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- **Patter what is happening – as you see it**
- **Why you are doing what you are doing**
- **Speak just before manoeuvre.**
- ***Italic's - possible patter***
- **Bloggs to follow through when demo**

Checking aircraft ready for safe flight

- C** - Full and free movement (**correct sense**). Full deflection and round the box.
- B** - within placard limits/30lbs over minimum (**pitch sensitive, stall/spin)/ballast weights**(water?) secure or required
- S** - Locked/tight. Packing cushion secure
- I** - **Set as required**/take off/power on/radio set/**panel secure** No broken glass
- F** - Full/free/set
- T** - Set for launch (approach speed for winch/aero tow speed launch failure)
- C** - closed/locked. Confirm physically by pushing on frame not Perspex. **P2 check P1 canopy locked**
- B** - Open/close to the 'nuts'/closed/locked
- E** - Prepare
- Nominate recovery speed
 - Direction of turn as necessary
 - 180 or 270
 - Wheel brake ok?
 - Surface wet/icy?
 - Wing drops despite corrective action – Release
 - Aircraft ready for safe flight
 - **Brief should take max 20 seconds**

Upper air work sequence

1. Hand over control
 2. Look out
 3. Pitch control inc. stall
 4. Adverse yaw and coordination
 5. ASI & Trimming
 6. Straight glide & scan cycle
 7. Turning
 8. Re-do straight glide
 9. Slip and skid
-

2. Another effect of aileron/why need rudder

- Demo and P2 practice
- More effective if glider flown slower
- Point out yaw string movement with/without rudder
- Always use aileron and rudder together

Now I will show you another effect of the ailerons and why we need to use the rudder. Follow through on the stick and the rudder. Because the glider will turn in this demonstration we will look out to the (left/right) and then over the nose again, watch what happens when I move the stick to the (left/right) without moving the rudder. Which way did the nose swing? This is adverse Yaw. It is the result of aileron drag. To counteract this effect we need to use the rudder in conjunction with the aileron. If we use (left/right) aileron and rudder together the nose no longer yaws to the (left/right). We always use aileron and rudder together so it is stick and rudder to the left and stick and rudder to the right. Now you try it. You have control.

3. Rudder used for not turning

- Demo only
- Not full rudder just sufficient for demo
- Point out yaw / string movement
- Rudder only yaws the glider – does not turn it

Now I will show you that the rudder does not turn the glider. Follow through, feet on rudder pedals. Notice how we are flying along this ground feature. If we press the left pedal the nose of the glider yaws to the left but, as long as I keep the wings level, the glider continues to track in the same direction. When I centralise the rudder the nose swings back to point in the original direction. The rudder only yaws the glider and does not turn it.

4a. Airspeed Indicator & Airspeed Monitoring

- Student has control. Normal Gliding Attitude – notes ASI
- Lowers nose to new attitude – maintains this attitude
- Glance at ASI – note takes time to reach new value
- IAS lags behind attitude due to inertia of glider to take time to accelerate
- Select attitude first, pause then check against the ASI

Now I will show you how we manage our airspeed. You have control. Fly the glider in the normal attitude and note the ASI reading... what is it? Now lower the nose to an attitude you think will give you a speed of 55 kts (+10kts from NGA). Glance at the ASI, while maintaining this attitude, until the speed is steady. Notice it takes some time to increase to the new value. If you haven't got the speed you want to make a further attitude correction, wait, then check the ASI again. We always select an attitude first, wait and then confirm the speed using the ASI.

4b. Chasing the ASI

- Demo only
- Stick smoothly forward until ASI reads 50kts
- Once speed obtained, hold attitude & speed will overshoot
- Overshoot speed due glider inertia and not ASI lag
- Speed lags behind attitude

Now I will show you what happens if we try to select a new speed by watching the ASI alone. I have control. If I lower the nose until I get (say) 50 kt.. like this... the speed eventually goes beyond that figure. If I now raise the nose until 50kt is indicated, then the speed will fall below that figure. The only way to control the glider is by setting the attitude first, waiting for the speed to settle and if it is not right, adjusting the attitude again

4c. Trimming

- Practice
- Demo glider stable @NGA
- Give control back
- Use speeds that trim works effectively
- Student maintain NGA whilst trimmer is moved both directions
- **From now on always fly glider in trim by selecting attitude first, confirming the speed and then removing the stick load**

