# Main Winch operating procedures

# Midland gliding Club

Version 1.0 19/7/2022 G M Dailey (winch Master)

This version of the Main Winch operating procedures replaces all previous versions of main winch operating procedures.

They are to be read and used in conjunction with:

Midland Gliding Club Standard Operating Procedures [10] (which cover flying and general airfield operation).

Midland Gliding Club launch point operations [11]

## Scope of this document

The main winches are operated only by specially trained and authorised drivers [6]. Supplementary material is provided in [4-9]. Reference material and checklists from these are kept in the winch cabs and in the MT office.

This document, therefore, does not fully describe how to drive a winch, but describes the main duties of the winch driver and gives important safety notes.

Procedures published by the BGA and by Skylaunch exist, but cannot be used unmodified on our site. See Appendix 1

## Basic Main Winch driver safety:

### Safety comes first. Do not allow yourself or anyone else to put you under pressure to compromise safety for the sake of speed.

### Use the guards and heed the warning labels

1. Before you open the drum or get near the cable:
    a. Stop light on.
    b. Tell retrieve winch to take keys out, not to move the cable (even by hand) and stay by the radio to warn you if cable may move uncontrollably eg glider or car is about to cross the cable.
    c. Make sure they acknowledge.
2. The engine and drum covers are our primary guards. When you have to work beyond them, make sure nothing is moving and nothing can move.
    a. Although the cable rollers are unpowered, their momentum makes them dangerous. Keep clear while they are spinning.
    b. The main fans are engine-driven but there are also automatic fans that come on unpredictably. Don't work near them with electric power on, even with the engine stopped.
    c. If you need to untangle the main drum, first tie a loop of cable around the roller box strut to isolate you from cable movement.
    d. If it's a serious tangle, get someone else to stand with you. You may not be able to radio for help if you get into trouble. You are the only judge of what's serious and delay is irrelevant. If anyone makes a fuss, please report it to No1 or to winch master.
3. Always use the cable hook to thread the cable through the guillotine and roller box, never get hands near the guillotine when cocked.

4. Always make sure that cable will be pulled away from you, not through you, if it moves.
5. The main launch and retrieve cables are braided steel cables which may have sharp strands exposed which can cut and may carry infections and diseases.
6. Don't change wheels/tyres on the field if possible, and certainly not alone.

There are other ways to hurt yourself and others, and no reasonable list can be comprehensive. Your brain is the most important piece of safety equipment. Use it!

## Winch driver training and authorisation

The club main winches should be operated only by club members or employees authorised in accordance with [6]. They may also be operated by:

1. A trainee under supervision
2. Representatives of manufacturers/service personnel who are covered by their own insurance.

Main and retrieve winches not the property of the club may be used on site subject to appropriate insurance cover and the winch master's agreement.

## Site setup

The duty instructor (No 1) and the winch driver must agree the site setup. This will take into account the weather (current and forecast), state of the airfield surface, expected operations, equipment availability etc. Either must refuse to launch if they judge it to be unsafe to do so at any point in the day.

There are many possible setups. Typical launch setups are described in [7], but these may be varied by agreement between the duty instructor and the main winch driver **provided that safe operation can be maintained** (and, for major changes, that the CFI approves). This must include public safety as well as aircraft safety:

1. Likely points of access and transit for the public must be under observation. If this requires the use of a remote observer then a positive declaration that the area is clear must be received before every launch.
2. In the event of a launch problem, the extra cable drift must not land it in an area that has not been checked to be clear.

Having agreed the layout, the detail of how to position and align the equipment is covered in [7]. Choice of retrieve winch position is largely the responsibility of the duty instructor, depending on the landing areas he wants to use. The duty instructor may ask the winch driver to set up the retrieve winch for him or may make other arrangements.

## Main winch driver basic duties / practices.

Note: the duties described here are common to volunteer and professional drivers. Professional drivers have a few additional duties described in [9] that do not alter basic operation and are not listed here.

1. Ensure that winches are not used if the guillotine checks are out of date. When necessary, perform and record guillotine checks in accordance with [4] before use.
2. Selection of main and retrieve winches. Daily inspection of selected winches (checklists in [7]). Recording of DI in the relevant DI books before use.
3. Agree the site setup with the duty instructor, as described earlier. Put out retrieve winch if requested to do so.

