

# Briefing Notes for the Basic Instructor (Introductory Flight)

The purpose of this document is to provide a consolidated set of diagrams and notes which may be useful for the new Basic Instructor (BI). It is suggested it be used alongside these other documents, as well as the BGA materials of course!:

- *Instructor Patter and Actions for BI* – provides the patter, related to actions, and some additional 'chatter' which may be useful to brief the 'pupil' during the flight
- *Briefing Notes for Ass Cat* – has some overlap with this document, with the aim of supporting the new Ass Cat. The Ass Cat is expected to provide a more thorough introduction to the early lessons, which otherwise appear to overlap the role of the BI.

During an Introductory Flight, the BI may only demonstrate lookout and the basic effects of controls, and more often than not, is likely to find themselves introducing the public to the joys of gliding via a guided tour of the local area. Whilst a great way to attract people to gliding, it does not fit with the structure expected during the training of an Ass Cat, so this document differs from the first section of the Briefing Notes for Ass Cat.

## Guiding Principle

*Focus on teaching what is needed now to enable the student to learn the next skill(s).  
Hence to understand what they will be shown next.*

In the case of an Introductory Flight, delivered by a BI, the scope for teaching will be very limited, Your pupil may not want to learn anything more than the Lookout. Establish their interests and needs, and adapt accordingly.

## Document Structure

The notes comprise:

- Images
- Briefing Notes
- Pre-Flight Briefing Notes

The Images section contains useful diagrams and pictures for possible inclusion in the briefing. The Briefing Notes suggest a structure and the maximum likely content for the "long brief" as it relates to an Introductory Flight. The Pre-Flight Brief is self explanatory.

## Using this document

Use the diagrams in this document to illustrate your briefings. It will be made available as a PDF (on [glidingschool.com](http://glidingschool.com)) for printing, or display in a classroom, etc. Check the lessons there for additional suitable images.

## **Flying the Exercises:**

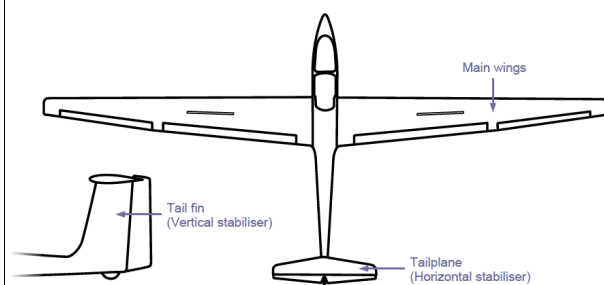
The “playground” is useful for teaching after a winch launch. It is the area upwind of the launch and HK. Play around upwind until c. HK height. Use the downwind leg as well (downwind and back into wind if you have sufficient height), but be aware you'll reach LK quickly. Likely demonstrations into / downwind include rolling, effect of rudder. Allow your student to practise until c. LK, no lower than 500' QFE.

## Images: The Introductory Flight

### Parts of a glider



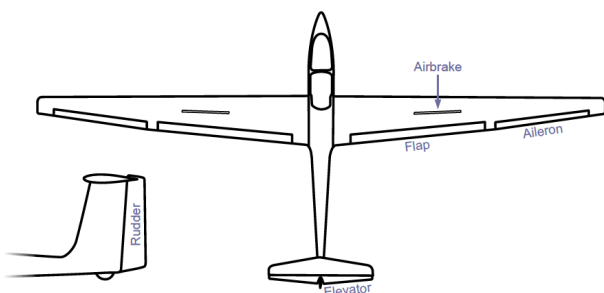
#### [ Flight surfaces ]



### Parts of a glider

- Wings
- Fuselage
- Tailplane

#### [ Control surfaces ]



### Control Surfaces

- Elevator
- Ailerons
- Rudder
- Airbrakes

Images R Lancaster

## The Cockpit:



### Cockpit Layout

- Instrument Panel
- Stick
- Rudder pedals (or bar)
- Airbrake lever
- Trimmer
- Canopy open
- Canopy Eject
- U/C lever
- String