Now I will show you how to use the trimmer. I have control. See that if I take my hand off the stick that the glider continues to fly itself. The glider is stable. Now you take control and continue to fly in this attitude. I will alter the trim. You have to apply a force to the stick. Tell me the direction. Now you adjust the trim to reduce the stick load to zero. When you have done that release the stick. Good, the attitude hasn't changed ... or ... no that's not quite right. Put your hand back on the stick and reselect the original attitude. Check the airspeed. Yes ... 43kts will do fine. Sense the load on the stick. Adjust the trim again. Check by releasing the stick. Good, that's fine. Now increase the speed to 50kts. Trim for that speed. From now on always fly the glider in trim. To trim, always select the attitude first, pause and confirm the speed and then remove the stick loads with the trim lever.

5. Flying Straight & Scan cycle

- Fly towards landmark`
- Allow for drift
- Difference between heading and track

Now I'm going to show you the straight glide, and how to recognise and achieve it. Follow through on the controls. This is the normal gliding attitude. Look ahead over the nose and see the relationship between the nose and the horizon, or the amount of ground in view. Also notice the wings are level. If the picture over the nose is wrong ... we roll the wings level using aileron and rudder together, centralising the controls when the wings are level and select the correct pitch attitude with elevator. I will now put the glider into a different attitude, and I want you to return it to the normal wings level gliding attitude. You have control.

Angle of bank and elevator co-ordination – as apply back pressure wiggle stick to demo

5a. Scan Cycle

- Look out
- Attitude
- Instruments

I will now show you how to maintain the straight glide and carry out the scan cycle. The sequence of events is Lookout, Attitude, and then instruments. Begin by looking directly ahead. Focus on the horizon looking above and below it. Move your head to approximately the 2 o'clock position. Focus on the horizon and the look above and below it. Move your head to the 3 o'clock position. Focus on the horizon and then look above and below it. Now look as far back as possible, and then upwards above the glider.

Look forwards again, check the attitude. If it is not correct, level the wings with coordinated aileron and rudder and use the elevator to return to the normal attitude. Check the trim and adjust if necessary.

Instruments. Check the yaw string is central, Vario, check the gliders rate of ascent/descent, Altimeter, do we have enough height to maintain the course or should we return to the airfield?

And now back to lookout.

The sequence is lookout, Attitude, Instruments

Now you try that, you have control

6. Turning (slow roll rate to get pattern in)

- Demo & P2 practice.
- 3 stages. Going in / staying in / coming out.
- Lookout / both directions.
- Keep attitude constant as bank increases with slight backward pressure on stick
- Re-trim if staying in turn.
- Relax backward pressure as bank decreases.
- **Separate out into smaller parts**
- **There are 3 stages to the turn. Going in/staying in/coming out**

Now I will show you how to turn the glider using all three controls together

There are 3 stages to the turn – going in, staying in and coming out

We have been maintaining a good lookout. But before turning we look round in the direction of the turn, as far behind us as we can.

Look ahead over the nose

Roll the glider using aileron and rudder together

At the desired angle, use the aileron to stop the bank increasing and reduce the amount of rudder

As the bank increases, keep the attitude constant with slight backward pressure on the stick

The glider is now established in the turn. Now look out again

Staying in

Continue to keep a good lookout – especially in the direction of the turn

Notice how the nose moves steadily around the horizon

Keep the bank constant, making any necessary corrections with aileron and rudder

Coming out

To come out of the turn we must first lookout. See that it is clear to straighten up, especially behind and below the upper wing. Other gliders may have joined you.

Take the bank off with aileron and rudder together, relaxing the backward pressure as you do so, centralising the controls as the wings come level.

There are three stages to the turn. Going in, staying in and coming out. I'd like you to try that, you have control.

