



Mini Gliding Course

Information Booklet



Darlton Gliding Club Ltd, The Airfield,
Tuxford Road, Darlton, Newark, Notts,
NG22 0TQ.

Introduction

On behalf of our members may I welcome you to Darlton Gliding Club; we hope you will have a very enjoyable experience on your Mini Gliding Course. Please do not hesitate to ask any member of the club for help and information if you require it, we will be very happy to assist you.

Club Chairman

This booklet is intended to give you some background information on gliding and also provides a record of your flying times and activities. Get your course instructor to fill in the details on page 16 when you have finished flying.

Personal Requirements and Health

Generally, if you are fit enough to drive a car, you are fit enough to fly. Instructors must meet a slightly higher standard. Because of the size of the aircraft, a maximum allowable (clothed) weight of 102kg (16stone) and height 6 ft 3 inches (192 cm) are imposed; if you are near to these limits you should discuss it with your instructor. There is no age limit to gliding if you are physically fit, but you must be over 14 years old to fly solo.

Name of Course Member:

Date of Course:

Instructors:

.....

Health and Safety

On arriving at the club follow the signs to the clubhouse where a member of the club will receive you. Please keep a good lookout for gliders about to land. They make little or no noise and often approach from unexpected directions. If there is no one at the clubhouse phone the launch point mobile 07772704178 to let the duty crew know you have arrived and someone will come across to assist you.

PLEASE DO NOT DRIVE YOUR CAR ONTO THE RUNWAY SECTION OF THE AIRFIELD, KEEP TO THE ROAD AND PARK IN THE CAR PARK NEXT TO THE CLUB HOUSE.

Before flying you will be required to fill-in and sign a temporary membership form, this gives you a three months membership of the Darlton Gliding Club, allowing you to fly as a club member. Also, it would be helpful if you know your weight in LBS, you can always use the scales in the clubhouse.

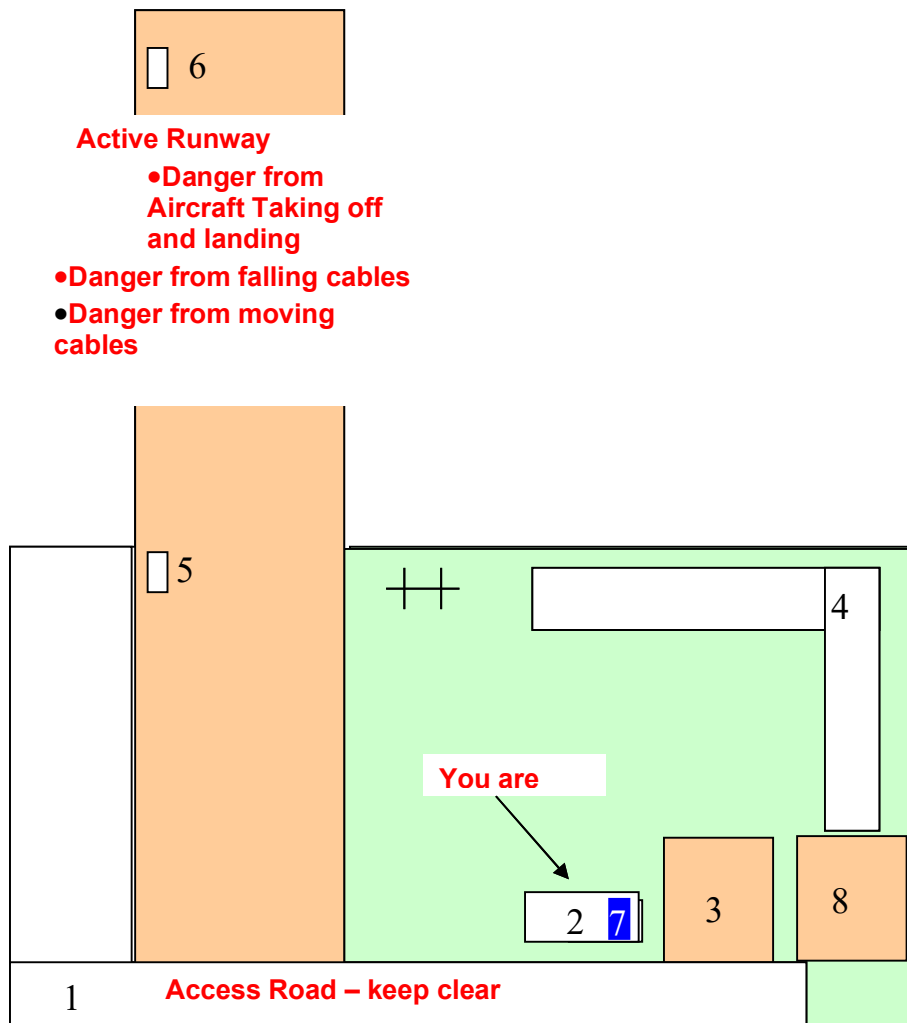
You and your guests are welcome to watch flying from around the clubhouse and within the fenced area around the clubhouse. Your guests may also accompany you to the launch point when you are taken there for your flights.

Please do not venture onto the Runway or go into the hangar without prior permission from a club member. **ORANGE AREA**

Important:

For your own safety and for that of others, on no account walk onto the runway without permission.

Darlton Glider Site Layout



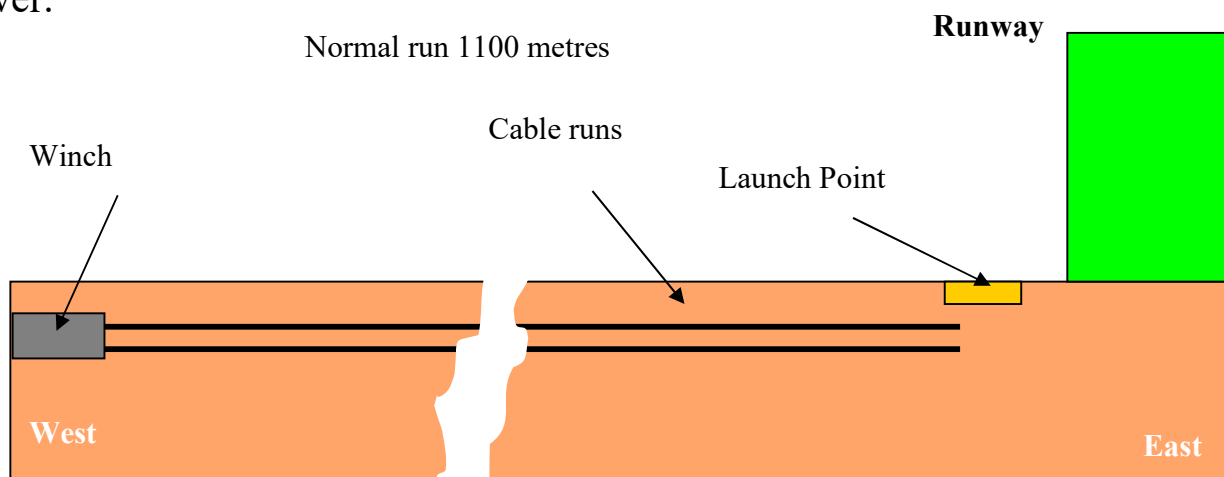
Key

- 1 Main Entrance
- 2 Clubhouse
- 3 Hanger
- 4 Glider Trailer Park
- 5 Control Bus / Car
- 6 Winch
- 7 Toilet
- 8 MT Hangar



Safety on the Airfield

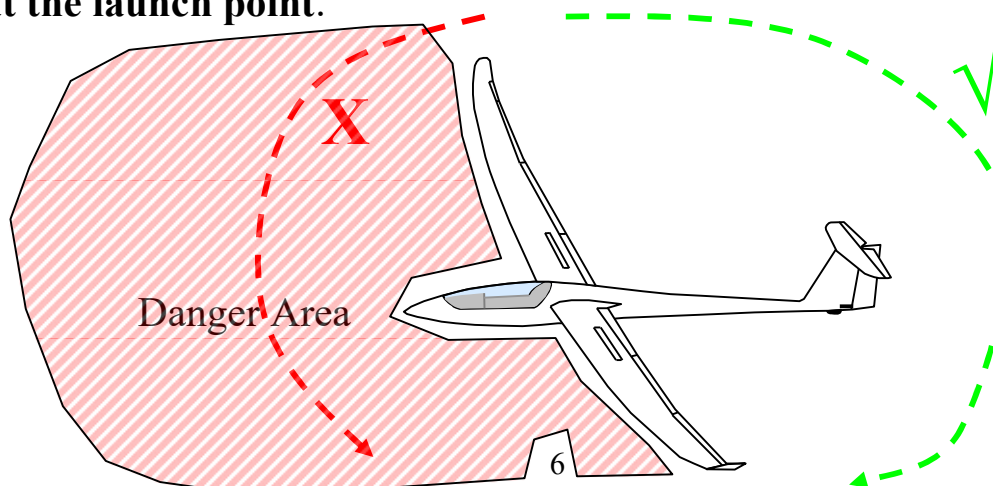
Gliders are launched using the winch, which is located at the end of the airfield; it could be at the East or West end depending on the wind direction. The glider is attached to the winch with stranded steel cables that run the full length of the airfield. These cables could cause serious injuries if they fall on a person. You should always be aware of the danger of the possibility of been hit by a cable. Always keep a good look out when the cables are fall after been released by the glider at the top of the launch or accidental cable break. Never pick a cable up when the winch is under power.



