Devon and Somerset Gliding Club

Ground Operations Manual

COPIES HELD IN – CLUBHOUSE AND LAUNCH CONTROL

Contents

Introduction

"Ground Ops" skills are essential to ensure safety in gliding operations. All the tasks require some experience and understanding of gliding and airfield operations, so being "signed off" to perform a task unsupervised is confined to members of the club. Temporary members are welcome to carry out basic Ground Ops tasks – but they must be always supervised.

Some tasks can be learned by "on the job" supervised practice and these are referred to in this Handbook as **Basic Training Tasks**. More complex tasks call for structured training, referred to below as **Advanced Training Tasks**.

Guidance for both trainers and trainees is contained in Part One (Training Notes) of this Handbook. These notes are designed as an "aide memoire" for trainers and may raise further questions from trainees. **Please read the relevant section. Authorisation to carry out a task implies that you have.**

Part Two contains information on how the training is recorded.

It is worth reading this handbook in conjunction with the **Operations Manual**, which, although aimed at pilots, necessarily contains some reference to Ground Operations (such as General Site Care; Launch Marshall Duties; Care of Aircraft and Launch Equipment and Trailers)

Club members who are 16 years and over can participate fully in all Ground Operation tasks, including training other members, and (where appropriate) authorizing the trainee. There are some restrictions on club members who are under 16 years old. Please check the sections below on "Young Club Members".

1. The Basic Training Tasks

B1 Introductory Safety Brief for new members, including Launch Point Activities.
B2 Ground-handling and Parking of gliders on-site.
B3 Daily Inspection and Driving Club Vehicles (excluding tractors)
B4 Towing gliders.
B5 Cable Retrieving.
B6 Daily Inspection and Setting-up the Launch Point for daily operations.

2. The Advanced Training Tasks

A1 Log-keeping & Operation of the Launch Control.
A2 Movement of gliders from/into glider hangar.
A3 Ground Equipment storage and refuelling,
A4 D.I and Driving tractors
A5 Winch driving, including all elements of daily procedures.
A6 Duty Launch Marshal.

3. Young Club Members

We value the enthusiasm of our youngest members 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 must place some restrictions on what our youngest members can do:

14 years and over, but under 16:

Members who are 14 years and over, but under 16, can participate fully in all basic and advanced tasks except for DLM duty. Once they have been authorized to do so, members in this age group can perform ground operations tasks unsupervised.

However, members in this age group cannot themselves authorize, or supervise other members in basic tasks B3/4 (Driving Club Vehicles & Towing Gliders); B5 (Cable Retrieving) and B6 (Setting up the Launch Control). These tasks must only be signed off by an authorized member who has a full driving licence.

Authorizers must satisfy themselves that trainees are **fully trained in all aspects of a task** prior to authorization unless special dispensation is granted by the Ground Operations Training Manager.

12 years and over, but under 14:

Club members under 14 years old may carry out **Basic** Ground Operations tasks on the airfield, providing they are **supervised** whilst doing so, by a member (16 years and over) who is authorized in the task. Consideration is to be given that they are of a size where they are physically able and strong enough to complete the task.

Members under 14 cannot have ground operations tasks authorized until they reach their 14th birthday (so they must remain **under supervision** until they are 14 years old). Neither can they authorize other club members in Ground Operation activities.

Note: "Supervision" requires that in all tasks involving club vehicles, the supervisor remains in the vehicle with the trainee. "Launch point activities" and "ground handling of gliders" can be supervised by someone in attendance at the launch point.

Please note that ground operations tasks may not be undertaken by any person under the age of 12.

4. Authority to conduct training and certify competence, ie "sign off".

(1) Basic Tasks (B1 to B6). Subject to the constraints on the youngest members, once a club member is qualified for any given Basic Task, and following a six month period of carrying out that task, he/she may then be authorised to train **and certify** the competence of other members in that same task. *At this point it is therefore very important that a trainer ensures that the trainee has acquired sufficient experience to then train and authorise someone else.*

(2) Advanced Tasks (A1 to A6). Any authorized club member can demonstrate the task, but actual training and subsequent authorization for advanced tasks **must** be by a **nominated trainer/authorizer**. The trainer / authorizers for each advanced task are shown in the training area on the club website and are also with the paper copy of the Ground Ops Handbook in the clubroom

5. Record of Authorisations.

When a member has been trained and authorized in a new Ground Operation skill, the authorizer will complete the relevant section of the Ground Operations Training Card signing with name, signature and date of authorization. The card must then be left in the “In” box in the clubhouse briefing room so that the training record may be updated.

Please note that in signing as authorizer you are verifying that the trainee has read the relevant section of the Ground Ops Handbook, preferably with you in attendance.

Individual training progress in Ground Operations will be shown in a spreadsheet linked from the DGSC website:

Members Area >> Training >> Members’ status for ground operations tasks.

Part 1. Training Notes

Purpose.

The purpose of this part of the Handbook is to provide guidance in, or on the points that need to be covered for each of the Training Tasks listed in the Introduction.

Trainees learning a new task should discuss the points below with the trainer. If something has been missed during training – or you are not sure, please ask.

These notes will also help the trainer to refresh his own mind and thus prepare thoroughly in advance of the training session. The Tasks are listed in two Groups, namely The Basic Training Tasks B1 to B6, and The Advanced Training Tasks A1 to A6.

Basic Training Tasks

Task B1: Introductory Safety Brief & Launch Point Activities. (also Annex B)

For existing Club members, it can be easily forgotten that most new members will also be new to gliding, with no knowledge whatsoever of the way a gliding club functions or of the many tasks that have to be carried out to launch gliders. Therefore, each new member should be given a formal, introductory site safety briefing, including an awareness of general launch point activities.

A description of the site layout, including our various buildings and their uses, trailer and caravan parking, location of our four conventional launch points and winch cable routes. Also describe the bridle and foot-path route and legal site access for horse riders and other pedestrians.

Club Handbooks and Manuals. Where they are kept – and what they contain.

Car parking – where it is safe/permitted to park. Emphasise low speed at all times when driving on site. Remember not to lock cars left on the airfield.

Awareness of general vehicle and glider movements on site and the necessity for alertness at all times, especially when crossing the approach/landing areas. Emphasize that gliders can land from many directions, and that we are not limited to “conventional circuits”. Remember that we have powered aircraft on site and attention must also be paid to their movements; they have nasty propellers! For Minimum safety briefing content see Annex B.

