

Instructor Patter & Demos (DRAFT)

Adapted from BGA Instructors' Manual v4, to clarify actions and patter.

See also 'Briefing Notes for Ass Cat – SMS DRAFT' for relevant pre-flight briefings.

Practising the patter in a sim is a very effective way to learn both the patter and its coordination with control usage in flight.

Lookout

Instructor Action	Patter	Student Action
During launch or immediately afterwards.	“When flying, we must always keep a good lookout. Help me with this. Scan the field of view, pausing from time to time, looking above and below the horizon, as well as on it. Tell me if you see another aircraft or glider. I will do the same.”	

Elevator

Instructor Action	Patter	Student Action
Establish normal attitude.	"Now I will show you how the controls work, first the elevator."	
	"Follow through on the stick."	Follow through.
<i>Establish the references:</i>	"Look ahead over the nose, and note its relationship to the horizon, or the amount of ground in view. It remains constant. This is the normal gliding attitude. When I move the stick forward a small amount..."	Look ahead.
Move stick forward	"...the nose goes down. More ground comes into view, the glider is in a new attitude, and speed is increasing. When I move the stick back again..."	
Move stick back, → nose below 'normal'	"...the nose rises. There is less ground in view, we are in a new attitude, and speed is decreasing.	
<i>If demoing the stall (most clubs do not)</i>	<i>If I move the stick back some more..."</i>	
<i>Move the stick back, → nose above 'normal'</i>	<i>"...the nose rises, then goes down again by itself."</i>	
<i>Wait for the nose to drop.</i>	<i>"I must move the stick forward to regain speed."</i>	
<i>Move stick forward, wait.</i>	<i>"Now I will return the glider to its normal attitude."</i>	
<i>Recover from stall.</i>	<i>"That was a stall."</i>	
<i>If not demoing the stall.</i>	"Now I will return the glider to its normal attitude."	
Establish normal attitude.	"The attitude is steady and speed is constant."	
	"I'd like you to try that. You have control."	Student attempts, to get feel of elevator, and normal attitude.

Ailerons

Instructor Action	Patter	Student Action
Establish normal attitude.	"Now I will show you the effect of the ailerons and how we roll the glider."	
<i>Establish the references:</i>	"Look ahead and see that the cockpit edges are symmetrical [<i>or the top of the instrument panel is parallel</i>] with the horizon. The wings are level. If the wings were not level, the view ahead would like this:"	
Briefly roll to ~20 degrees, both ways, using coordinated controls. Establish normal attitude.		
<i>Request follow through.</i>	"Follow through on the stick."	Follows through.
<i>Establish the need for lookout.</i>	"We are going to change direction, to the <i>left</i> , so we must lookout first. Look <i>right</i> first. Make sure it is clear to the <i>left</i> . Look as far back as you can. Remember to tell me if you see any other aircraft. Now look over the nose."	Student looks out.
	"If I move the stick to the <i>left</i> ..."	
Roll left, without back pressure.	"... the <i>left</i> wing goes down, and continues going down until I centralise the stick."	
Hold ~20 degrees bank.	"The glider is now banked and therefore turning. To maintain the attitude, I need to apply a slight back pressure to the stick."	
Hold attitude, with back pressure.	"To raise the wing, I move the stick to the <i>right</i> , and centralise it as the wings comes level..."	
Centralise wings, easing back pressure.	"...easing the back pressure to maintain the correct attitude."	
	"Now you try – you have control".	Student attempts.
<i>Allow student 2-3 attempts each way, while you operate the rudder to keep string central.</i>		Student gets feel of aileron and elevator together.

Rudder

Instructor Action	Patter	Student Action
Flying a little faster, fly towards a visual reference, in normal attitude. Ideally into / down wind.	“Now I'd like to show you that the rudder does not turn the glider. Follow through, with your feet on the rudder pedals. Note that we are flying towards the reference, with wings level [and the string is central]. If we press the <i>left</i> rudder pedal..”	Follow through, rudder only.
Holding wings level... Press left rudder.	“...the nose of the glider yaws <i>left</i> [and the string goes out to one side], but as long as I keep the wings level, the glider continues to travel in the same direction. When I centralise the rudder, the nose swings back to point in the original direction [and the string is central again].”	
Centralise rudder.	“The rudder only yaws the glider, and does not turn it.”	