7. Skid/Slip

- Normal balanced turn
 - 'Feels' right/string in middle
 - Take off some rudder – slip
 - Look at position of string
 - 'Sliding' in seat
 - To correct add rudder until 'feels' right and string in middle
-

8. Airbrakes / Spoilers

- Exercise in speed / brake co-ordination.
 - Note attitude / airspeed / rate of decent.
 - Brakes may suck open.
 - Monitor ASI more frequently.
 - **There are many different types of airbrake/spoiler/trailing edge brakes. All will be different**
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9. Approach Control

- Demo correct approach / P2 follow through
- Monitor approach and speed frequently.
- Maintain constant speed / attitude.
- Keep the wings level – tracking centreline of landing area
- Let Reference point move down canopy.
- Open brakes – aim for ½ to 2/3 brake
- Keep reference point constant position in canopy
- Prepare to close brakes and land long if landing area blocked,
- **Descent controlled with airbrake, speed with elevator**
- Approach speed selection - 50kts plus half surface wind speed

9. Undershoot / Overshoot

Demo / P2 follow through

- Select full brake to go below glide slope.
- Note position of Ref point – as it rises up canopy
- Demo how to recover –
 - Shut brakes fully / maintain constant approach speed.
 - Wait until Ref point back in correct position – reselect brake

9. Overshoot

- Deliberately set up overshoot (make sure you have enough landing area?)
- Note position of Ref point – as it goes down canopy, or disappears under the nose
- Recover – full airbrake until Ref point in correct position in canopy – keep speed constant
- Consider moving landing area.
- **Maintain correct approach speed, keep tracking down landing area centreline**

9. Must Maintain Correct Approach Speed

Overshoot – demo/follow through

- Use near boundary as ref point
- Follow ref point with nose instead of airbrake to maintain the correct 'picture'
- Let speed build 60 – 70kts
- Raise nose back to correct approach speed
- Ref point disappears – you are now overshooting

9. Undershoot.

- Set up undershoot (correct approach speed) until have full airbrake – let ref point climb up canopy
- Raise nose instead of closing airbrakes to maintain correct 'picture' – no more than 5kt loss of speed.
- Too slow – lower nose/shut brakes
- Ref point position?
- Allow enough time to accelerate.
- **Control approach with airbrake and approach speed with elevator**

10. Landing

Three stages to landing

Round out/Hold off/Touch down

Round Out

- Set brakes – do not adjust.
- Height / angles (approx height double decker bus??)
- Keep wings level
- Ready to transfer gaze and raise nose
- Warn Bloggs when approaching the correct height on demo.

Hold Off

- Transfer gaze to far end airfield.
- GENTLY raise nose.
- Try keep glider flying.
- Wings level.

Touch Down / Ground Run

- Keep wings level with aileron
 - Keep tracking straight with rudder
 - Bring stick progressively to back stop
 - Progressively open airbrakes – use wheel brake as required
 - Keep flying glider till it stops.
-

11. Circuit Planning

- Demo / P2 follow through
- Train with the altimeter taped over – train to use judgement
- Point out how ground features become clearer. Can see more detail as you get lower
- To place glider for final turn in correct place at safe/correct height (**300' AGL minimum**).
- Check wind direction
- Choose landing area - with other options available.
- Choose reference point – ROUND OUT POINT.
- Check landing area clear.
- No traffic in opposite circuit.

High Key Area – Upwind / off to one side landing area

- Undercarriage down and locked/welded
- Water dumped / flaps set
- Nominate approach speed (50kts + ½ surface wind)
- Ground features clearer as get lower.
- Fly down wind at 50kts or best L/D
- As approach LKA increase speed and re trim for correct speed for final turn.
- **Do we have the correct angle for the height and distance to the landing area for today's conditions**
- As we descend point out features get clearer
- If you think you are too high (angle steep to landing area) am I too close?
- Low and close can still give the correct angle
- Consider moving landing area

Low Key Area

- Opposite the ref point

Diagonal Leg

- Maintain approach speed – may fluctuate in turbulence, OK if keep attitude constant.
- Should have re-trimmed
- Look inside cockpit – locate airbrake lever and place hand on it
- Flexible part of the circuit

11. ZIG-ZAG CIRCUIT

- Demo only – no Altimeter
 - Start higher than normal to give you time
 - Fly towards and away from landing area - angles / distance / height.
 - Ask P2 when think at the right angle for the height/distance in today's conditions
 - Too far from landing area – Bloggs limit.
 - Return back to correct position – point out to bloggs
-

12. AEROTOW

- Eventualities (what is the max aerotow speed.)
- Aerotow emergency signals
 - Tug wave off – difference between wave off and turbulence
 - You can't release – out to left, rock wings starting outboard first
 - Airbrakes open – rudder wag
- Wing tip drops despite corrective action - release
- Nominate recovery speed
- **Straight ahead/nearest field/turn back (speed/string in middle/use nearest available landing area)**
 - a. Ground run & Take off
 - b. Vertical position
 - c. Horizontal (lateral) position
 - d. Slack I rope
 - e. Release