Launch Point Activities – a thorough description of launch point activities, cover likely vehicle movements, glider launch queues and launch procedures. Explain the main potential risk areas, e.g., immediately in front of the launch queues. When training on launching gliders remember:

- Receiving cables from the “Cable Retrieve Vehicle,” and giving the retrieve driver the “all clear”.
- Dragging the cable over to the glider to be launched. ‘Chute in front of the glider!
- Difference in weak links – so the correct link colour (don’t rely on the strop).
- Difference between aerotow and winch hooks.
- How to do “cable release checks”.

- Prior to hooking on have a look at the glider. Make sure that wing and tail dollies have been removed. On two seat gliders being flown solo, look to see that the rear canopy is closed and locked and that the straps have been correctly stowed.

- Ensure there is a wing runner, on downwind wing in cross winds, and wings are level.

- Hooking on: If the person connecting the cable to the glider has not heard the pilot state "brakes and canopy closed and locked" prior to "cable on please", a request should be made to the pilot that they check "brakes and canopy closed and locked?" before the cable is attached.

- Give the cable a good steady pull to make sure it is correctly attached. Show the pilot the weak link and say "Cable on and secure; Black (etc) Link"

- Leave the cable on the floor with the links in a straight line at approx. 30 degrees to the axis of the glider.

- Ensure a good look-out in **front** (checking for obstacles etc. that the pilot may not be able to see) **above and behind**. Don't forget to check both downwind legs. If clear, call "All clear above and behind".

- Correct calling and clear signalling for "taking up slack" and "all out". Visibility to pilot and Launch Control. Standing clear of launching glider – and cables!

  Wording should be in the following format:

  "ASK 21" - (Aircraft type)
  "NORTH CABLE" - (Which cable, north / south or remaining)
  "TAKE UP SLACK" – (arm swinging clearly below waist height)
  "ALL OUT" – (arm swinging clearly above your head)

- The **"STOP"** signal – who can use it. (Shout and raise both arms straight above head height.)

- Differences between winch and aerotow launches.

- How to correctly repair a broken weak link.

Aerotow Launches – a different method of launching whereas a tow plane is the method of launch rather than the winch. The main differences are:

- A tow plan is involved which has a very dangerous fast moving propellor on the front.

- When the glider is in position (and generally when ready to launch) the tow plane will position itself in front of the glider.

- When the tow plane is positioned and stationary, engine running, approach from the rear.

- Withdraw the tow cable from the guide funnel below the tow plane rudder, pull out to the front of the glider.

- Await pilot instruction to attached cable.

- Confirm with pilot, airbrakes and canopy are closed and locked, **await pilot confirmation.**

- Attach cable and withdraw to side, look and confirm to pilot - "All clear above and behind"

- Pilot will complete launch by radio with tug pilot. Watch surrounding area stays clear.

Task B2: Ground-handling and Parking of gliders on-site.

Whilst most gliders are fairly robust aircraft, their design and shape mean that it is very easy for damage to occur unless adequate care is taken during ground-handling and when 'parking' them. Although many of the basic needs are described under the "care of aircraft, launch equipment and trailers" in the **DSGC Operations Manual**, it is nevertheless important that the relevant training includes, as a minimum, attention to the following points:-

- General handling requirements, i.e. what parts of the airframe can be handled, pulled, pushed or lifted (in the case of wingtips and/or rear fuselage) and, equally important, what components must not have loads applied to them in any way, e.g. canopies, tail-planes and control surfaces.

- The appropriate ways of moving gliders by hand and by vehicle tow. The minimum number of people required and influence of wind direction and strength and associated gusts. Which launch hook to use when towing (only the winch hook will back release). Raise canopy to release tow (don't risk damage by trying to reach the release knob through the DV panel).

- Always ensure the tail wheel is clear of the ground before rotating the glider – and do not rotate the glider "on the spot in wet or soft conditions". Doing so can cause the mainwheel to damage the ground particularly in wet and muddy conditions.

- The importance of never leaving canopies raised if the pilot is not present. Assist pilots with canopies in windy (gusty) conditions. If rain stops play – ensure that any open DV panels on parked gliders are closed.

- The procedure for parking gliders safely; factors that must be taken into account include weather conditions and wind strength, proximity to other aircraft or obstacles, reasons for parking cross-wind and varying means of securing different glider types. **Be careful when placing tyres on glider wings and use canopy covers when glider is not in use.**

- Procedure to be followed in the event of damage occurring or being suspected. **It is imperative that faults or damage are reported immediately as the safety of yourself, and others may be affected, DSGC operates a no blame culture as accidents happen, Safety is paramount.**

Task B3: Driving Club Vehicles, excluding Tractors.

When teaching someone to drive a club vehicle – ensure that the training takes place in a quiet and unrestricted area of the field, well away from parked gliders, trailers and normal flying activities. Each of our club vehicles has its own unique characteristics which must be explained and demonstrated, together with the factors which constitute 'care' of the vehicle and which, if ignored, could lead to increased maintenance or even damage. It is therefore important that the following points are included in training:-

- Each of the club vehicles requires individual briefing and training, as differing features and driving techniques are involved. Include gear selection and changing, gear ratios (where appropriate), driving in reverse, use of mirrors, on-board radio, and differing parking brakes!!
- Emphasise the need for a cautious and considerate driving 'style'. Some of our Club vehicles are both heavy and powerful and all have the potential for producing accidents if treated with less than adequate care.
- Explain the primary uses of each vehicle together with the normal operating methods and routes followed for the routine tasks. The various site ground conditions will have an influence on routes and driving speeds. Remember **care of the vehicle**!!
- Never tow a trailer without attaching the safety wire to the tow hitch.
- The Gator can be "jerky" when engaging drive in forward and reverse. When attaching a trailer to the Gator it is safer to stop near the trailer and then make the attachment by "manually pulling" the trailer, rather than by backing the Gator onto the trailer drawbar.
- To prevent the chance of a winch cable falling on a vehicle or vehicle / glider combination, whenever possible drive up the field on the upwind side of the winch cables. If a glider has landed long, and downwind of the cables, the retrieve may require a vehicle / glider combination to cross cables at the winch end of the field. **Crossing the cables should only be done after radio communication between winch or Launch Control and retrieve to ensure the cables are "clear" and can be crossed safely.**

Task B4: Towing Club Gliders

Towing a glider on site, using a vehicle, is completed many times during each day throughout the airfield. In the case of Club gliders, the tow is always made using a tow rope. Training must include, as a minimum, the following points:-

- The vehicle driver is primarily responsible for the safety of the tow and must be totally familiar with the vehicle in use.