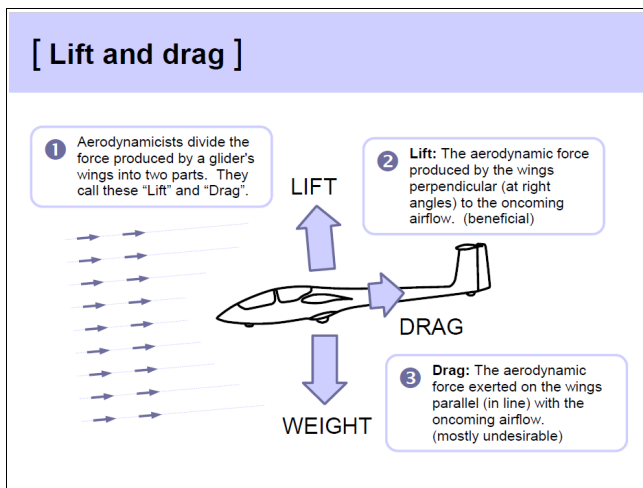


### Instruments

- ASI (Airspeed. Knots, Yellow, Green, Red)
- Altimeter (Height above a datum. Feet, hundreds, thousands, tens of thou.)
- Vario (Vertical speed. Knots)
- Electric Vario (same, but noisy)
- Turn & Slip
- Compass
- Radio
- Computer
- String!



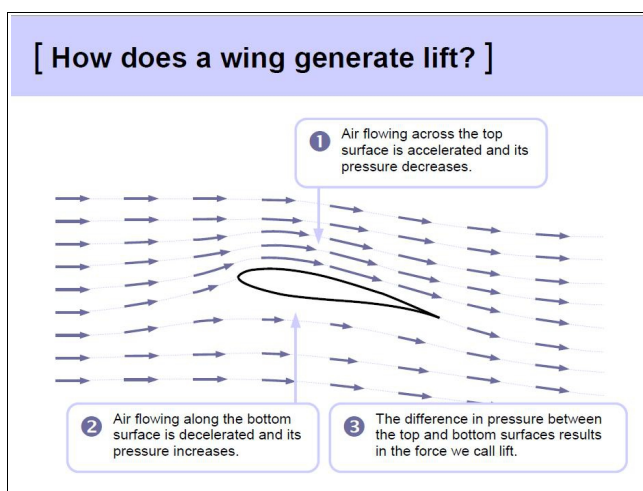
## Forces in Flight:



**Principles of Flight (the Basics): Lift**  
Images R Lancaster.

### How does a glider stay up?

- By falling with style... glider design gives us a lot of forward movement for the height lost.
- Flying in rising air keeps us up.
- Forward movement generates Lift, and Drag.



