

# SOUTHERN CROSS GLIDING CLUB

## Briefing notes for Junior - HDP

### **General:**

These notes are intended to draw attention to particular features which pilots new to the Junior should be aware of. More detailed information about the Junior is contained in 'General Information, Handling Notes and Rigging Details', a copy of which is kept in the pie cart.

Pilots are reminded that they must have a radio endorsement in their log-books before going solo, and approval to carry out Daily Inspections is also required.

### **Daily inspection:**

The particular points which should be checked are that

- the tailplane securing bolt is fully home, and safety pinned.
- the spring-loaded pin on the elevator push rod locking sleeve is protruding through the sleeve, (this is visible through the hole on the left hand side of the fin).
- the canopy restraint cable is secure (if in doubt as to how to check this, refer to the diagram in the handling notes, or ask an instructor).

Carry out a radio check before taking the glider out to the field.

### **Ground handling.**

Check that the tail dolly and wing-walker tyres are inflated.

Ensure that the tow bar is properly secured to the tail dolly. The bolt latches on the tow bar should be in a horizontal position.

Place the trim lever in about the mid position, and secure the stick with the seat harness.

Tow slowly, and keep a check on where the wing-walker is running.

Also ensure that on a long tow the wing-walker doesn't creep out towards the wing tip.

### **Pre-flight preparation:**

Make sure that you are thoroughly familiar with the location and operation of the controls and instruments, that you can reach everything, the rudder pedals are suitably positioned and that you are comfortable. It is strongly advised that you do this with the glider off-line, so that you are not in any way pressured to get ready to go, (see also the parachute notes later in this booklet).

When the glider is on line, arrange for someone to lift the tail to a level position while you are seated in the glider with the canopy closed. This will enable you to visualise the attitude during the ground roll on take off

Then with the tail on the ground, get the landing attitude picture firmly in your mind

When carrying out the CHAOTIC check, the trim should be about two notches from fully forward for average pilots.

If the trim is not quite right you can re-trim once you are at a safe height on the tow.

Mentally rehearse your Options in case a problem occurs during the take-off run, after becoming airborne, or in the climb. Also, make sure that the radio is on, with the correct frequency selected (i.e. either Ground 121.9, or MBZ 120.1 if the Tower is not operating).

The placards in the aircraft will give details of the various limiting speeds. For your first flight the important speeds are:

- $V_t$  (Max. aerotow speed)- 81 knots,
- $V_s$  (Stall speed) - 30 knots for average pilot weight,
- $V_a$  (Manoeuvring speed) [the maximum speed for full control deflection] - 84 knots.

### ***Take-off and flying the Junior:***

The Junior is very docile in all phases of flight, thus the takeoff should present no problems. If a wing does drop during the early part of the take-off run it should be easy to pick up if immediate and positive action is taken. As with any takeoff, be prepared to release should the situation demand it.

Rest your left hand where it can easily and quickly reach the release control.

On becoming airborne, fly about level with the top of the tug's fin until the tug is also airborne. Flying too low after initial lift-off may cause the glider to contact the ground again, particularly on your first few flights before you are familiar with the glider's control response.

Be careful not to over-control during take-off as Pilot Induced Oscillation (PIO) could occur. The controls are lighter and the response is more rapid than in the two-seaters in which you will have done your first solo, but with the above points in mind you should experience no problem with the Junior

In flight the glider has no vices. At a safe height, and after a HASLL check, it is useful to bring the glider to the stall. This will enable you to note the symptoms of attitude, airspeed, noise, and control feel in the approach to a stall.

Spinning should not be carried out until you have gained familiarity with the glider on several flights, and a full spin must not be executed until you have made incipient spins in both directions.

Spin recovery is quite normal, i.e. Apply full rudder opposite to the direction of rotation, then move the stick forward until rotation stops. Centralise rudder, level wings and recover from the dive *without delay* as speed builds up quickly.

More details on spin entry and characteristics are contained in the Junior Handling Notes.

In accordance with the practice you have been taught during training, you must maintain a safe speed near the ground. This should be ***at least 1.5 Vs*** (i.e. 45 knots minimum). On early flights a minimum of 50 knots is advisable.

### ***Circuit and landing***

Make a positive Break Off decision. Observe circuit traffic direction, ***and keep a listening watch for other traffic*** when approaching the joining area. Also listen to ATIS (125.1) if necessary for information on the wind and active runways. Be aware of the time when the Tower closes and the MBZ comes into operation and ensure that you have the correct frequency selected.

Carry out your FUST check before joining down-wind.

Circuit speed should be 1.5 Vs + half the wind speed. Early flights in the Junior should not be carried out in gusty or rainy conditions. But if the wind is gusty when landing, the approach speed should be 1.5 Vs + half the estimated gust speed. In rain the stall speed will be slightly higher than normal, so it is prudent to increase approach speed by 5 knots.

