake hard and pull drive lever to neutral. It is normally safest and most expeditious to retrieve the cable back to the winch in co-ordination with the LPC (rather than retrieving back to the launchpoint).

3. Mid height cable break.

A normal launch until the glider reaches the requested height usually about 500ft at which point either the instructor pulls the release or the winch power is chopped as described above by prior arrangement. Immediately apply brake hard and pull drive lever to neutral. The glider may land ahead or turn.

4. Gradual loss of winch power.

The instructor will request a gradual loss of power from an approximate height. Close the throttle completely over about 5 seconds; too slow and momentum in the drum will negate the effect. Keep a close eye on the glider so that as soon as the cable is released pull the drive lever to neutral and apply the brake hard as above.

5. Too fast signal and abandon launch.

The instructor will request a 'too fast' winch launch. Carry out a normal launch and use the Winch Assist meter to achieve a climbing speed of 65kt for a Puchacz. NB. Respond to any too fast signals from the glider only if prebriefed to do so before the launch, otherwise carry on over speeding to make the glider release.