**Air passing over and under wing creates Lift.**

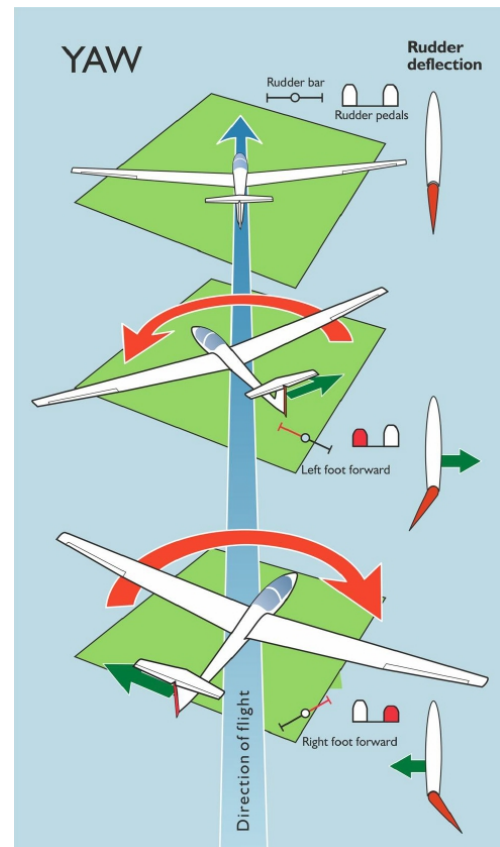
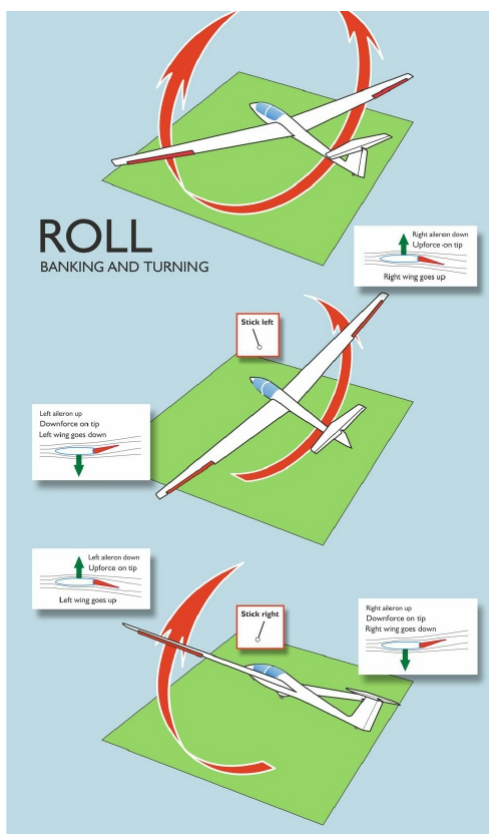
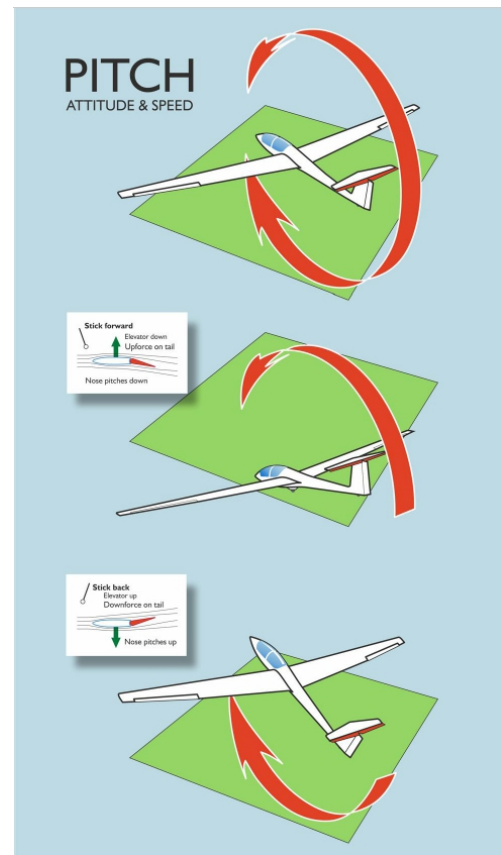
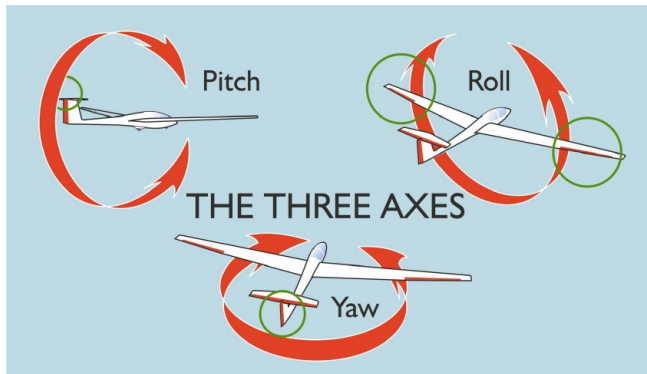
- High pressure below
- Low pressure above
- Air deflected downwards

<https://www.cam.ac.uk/research/news/how-wings-really-work>

Air does not "join up" at the TE. The air beneath is much slower. The curvature creates a pressure difference.