- The tow-rope should be attached to the recommended hook for the individual glider being towed, *if unsure ask*, and should not be attached to the glider until the tow is about to begin. To do so earlier presents the potential for a serious accident. **The tow rope length must exceed a minimum of glider release hook, to glider wing tip, of the glider being towed. Only use prepared club tow ropes with tost rings for connection to the glider.**

- When you arrive to retrieve a glider, pull up to the front of the glider, and when you start the tow, move off in an arc so as not to turn the glider main wheel on the spot, which will damage the ground. Do NOT pull the glider main or rear wheel sideways causing stress on the wheels. Extra care is to be taken when the field is wet or soft.

- When retrieving a glider
    - choose the route that will have least impact on the landing area.
    - minimise disruption to the launching
    - keep upwind of falling cables
    - trial lesson flights are to be treated as a solo flight when retrieved

  The above factors can or may be in conflict with each other so judgement will be required as to the best and safest option at the time, which includes stopping.

- Towing a glider using a tow rope requires two “crew” with the glider. One person on the wing “steering”, with the other at the cockpit, ready to steady the glider on a down slope – and to release the tow rope when required or in an emergency.

- Ensure that both “crew” can be seen (in the mirrors is fine) during towing. They may be inaudible over the engine, so **watch for signals** whilst continually monitoring the sky for any aircraft or gliders that may be about to land.

- All towing is to be at a comfortable, medium walking pace (about 2-3 mph) for those ‘manning’ the glider. Explain the problems of being too slow or too fast!

- The driver must pay frequent attention to the relative position of the glider and maintain ample clearance from obstacles (half a glider wing-span on each side). Ensure there is no interference with gliders launching or landing and stick to the towing route agreed with the glider pilot. If in any doubt at any time - **STOP**.

- If a glider has landed in the middle of the field be aware that moving it promptly may assist other gliders or the tug to land. If a glider or the tug is “downwind” there may still be time to safely move the glider out of the way. However, DO NOT move gliders in the field when aircraft are on finals, unless it increases the size of the landing area for the approaching aircraft. Stop, and put the wing down if in any doubt.

- When towing a glider down the field, check for the location of the cable retrieve vehicle returning cables to the launch point. **Give way to the cable retrieve vehicle.**

- After a launch, do not cross the remaining cable unless you know it is “clear”. If necessary call Launch Control on the radio to check

- When towing a glider to the launch point, be alert to the glider being deliberately pushed out-of-line before the tow-rope is released. Again, if there is the slightest risk, **STOP**.

- At the completion of each tow, when the tow-rope is released from the glider, stop and reel in / coil up the tow rope before driving away. ‘Trailing ropes’ have been known to snag wingtips or other obstacles!! **DO NOT DRIVE WITH A TRAILING ROPE !!**

Task B5: Cable Retrieving.

Although “Cable Retrieving”’ appears to be a quite straightforward process, there are a number of important elements involved and it is essential that these are fully understood, prior to a new member being ‘let loose’ with the retrieve vehicle. For training purposes, the necessary ‘points of attention’ are as follows:-

- The driver must be authorised to drive club vehicles.
- It is vital to emphasise the **total responsibility** that the retrieve driver has for the cable retrieving task, and the vehicle is fit for purpose, if in doubt ask.
- Essential safety issues to be included in training relate to:-

    - Part of the retrieve driver’s role is to assist the winch driver, and should tidy the first cable post launch, ready for tow out, while the winch driver remains in the winch cab communicating with the launch control and awaiting the second launch. This increases turnaround time and efficiency.
    - Smooth operation of retrieve vehicle – taking up the slack in the cables at the beginning of the retrieve – and always **gradually** slowing down over the last 50 to 100 meters, to prevent winch cable drum over-run.
    - Communication with the winch driver and Launch Control.
    - Need for and mandatory use of towing ‘weak links’. Check condition of weak links before moving off from winch.
    - Cables to be ‘pulled out’ in a straight line – to avoid crossover and burning.
    - What to do if a towing weak link breaks. Potential risks to the winch driver! The need for and importance of communication with the winch driver during reconnection and subsequent pull out.
    - The necessity of a good lookout at all times during the retrieve. If a glider is going to land across the cables being towed out, ensure they are stopped when the glider crosses them. Be aware of gliders doing “strange things” – downwind and hangar landings.
    - Dealing with approaching gliders and tug during cable retrieve – importance of slowing down or stopping, not turning out-of-line. **No sudden stops!!**
    - The retrieve vehicle must be in “Park” while people are at the back of the vehicle removing cables. It is not safe to be in “Drive” because of the risk of distractions.
    - Ensure that the cables are released completely at end of the retrieve. Whilst the helpers at the launch point should advise the cables are “clear” – the ultimate responsibility is the drivers!
    - Careful choice of return route to winch, giving way to approaching gliders, tug and motor-gliders. Keep a good lookout if turning across the field.
    - Safe parking behind winch when it is launching gliders.
    - Never approach a cable at the winch, either on foot or in the retrieve vehicle, if it is still “live”. Wait until the winch is in neutral and the cable has stopped.

- If the field is wet, there is a danger of creating muddy furrows from winch to launch point. Vary the line slightly on each cable run. Just moving sideways by one tyre width will significantly reduce the wear on the field.

- **Authorization for this task should not be given until the trainee has satisfactorily retrieved the cables from all winch / launch-point locations. Some are more difficult than others!**

Task B6: Setting-up the Launch Control (LC) for daily operations.

The preferred vehicle for towing the Launch Control is the “Silver Land Rover,” Always have someone to guide reversing of the combination out of the Ground Vehicle hangar. Don’t forget to DI the Land Rover prior to moving the Launch Control.

