FLYING THE ASTIR CS

DAVID LIDBURY

During a recent visit to Germany, a small group of us from Oxford (myself, Peter Pratelli and Tony Taylor) had the good fortune of flying the Astir CS. Production of the glider had reached a rate of one a day by late July and a tandem two-seater version of the Astir CS is due to be test flown later this year.

The aircraft is somewhat "chunky" in appearance, although this is by no means displeasing to the eye. The most striking features on first sight are the enormous cockpit, the slender tail-boom, and the large wing area. All controls fall readily to hand. The undercarriage lever is operated by the right hand, as is the waterballast jettison. The trim lever and airbrakes are controlled with the left hand. The cable release is situated in the lower half of the instrument console, and to the left of the stick. The wheel-brake lever is mounted on the control stick. The rudder pedals are fully adjustable in flight. The large, hinged, cockpit canopy provides excellent all-round visibility, and the instrument console can accommodate a large number of instruments.

Some of the design features deserve special note, since they are unique to the Astir CS. The wings couple to the fuselage *via* a system of ingenious "snap-lock" connectors. In fact, rigging is achieved without the need for any removable parts. The fuselage has been designed for heavy club use, a vertical member is provided inside the fuselage shell and reaches down to the fin for extra strengthening. The undercarriage suspension is well sprung, immensely strong, and carries an extra large wheel. A neat plug-in tail dolley is provided, and this is designed to drop off should one inadvertently attempt to take-off with it on.

Some general conclusions

Time did not permit us to make an exhaustive assessment of the flight handling characteristics of this glider. However, the following represents some general conclusions drawn by all of us after having short aero-tow flights, each of approximately thirty minutes duration.

We were impressed with the glider's handling during the early stages of the take-off run (for all flights the wind speed was approximately 5kts), good lateral and directional control being obtained from the moment of wingtip release. Once airborne, the flying controls were found to be light, responsive, and well harmonised. No difficulty in keeping station behind the tug was experienced. The trimmer was found to be very effective, and the aircraft could virtually be trimmed to fly "hands off" whilst on tow.

Once off tow at about 500m, the Astir's thermalling ability soon became clear. With moderate angles of bank (up to approximately 40 degrees) thermalling turns were made in the speed range 35—45kts. The glider appeared to be happiest climbing, under the conditions of the day, at about 40kts. Only relatively small, and precise stick movements were required for centring. The rudder, being correspondingly sensitive, had to be used with some discretion to ensure that the yaw string remained centralised.

With some useful height gained from the thermal, a qualitative assessment of the glider's rate of roll was made. At 45kts, the standard change in angle of bank took approximately four seconds. Glides were conducted at various speeds in the range 40—100kts, and we felt it was certainly living up to its reported polar curve. The aircraft has a conventional tailplane-elevator arrangement, and it was found possible to trim "hands off" over the above speed range.

Immediate spin recovery

Next, stalling behaviour was noted. With wings level, the first signs of an approaching stall occurred at an indicated airspeed of about 32kts, with a general burbling of the airflow being apparent around the tail unit. With the stick held more fully back, the glider mushes, but remains controllable in a lateral and directional sense. If the stall is approached more rapidly, the nose will drop away, but any tendency for a wing to drop is easily controlled by use of rudder. On releasing the stick, the glider quickly returns to the normal flying attitude. We did not attempt to spin the glider. However, we later learned that with the CG position between normal limits, the aircraft will only enter a spin with aileron and rudder controls fully crossed, and with the stick held fully back. Recovery was said to be immediate, upon releasing the stick, and or centralising the controls. We also learned that it is possible to make turns in the mushed state at angles of bank up to 20 degrees, without a tendency of wing drop occurring.

Flying the glider in the circuit posed no special problems. The final approach was made at 45kts. The large top-surface air-brakes proved to be very effective, a slight nose-down change of trim occurring when they were opened. The wheelbrake enabled the aircraft to be brought to a rapid halt after a fully held-off, two point touch-down had been made. Directional and lateral control during the ground run were noteworthy, and should enable difficult crosswind landings to be accomplished without fear of ground-looping. The Astir was found to have pleasing side-slip characteristics, and the technique proved to be an effective approach aid.

In conclusion, we were all very favourably impressed with this aircraft. It is, to our way of thinking, well suited to the needs of both club and competition pilot alike.