Take off

- Accept rope to correct hook
- Breezy day – patter before take off roll
- Initial stick position (glider sits on tail or nose)
- Hand on release knob - always
- Note position of tug at all out – gives initial tow position.
- Aileron / rudder separate – Initially large inputs required
- As nose pitches up gently move stick forward to maintain slight nose high attitude
- Let glider fly off ground – no more than 5 – 12 feet (height tug tail?)
- Up to 20' ok – stop getting too high – definitely not climbing
- Gentle forward pressure – hold position with elevator
- Co-ordinate aileron/rudder
- Take hand off release
- Higher stick loads than 'normal' - more difficult to co-ordinate.
- Patter eventuality options as they pass

12. Correct tow position

Demo/practice

- Down onto slip stream.
- Move up to sit just above
- Note **vertical** position relative to canopy.
- Hold position - Gun sight method.
- **Vertical position with elevator**
 - Lower nose moves tug up canopy / vice versa.
 - When tug in correct position – hold with elevator
- Horizontal position with aileron/rudder together
 - Bank right – tug moves out to the left / vice versa
- Maintain good lookout.
- Remember to re trim.
- Airfield location?
- **Hold vertical position with elevator**

Low tow

- Demo/practice
- Down through slip stream – smooth transition
- Note tug position in canopy
- Hold position using same control technique
- Do not release from here unless emergency
- Watch rate of return – too fast could 'sling shot' too high

Too high

- Demo only
- Highest point for Bloggs.
- This point or loose sight of tug – RELEASE.

Slack in Rope

- Use of airbrake
- Release if bow in rope too large

Wings parallel with tug

- Demo/practice
- Keep glider wings parallel with tug
- Nose appears to point out of the turn.
- Try to anticipate tugs movement.
- There will be more adverse yaw.

12. Re-position from one side

- Out to one side.
- Keep wings parallel with tug
- **Raise the lower wing but - Do not let inboard wing go down**
- Let rope tension drift you back to centre

- Rope tension will cause yaw.
- Glider will try and roll onto the centre.
- Positive action will be required to prevent this.
- Demo sling shot if incorrect technique (not part of original demonstration).
- **To maintain horizontal position behind tug – keep glider wings parallel with tugs**

Release

- Always under tension.
 - Lookout.
 - Release – rope / tug clear?
 - Turn (direction) or slow down to give good separation
 - Settle down / trim.
 - Where am I?
-

13. STALLING

HAFSSLL – initial check

H – Do we have sufficient height for the manoeuvre barring mind the height loss and distance to the airfield?

A – Glider cleared for manoeuvre. Max 'G' loading, VA & VNE

F – Set for the manoeuvre

S – Straps – locked and tight (front/back)

S – Security – no loose articles (front/back)

L – Clear airfield, not over a built up area, clear of controlled airspace

L – Well banked turn left/right. No conflicting traffic around and below (powered a/c can do 2-3 miles per minute)

Further manoeuvre update - HLL

Symptoms of the approaching stall

- Demo first
- Do several demonstrations so P2 gets to see the all of the symptoms.
Don't allow glider to stall
- On each occasion – show recovery
- Stick centrally forward, regain flying speed and return to the normal gliding attitude
- **When allow glider to stall – stick on back stop each time**
- **Patter about 2 seconds ahead of the glider**

13. Stall symptoms

1. Attitude – above normal gliding attitude for this stage of flight
2. Airspeed reduces (ASI flickers)
3. Noise – it gets quieter
4. Effect of controls may change (ailerons get sloppy)
5. You feel/hear buffet (masked if airbrakes are open)
6. Unusual stick position for this stage of flight (stick position = Angle of Attack. Stick back = high AoA)
7. High rate of decent
8. Elevator will not raise the nose further or prevent it from dropping – this symptom will always be present Stick = AOA. Stick Back = High AOA

Symptom approaching stall

- Repeat following for each symptom as separate exercise
- Point out difference between NGA and when just about to stall
- Bloggs follow through
- Fly glider NGA – ask Bloggs point out lack of symptom (i.e. Noise – it is 'normal')
- Now bring glider to just above stall
- Ask Bloggs for any change (i.e. Noise – it has got quieter)
- Emphasise the change – might be approaching the stall
- Patter standard recovery action
- Any symptom present – might be stall symptom. Take recovery action