When on the airfield you should always keep a good look out for gliders landing. They make very little noise and may be landing from an unexpected direction. The normal direction would be into wind landing next to the launch point control bus. In this area you should keep a particular good look out.

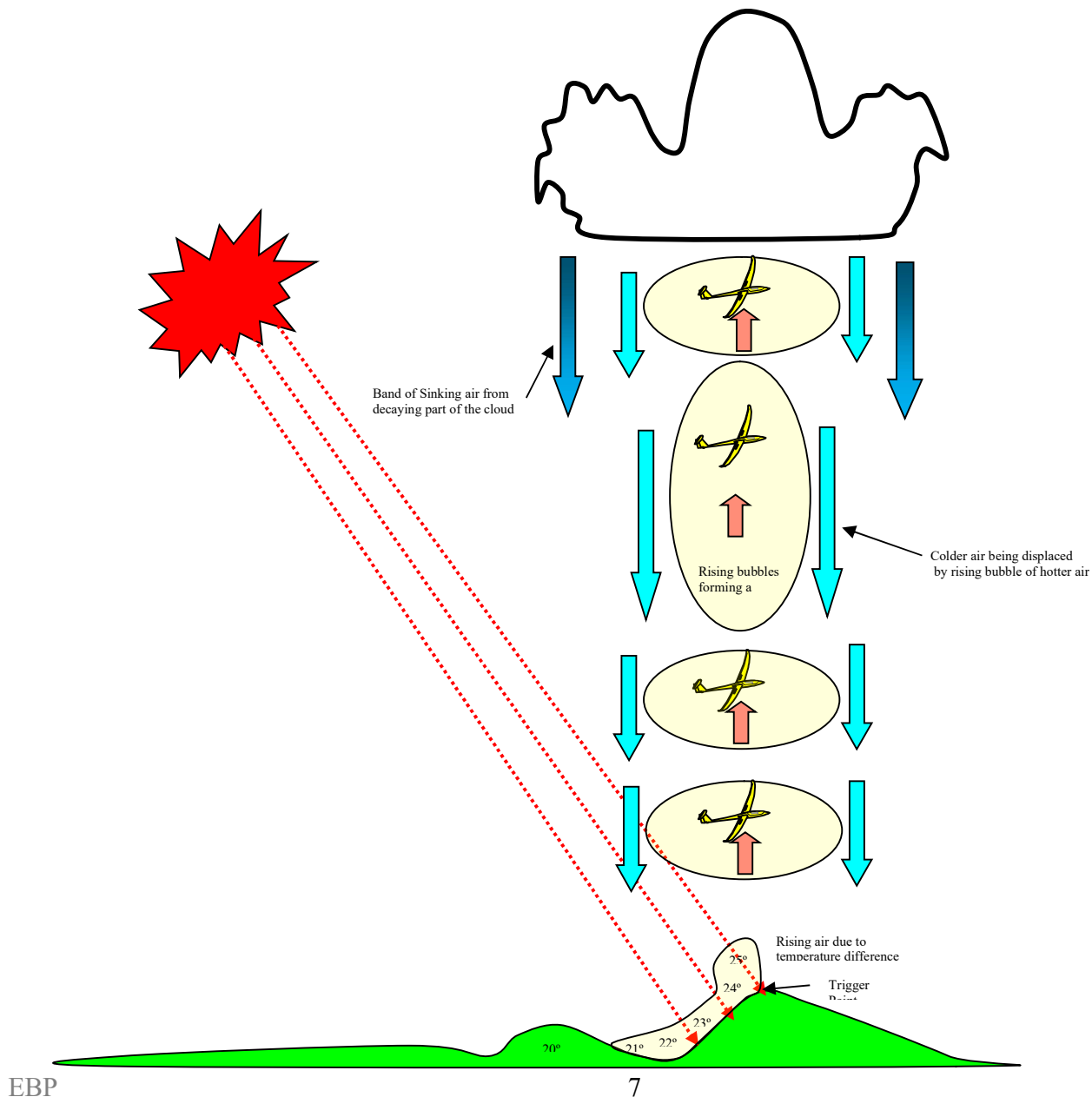
If you find your self on the landing area and a glider is on approach then clear the field as fast as possible by moving to the edge.

Always keep clear and behind a glider that is about to launch, **never walk in front of a glider at the launch point.**



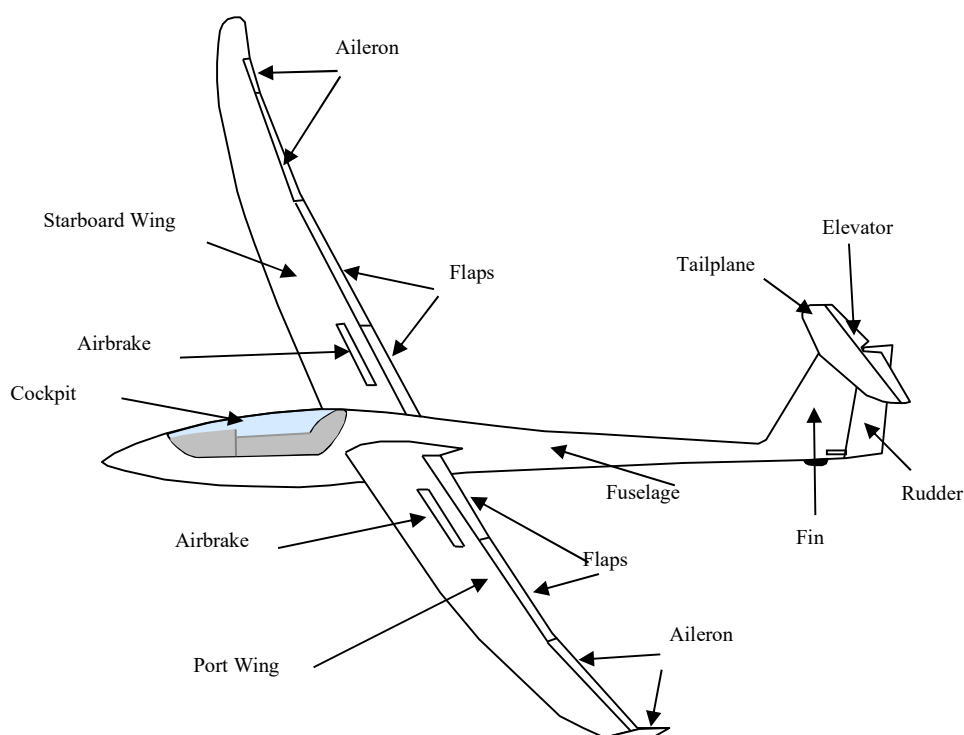
Thermal Soaring

The most common type of lift is the thermal, which is a rising current of warm air that has been heated by the sun. As the sun heats the ground, the air near the surface gets hot. Once the air is warm enough, it will start to form a bubble and rise. As the air rises, it starts to cool, until eventually it is at the same temperature as the surrounding air and in some cases forms a cloud. Depending on the weather, the bubble may rise as much as 7,000ft or higher. The bubble will have areas of lift on the inside (**at the core**) and associated areas of sink on the outside. By circling in the core, you can use the rising air without flying through the sinking air. Although thermals are weather dependant, they can be experienced for the majority of the year, with the main season being March-October. Thermals are generally very easy to find, and you can be taught from an early stage how to use them, making you flights longer and more enjoyable.



Parts of a Glider

In gliding, flying and other sports certain terminologies are used to describe controls, parts. In the diagram below the different external parts of a glider are illustrated. Some of these parts are the control surfaces that allow you to control the flight of the glider And will be explained in more detail later in this booklet.