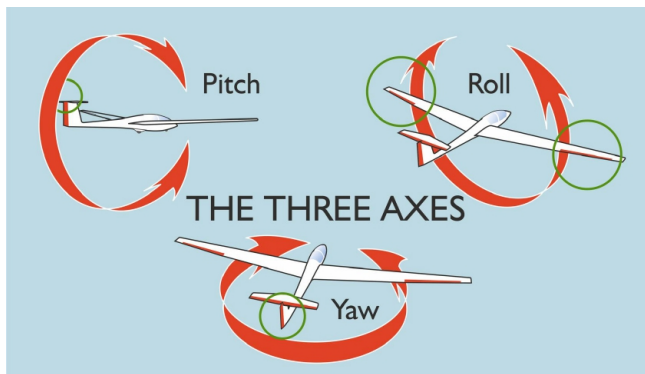
The principle of lift is exploited by all the control surfaces.

## Control Surfaces & their Primary Effects: (Images BGA)



## Primary effects and visual references:

Recap:



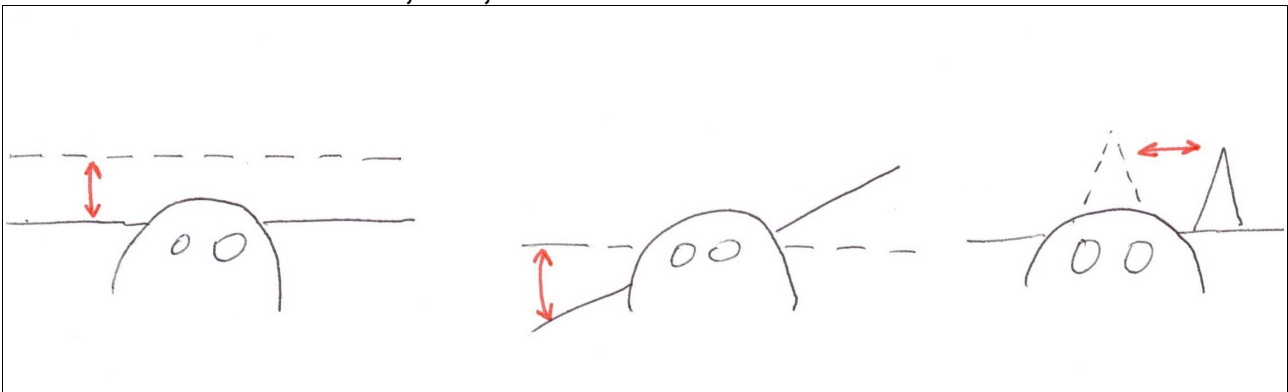
Draw:

- Effects
- Visual References

Discuss:

- Control usage
- Direction
- Effort
- Issues arising: see notes.

## Visual references for Pitch, Roll, Yaw



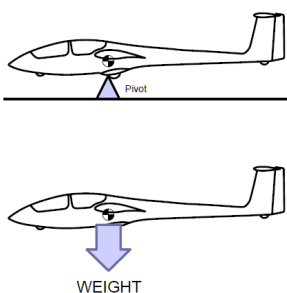
The cockpit appears to be stationary relative to the pilot, while the horizon appears to move.

## The need to check Pilot(s) weight:

**[ Centre of gravity (CG) ]**

- 1 A glider's **Centre of Gravity (CG)** is the point at which if you placed the glider on a pivot it would balance perfectly.
- 2 Increasing the weight of the pilot will move the CG forwards.  
Decreasing the weight of the pilot will move the CG backwards.
- 3 The CG can be considered as the point on which the force of gravity acts.

📍 = Centre of Gravity (CG)

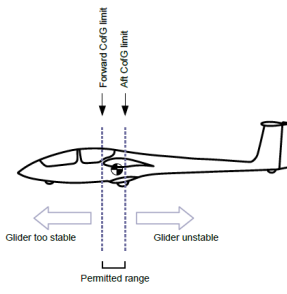


## CoG (and the need for Ballast)

- CoG is the balance point
- This is where gravity acts.
- Pilot weight(s) affect it.