Full Stall

Even if nose slightly above NGA, (now start to pitch nose up) the speed starts to decay, it gets quieter, the effect of the controls might change, we get pre-stall buffett and despite my efforts to hold the nose up (stick o back stop), it goes down. To recover, stick centrally forward, regain flying speed and return to the normal gliding attitude

Recover with minimum of height loss – progressively but positively raise the nose

Mushy Stall (stall without significant nose drop)

- Note low ASI
- No significant pitch down
- High rate decent
- Push stick further forward to recover due flatter attitude

Stall with wing drop

- Stall the glider with a bit of rudder prior to the stall
- Stick centrally forward
- Regain flying speed
- Level wings
- Return to the normal gliding attitude

Stall Symptoms – you are stalled

- High rate of decent
- Nose may un-commanded pitch down drop
- Wing may un-commanded drop
- Ineffective elevator

Some additional exercises that can be demonstrated to reinforce stalling.

13. Accelerated Stalls

- Stall in turn
- 30deg bank
- Slowly bring speed back to buffett

Note:

- Unusual control position to maintain attitude and bank
- IAS has increased
- Keep this going until fully stalled – point out increased IAS

Stall in a turn – 60deg bank

Note:

- Increased IAS
- To sustain turn need greater airspeed
- Release back pressure when buffett felt – it goes

Stall from very nose high (winch launch) attitude

Note:

Rate at which speed decays – quite quick

Lack of symptoms until nose pitches down

Nose pitches down quite quickly – elevator ineffective

Recover – stick forward despite nose low attitude

Need flying speed before recover – so that don't increase 'G' faster than the speed

Smooth recovery

Bloggs to see some/all of the further stalling exercises before spinning. Gets used to the steep attitudes/sensations first

14. Spinning

- Recognise and recover from departure in to a spin and full spin with minimum height loss

First demo – P2 not to follow through

Complete 3 – 6 departures to ¼ turn to get bloggs used to sensation

Patter entry/recovery

Let bloggs do recovery

Patter recovery only once above complete – bloggs more likely to listen

- Stick central at entry for K13 (any outbound aileron K13 might not spin)
- Note Altimeter at start and recovery – point out height loss
- Any yaw at stall glider will spin

Symptom

- Un-commanded nose pitch down (stick back will not raise nose/prevent from pitching down)
- Un-commanded roll – even though stick central or in opposite direction
- Most accidental spins are due to pilot distraction (low circuit, landing out, launch failure etc)

14. Set up scenario

Right hand downwind getting low to land SW

Can't/couldn't turn in for SE as cross wind too strong or didn't consider landing SE as focused on landing SW only

So keep going running out of height so can only do a base leg/final turn as 180

You are running out of height/time and are therefore distracted

Now low so you don't want to put too much bank on and help it round with rudder which gives impression that rate of turn has increased

Also gives impression that nose pitching down so you inadvertently try to raise it not helped by now being very low

Keep going and find nose then un-commanded pitches down and rolls to right

You are about to spin

The glider has now departed.

Notice the low IAS, high rotation rate, normal G loading and high rate of decent. We are spinning.

To recover, identify direction of rotation, apply full opposite rudder, stick centrally forward until rotation stops, centralise the rudder and recover from the dive.

Or

You are too low in the circuit as you try and get back to the launch point, your final turn is too low. You are distracted, too busy looking at landing area and not flying glider. You start to inadvertently raise the nose as you add rudder and have shallow bank angle as you are close to the ground. However you want to get round the turn quickly so you help the glider round the turn with rudder.... If you continue.....the glider departs

The glider has now departed.

Notice the low IAS, high rotation rate, normal G loading and high rate of decent. We are spinning.

*To recover, **identify the direction of rotation, apply full opposite rudder, stick centrally forward until rotation stops, centralise the rudder and recover from the dive.***

Spinning

Spin Symptom

- Low IAS – (stick is well back)
- High rotation rate
- Normal G (stable state)
- High rate of descent

Recovery

- Full opposite rudder (visual check correct)
- Stick **CENTRALLY** fwd until rotation stops
- Centre rudder
- Recover from dive

Despite nose down attitude move stick forward to un-stall wing

15. Spiral dive

To recognise & recover safely from a spiral dive with minimum height loss

In a thermal and another glider joins us. It gets in the way so you have roll into the turn.....

