

SOUTHERN CROSS GLIDING CLUB

Briefing notes for Jantar - IZU

General:

These notes are intended as a guide for those who are converting to the Jantar, or are re-familiarising themselves if no longer current. More detailed information, including the use of water ballast and the operation of the B57 flight computer, is contained in '*General information, handling notes and rigging details*', a copy of which is available in the pie cart.

The minimum cockpit load for IZU is 70 kg.

Daily inspection:

The particular points which should be noted are:

- the cockpit canopy has to be removed for access to the cockpit. When removed it must be placed where it is safe from damage. Under the wing is normally the safest place.
- when replacing the canopy, note that the dowel in the rear edge of the frame must be inserted before the front of the canopy is lowered.
- the tailplane securing bolt must be fully home with the hole through the bolt horizontal. If in doubt insert a screwdriver through the hole and give it a straight pull (i.e. don't rotate it) the bolt should not move.
- check that the elevator push rod connection sleeve is fully up, and the button protruding.
- ensure that the static vents are clear. This is particularly important at camp where the vents are normally covered overnight to prevent the entry of water or insects.
- when carrying out the radio check, ensure that the switch on the right hand side of the cockpit marked Boom/Mask (i.e. oxygen mask) is in the boom position.
- note that the undercarriage lever button is fully up. In this position a drill mark on the side of the button is visible. Being familiar with where the button should be is vitally important when carrying out your pre-landing FUST check.

Ground handling:

There are no special factors to take into account, but as with towing any glider do not drive at more than a fast walking pace, and keep an eye on where the wing walker is tracking.

Pre-flight preparation:

Flights in the Jantar, particularly early flights must not be rushed. It is very important that the pilot sits as far forward as is comfortable, so that the controls are within easy reach. This requires trial and error so take your time. Having found a comfortable seating position make a mental note of it for future flights. Make sure that you are familiar with the locations and operation of the instruments and controls. A short length of rope is attached to the tow rope release so that it can be actuated easily and quickly. This rope should be positioned to be on your lap before take off.

When making your CHAOTIC check mentally rehearse your Options in case a problem occurs in take off. Also ensure that the radio is on, and to the correct frequency for Camden Ground - 121.9 or MBZ -120.1 as appropriate.

Arrange for the tail to be lifted to the flight attitude and the wings to be leveled while you are seated in the cockpit with the canopy closed. This will enable you to visualise the attitude during ground roll on take off. Then with the tail on the ground get the landing attitude picture firmly in your mind. This will be helped if you are conscious of what you can see in your peripheral vision. You will note that in the touch down attitude the instrument panel restricts the view directly forward. This limitation can be overcome to some extent by looking along the side of the nose. This may sound somewhat daunting, but it isn't a problem if you have taken the time to familiarise yourself before flight.

Ensure that the canopy is properly locked. There is a locking handle on each side of the cockpit and these must move into an over-centre position to lock. If you don't feel the over-center effect, the locks may require adjustment before flight.

Takeoff, and flying the Jantar:

First solos in this or any other glider should not be carried out in gusty conditions, or if there is anything more than a light cross wind.

Make sure that the glider is properly lined up with the runway heading. The wing runner should be someone experienced, and should be briefed that a wing drop early in the take off run is common, and can be quite difficult

to pick up. He should therefore be prepared to run a bit further than is commonly done with other gliders, and must release the wing cleanly, ensuring that he doesn't hold it back.

Be prepared for the possibility of a swing developing during the ground run, particularly if there's no wind, or if there is a light cross wind. If a wing does drop *usefull aileron immediately* to pick it up. With your hand near the release, be prepared to pull off if a significant swing does develop during the ground run, and the glider does not respond immediately to corrective action. Delay in releasing could result in a serious ground loop. Keeping station on tow presents no problems, although you may find the tug becomes unsighted during the tow; lost behind the canopy frame. This however should not pose a problem. On release, carry out the FUST check. You will note that the undercarriage lever moves rearwards, and to lock it the button on the lever must be fully up. Raising the undercarriage requires a strong pull, and locking it can sometimes be difficult, so visually check the position of the button and ensure that the drill mark is visible.
Ensure that in operating the undercarriage lever you do not inadvertently move the Boom/Mask switch.

In flight the glider is stable and has no vices, so your first flight should be a relaxed and enjoyable experience. It is, however, very quiet in flight so the sound and speed cues may be different from the gliders you have previously flown.

Subject to having safe height the glider may be stalled on your first flight, this will give you help to familiarise you with the pre-stall attitude, noise and the feel of the controls. It is also desirable to make some brisk turns at various bank angles, and also to fly at various speeds in order to become familiar with the glider's control response.