- Before getting into the tow vehicle to move off, check:
  - Electricity supply is unplugged and stowed securely;
  - Security wire and tow hitch is securely locked onto the ball;
  - Brake is off (handle down);
  - Jockey Wheels are both up;
  - The contents of both cabins are safe and secure (no unsecured laptop on the desk);
  - Windsock mast is fully down and secure;
  - Both doors are fastened shut.
- Check that you have, before you tow out, the:
  - flight logging computer,
  - mobile phone,
  - handheld radio
  - training record cards

- Leave the Launch Control outside the hangar until Duty Instructor or Duty Launch Marshal has decided upon **precise** required location on the field. Follow the “Towing Routes” (see Annex A), and do not exceed max towing speed of 10 mph.
- Tow LC into position in the field forwards (without reversing if possible). Use correct procedure for unhooking from towing vehicle, and correct use of jockey wheel. (Ensure trailer weight is on the vertical post of the jockey wheel supported on a wooden block, and not the jockey wheel itself.) Try to get the LC as level as possible. Ensure handbrake on (handle up). If the LC is parked on a slope then the wheels are to be chocked as an added precaution.
- Items requiring attention at launch point may be summarised as:
  - Connection of communication cable at remote socket point (use the “MAIN” socket on the telecom connection box,). See map for connection points. In the two manholes the “MAIN” connection is the open (uncovered) socket.
  - Connect the windsock and raise the mast into position.
  - Position winch cable marker cones, considering crosswinds. For a double launch line the cones will probably be further out than you think! – the first cone should be about 50 paces from the LC.
  - Erect safety chain (fence spikes and red/white plastic chain) on upwind side of LC.

- Connect computer to power cable, switch master-switch to ‘ON’ (LED indicator will light), and connect anemometer USB cable to comm. port. Switch computer on. Logsys (the logging program) will boot up automatically.

- Check comms with winch. If no-one is present in the winch, and the winch is connected to the telecom loop, the green (“Line OK”) LED will light if you press the “Buzz Winch” button. If the LED does not light – or only lights faintly – there is a problem with the circuit.

- If Duty Instructor present, select appropriate coloured ‘rating’ flag. If parachuting from Dunkeswell – fly appropriate flag.

- **In the event of a thunderstorm** close enough to the club to stop flying – lower the windsock mast and disconnect the comms lead from the LC. A lightning strike on the field may cause serious damage to the electronics if the comms lead is left connected.

- Shut-down at end of day’s flying is more or less a reverse of the above. After disconnection of comms and lowering of windsock mast etc, check no personal equipment left on the ground by the LC and reconnect the towing vehicle. Turn off master switch, check backdoor shut. Remove the computer, mobile phone, personal equipment and any parachutes left in LC. Tidy inside; empty the waste-bin, and on return to the hangar ensure the charging cable is plugged in and the battery charger lights are all “on” (showing red on front wall of cabin). A “Banksman” should be used when driving the LP vehicle in or out of the ground hanger as the clearances are small.

- Ensure that the computer, handheld radio and mobile phone are plugged into their chargers in the clubhouse (and are charging!)

Advanced Training Tasks

Task A1: Log-keeping & Operation of Launch Control (LC) facilities.

Our Launch Control forms the focal point of ground operations at the launch point. Its use in particular for logging and communications, require both practice and authorisation. some important training points:-

- A thorough, practised ability to use our computer-based log-keeping (flight recording) system is necessary, **and the trainee should have read the "Logsys User Guide" (available in paper copy in the LC – and on the DSGC website)**. Also, knowledge of the flight recording 'back-up' system, i.e. the hand-written, paper log-book, should be explained. Remember to emphasise the **legal** and financial aspects of correct log-keeping (flight recording)

- A member learning this task must understand the 'process' of glider launching and the order in which the various elements are carried out. **Basic tasks B1 & B2 are required precursors to being trained in this advanced task.**

- Our communication requirements and systems have to be understood, with special attention given to the formalities that we employ in communicating with Exeter Air Traffic Control and Dunkeswell Sky Dive prior to the start of flying each day, and the winch driver for launch instructions, and the use of radio communications on both air and ground stations.

- Ensure clear commands to the winch when launching (it can be noisy in the winch!). Correct sequence of launch: "Glider Type" - "Which Cable" - "Take Up Slack" / "All Out".

- Monitor the launch until the winch driver can see the glider, leaving the comms "open". In an emergency call "STOP STOP STOP" so that the winch driver can hear the command above the noise of the winch engine at full throttle! Do NOT talk to anyone else at this point of the launch. (If the winch driver hears you talking, he may think you are telling him to STOP!). If the cable has fallen in a position where the winch driver cannot see it, advise when it is "clear to retrieve."

- If a glider has landed up the field, the position or crosswinds may make it unsafe to start the next launch, – so **delay the launch** until the winch driver confirms (or you can see) that it is safe to continue.

- The necessity for a good look out and wide-ranging attention to gliders and powered aircraft taking off and landing.

- If necessary, warn the cable retrieve vehicle of impending launches of powered aircraft. It is best to hold the cables at the winch until powered aircraft have taken off.

- Be watchful for any unsafe acts in the vicinity of the launch point. If necessary, use the tannoy. Ensure the remaining cable is not moved or crossed until the winch driver has given the "Cable Clear", which should be promptly announced over the launch point tannoy

- If the parachute club at Dunkeswell is operating – ensure that the "parachute" flag is flying from the windsock mast.

- Close collaboration with the Duty Launch Marshal and Duty Instructor is vital.

- To maintain adequate attention to the task, training needs to include comment on factors such as alertness, constant observation, resisting distractions, look out for unusual incidents or 'emergencies'. If tiredness sets in, get a relief log-keeper!

- Knowledge of the various items of equipment kept in the Launch Control is a useful addition during training.

Task A2: Movement of gliders from/into glider hangar.

This task has the potential for causing serious damage to gliders. To make best use of the space in our hangar, gliders have to be 'packed' in a methodical, careful manner, paying great attention to proximity of various wings, TE tubes **must** be removed prior to going into the hanger, tail planes and other obstructions!!

As a general rule, only Instructors and other senior Club pilots are authorised to supervise the task. Training matters requiring attention are:-

- Ensure that only one person takes charge of the task. Two or more calling instructions will be a recipe for damage!
- Ensure that there are sufficient members present to carry out the task safely. A minimum of three is usually required to ensure adequate control of moving gliders.
- It is important to ensure that each person knows what he/she must do. Employ only those who have sufficient experience to know where or where not to push/pull. Remember particularly the cost of new canopies and emphasise the essential control when holding a wing-tip during each glider movement.
- When moving gliders in or out of the hanger, TE tubes must be remove and it is to be completed slowly and in a controlled manner.
- At the end of flying, ensure mud is washed from the gliders, and that if it has been raining - that the gliders have been wiped off.
- If necessary:
    - turn powered instruments off,
    - turn the master switch "off"
    - remove the batteries and put them on charge
    - remove any ballast that has been fitted ***(leave clearly on seat if LC not available)***
    - return any parachutes (and parachute bags) to parachute cupboard
    - Check cockpit pockets for any personal equipment that may be left behind
    - Close DV panels
    - *Cockpit heaters during winter months fitted and on.*
    - *Hanger fans are set on the timers again during winter or cold months.*
    - Hanger lights "turned off"
    - Hanger main and side doors locked

Task A3: Ground Equipment D.I., Storage and Refuelling.