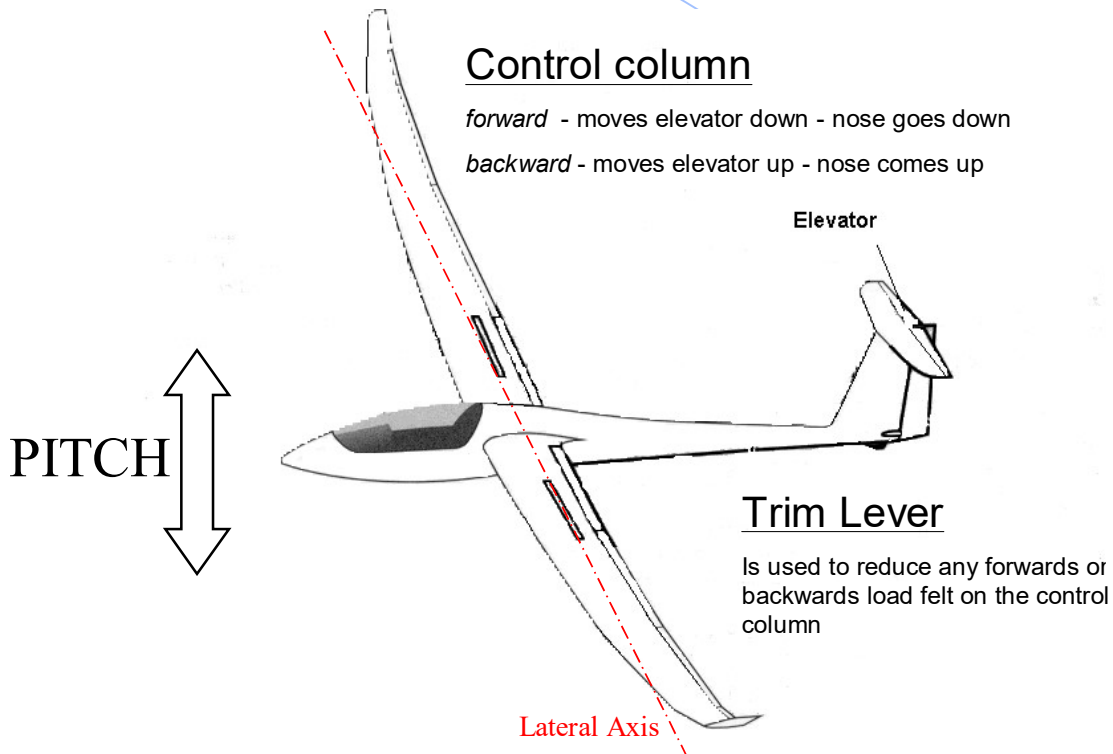
The type of glider that you will be flying on this mini course is the K13 two-seater training glider shown below. This is an excellent training glider with a very good safety record, ideal for initial training.