**[ Pitch stability C of G limits ]**

- 1 For the tailplane to correctly function as a pitch stabilising device, the glider's centre of gravity must be within the fore and aft limits specified by the manufacturer in the glider's flight manual.
- 2 A heavy pilot will move the CG forward. A light pilot will move the CG backwards.
- 3 **CG behind aft limit :**
  - Glider becomes unstable.
  - Prone to spinning.**CG in front of forward limit :**
  - Glider becomes too stable.
  - Elevator will not have enough effectiveness to round out.



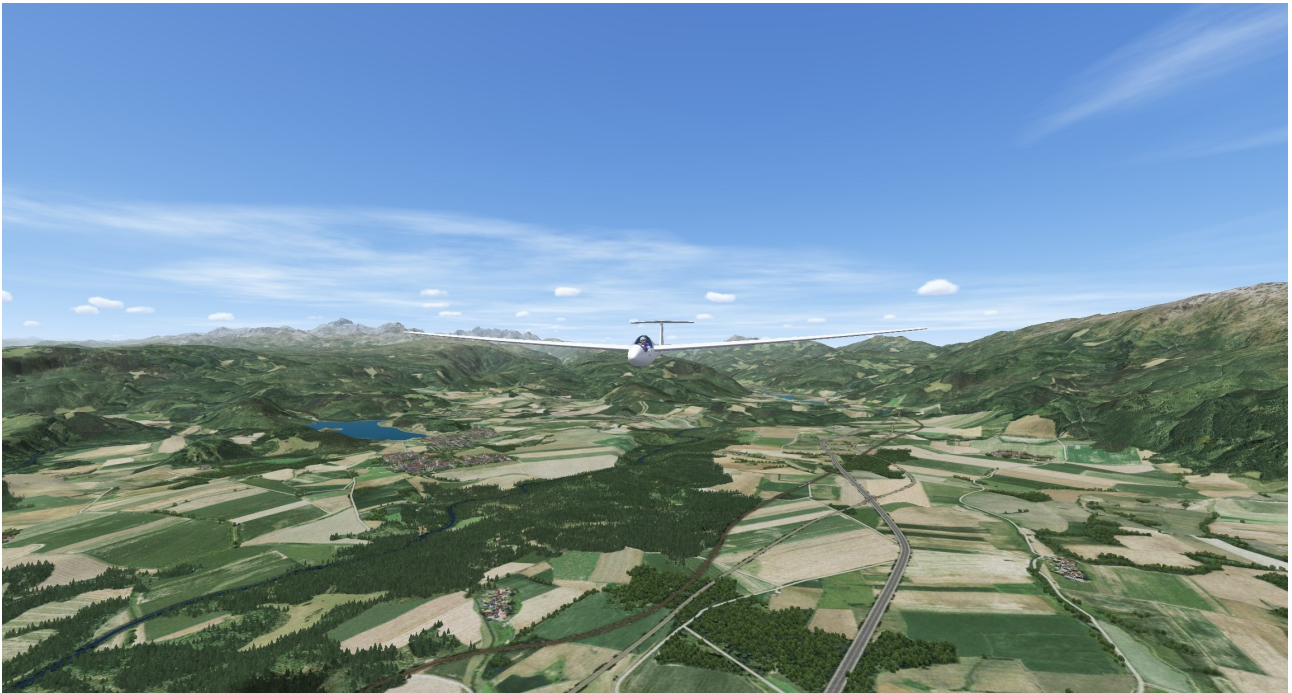
## CoG Limits imposed by design

- Tailplane can only counteract so much pitching...
- Aft CoG: Instability (spin)
- Fore CoG: Too stable (elevator authority is lost)
- Ballast is used to bring CoG forward for light pilots.
- Upper weight limit for pilot(s) limits forward CoG.