Open and close the airbrakes while at height, so that you are familiar with their operation.

After experience of the aircraft has been gained on a few flights it may be spun provided prior permission has been given by the duty instructor, and a briefing obtained. It should be noted that the Jantar spins readily and rapidly.

Key speeds are:

Aerotow max. - 81 knots Min sink - 40.5 knots Best L/D - 51 knots

For early flights circling speed should be not less than 45 knots, and very little will be lost if a slightly higher speed than this is used.

The air brake operating and extended speed is 154 knots in smooth air and 108 knots in turbulence.

The aircraft is equipped with a Borgelt B50 vario and a Borgelt B57 Glide computer. For early flights it is best to ignore the B57. The B50 averager, in conjunction with the basic pressure instruments, will give you all the information you need for local soaring. With the Climb/Cruise switch set to Climb the B50's averager gives a continuous reading of the last 23 seconds average climb or sink. Note: The central switch on the B50 must be set to 'Av.' If set to 'V' it will read battery voltage.

The circuit:

Before joining downwind carry out your FUST check, again *visually verifying* that the undercarriage is down and the locking button is fully up.

The Flight Manual gives the approach speed as 54 - 59 knots. If the wind is less than 10 knots, 55 knots is a good compromise. To this should be added 50% of the estimated wind speed.

The aim in early flights is a good safe landing, there are no prizes for spot landings at this stage. Full air brake can be used for landing, but for early flights even if full air brake is used on the approach it is advisable to ease it in to about half brake before the round-out. As already pointed out, in the hold off the forward view is restricted by the instrument panel, but if you have consciously memorised the hold-off 'picture' before flight there should be no problem. You should, of course, in the usual way transfer your gaze from the aiming point to the far end of the field on commencing the flare, so as to detect any drift and to keep straight.

Braking and ground roll

On the ground roll the wheel brake can be used, but with caution. It is effective with very little squeeze. In particular, for camps the wheel brake may have been adjusted so as to achieve a quick pull up during outlandings. Harsh application of the brake may cause the glider to tip onto its nose, or even if it doesn't get that far it may cause the tail to lift and then drop back heavily, possibly causing damage. Thus at *any* sign of the tail lifting the brake should be eased off

Scrapes under the fuselage of the Jantar after the 1999 camp indicated that the glider had been stood on its nose at some time. It was suggested that this was because the wheel brake is ineffective until the glider is almost stopped, and then it grabs. Well it might have been, but that was not the first time it had happened and

generally the problem has a different cause..

A glider weighing around 350 kg touching down at about 40 knots (74 kph) has a great deal of momentum, and there is only one small wheel to slow it down. However, due to the residual lift on the wings the undercarriage is not carrying the full weight of the glider until it just about stops.

The result is that that early in the landing run the wheel brake isn't going to be very effective, however it is adjusted. However it becomes more effective as you decelerate and more weight is transferred to the wheel, and by the time the glider has slowed to walking speed the brake is able to exert its full authority. At the same time the elevator ceases to have any effect in holding the tail down. The glider's c.g. is above the wheel hub, so if the wheel brake is powerful enough there is a tendency for it to lock and the glider to pivot around the axle and land on its nose. This tendency is resisted by the fact that the c.g. is some distance behind the wheel, providing an opposing moment. So depending on where the c.g. is and how hard you brake the glider may or may not tip up.

The Jantar stands tall on its undercarriage so the high c.g. gives a large nose-over moment when braking hard at slow speeds. The Junior is rather nose heavy, i.e.. the c.g. is not far behind the wheel, particularly with a heavy pilot. So both these gliders will tend to bite the dust if hard braking is used until the glider stops.

Incidentally, both the Jantar and the Junior have disc brakes which are more powerful than the drum brakes used on the IS 28's. The pressure needed to operate these brakes is less, and this makes it easy to overdo the braking. There is one possible problem with them, and that is that a long period without use can result in slight corrosion of the discs, and this could cause a tendency to grab. Thus if the glider has not been used for a few weeks a little more caution is called for.

Apart from scratching the nose, if the glider does tip up it comes down on its tail with an almighty wallop, which can't do it a great deal of good. The moral is that you should be aware of the possibility, and well before you come to a standstill you should be easing the brake pressure to avoid the problem occurring, at the first sign of the tail lifting the brake should be released.

Summary:

The Jantar is not a difficult aircraft to fly, but it is significantly different from the Junior and the Astir. It is therefore essential that time is taken to be thoroughly familiar with those aspects, as outlined above, which are peculiar to the Jantar.