Primary Effects of the Controls

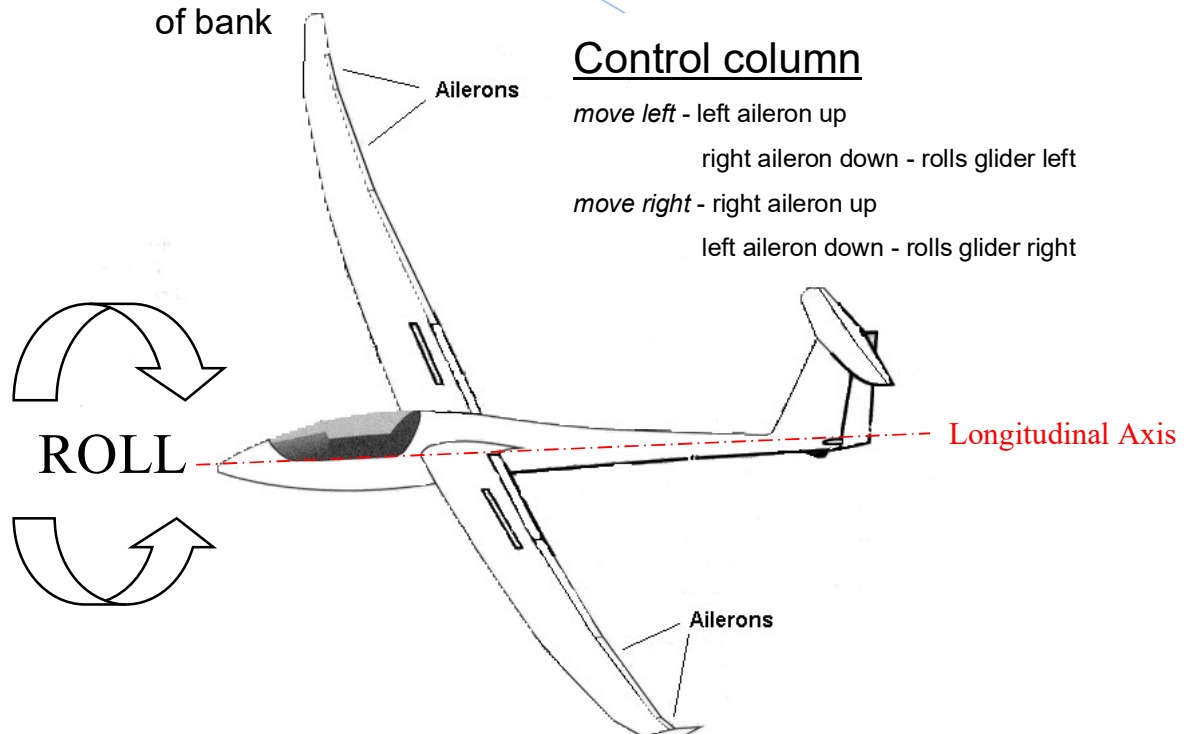
PRIMARY EFFECTS OF CONTROLS – ELEVATOR

Purpose – to control the aircraft in pitch and therefore airspeed



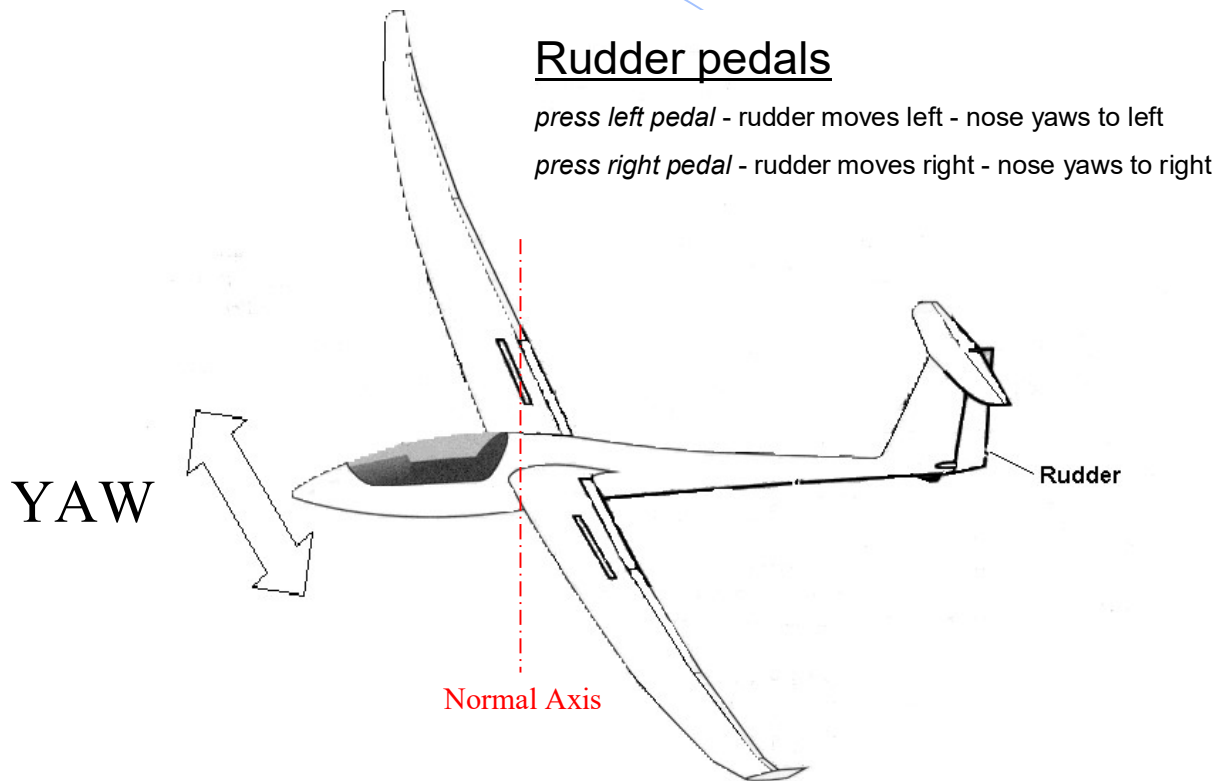
PRIMARY EFFECTS OF CONTROLS – AILERONS

Purpose – to control the aircraft in roll to establish angle of bank

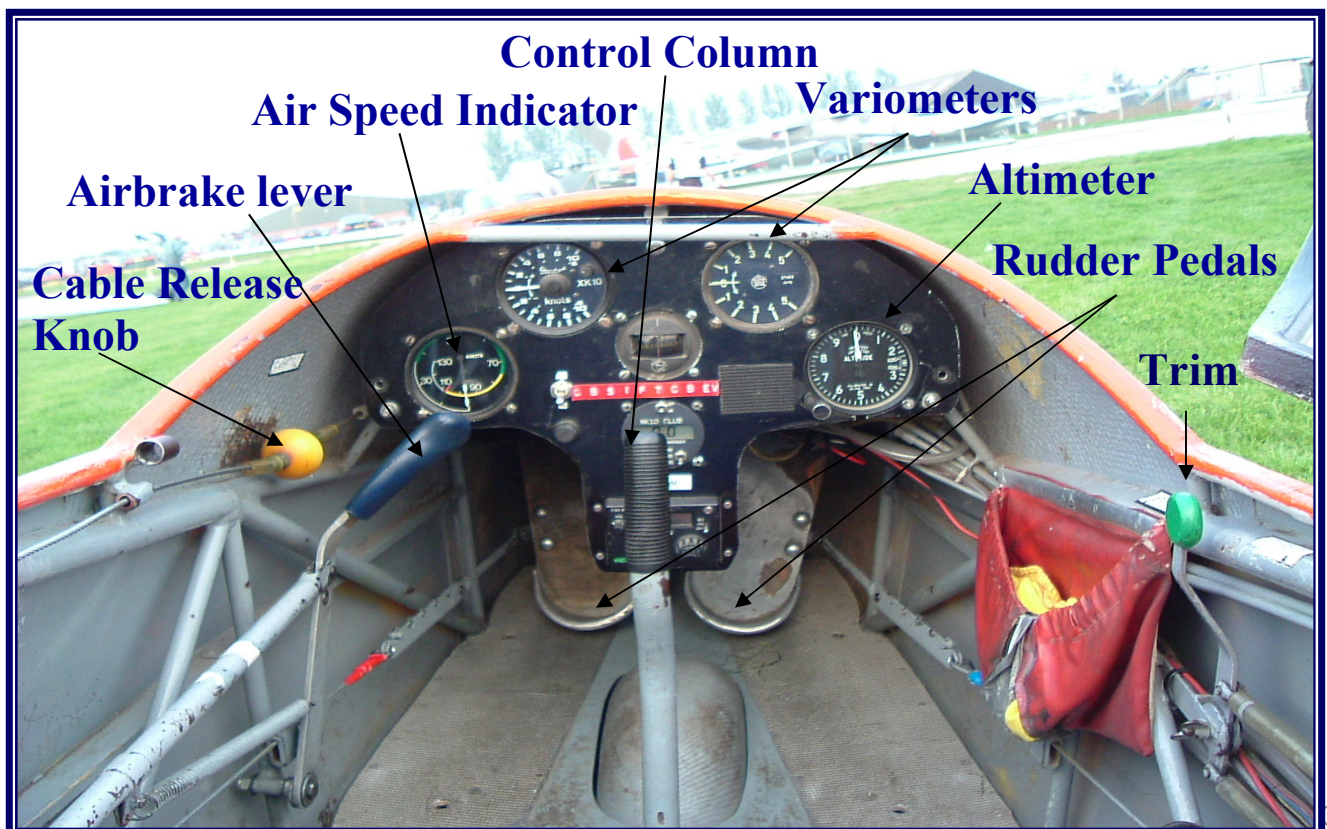


PRIMARY EFFECTS OF CONTROLS – RUDDER

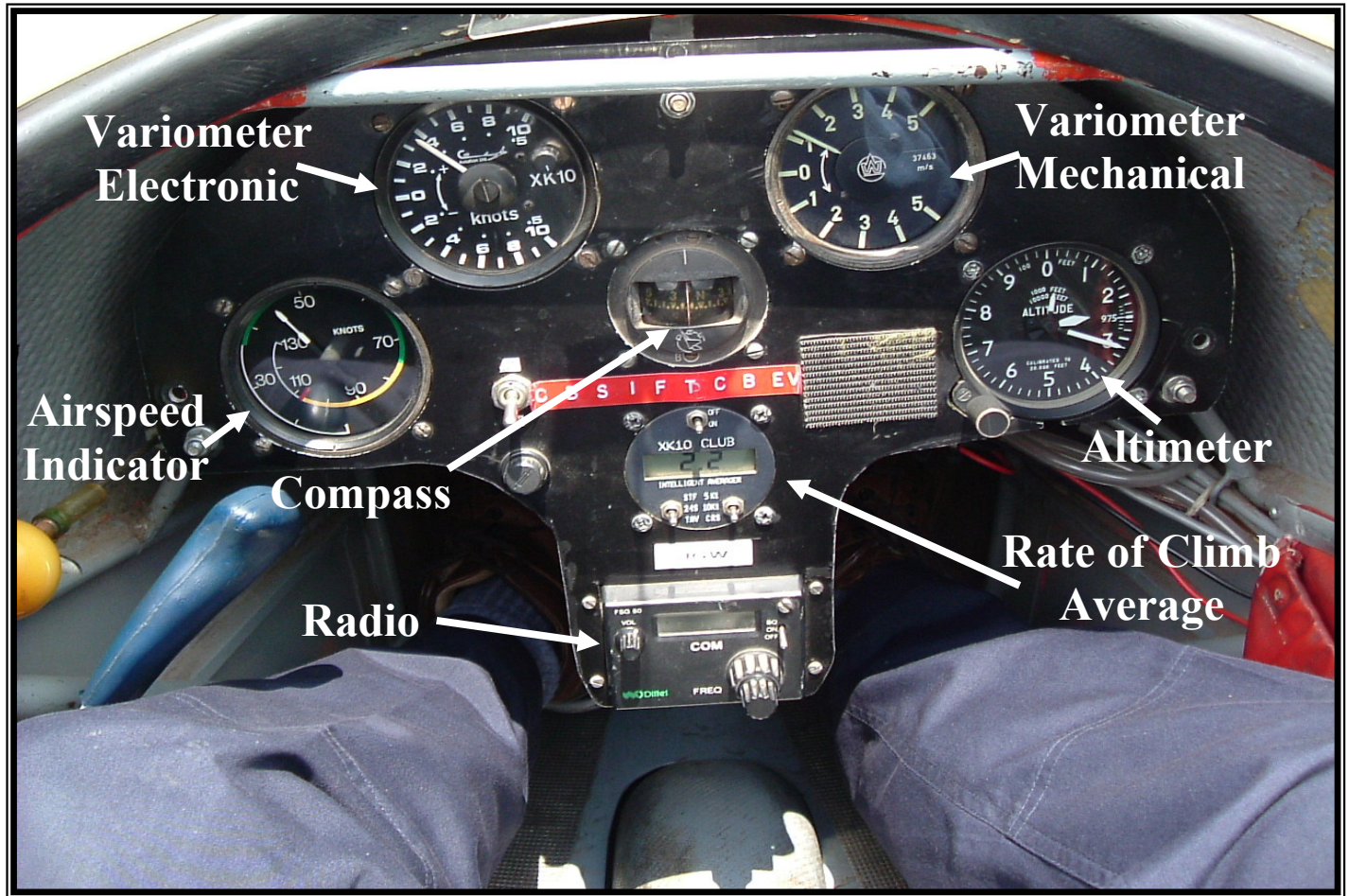
Purpose – to control the aircraft in yaw



Instruments and Controls



Cockpit Instruments



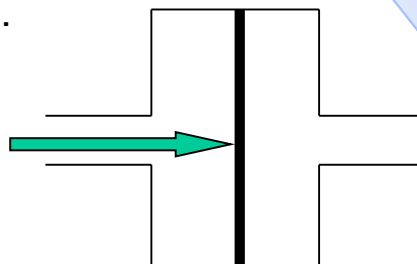
Instruments



Airspeed-indicator

PURPOSE – Indicate the airspeed of the aircraft

Airspeed-indicators measure the difference between total pressure and static pressure by measuring the deflection of a diaphragm.

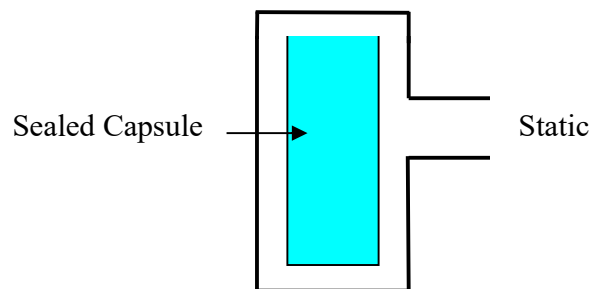




Altimeter

Purpose – to indicate the height of the aircraft using the instruments previously set datum

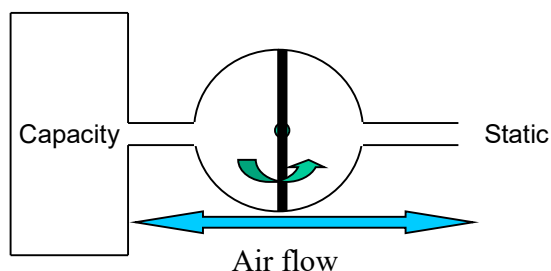
Altimeters measure static air pressure, which decreases with altitude, by the expansion and contraction of a sealed capsule.