(Note: This task does NOT include D.I. or refuelling Winches or Tractors)

The serviceability and general condition of our ground equipment is of great importance to us and especially so to the small group of members whose expertise and commitment keeps the equipment in running order. It is therefore vital that each item is checked thoroughly before being put into use on each day, and it follows that an adequate knowledge of relevant daily inspections, equipment removal and storage, refuelling and safety factors is essential.

If you have not been briefed on a particular vehicle then get an experienced member to brief you – DO NOT "just jump in and give it a go."

ALWAYS DRIVE SLOWLY AROUND PEOPLE AND AIRCRAFT = WALKING PACE OR LESS

- Details of complete D.I. are required for each item before starting or moving it. This must be done on a daily basis without fail; our equipment is subject to quite a rigorous work cycle and so careful attention is an absolute 'must'. For each vehicle check:
    - Check floor under vehicles for obvious significant leaks of oil or coolant.
    - Engine Oil and Coolant (be sure to use the correct oil and antifreeze)
    - Clutch / brake / automatic transmission oil levels.
    - Condition / tension of alternator / steering pump belts.
    - Visually check wheels and tyres.
    - Fuel tank level.
- Authorisation to drive each type of vehicle involved.
- Procedure to be followed if any item is found to be unserviceable.
- Potential risks and safe method of removing vehicles from hangar. Check ability to drive vehicles in reverse, with added attention to skill required to drive vehicle / trailer combinations in reverse. Correct storage of equipment at the end of each day's flying (e.g. Launch Control battery charger connected and charging lights in cabin are on).
- Ensure any electric vehicles are plugged in to the charger, and the charger is on.
- Correct procedure for refuelling diesel vehicles. Which fuel to use. Obtaining and returning refuelling point keys. Correct entries in fuel logbooks. **NB. Refuelling the (gas) Skylaunch winch is covered in section A5.**
- Essential safety in opening/closing equipment hangar doors. We don't want any 'trapped fingers'!! Opening and closing the doors carefully and smoothly also ensures they will not jump the bottom track! If they do – please get help to lift the door back onto the track – don't leave it for the next shift!

Task A4: Driving tractors.

Our Club tractors are, for most new members, completely alien vehicles, therefore requiring particular training before authority to drive them is given. Bearing in mind that the main concept of tractor design is for agricultural use, the essential dedicated features need to be understood before safe driving can be assured. So the following points need to be borne in mind during training:-

- Training in driving one of the tractors includes the special D.I. that these “different” vehicles require.
- No-one is to drive the tractors unless under training – or having been authorized to do so.
- Thorough initial briefing to include the expected driving technique, (principles that are ‘foreign’ to most drivers): gear and gear ratio selection, individual rear wheel braking, hand-throttle, possibility of over-steer. Driving in reverse when towing..
- Run through correct operation of other towed implements and attachments.
- Point out the particularly serious danger of positioning oneself between the tractor and attachment during hook-up manoeuvres.
- During driving practice, emphasise cautious and considerate driving and the particular risks associated with over-speeding, when a tractor can become far less stable.
- The attachment and use of other equipment, such as grass-cutters, is more specialised and will require additional training.
- NEVER touch the PTO shaft unless the engine is stopped “off” and slient.
- NEVER permit any other person to approach the tractor unless it is in neutral with the handbrake on.

Task A5: Winch driving, including all elements of daily procedures.

Although all the ground operations tasks are important in getting gliders launched, winch driving is one of the most specialized, and requires the greatest depth of training and practice. Training needs to include all the various elements involved, from reversing the winch/tow vehicle combination out of the equipment hangar when preparing for flying to parking it back in the hangar at the end of the day's operations. So, training should include the following items, although not essentially in the order shown.

Note: Detailed winch driving instructions are provided in the Winch Drivers Handbook (on the DSGC website and paper copy in the Skylaunch winch). Trainees will have been expected to have read this handbook prior to task authorization.

- Initial 'setting-up' procedure for the winch, to include –
    - Removal from equipment hangar; thorough D.I. (a D.I. Checklist is kept in the cab). Check safety chain / wire connected to tow-hitch and wheel brake is "off".
    - Correct refuelling of Skylaunch winch using the LPG gas fuelling plant.
    - Check winch starts OK; Check comms head-set is in the cab Tow winch to required location, having checked with Duty Instructor. Follow the "Towing Routes" (see Annex A), and do not exceed max towing speed of 10 mph.
    - Establish the winch ready for launching, emphasising alignment, jacking-up procedure, comms connected and tested.
- Normal winch launching techniques, almost certainly requiring several sessions, to achieve competence in varying weather conditions and understand associated matters such as launch sequence, preparation for cable retrieves, launch failures and **cable repairs**. Emphasise safety matters such as alertness, look-out, ensuring onlookers are safely behind the winch; avoiding distraction and fatigue.
- Several sessions in the winch side seat may be required to see how the "other" launches are handled. This will include, gradual power failures, ultra low failures, simulated rope breaks etc.
- If a falling winch cable lands close to any person, vehicle or glider**, do not retrieve the cable** until the obstacle has been cleared. If a glider has landed "up the field" do not accept the next launch from the Launch Control if there is any concern that it is too close to the cable – or that a broken cable or strop may land on it. Broken cables can travel a long way down wind!
- Whenever possible, gliders should be towed back to the launch point on the upwind side of the cables which may require a vehicle / glider combination to cross cables at the winch end of the field**. Crossing the cables should only be done after radio communication between winch and retrieve.**
- Enter any cable breaks, or cable replacements in the relevant section of the Winch Logbook (kept in the cab).
- Correct "Closing-down" procedure at end of day's operations, to include-
    - Disconnect and reel-in comms cable.
    - Disconnection and stowage of earthing rod and cable.