4. Set up main winch (and temporary signs if appropriate)
5. Cable towing to launch point:
    a. Winch engine must be running at tickover.
    b. When practical, winch driver remains in cab to guard the cable. Use a weak link so that brake can stop cable.
    c. If not, cab should be locked, tow-out should be slow, and cable watched carefully during tow-out to ensure public safety.
6. Check setup of retrieve winch and that main airfield access gate is shut. See "retrieve winch pre-first launch checklist" [7]. A declaration from the Duty instructor or launch director or another main winch driver stating that the checklist has been completed may be accepted instead. In case of doubt, do the check yourself.
7. Check communications and signalling. No launch may be initiated unless there is a functioning stop light at the launch point that can be seen by the main winch driver.
8. Use the main winch "pre first launch checklist" [7]
9. Glider launching (normal):
    a. Secure the cab against cable ingress
    b. The settings suggested by throttle guide [5] may be varied to suit conditions.
    c. Response to "take up slack". Drive should be engaged only when main winch driver has completed his preparations and safety scan and this may be long after the "Take up slack" signal has been given.
    d. The response to "all out" should be immediate, to avoid the glider being dragged out of position or the wing holder losing grip. Either begin the launch immediately or abort it.
    e. The retrieve winch driver must not begin retrieve without hearing "release, release" clearly. The main winch driver should give this call promptly or not at all to avoid cable breaks.

f. Once the cable has stopped, it must not be moved again (by any means) without main winch driver permission.

10. At the end of flying, use the "end of day checklist" [7] This includes:
    a. Clear cable from the field
    b. Gas and garage winches and vehicles
    c. Leave things ready for the next man or notify him of unresolved problems

## Operating limitations

Cross-wind and tail wind limits, and sufficient wind for short west are largely a matter for the duty instructor, and guidance is given in [10]. There are four usual situations in which the winch driver may need to initiate action for safety, but he must do so whenever he feels it necessary:

1. Tail wind acceptable to pilots, but causing distress to the winch. Change ends.
2. Strong headwind, retrieve cable angle to ground above 45 deg. Risk of cable blowing back over winch. Disconnect and retract retrieve cable. NB winch driver must use launch crew to monitor this. Ask for it to be included in briefing if it is known to be likely, and/or radio to launch crew.
3. Launching to South, easterly component of wind above 10 kt. Stop launching
4. Launching to North, Easterly component above 15 kt. Stop launching.

N.B. Easterly limits assume that the winches have been moved as far East as possible. In these positions, the winch anemometer under-reads. Consult the club-house anemometer.

## Non-standard events

1. Stop signal received
    a. **You must assume it to be an emergency** whatever is likely and despite probable consequences.
    b. Shut throttle, select neutral, brake hard to stop drum.
    c. Stop signal on.
2. Guillotining cable
    a. Glider fails to release, main winch guillotines cable
        i. Radio to retrieve winch to guillotine theirs
        ii. Remain in cab – trailing cable danger
        iii. Remind retrieve crew of trailing cable danger
        iv. Make notes for incident report later.
    b. Retrieve winch guillotines cable. Assume cable over wing (Retrieve crew should tell you, but this may not be immediate)
        i. Abandon launch by promptly closing throttle and selecting neutral.
        ii. Pull guillotine (to cut main cable).
        iii. Apply drum brake.
        iv. Apply stop signal
        v. Make notes for incident report later.
3. Launch failures
    a. Practice launch failures:
        i. Warn retrieve driver that there will be no retrieve and get read-back.
        ii. Chop throttle smartly (unless requested otherwise) then proceed as for real launch failures.
    b. Real launch failure/pull-off/break **unless low**.
        i. Get control of cable

ii. Unless there is ample time to complete a normal retrieve, do not call "release, release". Land the cable tidily and leave it dead until the glider is down or away.
iii. Proceed as for slack cable or repair.

c. Real launch failure/pull-off/break when low.
i. Using power could inflate the parachute in front of the glider – don't.
ii. Shut throttle, select neutral, brake hard to stop drum.
iii. Stop signal on.
iv. Leave the cable dead until the glider is down
v. Proceed as for slack cable or repair.

d. Glider has been pulled forward.
i. Direct the launch crew to return it to the normal launch position before re-launch. This preserves wing/retrieve cable clearance.