Vane type variometer

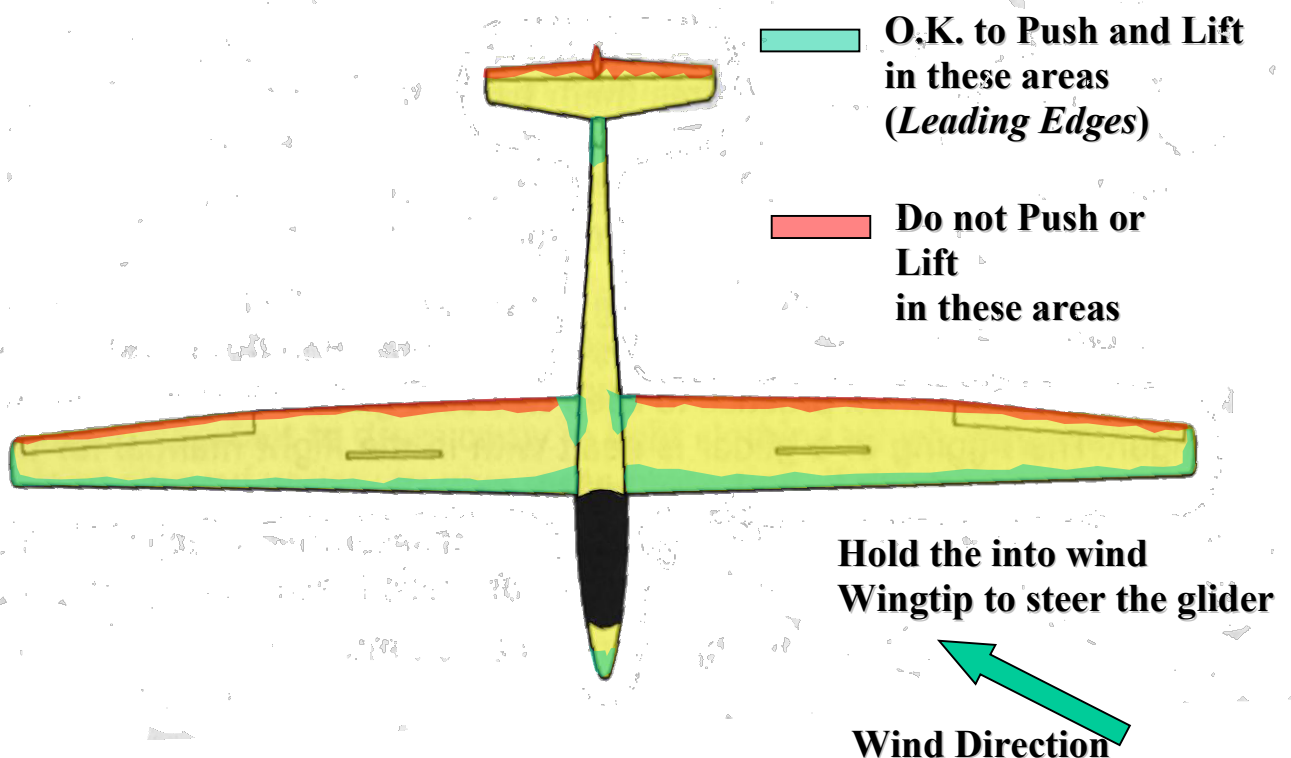
Purpose – to indicate if the aircraft is climbing or descending

Vane type variometer measure the change in air pressure inherent to changes in altitude. The instrument consists of a cylindrical chamber with a precision-fit vane rotating on shockproof jewel bearings and centered by a coil spring. The vane divides the chamber in two: one section is open to static pressure, while the other is connected to an expansion tank, in which a volume of air is insulated against the thermal effects. Differences in pressure are compensated by the narrow gap between vane and chamber wall. There is a change in static pressure when an aircraft climbs or descends, and a differential pressure is established between the two sections of the chamber.



Ground Handling

- Hold the into wind wingtip - steers the glider
- Tow behind vehicle - one person beside the nose to prevent over run. Towrope 1.1/2 wingspans and locate into belly hook
- Push on leading edges of wing - close to cockpit
- Lift only on “grab handles” on rear of fuselage
- Park glider with “into wind” wing down. Secure with tyres
- Don't be afraid to ask !



Pre-Flight Checks

C.B.S.I.F.T.B.E.C

Before every flight, the pre-flight checklist must be completed as follows:

Controls: Move each control individually, you must complete visual checks, i.e. have someone tell you what position each control surface is in, and make sure it corresponds to the control input from the cockpit. Then check all three controls (rudder, ailerons and elevator) together, checking for full and free movements, with no restrictions. **The check is for controls have full and free movements and are operating in the correct sense.**

Ballast: Check to ensure that the aircraft is to be flown within the placard weight limits. A glider should never be flown outside of these limits, i.e. to light or to heavy. The cockpit weight can be increased by installing lead ballast weights to the securing points in the cockpit. **The check is for the Ballast is within limits.**

Straps: Ensure that the straps of both pilots are on and secure. If the aircraft is flown solo, ensure that the straps in the rear cockpit are secured and will not foul any of the controls. **The check is for straps on and secure.**

Instruments: Ensure that where appropriate, the instruments are set to zero. Check that the instruments are reading correctly and there is no broken glass and that electric power is switched on. Also ensure that the instrument panel is secure. **The check is for Instruments all reading correctly, with no broken glass, and set to zero where appropriate.**

Flaps: The flaps, if fitted, should be moved through their full range of movement and set for the take-off. **The check is for flaps full and free movement and set for take-off. or, flaps not fitted to this aircraft.**

Trim: The trim lever should be moved through its full range of movement, and set for the take-off. If the glider is fitted with a trim tab, then it should move in the opposite direction to the elevator, i.e. trim lever forward, trim tab moves up. **The check is for trim full and free movement and set for take-off (your approach speed).**

Brakes: . The brakes should be moved through their full range of movement. Open the brakes fully out, and then to half brake, checking on both wings for symmetry. The brakes should then be closed and locked. Most airbrakes will lock with a clunk, and some may take a great deal of pressure to lock. **The check is for Brakes fully out, symmetrical, brakes half, symmetrical, closed and locked.**

Eventualities: The last check, before the cable is attached, is to pause for a moment and consider your actions in the Event of a launch failure. Make a note of the wind speed and direction. Then make a decision which way you turn should you not be able to land straight ahead from a launch failure, you would normally turn down wind. The most important thing is to state the minimum approach to obtain before carrying out the landing procedure. **The check is in the event of a launch failure. I will obtain a minimum approach speed of 50 kt , 55kt, 60kt etc and land ahead if possible, but if I cannot land ahead. I will turn downwind which today is right/left.**

Canopy: The canopy(s) should be closed and locked, taking great care as the canopy is fragile, easily scratched and very expensive to replace. To ensure that the canopy is locked, you should do a physical check by applying an upward force on the frame. **The check is for Canopy down and locked and resists upward pressure.**

LAUNCH SIGNALS

Pilot indicates he is ready by accepting the launch cable

After checking all around it is safe to launch the signaller indicates by hand waved downwards and clearly says “ALL CLEAR ABOVE AND BEHIND – TAKE UP SLACK”

When launch cable is taut the signaller then indicates by hand waved overhead and clearly says “ALL OUT”

Anyone – at any time - can stop a launch by clearly shouting “STOP”