- Chocks raised, drogue ‘chutes stowed, winch attached to tow vehicle and safety chain/wire fitted, wheel brakes off.
- Tow winch back to equipment hangar, again using a defined route and remembering very low speed essential on down-hill slope. Park winch in hangar. **Ensure master switch is “off”.**

- Specific training relating to winch towing, to include –

  - Practice reversing vehicle / winch combination.

  - Practice at ‘backing very slowly’ onto winch towing attachment.

  - Emphasise the additional great care needed when towing the winch, with particular regard to low speed (very low when leaving and approaching the hangars area) and pre-selection of the towing route.

- **In the event of a thunderstorm** close enough to the club to stop flying – disconnect the comms lead from the winch. A lightning strike on the field may do serious damage to the communications equipment.

Task A6: Duty Launch Marshal.

It is a club requirement that all solo pilots aged 16 and over join the DLM rota.

The Duty Launch Marshal (DLM) working with the Duty Instructor is the controlling or organising person at the launch point. The role is to organise and sort the flying list so that pilots are ready to fly when their turn arises, ie briefed, ready, sorted with back rests, cushions etc. This helps to create an efficient launch rate and lessens down time immensely. In this case delegation is key to the role !!!

For a member asked to join the DLM rota, the best and simplest training routine must be to 'read and inwardly digest' the detailed notes in the **DSGC Operations Manual**, and then practise the required duties under the guidance of an approved Trainer / Authorizer.

The over-riding factors that need to be emphasised are:-

- Maintain liaison with the Duty Instructor and Launch Controller.
- Accept the responsibility of the task and 'run the ship' in a thoughtful and courteous manner. Virtually all Club members will help willingly with all the tasks, if asked.
- Monitor the flying lists and ground tasks (winching, retrieving, logging etc.) and try to maintain fairness in sharing the general workload.
- On busy days try to ensure that gliders at the head of the launch queue are ready to launch on receipt of the cable.
- If flying is to continue over lunch – encourage those who have volunteered to assist to have their lunch either earlier or later – so that flying is not disrupted.
- Be aware of any trial flights due during the period of duty. Introduce the visitor to their pilot and ensure the Launch Controller is aware of required information.
- Practise attention to safety issues; in particular, be alert to presence of visitors, their children and dogs, which may become a problem! Enlist the help of other Club members, where appropriate.
- Enjoy the experience; it's not nearly as onerous as it sounds!!

Whilst the DLM rota is limited to solo members aged 16 years and over, younger members (14 years and over) may "practise" DLM tasks under the supervision of an authorized member.

Part 2 – Record of Training and Authorisation.

Only individuals who have been authorised, having received appropriate training, will be permitted to undertake **unsupervised** any of the activities described in this Handbook.

Authority to undertake activities unsupervised is to be recorded in a spreadsheet showing all training tasks and listing all trained and authorized club members. Access to this spreadsheet will be from the DSGC website ("Members Area" – "Training" folder). Newly authorized members should place their updated Training Card in the Ground Operations "In" tray to allow the spreadsheet to be updated and kept up to date.

The appropriate Authoriser is to record authorisation (i.e. "sign off") by initialling, signing and dating the Ground Operations Training Card for the relevant Training Task. **Please also note that authorization also means that the trainee has read and understood the relevant section in the Ground Ops Training Handbook.**

The basic rules governing the authority to train and certify competence are set out on page 2 of this Handbook, paragraph 5. These rules are amplified below.

With the exception of the restrictions on our youngest members, completion of training on a **Basic Task** signifies competence. After a 6 month consolidation period authorisation may be granted to deliver training in that task to other club members and sign them off as competent accordingly.

The **Advanced Tasks** must, by their very nature, be handled in a different manner. Authorization signifies competence to undertake the task unsupervised but will **not** also indicate the right to train or authorize others. Whilst any authorized member may **demonstrate** the task to an untrained member, only specifically nominated individuals will be authorised to deliver training **and** to certify competence, i.e. "sign off",

A list is maintained of all individuals who are formally qualified to train and authorise for each of the Advanced Tasks. The list is on the DSGC website (training area) and is also in hard copy with the paper Ground Operations Handbook in the clubroom.

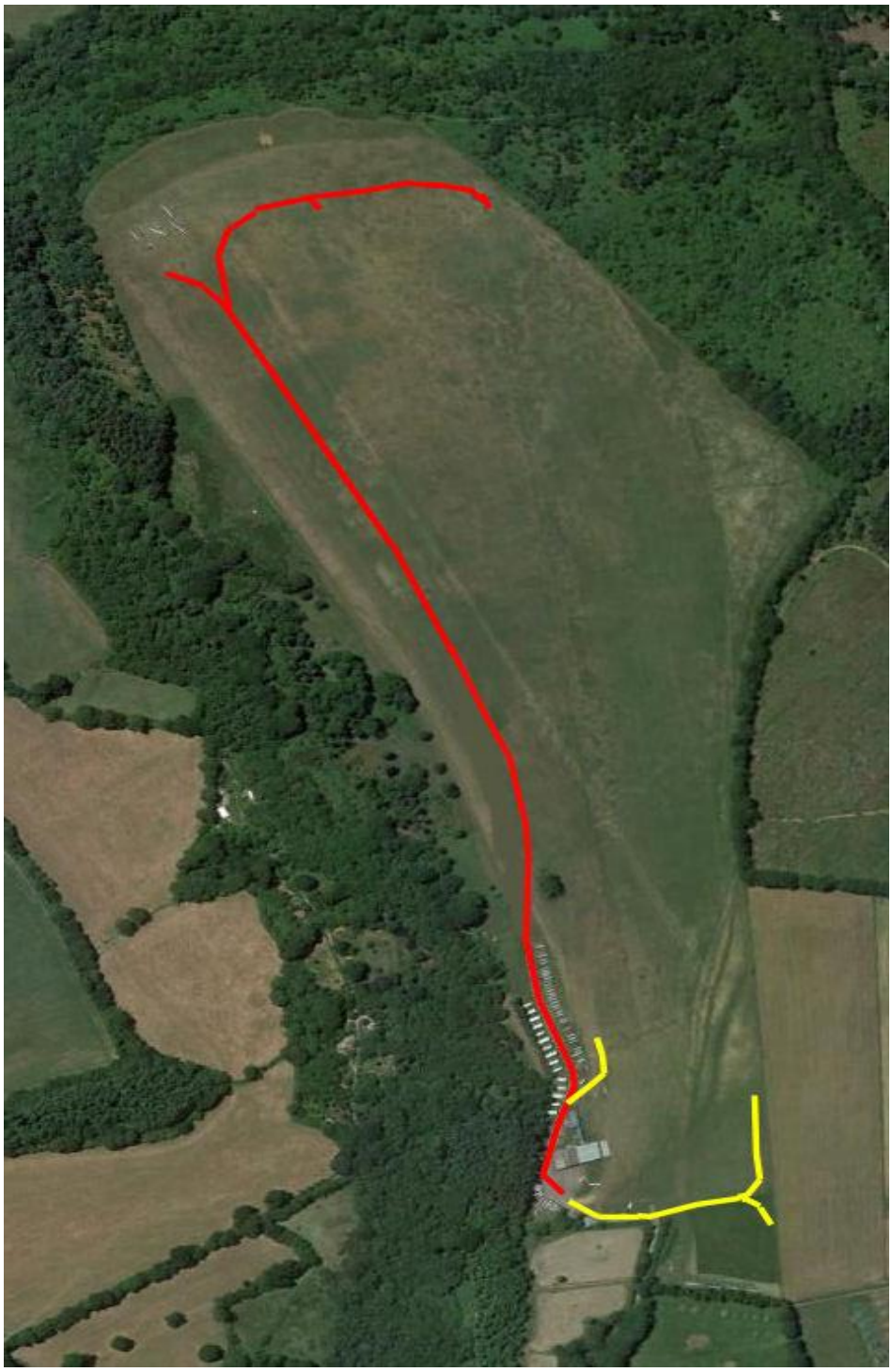
When a member has been trained and authorized in a new Ground Operation skill, and the authorizer has completed the relevant section of the Ground Operations Training Card (signing with name, signature and date of authorization) the card should then be left in the "In" box in the clubhouse briefing room so that the training record may be updated.