Images by R Lancaster

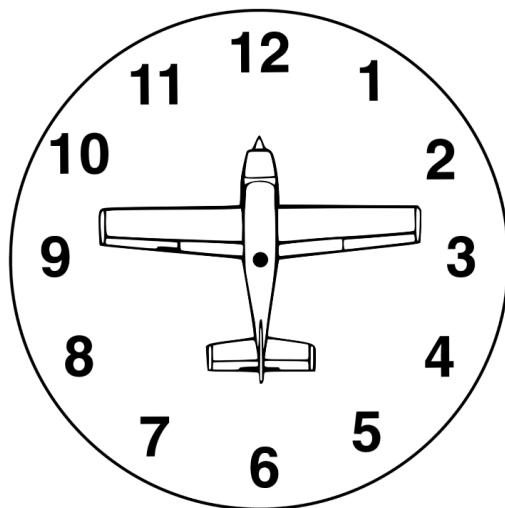


## Lookout:



At 60kts, 1 mile = 1 minute. A typical gliding airfield is less than a mile long, and  $\frac{1}{4}$  mile wide. Closing speed (head on) is 120kts. You will meet another glider 1 mile away in 30 secs, or  $\frac{1}{4}$  mile away in 7 seconds.

## Clock-face:



## Passing Control:



## **Briefing: The Introductory Flight (IF)**

**The IF is likely to require little more than a safety briefing, and Lookout. The maximum likely content, applicable to only the most enthusiastic pupil, is shown here. The required content may be almost none, apart from the safety aspects.**

**Aim:** *“This briefing is to show you how we do things, some of the terminology and the basics of flight, before we go for your first flight”.*

The content of this briefing is delivered throughout the IF, starting on the ground, then continuing in flight.

### **Principles of Flight**

- Airflow over aerofoil → Lift, resulting from pressure differences.
- As applied to
  - Elevator → Pitch → Attitude → Speed
  - Aileron → Roll
  - Rudder → Yaw
- CoG, Weight, Ballast

### **Walk Round the Glider**

- Construction, Handling Points
- Parts, control surfaces
- Canopy

### **Before Getting In**

- Cockpit Layout, all controls, usage and effects
- Harness
- Instruments
- FLARM
- Parachute
  - Handling
  - Donning & Doffing
  - Bailing out
  - Operating
- Getting In and Out of the glider – where to put hands and feet.

### **In the Glider**

- Lookout – why and how
- How to hold the stick
- Handing over Control – why and how, and keeping off the controls.
- What to expect in the launch.
- Placement of hands and feet (launch and landing)
- Securing loose items, such as their camera.

### **Cont'd**

## **In Flight**

- What to expect at the top of the launch / on release
- Check how the pupil feels (especially following any low, zero or negative G sensations)
- Lookout
- Basic Effects of Controls (if required and only as time permits)
- What to expect during the Approach
- What to expect during the Landing

## **After the Flight**

- Getting out of the glider
- Returning to the Launch Point: Holding the Wing, Steering, if applicable.
- How did they feel & would they like to join the club?
- Debrief on the Bus, and issue them their certificate.
- Leaving the airfield.

## Pre-Flight Briefing: Introductory Flight (at maximum)

Aim: *You will be able to use the stick to manage the glider's attitude, speed, and gentle rolls.*

*You will have a feel for the use of the stick, in terms of direction and amount of use.*

- I will describe the Lookout procedure, possibly during the climb, then after releasing from the cable,...
- I will show you the normal gliding attitude, then if we have time,...
- the effect of elevator, and its effect on speed and attitude.
- And use of horizon to judge speed and "flying by attitude".
- Then you will have a go, trying a couple of different attitudes.
- Return to normal attitude, then I will show you the effect of ailerons, its effect on bank and roll, and the need to use elevator to control pitch.
- And use of horizon to judge.
- You will then have a go, coordinating roll & pitch with the stick.
- Return to normal attitude, then I will show you the rudder does not turn the glider.
- If we have time, we can explore the local area, before...
- Landing.
- If at any time before landing we find lift, I may turn (sharply) to exploit it, so we can extend the flight.