Eurofox glider towing evaluation

Bicester airfield 27/02/2013

Airfield State: Runway 06, short grass, firm, dry

Weather: surface wind 060/10kts, visibility 10km, temperature +5deg, QNH1035

Equipment:

- Tailwheel Eurofox, G-ETUG, 1x pilot, actual TOW 430kgs, MTOW 560kg, Rotax 912s (100hp)
- Glider, K21 G-CESB with nose hook, 2 crew, TOW 584kgs
- Go pro Hero
- Go pro Hero black 2
- LX NAV Nano IGC flight recorder sn166

Pilots details.

Tug pilot - D Francis, BGA chief tug pilot, BGA FE

Glider

P1 - D Watt, ex Booker tug master, CFI Bicester, BGA FE

P2 -J Morris (non-handling)

Evaluation exercises

1. Normal BGA operational towing procedures
2. Boxing the slipstream
3. Out of position left/right
4. Divergent oscillation with/without vertical divergence

Note Exercises 5-6 involves gradual displacement laterally/vertically whilst in radio contact with tug pilot to estimate the tug pilot's safe limit of control

5. Left/right
6. High/low

Findings

The tests undertaken during this brief trial were flown by experienced pilots in controlled conditions. In addition, the extremes of out of position were attained by very gradual displacement. It is important nonetheless to understand that tug upsets never occur in these sort of gradual displacements. They are invariably the result of a rapidly escalating situation. Because of the dangers associated with trying to replicate such situations this was not tested or demonstrated in this flight evaluation.

1. Achieved climb rate (as per IGC log) over a 10 minute climb at 60-65kts was 400 Feet Per Minute. It should be noted that this was probably reduced by the exercises performed during the tow (points 1-7 above).
2. Completed successfully.
3. Completed successfully.
4. Completed successfully.
5. Left - Completed successfully. Right – lateral displacement was more limited than to the left by rudder movement resulting in the exercise being stopped at the request of the tug pilot.
6. Low - Completed successfully. High – after the glider assumed a reasonable amount of vertical displacement control became demanding loosing elevator authority resulting in the exercise being stopped at the request of the tug pilot.

During exercises 2-6 the Eurofox demonstrated impressive performance, maintaining good control with some fairly extreme out of position manoeuvres by a heavy glider, broadly similar to other tugs.

As a result one can only speculate on how easy or difficult it might be to cause a tug upset whilst being towed by the Eurofox. Certainly, pilots would be wise to assume that with the aircraft being much lighter than most tugs, in a real upset situation it could be easier than these exercises might suggest to upset the aircraft, particularly in pitch.

However, all in all, the aircraft exceeded expectations and there is no doubt that although lightweight, the controls are powerful enough to withstand the normal displacements on aerotow that one might expect in the training environment.

Derren Francis

28th February 2013