Adverse Yaw

Instructor Action	Patter	Student Action
Fly towards a marked visual reference, in normal attitude. Ideally into / down wind.	"Now I will show you another effect of the ailerons, and why we need to use the rudder."	
<i>Request follow through.</i>	"Follow through on stick and rudder."	Follow through.
Lookout.	"Because we will turn in this demonstration, we will lookout in that direction, then over the nose again."	Lookout. Look over nose.
	"Watch what happens when I move the stick to the left <u>without moving the rudder.</u> "	
Brief roll without rudder, inducing adverse yaw.	"Which way did the nose swing (first of all)?"	Confirms has seen adverse yaw.
Repeat if necessary.	"This is adverse yaw. It is the result of aileron drag. To counteract this effect, we need to use rudder in conjunction with the aileron. If we use left/right aileron and rudder together, the nose no longer yaws to the right/left."	
Make 2-3 turns/reversals of ~20 degrees to illustrate.	While turning: "We always use aileron and rudder together, so it is stick and rudder to the left, or stick and rudder to the right."	
	"Now you try that. You have control."	Student attempts.
<i>Prompt student, giving guidance on use of stick and rudder together -e.g. "equal pressure / movement".</i>		

ASI and Airspeed Monitoring

Instructor Action	Patter	Student Action
	"You have control"	Student flies.
<i>Request normal attitude.</i>	"Fly the glider in the normal attitude, and note the ASI reading..."	
<i>Confirm student can read the ASI.</i>	...what is it?"	Reads ASI.
<i>Request 10kts faster.</i>	"Lower the nose to an attitude that will give you a speed of +10kts"	Lowers nose.
<i>Describe holding attitude, waiting.</i>	"Glance at the ASI, while maintaining attitude, until the speed is steady. Notice that it takes some time to increase to the new value."	Holds attitude, waits.
<i>Describe how to adjust if required: corrective adjustment, wait.</i>	"If you haven't got the speed you want, make a further attitude correction. Wait, then check the ASI again."	Changes attitude, waits.

Chasing the ASI

Instructor Action	Patter	Student Action
If required, demo "chasing the ASI". Establish normal attitude.	"If you try to select a new speed solely by watching the ASI, then you will end up chasing the airspeed – let me show you. I have control."	Passes control.
	"If I lower the nose until I get 50kts on the ASI, like this,..."	
Lower nose slowly, chasing 50kts. Hold attitude, to show that speed increases.	...the speed eventually goes beyond it."	
	"If I raise the nose until 50kts is indicated,..."	
Raise the nose slowly, chasing 50kts. Hold attitude, to show that speed decreases.	...then the speed will fall below it."	
<i>Explain "flying by attitude".</i>	"The only way to control the glider is by setting the attitude, waiting for the speed to settle. If it isn't right, adjust the attitude again."	

Trimming

Instructor Action	Patter	Student Action
	"Now I am going to show you how to use the trimmer."	
Take control.	"I have control."	Releases control.
Establish normal attitude, and trim. Explain glider is stable.	"If I take my hands off the controls, the glider continues to fly itself. The glider is stable."	
Pass control.	"Now you take control and continue to fly in this attitude. You have control."	Takes control.
	"I will alter the trim."	
Move trimmer forward.	"You are having to apply a pressure to the stick. Tell me the direction."	Confirms backwards.
Prompt student to trim.	"Now you adjust the trimmer to reduce the stick load to zero. When you have done that, release the stick."	Students attempts.
If not in trim. Relate attitude to speed, and trim.	"No, that's not quite right. Put your hand back on the stick, and select the original attitude. We are now flying at xx Kts, which will do fine. Sense the load on the stick, and trim again. Check by releasing the stick. Now increase the speed to +10Kts. Trim for that speed."	
Establish future expectation.	"From now on always fly in trim."	