Course Flying Record

All flights are under the crew capacity of P2

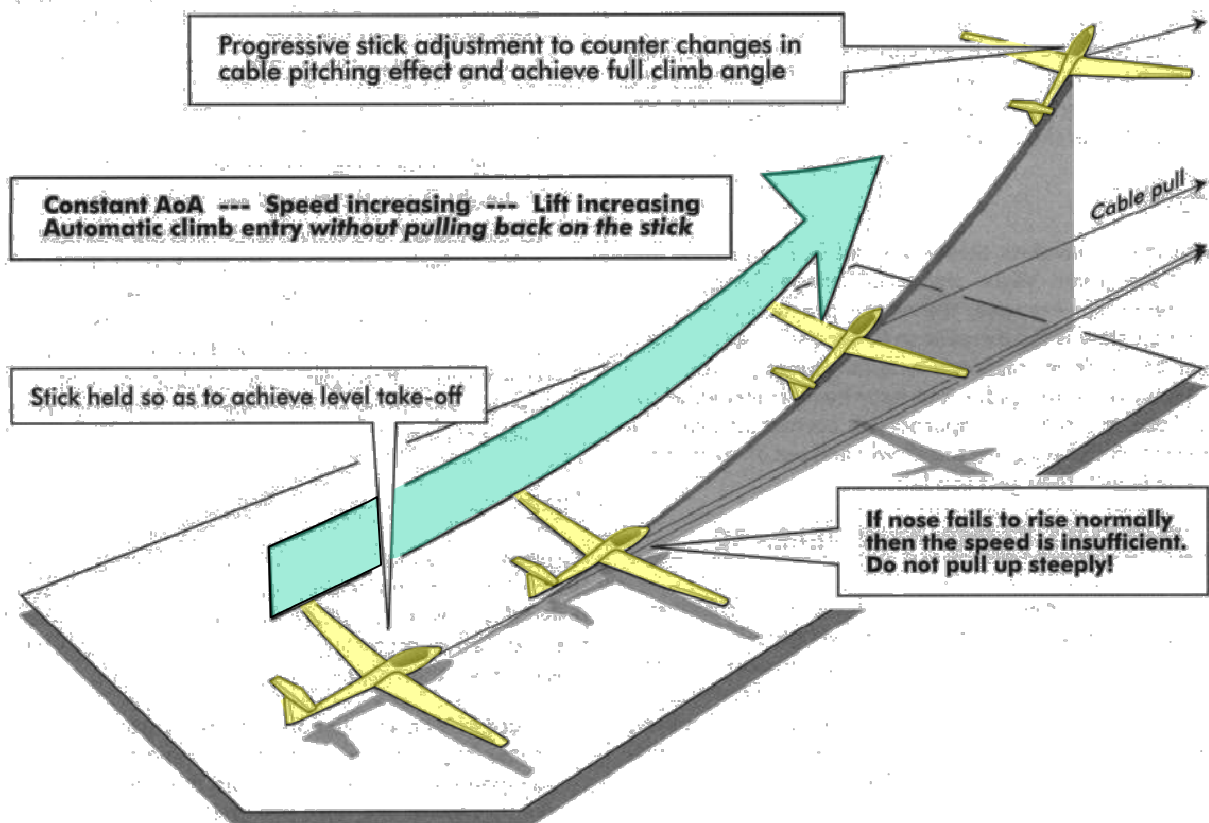
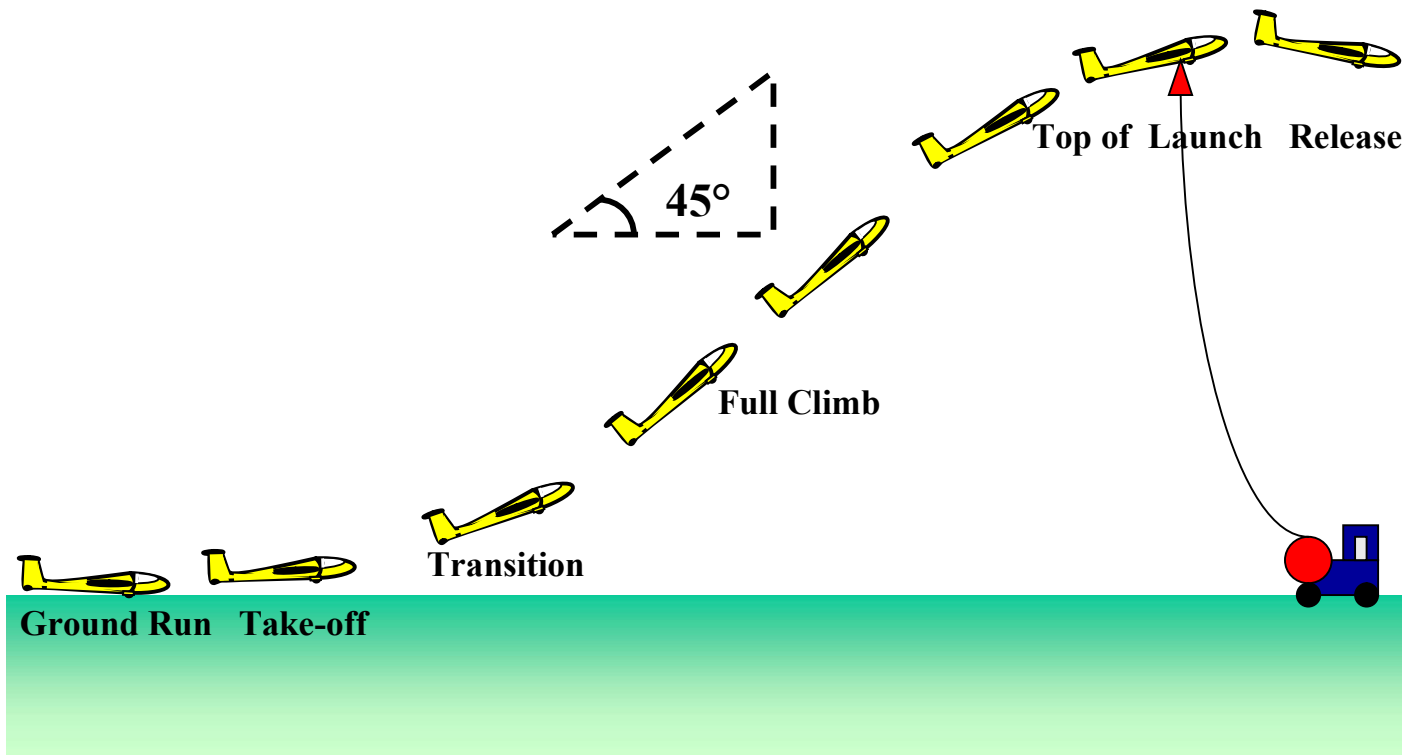
Flight No	Date	Glider Type	Glider No	Place of Launch	Type of Launch	Time		Remarks
						H	M	