4. Slack cable / incomplete retrieve / after repair
a. If appropriate, ask RW to open his drum and check for problems.
b. Check with RW that drum closed, everyone is clear and it is safe to move cable
c. Engage drive at tickover and ask RW to tell you when his drum begins to turn
d. Continue a little longer to remove all slack and engage neutral
e. Tell RW to begin retrieve at low throttle and increase at his discretion

5. Cable break repair
a. Main winch driver assumes responsibility for all cable-related activity and issues instructions. Stop if these are not followed.
b. Main aim – ensure no-one gets hurt. Speed is secondary. Situations vary, so must the process. The winch driver should devise a plan suited to the circumstances. An example is

given below. It is designed to ensure that no-one is working on either end of the cable when there is any chance of it being moved, whether by winch, vehicle, landing glider or manually.

c. A plan should not rely for its safety on the cable being broken, as it is not always easy to be sure.

d. Typical sequence:

   i. Instruct RW Keys out, everyone clear of cable, stay by radio to warn of cable movement (e.g. glider/vehicle crossing). Get read-back.
   ii. MW keys out, check MW drum
   iii. Instruct RW to send vehicle to find their end of cable and park near it but not move it.
   iv. Once that vehicle is stopped, authorise RW drum open and cable handling
   v. Meanwhile, you find your end of the cable and tow it slowly to their end. Main winch engine off.
   vi. Repair break then visit RW to check cable routing etc if appropriate.
   vii. Proceed as for slack cable.

## Motor glider or other self-powered take-offs

These are required to radio the launch point to confirm that the cable is dead before take-off [10]. In the event that they receive no response, the main winch driver may declare the cable dead, but should warn them that he can't see the whole launch run.

# References


1. BGA site source for document "WINCH OPERATORS MANUAL Revised Edition October 2002 (Web)"

2. SKYLAUNCH 2 MAIN WINCH OPERATOR'S MANUAL Part No: MI-G/P-OM 05.09English Version)
3. Skylaunch OPERATORS MANUAL (USING RETRIEVE WINCH) Part No. RW MWO 07.13 (English Version)
4. MGC guillotine testing procedure *
5. MGC throttle guide *
6. MGC winch training record and authorisation *
7. MGC setup notes *
8. MGC training notes for instructors*
9. MGC professional winch drivers additional duties*
10. MGC Standard Operating Procedures www.midlandgliding.club/wp-content/uploads/2015/05/Standard-Operating-Procedures.pdf
11. MGC Launch point operations

www.midlandgliding.club/wp-content/uploads/2015/05/Launch-point-Operations.pdf

'* These documents are on the main winch section of the MGC website, see https://www.midlandgliding.club/policies-rules-and-documents/

## Glossary

**CFI** Chief Flying Instructor, MGC

**MGC** Midland gliding club

**MW** main winch

**No1/ duty instructor** The flying instructor given overall charge for the day.

**Winch Master** The person given overall responsibility for winches by the MGC committee.

**RW** retrieve winch

## Appendix 1 – Source material

It has not been possible directly to use the obvious existing documents because the operation at MGC involves the use of a retrieve winch system over a large number of launch positions on a site with many points for public access.

The BGA winch operator's manual [1] is written around standard non-retrieve systems and is, in any case, overdue for update. Advice from the BGA winching authority (Andy Holmes) is that it should not be used for the MGC.

The Skylaunch main winch operator's manual [2] is, again, written assuming a non-retrieve system and is inappropriate for MGC.

The Skylaunch retrieve winch operator's manual [3], though not written for the equipment models used at MGC, is relevant, and includes recommendations for the corresponding main winch operation.

This procedure is therefore informed by [1] and [2], though they can not be used directly. This document is largely based on the Skylaunch retrieve winch operator's manual [3]. Mike Groves (Skylaunch) gave permission for this 5/12/2021.

The Skylaunch document [3] is general and has been modified to cover the local site requirements.