The Straight Glide and Scan Cycle

- The Straight Glide

Instructor Action	Patter	Student Action
Establish normal attitude, into/down wind. <i>Explain 'normal attitude'.</i>	“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 that the wings are level.”	Follows through.
<i>Establish not straight & level:</i>	“If the picture over the nose is wrong,...	
Demonstrate return to straight flight:	...we roll the wings level, using ailerons and rudder together, centralising the controls when the wings are level, and select the correct pitch attitude with the elevator.”	
<i>Ask student to practise.</i>	“I will now put the glider into a different attitude, and I want you to return it to the normal wings level gliding attitude...”	
Set up an incorrect attitude.	...You have control.”	Student flies and returns to normal attitude.

The Straight Glide and Scan Cycle

- The Scan Cycle

Instructor Action	Patter	Student Action
Take control, demonstrate the scan cycle.	<p>"I have control. I will now show you how to maintain the straight scan and perform the scan cycle. The sequence of events is:</p> <ul style="list-style-type: none"> • Lookout, • Attitude, • Instruments. <p>Begin by looking directly ahead. Focus on the horizon, looking above and below it. Move your head to the 2 o'clock position. Focus on the horizon, looking above and below it. Move your head to the 3 o'clock position. Focus on the horizon, looking above and below it. Now look as far back as possible, then directly upwards, above the glider. Look forward again. Check the attitude. If it is not correct, level the wings with coordinated aileron and rudder, and use the elevator to return the glider to the normal gliding attitude. Check the trim. Instruments:</p> <ul style="list-style-type: none"> • Check the yaw string is central. • Variometer: Check the glider's rate of sink or climb. • Altimeter: Do we have enough height to continue on this course, or should we be starting our return to the airfield? <p>And now back to lookout, this time to the left..."</p>	As directed.
<i>Ask student to practise.</i>	"Now you try. You have control"	Student tries.

Turning - Lookout

Instructor Action	Patter	Student Action
Take control.	"I have control."	
<i>Explain there are three stages to a turn.</i>	<p>"Now I will show you how to turn the glider, using all three controls together.</p> <p>There are three stages to the turn:</p> <ul style="list-style-type: none"> • Going In • Staying In • Coming Out." 	
<i>Explain the lookout actions before a turn.</i>	<p>"Before turning, we must look round and behind the wing outside the turn. Then scan ahead of the glider, above and below the horizon. Then inside the turn and as far back as possible.</p>	Lookout.

Turning - Going In

Instructor Action	Patter	Student Action
<i>Direct student to look ahead.</i>	"Look ahead, over the nose."	Look over nose.
Roll into a moderate turn.	<p>"Roll the glider, using aileron and rudder together.</p> <p>At the desired angle, use the aileron to stop the angle of bank increasing, and reduce the amount of rudder.</p> <p>As the angle of bank increases, keep the attitude constant with a slight backward pressure on the stick."</p>	
Hold the turn.	"The glider is now established in the turn."	
<i>Establish need to lookout in the turn.</i>	"Now lookout again."	

Turning - Staying In

Instructor Action	Patter	Student Action
Hold a steady rate of turn.	"Notice how the nose moves steadily around the horizon."	Look over nose.
<i>Explain the need to lookout, especially in the direction of the most likely threat.</i>	"Continue the scan cycle and keep a good lookout, especially in the direction of the turn."	Scans.
<i>Explain how to stay in.</i>	"Keep the angle of bank constant, making any necessary corrections with aileron and rudder together. "	

Turning – Coming Out

Instructor Action	Patter	Student Action
<i>Explain the need to lookout before coming out, especially in the direction of the most likely threats.</i>	"To come out of the turn, we must first lookout. Check that it is clear to straighten up, especially behind, and below the upper wing. Other gliders may have joined you."	Lookout.
<i>Explain rolling out.</i>	"Roll the wings level, using aileron and rudder together, relaxing the back pressure as you do so, centralising the controls..."	
Roll level.	...when the wings are level."	
<i>Summarise.</i>	There three stages to the turn: Going In, Staying In, Coming Out.	
<i>Direct student to attempt.</i>	"Now you try that. You have control."	Student attempts.