Individual training progress in Ground Operations will be shown in a spreadsheet linked from the DGSC website:

Members Area >> Training >> Members' status for ground operations tasks.

Annex A: Towing Routes

Routes around the field when towing the Winch or Launch Control Trailer.



Do not tow the Winch or Launch Control Trailer on any part of the field that is used for takeoffs and landings.

Annex B: Visitor and New Member Minimum Safety Briefing Points

(This briefing contains the minimum safety points to be briefed on first arrival but in no way restricts other relevant content being added on the day)

This briefing is to be given to all visitors and new members, preferably in the clubhouse when visitors arrive before entering the airfield.

GENERAL SITE LAYOUT

- Facilities in clubhouse and location of amenities.
- Trailer and caravan parking
- Launch points
- Cable Routes
- Bridleway / Footpath

MANUALS

- Club handbook and Manual location (Info as req)

CAR PARKING *(Driving must be at low speed at all times)*

- Safe and Permitted parking areas
- Airfield driving of private cars is not permitted unless authorised, please park in the area provided by the clubhouse, cars are not to be locked when out on the airfield.

GENERAL AWARENESS

- Site and airfield layout, buildings, launch points, cable runs, bridle path and public / horse rider access.
- Car Parking, do not lock if parked on the airfield.
- Visitors to wear Hi Vis vests at all times when on the airfield. (Except when flying)

AIRFIELD SAFETY

- Explain all around observation is key at all times, both looking in the air and on the ground, for your, and others safety to be maintained.
- Explain layout of the days operation, to include: Launch point / Landing areas / Cable runs / Moving cables / Vehicles and aircraft movement / Propellors.
- Please cross from a to b, as quickly as possible, gliders and motor gliders can land at any time and from any direction!!! Do not loiter in the open areas. If you see an aircraft coming in to land, wait before you start to cross, if you are part way across move to your nearest side / fence as quickly as possible. *If you are unescorted please walk around the airfield perimeters.*
- If outside of the seating area / observation point you should be escorted by a member of the club at all times, your host or instructor will arrange this if required.
- Please do not wander off, airfields are dangerous places, with very fast moving items of equipment.
- If you need to return or have any questions, please do not hesitate to ask any club member who will only be to happy to help.
- If you have any questions, want clarification or are unsure of anything please ask.

Many thanks stay safe and enjoy your visit and / or flight.

Annex C:

Example Glider Launch Control Sequence - WINCH

(Remember release checks on first launch of the day)

Firstly

- Check with launch control the cable is safe to pick up or “CABLE IS CLEAR” announced.
- Move the cable in front of the glider and pull as straight as possible.
- Lay out strop and link assembly in front of the glider ensuring no twists or knots present.
- Check the strop linkage to ensure they are not loose, Check the colour of the weak link is correct for the glider to be launched. (Black, Red, Blue etc).
- **Do not disturb the pilot if he is doing his preflight checks.** Wait until he has finished.
- Await the pilots instruction to connect the cable, which is “**CABLE ON**.” Safety check with the pilot by asking “Are the canopy and brakes, closed and locked?” await positive confirmation.
- Ensure there is a wing runner in place, (on downwind wing and wings are held level), people are clear from the front of the aircraft, also a visual check there are no obstructions ahead on the airfield.
- Confirm with pilot **“BRAKES AND CANOPY ARE CLOSED AND LOCKED”** wait for a positive answer. Attach the cable (tost) ring to the glider ensuring it is on the correct release hook for the tow required, aero or winch. Hold the ring in the release and shout “Close” to the pilot, who will release the hook to close.
- Stand and give the cable a good firm steady pull, (not a jerking movement), confirm with pilot cable is on and secure and show and confirm weak link colour with pilot.
  “CABLE ON AND SECURE AND YOU HAVE A *BLACK* LINK.”**
  Lay out straight at approx. 30 deg from the glider, do not just drop it on the ground.
  (relevant colour for glider being launched)**
- Stand to one side where you can be seen by the pilot and LC. (The LC is passing your signals to the winch driver.)
- Take a GOOD look above, on both downwind legs and the approach for any incoming aircraft, and if clear confirm to the pilot **“ALL CLEAR ABOVE AND BEHIND”** (If not clear hold and wait until the danger has passed. It may be possible to launch with gliders on the downwind leg but if in doubt ask an experienced member or instructor, if in doubt DON’T.)
- The words of command to launch are given in a specific order which is the sequence the winch driver will operate the controls, **Make sure you are visible to the person in launch control !!! The order is “Glider Type, Which Cable, Take Up Slack, then “All Out”. So:**

  “ASK 21”** on the **“SOUTH CABLE**”, “TAKE UP SLACK”,** (low arm swing,)
  wait for the wheel to move slightly and the give
  “ALL OUT, ALL OUT” (High arm swing) and then watch the glider climb to approx half way.