It is not advisable on early flights to touch down with full airbrake, though after a few flights this will present no problems. The approach may be made with full air brake, but this should be reduced before Check 1. The aim should be to make a normal two point landing with about half airbrake, but once firmly on the ground the airbrake should be opened fully, and the stick held fully back.

Side slipping while using full airbrake may cause the nose to pitch forward sharply. The Junior's airbrakes are very effective, thus side slipping on the approach in conjunction with the use of the airbrakes is both unnecessary and inadvisable. As with any other glider, if you inadvertently balloon on landing, close the airbrakes to avoid rapid loss of airspeed and lift, and as the glider sinks hold off as for a normal landing.

Care should be taken in using the wheel brake. A sharp application may result in the glider tipping on its nose and the tail subsequently falling back to the ground heavily. At the first hint of the nose tipping forward the wheel brake should be eased or released. The tipping tendency with heavy braking increases as the glider slows in the ground roll and the brake becomes progressively more effective.

Note; in early flights although you will select an aiming point on the approach, the important thing is to make a steady approach at a constant speed, followed by a smooth flare, hold off and touch-down. Where you touch down is unimportant provided it is a safe distance beyond the threshold

### ***Flight limitations***

Max speed for aerotow, stall speed and manoeuvring speed were given earlier. Other important speeds and flight limitations are given below.

- Gust penetration speed: 84 knots: Bottom of the yellow arc on the ASI. (Same as manoeuvring speed).
- Max air brake extension speed: 118 knots in smooth air, 84 knots in gusty conditions
- Minimum sink speed: 42 knots with heavy pilot 38 knots with medium weight

Note: It would be unwise for a low-time pilot to circle at less than 45 knots, and the sink rate at this speed would not be significantly greater than that at minimum sink speed.

- Speed for best glide ratio (1:35) 46 knots with heavy pilot  
43 knots with medium weight.

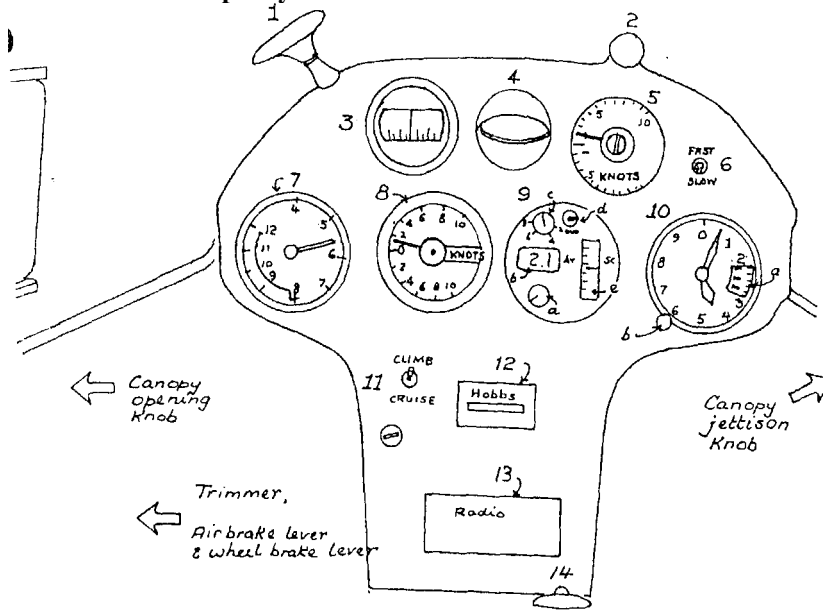
Note these speeds are for best glide ratio in still air. As a rough guide they should be increased by half the estimated wind speed when flying into wind.

### ***Hangaring:***

In accordance with standard club practice, the tail dolly should be removed before the glider enters the hangar. Also remember that if the main wheel doesn't enter the yellow track when the glider enters the hangar you must wheel it out and start again.

The air brakes should be unlocked to release spring tension, the trim lever placed in the central position, the battery removed and the parachute returned in its bag to the locker. **Note:** When transporting the battery, or any other equipment from the hangar to the club house, please place it in the front of your car, so that it won't be forgotten and inadvertently taken home.

## Junior HDP • Cockpit layout



- 1) Tow-rope release.
- 2) Cockpit ventilator control.
- 3) Magnetic compass.
- 4) Ventilator.
- 5) Borgelt electric variometer.
- 6) Vario sensitivity switch (needle response, damped / undamped)
- 7) Air speed indicator (yellow arc indicates Caution range,  $V_a$  to  $V_{ne}$ )
- 8) Mechanical vario with MacCready ring.
- 9) Borgelt electronic vario:
  - a) audio control
  - b) averager indicator
  - c) expected thermal strength selector (McCready setting)
  - d) aircraft weight switch (light, medium or heavy)
  - e) Inter-thermal speed command indicator
- 10) Altimeter
  - a) altimeter setting sub-scale (normally set to QNH)
  - b) altimeter setting control knob
- 11) Climb/Cruise switch for the Borgelt
- 12) Hobbs meter, indicating operating hours
- 13) VHF radio
- 14) Rudder pedal adjustment

The Junior is shown here climbing through 5,800 feet.