Maintaining a Heading

Instructor Action	Patter	Student Action
<i>Incorporate into the Scan Cycle patter, using this when checking Attitude.</i>	"If the nose has moved away from the original heading, then we roll gently back towards it. As we reach the original heading, we roll the wings level, check and correct the pitch attitude."	

Turning – Slip & Skid

Instructor Action	Patter	Student Action
Lookout. Set up a balanced turn.	"Follow through on the controls."	Follows through.
Set up a slip (under-ruddered turn), draw attention to string.	"I have used too little rudder. Notice the yaw string is deflected outwards."	
	"I need to increase the amount of rudder, to bring the yaw string back to the centre, while keeping the angle of bank constant."	
Correct the turn with rudder.		
Set up a skid (over-ruddered turn), draw attention to string.	"I have used too much rudder. Notice the yaw string is deflected towards the inside of the turn"	
	"I need to reduce the amount of rudder, to bring the yaw string back to the centre, while keeping the angle of bank constant."	
Correct the turn with rudder.		
Set up for student to attempt.	"I will set up a poorly balanced turn, and I would like you to correct it. You have control."	Student attempts.

Straight Flight – Correcting Yaw

Instructor Action	Patter	Student Action
Take control, not following through.	"I have control. Please keep your hands and feet off the controls."	Let go.
Set up yawed flight, wings level.	"Notice that although we are flying straight, the yaw string is off to one side. Also notice that the controls are crossed."	Confirms.
	"To correct this, I use rudder to centralise the string, while keeping the wings level with the ailerons."	
Return to straight flight.		
Set up yawed flight for student to correct.	"We are out of balance again. I'd like you to correct it. You have control."	Student attempts.

Stalling (HASSLL)

Instructor Action	Patter	Student Action
HASSLL check	"Before I show you the stall and recovery, we do a HASSLL check."	
	" Height is adequate, bearing in mind the distance from the airfield and the likely height loss."	
	" Airframe is the limiting speeds , which are Max Manoeuvring xx Kts, and Never Exceed xxx Kts."	
	" Security – Are there any loose articles?"	
	" Straps – Are yours tight?"	
	" Location – not over towns or active airfields."	
	" Lookout – Making sure it is clear all around and below."	
Fly 2 S turns of 180 degrees each.	"Tell me if you see any other aircraft"	Lookout
<i>If in a side-by-side 2-seater.</i>	"Is it clear on your side?"	Lookout

Stalling (Basic)

Instructor Action	Patter	Student Action
Establish normal attitude, into wind, slow.	"Now I will show you the symptoms of the approaching stall. Look ahead and follow through on the controls."	Looks ahead, Follows through.
	"If the nose is raised even a little bit above the normal attitude..."	
Raise nose just above normal attitude.	"...the airspeed reduces, the noise of the airflow changes. It is quieter."	
<i>If applicable</i> , waggle the ailerons a little.	"The effect of the ailerons changes."	
	"...and the glider buffets."	
	"In spite of my efforts to hold the nose up,..."	
Move stick back to stall.	"...it drops. To recover, ease forward on the stick..."	
Ease stick forward.	"...regain normal flying speed, and return to the normal gliding attitude."	

Stalling (Mush)

Instructor Action	Patter	Student Action
Establish normal attitude, ease back to mush.	"We are now flying with the stick hard against the back stop, and the glider is stalled, or 'mushing'. Look at the high rate of sink."	Observes stick. Checks vario.
	"Recover as before: Ease the stick forward..."	
Ease forward.	"...regain normal flying speed, and return to the normal gliding attitude."	
Recover to normal attitude.		
<i>If a wing drops...</i>	"A wing may drop. Recover as before: Move the stick centrally forward... "	
	"...regain normal flying speed, level the wings, and return to the normal gliding attitude."	