Demo spiral dive - point out differences –

- stick position (not so far back)
- Increasing speed – feeling of increased speed, noise/feel of controls
- Increasing G
- Slower rotation rate
- Controls heavier/effective

Recover

- Level wings with aileron/rudder together
- Stick **back** to recover
- Recover from dive

16. Further stalling

- Consider a steep stall demo first to get bloggers used to nose high attitude, followed by steep nose low attitude with low speed
- More likely to take in key points if less worried.
- Exercises in accident prevention

Use following order:

1. REDUCED G
2. INEFFECTIVE ELEVATOR
3. HIGH SPEED STALL
4. STALL IN TURN

Further stalling

1. Reduced 'G'
Is not a reliable symptom of the stall
(Push over from launch failure, turbulence down gust, pull up into lift & push over)
 - Normal stall as reminder (point out negative G sinking sensation as nose pitches down) – **stick forward to recover**
 - Recover – dive to 60kts
 - 30 degree climb
 - Gentle push over top (stall plus 5) – similar to stall sensation
 - Similar sensation
 - Airspeed **accelerating**
 - Elevator effective (as nose pitches down pull stick back to demonstrate)
 - Glider not stalled
 - Stick **back** to recover

Low 'G' sensation is not a reliable symptom, don't assume glider is stalled

16. Further stalling

2. Ineffective elevator at stall –

The symptom that will always be present

- 60kt
- Steepish climb to stall
- As nose drops – pull back
- Tap back stop
- Despite the stick being on back stop, can't hold nose up – it pitches down about same amount. The glider has stalled
- Move stick forward to recover
- Best effect below 1000' for effect – but later in training or as part of a check

3. High Speed stall (i.e. recovery too harshly creating unnecessary G due inadvertent stall close to ground)

A Stall is not necessarily speed or attitude related

Will stall whenever increase AoA beyond critical angle irrespective of speed

- Demo normal stall
- 60kt pull up 30 degree climb
- At stall – stick neutral
- Nose pitches down or as nose stops pitching down - let speed increase to max 50 or 'see' NGA
- Pull smartly back (2g roughly 50kt stall – K13)
- Bloggs read off ASI at buffet
- Any yaw abandon demo
- Attitude below NGA buffeting @ 50kt IAS

Need flying speed before recover – so that doesn't increase 'G' faster than the speed (increase lift to overcome 'increased' weight?)

4. Increase stall speed in turn

The greater the bank the greater the stall speed

- Take your time
 - Bleed slowly off
 - Keep back constant/string in middle (any yaw ASI under reads)
 - Bloggs read ASI at buffet
 - At buffet ease the back pressure shows un-stalling the wing
 - Start wings level stall, then 20, 40 and 60 deg bank – maintain G loading
 - Note the unusual control position to maintain the attitude and bank (stick well back and opposite to direction of turn, yaw present – symptom of approaching departure)
 - Increase in stall speed not linier – increase bank stall speed shoots up 3 x common stall speed increases scenarios.
Pull out of dive/Turn/Winch launch
-

17. Further spinning

1. CHANGE EFFECT RUDDER AT STALL
2. SPIN OFF STEEP OR THERMAL TURN
3. STALL/SPIN OFF WINCH LAUNCH FAILURE

1. Change of primary and secondary effect rudder at the stall

Misuse of rudder @ stall could induce spin

Do not 'force' glider round the turn with rudder

- No pre-flight brief. Students see what happens
- Exercise in spin prevention
- Miss-use rudder at stall can induce spin
- Remind normal primary/secondary effect of rudder
Lots yaw/not much roll
- Now hold 1kt above stall (just in buffet)
Less yaw/more roll

2. Spin off a steep turn

Demonstrate glider will depart off higher angle of bank & increased IAS

Tighten up on a strong core or overshooting your landing area so
tighten turn or drift back over ridge when in thermal

- 45 deg bank/50kt
- Tighten turn and pull (over rudder) or pull stick back & over rudder
- K13 less likely to spin if outboard aileron applied
- Point out to P2 nose below horizon and higher stall speed
- Fast entry due higher wing loading
- Standard recovery
- Glider will spin if yaw present

17. Further spinning

3. stall/spin off simulated winch failure or steep pull up

Reduced 'G' reduces the stall speed

Speed much lower therefore won't get symptoms of stall. Manoeuvre glider appears ok - until load reapplied