The Borgelt Climb/Cruise switch is set at Climb and the averager is showing +0.1 knots (ie the average rate climb for the last 23 seconds).

## **PARACHUTES**

***These are general notes applicable to all our single-seaters. Please read them :***

*Your parachute -- a life saver, or just a cushion?*

No doubt many pilots have regularly worn a parachute without giving a great deal of thought to just what would be involved in using it in an emergency. However, there's more to it than just baling out and pulling the rip-cord. In the 22 years between 1975 and 1997 there were 25 midair collisions involving gliders in Australia. Five of these collisions resulted in fatalities, but in most cases parachutes were used successfully. In one other instance a pilot parachuted to safety after the glider developed a serious control problem. This occurred at Bathurst and the pilot, Kerrie Claffie, subsequently gave an account of her experience in 'Australian Gliding'. Her comments were in line with the notes given below.

### ***Packing and storage of parachutes:***

Store carefully. They should be kept in a clean, dry dark location, off the floor.

When in use, don't leave the parachute in the sun any more than is absolutely necessary, (see below), and don't allow it to get wet. The parachute should have a label indicating when it should be re-packed.

### ***Normal usage:***

#### ***Before use, check:***

- parachute pack and harness in good condition
- within service date
- 'D' ring (rip-cord) properly stowed.

### ***Protection of the parachute:***

Parachutes **must not** be left in the cockpit unless they are protected by the reflective cover provided. Sunlight and heat will cause rapid deterioration.

### ***Putting on a parachute:***

Parachute harnesses vary. Make sure that you not only can you put it on, but you can also release it quickly. If the harness has a chest strap, secure this first, and adjust shoulder strap length if necessary. Bend forward to clip and adjust the leg straps. If, with the chute on, it is easy to straighten up, the straps aren't quite tight enough.

### ***Preparing for emergencies:***

It is pointless to wear a parachute unless you are capable of taking quick and appropriate action in an emergency. You may be suffering from shock, and disorientation so the key to this is to rehearse the actions you will take.

### ***Emergency procedures:***

- ***jettisoning the canopy.***

This should be your first action when baling out. Ensure that you know how to jettison the canopy *on this particular aircraft*. Note that the canopy lock and the jettison handle must *both* be operated.

Be aware that, depending on the design and what the aircraft is doing at the time, the canopy may strike you as it leaves the aircraft. So, get your head down if possible, &/or cover your face as you jettison.

- ***release seat harness,*** not the parachute harness.

Don't make releasing the seat harness your first action, you may be thrown against the canopy if in a negative-g situation. Make it a practice in normal everyday operations to leave the aircraft with your `chute on. This reduces the chance of you releasing the wrong straps in an emergency.

- ***practice making a quick exit*** on the ground.

It will be different in flight, but it might help. You may have to push hard to get out if the aircraft is subject to a high g-force, so think of where you'd have to position your hands to get a good push. Try to position your feet so that your legs can help to push you out, and also so that your lower legs and feet won't be injured if you are thrown from the glider.

- ***make sure that you can find, and identify, the ripcord quickly.***

### ***In an emergency:***

- If low get out as quickly as possible. Kerrie Claffie made the point that, *if in doubt, get out* but bear in mind that the minimum survivable exit height is about 500 feet above *ground level*.
- Once out of the aircraft, if low, *don 't* delay opening the parachute.
- If you bale out at a couple of thousand feet or more agl, adopt the stabilised position before opening the `chute. This will reduce the chance of the chute or rigging lines becoming twisted. If in doubt about the stabilised position, speak to an instructor.
- Look at the rip cord, right hand in the handle, grab your right wrist with your left hand and push straight out *hard* with both arms. If in the stabilised position, you must bring in both hands at the same time. One outstretched arm will cause you to spin.
- The worst case would be if due to injury, g-forces, snagged clothing or otherwise you couldn't get fully out of the aircraft. In that case lean forward as far as possible, pull the rip-cord, and hope that the parachute drags you out.
- Ideally, during the descent the parachute should be steered to a safe landing area. Steer by pulling on the risers (or toggles) using them like ailerons.
- Nearing the ground, be ready for landing. Knees together and slightly bent, shoulders rounded, arms up, holding high up on the risers.
- Landing; facing into wind but touching down slightly sideways.
- Land on balls of feet and on touch-down, roll to one side. Get up quickly and collapse the chute to prevent being dragged. This can be done by going hand over hand along the rigging lines towards the canopy and then rolling the canopy up.

***And finally:***

The Junior is probably your first single-seater. If so, congratulations on reaching this milestone in your flying. The aircraft is a delight to fly and will open up a new range of experience, challenge and enjoyment to you.