- It is IMPORTANT that you continue to watch the glider until it is approximately half way up the launch as you may need to stop the launch if the cable fails or some other issue occurs. *THIS IS OF PARTICUALR RELEVANCE AS THE WINCH DRIVER CANNOT SEE THE GLIDER UNTIL THIS POINT DUE TO THE CAMBER OF THE FIELD.*
- Once launched, job done and on to the next, but before touching the next cable wait until the **"CABLE CLEAR"** has been given by the Launch Control.
- What if it goes wrong or a problem occurs ?
- The STOP signal is:

  BOTH ARMS RAISED STRAIGHT ABOVE YOUR HEAD and shout STOP

- ANYONE CAN STOP THE LAUNCH AT ANY TIME IF SOMETHING UNSAFE OCCURS,
- SAFETY IS EVERYONES RESPONSIBILITY.

Job done it is now in the winch driver hands.

BE SAFE, STAY SAFE

Example Glider Launch Control Sequence - AEROTOW

(Remember release checks on first launch of the day)

- A tow plan is involved which has a very dangerous fast moving propellor on the front.
- When the glider is in position (and generally when ready to launch) the tow plane will position itself in front of the glider.
- When the tow plane is positioned and stationary, engine will probably be running, only ever approach from the rear.
- Withdraw the tow cable from the guide funnel below the tow plane rudder, pull out to the front of the glider.
- Await pilot instruction to attached cable. **"CABLE ON"**
- Confirm with pilot, airbrakes and canopy are closed and locked, **await positive pilot confirmation.**
- Attach cable confirm **"ON AND SECURE"** and withdraw to side.
- Look and confirm to pilot - **"All clear above and behind"** as normal for a winch launch
- The Pilot will complete launch by radio with tug pilot.
- Watch surrounding area stays clear until the tow combination is off the ground.

Note:

No strop is involved in an aerotow launch as the weak link is built into the tow plane cable.

Annex D: Example - Cable Retrieve Responsibilities

When driving cable retrieve:

- On completion of first launch cable retraction to winch, prepare cable for tow out from winch, this is to be done in conjunction with the winch driver and when safe to do so.
- Following the second launch cable retraction, position vehicle in front of winch for cable tow out and attach cables to retrieve vehicle, via tow out weak link.
- Place strop and rope neatly (coiled) in the back of the retrieve vehicle. (This is to prevent drag wear on rope and links, it also prevents them being dragged through foreign material.)
- Drive the retrieve vehicle in a straight line back to the pre arranged launch point position which is marked with traffic cones.
- The return speed should not be more than ***35 KPH.***
- A thorough scan of the sky for downwind and approaching aircraft or gliders is to be maintained at all times. (Appropriate action is to taken accordingly)
- When approaching the cones reduce speed gradually well before the cones and drift to a stop at the cones. (Harsh braking will cause the winch drums to spin and will cause an over run cable tangle at the winch)
- Reverse Retrieve Vehicle slightly using on board camera to take tension of the cables, care is to be taken to make sure no one has walked behind prematurely. Vehicle is to be in “PARK” while cables are being released.
- Ensure cables clear from vehicle, that is YOUR RESPONSIBILITY and return to winch and start again.
- **DO NOT STOP SUDDENLY WHEN TOWING CABLES UNLESS IT IS A EMERGENCY. IF YOU DO STOP SHARPLY YOU MUST CHECK WITH THE WINCH DRIVER BEFORE STARTING TO TOW OUT AGAIN.**

Annex E: Glider Retrieving Responsibilities

When towing gliders anywhere on or around the airfield ensure:

- You are approved and signed off for the vehicle you are using.
- Ensure the vehicle is fit for purpose.
- The tow rope is long enough and fit for purpose. If in doubt ask!
- Use a route that will cause least impact on the landing area.
- Do not drive too close to the glider, ensure it is not about to be turned as this may cause a collision. Approach glider slowly to avoid and possible slip or skid occurring and possible contact.
- Pull up in front of the glider, to the glider in an arc, do not turn on the spot, as this could cause damage to the airfield.
- If you are accompanied by a young person, be aware of the supervision responsibilities and limitations of small people.
- Start the tow very slowly, and then do not exceed a gentle walking pace.
- ENSURE YOU MONITOR THE GLIDER AND WALKING PEOPLE CLOSELY, ENSURING YOU ARE CLEAR OF OTHER OBJECTS.
- A thorough scan of the sky for downwind and approaching aircraft or gliders is to be maintained at all times. Appropriate action is to be taken accordingly.
- Choose a route back that cause the least impact on any approaching aircraft or gliders.
- ***If you are in the field and towing back, and you see an approaching glider, make a judgement call - if you kept going would that improve the landing area available for the incoming aircraft. This decision will be made by the P1 of the aircraft being towed. IF IN DOUBT STOP!!!***
- Tow the glider back to the launch point or hanger as appropriate.

Annex F: DSGC – WEST WINDSOCK

Maintenance Information

There is no routine maintenance for the structure.

The windsock will need repair or replacement as wind and weather take their toll.

TO LOWER THE WINDSOCK MAST

No tools or equipment are needed

Unravel the stay rope and lay it on the ground.

The mast is stable unless there is a strong westerly wind in which case be prepared for the mast to rotate of its own accord or leave it until a calmer day.

TO LOWER THE WINDSOCK MAST cont.

To lower it, use the 6mm hex key stored in the base plate to unscrew the cap head bolt. Remove it and store it and the key on top of the fixing plate.

Lift the base of the mast clockwise. In calm conditions once it passes about 35 degrees it will continue unaided.

The rope stay will stop it at a convenient height for removal or maintenance of the sock

TO RAISE THE WINDSOCK MAST

When work is complete raise the mast using the stay rope. After it reaches around 35deg it will continue into the vertical position.

Insert the cap head bolt and pinch it tight and replace the hex key in the hole in the base plate.

Changes and Revisions Page

Reissued - Manual rewritten and updated	Sept 24
Addition of Annex F – West Windsock Maintenance and Use	Mar 25