Darlington Gliding Airfield and Surrounding Area

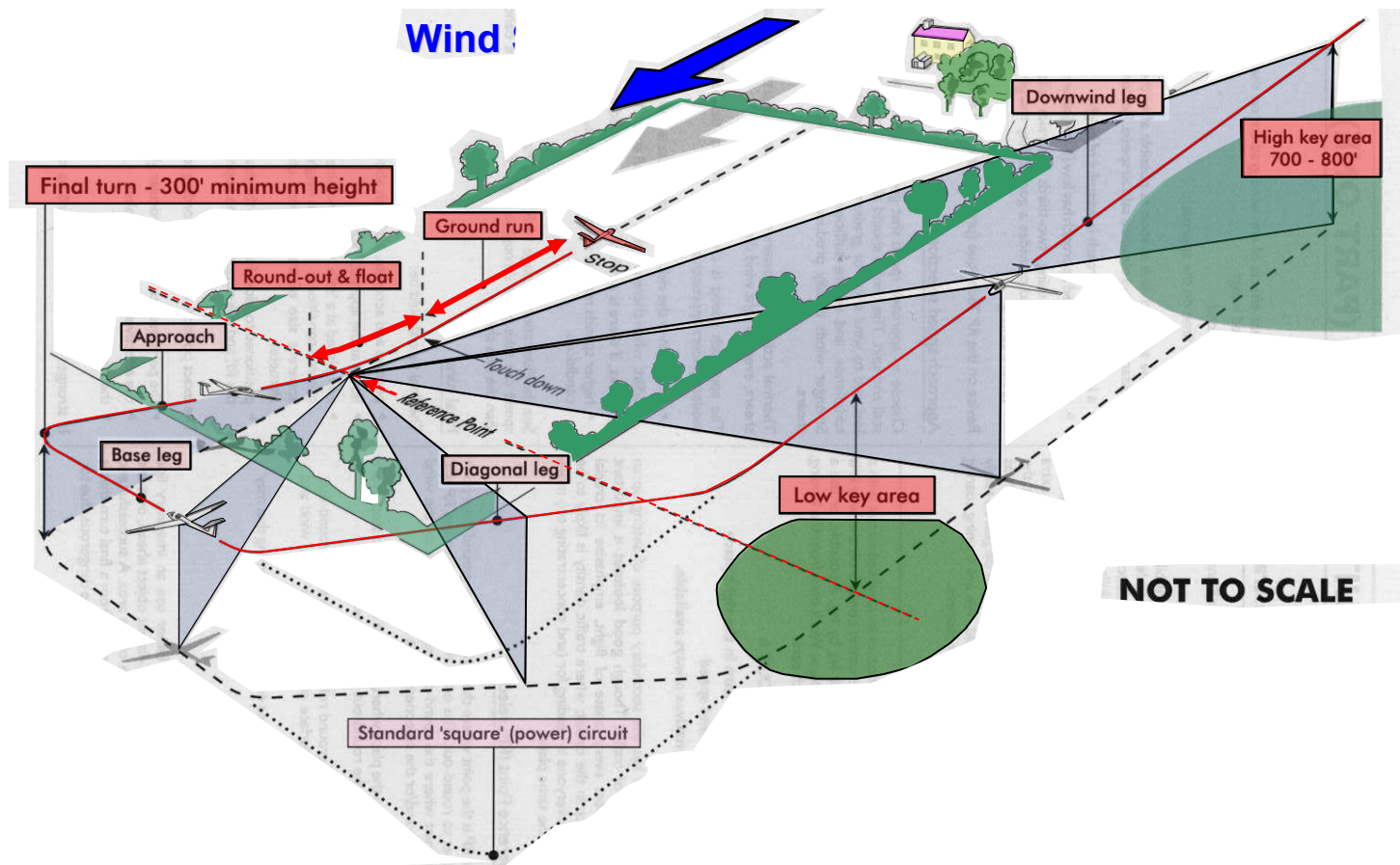


The Winch Launch

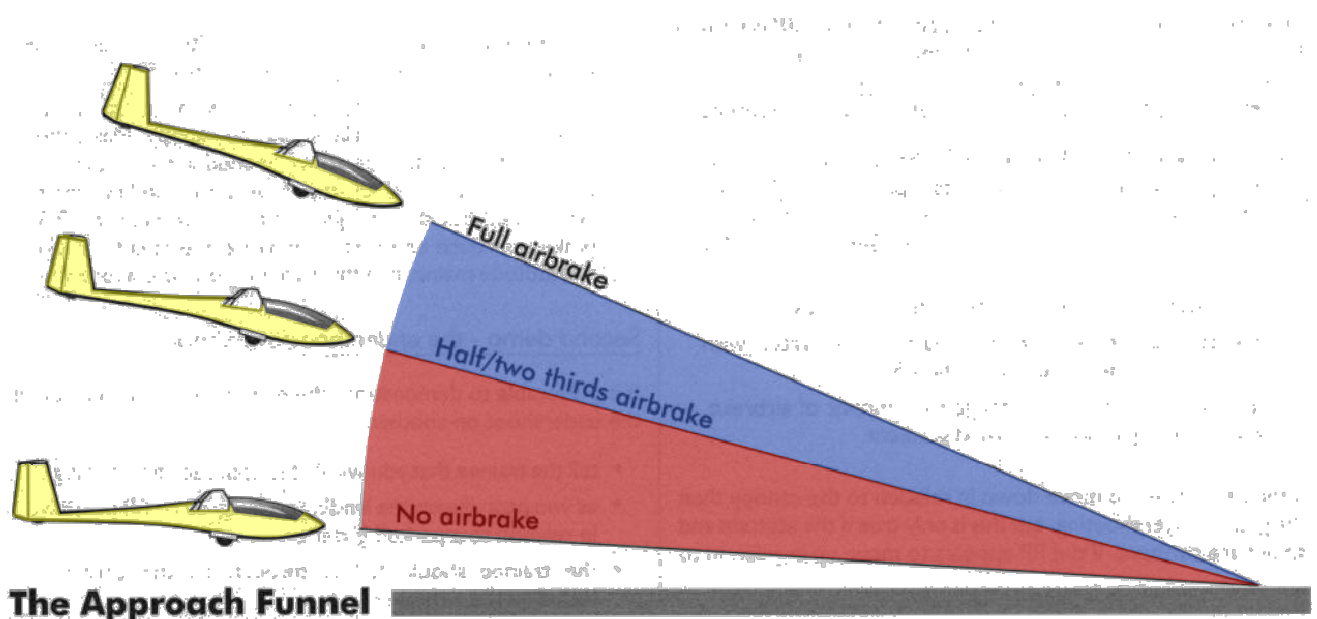
The Six Phases of the Winch Launch



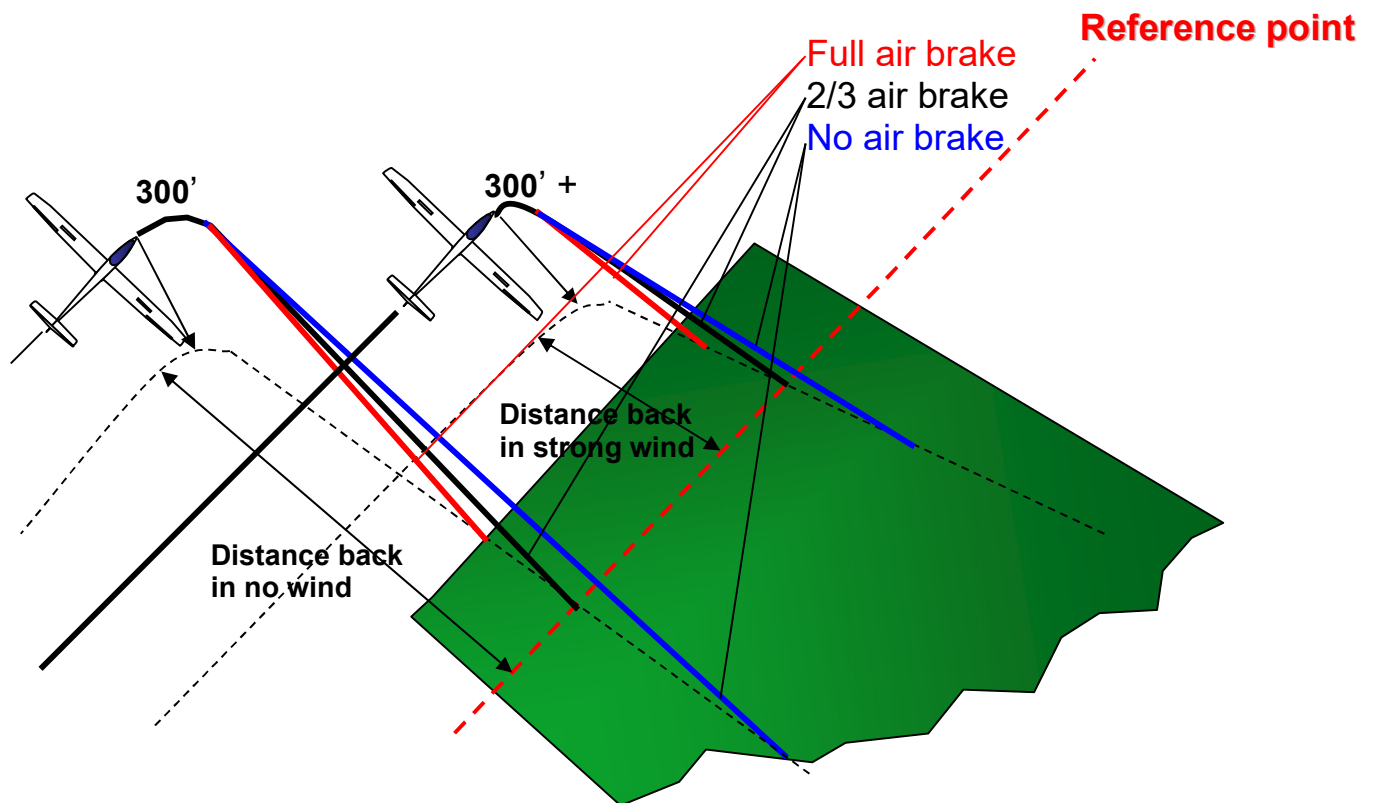
Circuit Pattern



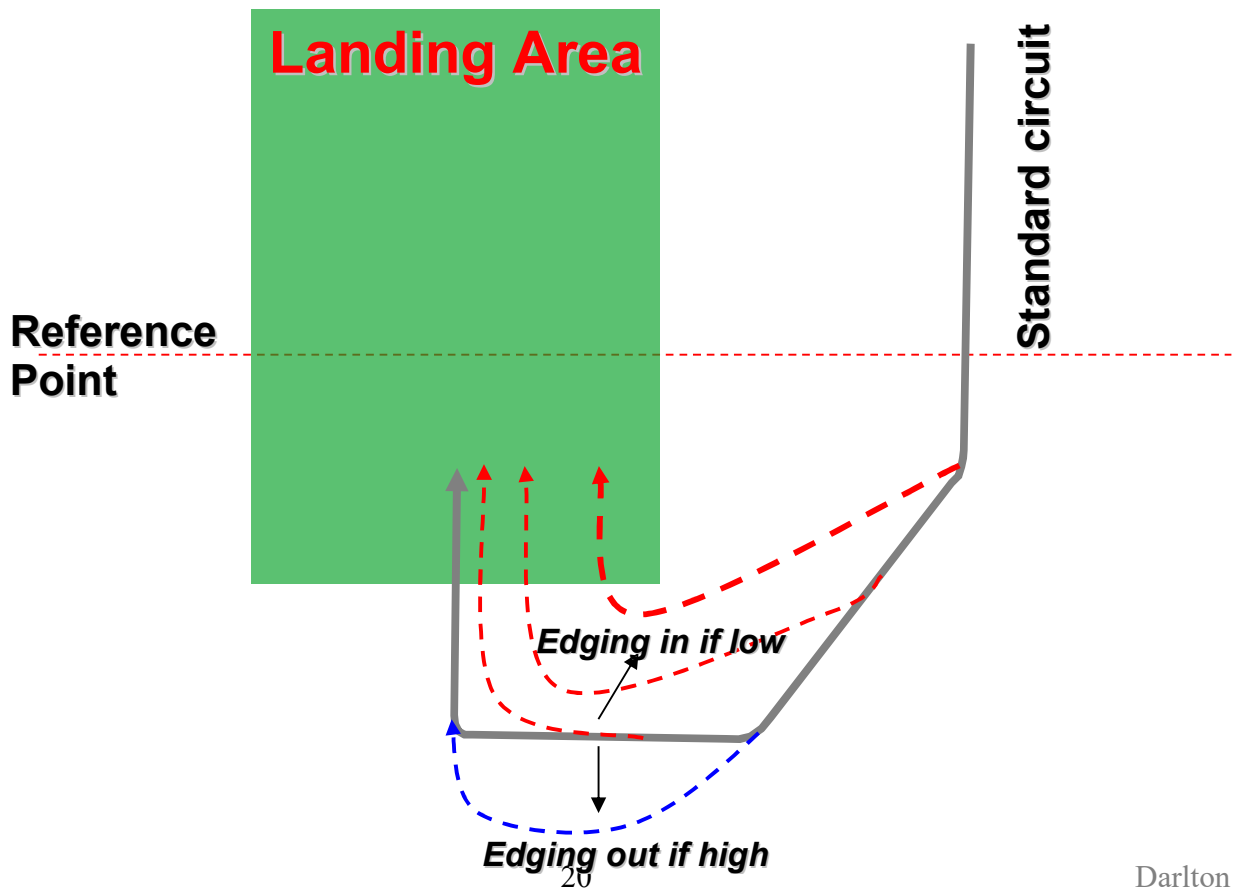
The Approach Funnel



Approach in Different Wind



Modifying the Circuit



Pre-Circuit Checks

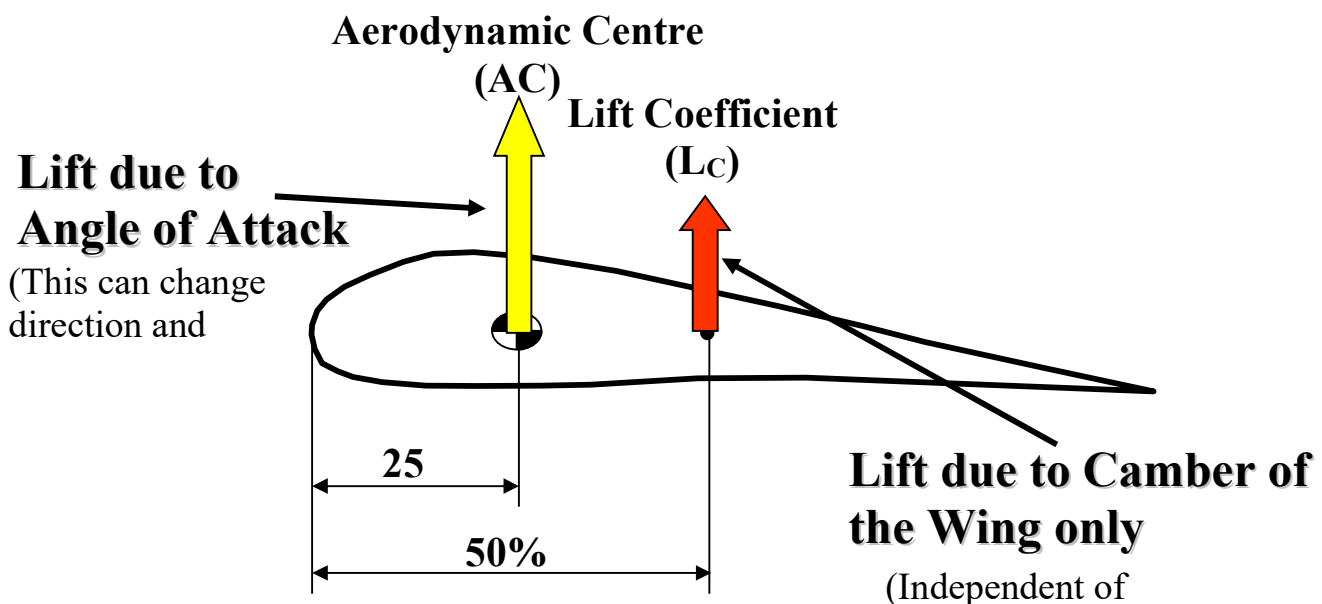
WULF

- W-** Water, Dumped.
- U -** Undercarriage, Down and Locked
- L -** Loose Articles, check for loose articles, this includes the pilot.
- F -** Flaps, set for appropriate stage of Landing.

The pilot is better off flying the glider correctly, in the right place and looking out during the circuit.

Aerodynamics and the Production of Lift on a Wing

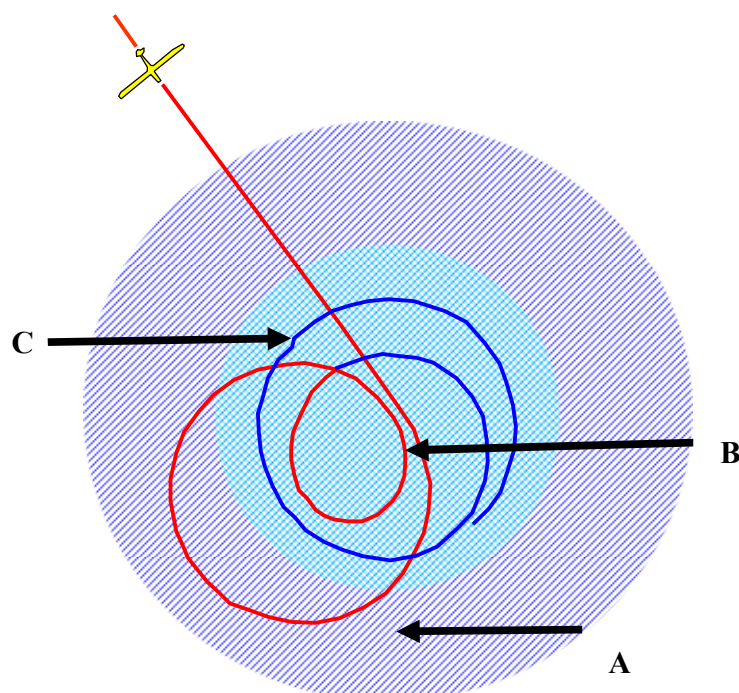
Action Points of Aerodynamic Centre and Camber Generated Lift



Centring in a Thermal

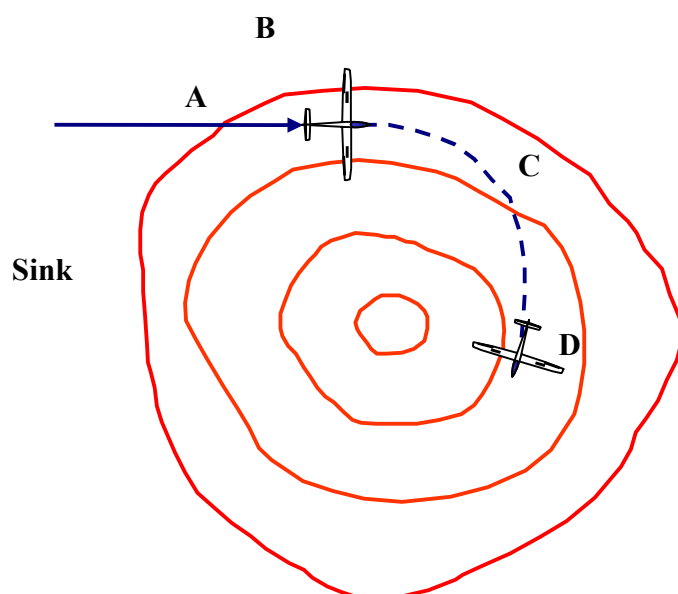
Centring techniques vary to suit individual experience and glider type; the type of thermal must also be taken into account. There is a technique that is particularly quick and simple. This technique is based on the pilot's ability to interpret physical sensations, i.e. changes in G load and any rolling sensations not induced by him self. These sensations are caused by what are commonly referred to as surges. Flying into an area of more rapidly rising air increases the G load that the pilot will feel through his bottom; also there is generally a change in the noise of the airflow over the glider, due to the increased airspeed, and a nose-down pitching of the glider may be noted with strong lift.

- A. Moderate angle of bank during first turn to establish lift pattern.
- B. Tighter turn resulting form increasing the bank when passing through the surge of the stronger lift.
- C. Angle of bank reduced to the optimum for climbing. If not still in centre repeat B and C.



Aids to Locating the Core

	Sensation	Tilt	Reaction
A.	Slight Lift	mod to left	Prepare to turn right
B.	Nil	Max to left	Slow down turn right
C.	Increasing	Max to left	Maintain right turn
D.	Nil	Max to left	tighten right turn





*"Once you have tasted flight, you will walk the earth
with your eyes turned forever skyward, for there you
have been, and there you long to return"*

Leonardo Da Vinci

www.darltonglidingclub.co.uk