- show normal approach (min 50kts)
- set up as winch launch failure or steep pull up
- Gently push over the top - below 'normal' stall speed (K13 25kts)
- As 'see approach' attitude – pull stick back to maintain/glider stalls
- Repeat above but turn – maintain attitude with stick all way back & over rudder turn/glider departs
- **Must allow glider to accelerate – wait for correct speed to register**
- now demo correct launch failure technique
- *positively lower nose to recovery attitude & wait until have correct IAS*
- Can't rely on attitude
- **airspeed lags behind attitude (after a 'push manoeuvre') – allow the glider to accelerate before manoeuvre**

Going back to the main ridge having looked for wave. You are running back through sink and join the ridge low down. As you enter lift you pull up and turn to fly along ridge. As you pull up into the 'lift', push over the top and as soon as you 'see' the attitude you turn. Glider should depart. In a K13 you will have to cheat a bit. The turn should be with no aileron but loads of rudder and stick well back to maintain the attitude.

18. Site Check guidance

Site checks should include as much of the following as possible. As always use your discretion and remember the check can be more than just one flight if P2 has not met your requirements or you think he/she would benefit from more.

All visitors should have viewed our briefing notes and video's. If they haven't, they shouldn't fly until they have.

If they are new to the site or have not flown with us for several years then a walk round the field has to be completed as part of the briefing.

What type of glider P2 intends to fly? If 'glass' then the check to be done in the K21 where ever possible

LAUNCH

- EVENTUALITIES BRIEF
 - Straight ahead – fields
 - Turn back
- Once airborne, take control so that P2 can look at low level launch failure field options if possible
- INITIAL TOW POSITION EXERCISE
 - To get 're-calibrated'. It is likely P2 will have towed with a longer rope, different tug etc
- APPROACHING THE RIDGE
 - Focus on the tug not the mountains
 - Do not drift away from the ridge as it pulls the tail of the tug towards it
- RELEASE – not 'standard' if close to the ridge.
 - Ensure separation from the rings by slowing the glider down if not possible to manoeuvre

SOARING - GENERAL

- RULES OF THE RIDGE
- DO NOT GO TOO FAR BACK BEHIND RIDGE
- MINIMUM SPEEDS TO USE
- SOARING WITH OTHER GLIDERS/PARAGLIDERS/HANGGLIDERS
- WHERE TO FIND THE WAVE
- WHERE TO GO AND WHERE NOT TO GO
- THINK AHEAD
 - Do not leave it to the last minute to come back

RIDGE SOARING

- WHERE IS THE LIFT
- NOT TOO FAR BACK
- GET LOW - TUCK IN
- GET P2 DOWN BELOW RIDGE TOP HEIGHT
 - Minimum speeds to use (turbulence and manoeuvring)
 - Following the ridge contour – looking ahead and anticipating
- DO NOT BEAT UP WALKERS

LANDMARKS

- TALGARTH TOWN
- OLD HOSPITAL
- HAY-ON-WYE
- YDAS
- HEREFORDS KNOB
- BURNT PATCH

18.

- LLANGORSE LAKE
- FINDING THE AIRFIELD
 - From the south where it can be more difficult to spot

FIELD SELECTION

ONES NOT TO USE

- LOCAL TO AIRFIELD
- BOTTOM OF SW BOWL

ONES TO USE

- 2 X COMMONS
- WYE VALLEY FLOOR – fields are below airfield QFE therefore you have additional time if required
- LLANGORSE LAKE AREA
- TRETOWER AND BEYOND - fields are below airfield QFE therefore you have additional time if required

CIRCUIT PLANNING

- TREAT AS A FIELD LANDING
 - (wind/size/slope)
- NO NEED TO AVOID CROSSING THE AIRFIELD
- GIVE YOURSELF TIME - THINK ABOUT CONDITIONS
 - Steeper circuit than you might be used to
- RADIO CALL
- RUNWAY SLOPE
- PREFERRED CIRCUIT - NORTH SIDE
 - Better options
- WHERE TO START –
 - Do not tell them where. It is upwind and off to one side of the landing area

- WIND
- LANDING AREA
 - REFERENCE POINT
- MAINTAIN GOOD LOOKOUT IN/OUT OF CIRCUIT AND OPPOSITE
- Watch for/listen out for other gliders joining the circuit. Consider landing long or different part of the airfield to create room if required especially with massed landing (wave collapse for instance)
- LIMITED ROOM ON AIRFIELD
 - All of the airfield is useable if required
- APPROACH
 - Good approach control – if a lot of brake required would they have been ok if P2 was in their own glider?
 - Good speed control – watch for too fast. Not good enough if P2 glider is glass
 - P1 to limit the airbrake to 1/2 - 2/3 if P2 glider to fly is glass

18. VARIOUS RIDGES

WEST BOWL

- NARROWING BOWLS

SW BOWL

- LOW DOWN
- MIN HEIGHT ON SPINE 1200' - SHOW WHAT THIS LOOKS LIKE
- PLATO PART
- CORNER OF BOWL (spine and bowl meet)
- THE SPINE
- CYMDU VALLEY

NW RIDGE AND HAY BLUFF

- HANG & PARAGLIDERS

MYNTH TROED

LLANGORSE LAKE

19. Annual Flight Review

BLACK MOUNTAINS GLIDING CLUB - ANNUAL FLIGHT REVIEW		Please tick exercises when completed to satisfactory standard.		
Pilot's Name:	Date:	Instructor Manual Reference	Tick complete	Remarks
Pre-flight Briefing				
Briefing video. Viewed and understood		na		
Pre-flight Checks				
C.B.S.I.F.T.C.B.E. Emphasis Airbrakes closed/locked?		4.1		
Eventuality Brief. Were any points missed? Could it be improved?		4.2		
Aerotow Launch				
Emergency Signals. P.2 must know the emergency signals.		17.6		
The Tow. Fly out of position exercises, boxing the propwash, etc.		17.6		
Other exercises. E.g Decending tow, wave off etc		17.6		
General handling				
Lookout. Basic Scan Cycle : Lookout-Attitude-Instruments.		5.6		
Airmanship. Check basic airmanship rules.		6.1		
Handling. Assess handling, airmanship, judgement, decision		7.3		
Other				
Side slip. Speed on exit same as entry/track straight		na		
Launch Failure. Review at height. Speed before manoeuvre. String in middle		17.6		
Stalling				
H.A.S.S.I.L. Checks correct (before all stall/spin/aerobatic manoeuvres).		4.2		
Main Symptoms of the Basic '1G' Stall. (x7)		18.2		
Stall with Wing Drop. Ailerons <u>must</u> remain neutral for recovery.		18.4		
Nose Low Stalls. e.g. Ineffective elevator, high speed stall, stall in turn, etc.		18.6		
Spinning				
Symptoms leading to Auto-rotation.		19.1		
Full Spin. Spin to be identified correctly with recovery flown by P.2		19.1		
Spiral Dive. S.D. must be quickly identified & recovery flown by P.2		19.1		
Spin Entry from Failed Winch Launch (sim @ height only).		19.5		
Spin Entry from Low Final Turn (sim @ height only).		19.3		
Other Spin Entries. e.g Nose high, Spin off a thermal turn, etc.		19.1		
Circuit & Landing				
A minimum of 1 Circuit are to be flown. <u>U/C down and locked.</u> Check lookout, judgement, airmanship, speed control, co-ordination & use of radio. The approach should be <u>stable</u> using 1/2 to 2/3 airbrake. Introduce change of landing area where possible. <u>Emphasis on not getting distracted</u>		14.2		
Debrief				
It may be useful to review the pilots logbook and discuss setting some objectives. Hrs & Launches since last AFR				
Additional BMGC Endorsements (See BMGC 2 Seater Flying Guidance Notes)				
Mutual Flying Endorsement, Valid until 31/12/20__ (Senior Instr. signature)			Date & Sign	
Passenger Carrying End't, Valid until 31/12/20__ (Senior Instr. signature)			Date & Sign	
Instructor Comments & Feedback (Use reverse of sheet if necessary):				
NOTE: To (re-)qualify for BMGC Passenger Carrying and/or Mutual Flying Endorsement the pilot must comply with 2 Seater Flying Guidance Notes. P.1 responsibilities and how to deal with Pax / P.2 should be discussed.		Instr's Signature _____ Date ____/____/____		
		Pilot's Signature _____ Date ____/____/____		
Please Sign and Date Pilot's Logbook. BMGC AFR-Card-v4 - May2009				