Flying Characteristics of the Centrair Pegasus 101B

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The FLSC Pegasus101 (serial number 203) was built at the same time as my Pegasus 101B (serial number 202). They are 101B models but were registered as 101A models to simplify registration with the FAA. The 101A has a glass fiber main spar whereas the 101B has carbon fiber built into the main spar which stiffens the wing. Geoff and I have owned our Pegasus for 11 years so I thought that a note on the characteristic of my Pegasus may help pilots transitioning to the FLSC Pegasus. My comments are based on the presumption that both ships behave the same.

The Pegasus is a very nice handling ship with excellent aileron control even in the stall and has excellent thermalling capabilities. The flexible wing results in a very comfortable ride. However, the cg hook and the flexible wing require considerable attention when taking off in the Pegasus. Geoff and I find our Pegasus to be ultra sensitive to elevator control on takeoff which is the result of the rearward location of the cg in our ship. Note that our Pegasus has 3 kg of ballast in the tail which moves the cg back to 83% of the rearward limit for a 170 lb pilot. The FLSC Pegasus has a more forward cg and is much less sensitive on takeoff. Lighter mass pilots should check that the cg is far forward for their initial flights. Geoff and I feel that a thorough check out is essential prior to flying the Pegasus. Except for the sensitivity on takeoff, the Pegasus is a forgiving and easy ship to fly. Note that an AD forbids using the rear water bags. I removed the rear bags from the wings of my ship to save weight.

Takeoff:

Because of the cg hook one has to be extremely careful to ensure that the ship does not pitch up to winch launch attitude at low speed when the elevator control authority is insufficient to recover.

1) Ensure that the ship is pointing in the direction you wish to roll on takeoff since the ship will go in the direction it is pointing until the tail lifts off. That is, the pull of the tow rope does not align the fuselage with the tow direction as it does with a forward tow hook. It is necessary to use forward stick so that the tail lifts off and then the rudder can steer.

2) **Make sure the tail dolly is removed**

3) **Set the trim to full forward position before takeoff.**

4) Apply full wheel brake while taking up slack rope, otherwise the ship invariably will roll forward over the rope and back release. This can result in the rope wrapping around the axle of the wheel which could be dangerous since then you will be unable to release the rope if the tow continues.

5) If the wheel hits a bump during takeoff the ship can bounce into the air causing the wings to bend downward when the wheel again hits the ground. The small dihedral coupled with the flexible wings can result in the downward bent wing catching in long grass. This could result in a ground loop on aero tow and much worse during a winch launch. Thus the pilot should keep their left hand at the base of the stick ready to pull the tow release during the ground roll.

6) The ground roll is the most critical aspect of flying the Pegasus. Use slight stick forward on the initial roll to expedite lift off of the tail so that the rudder becomes effective for steering. The ship is slow to lift off which I presume is due to the low angle of incidence of the wing. As a result the speed is significant when lift off occurs which causes the ship to be very sensitive to the elevator and a tendency to jump well above the tow plane. The pilot must not pull the stick back to speed lift off since then the ship may rotate into the winch launch attitude.

7) Once the normal tow attitude is achieved the Pegasus is very easy to fly on tow.

Flight characteristics:
The Pegasus is not approved for aerobatic flight or spins. I spun it once, and only once, 11 years ago. Fortunately, the excellent aileron control at stall makes accidental spins highly unlikely. The air brakes are powerful giving an L/D = 5 with full brakes applied at approach speed. Like other top-side air brake systems, one must be careful opening the dive brakes at high speed, or you will hit your head hard against the canopy. The rudder is powerful; in a slip it will stay at full lock until forcible neutralized by the pilot. The Pegasus thermals very nicely at speeds down into the mid 40 knot range. The performance is good for speeds below about 90 knots but it rapidly deteriorates at higher speeds. The claimed best L/D is 41.

Landing:
The powerful dive brakes make the Pegasus easy to land. A slip should not be necessary and slipping the Pegasus is not very effective. Also at low speed it is possible to reach full back stick before reaching full rudder which leads to a nose down attitude. Thus it is best to rely on the powerful dive brakes rather than the unusual slipping behavior. The recommended landing speed is 49 knots. Typically I approach at 55-60 knots and then slow down on final to about 50knots.

Note that I recommend using the air brakes with the brake handle pointing downwards for two reasons. The first reason is that when the gear is retracted the gear handle will hit your arm if you try to open the air brakes with gear up; this provides a nice gear check. Secondly, using the handle in a horizontal orientation can result in tearing the skin of your left hand on the cables to the nearby water ballast levers; this leaves a bloody mess. After lowering the gear, check that the gear handle is fully locked in the detent or it can bounce out.

The Pegasus wheel brake is a lousy French copy of a terrible German design, thus stopping is marginal during the roll out, it requires many Hail Mary’s, or your equivalent phrase. Pilots should not land pointing towards stationary objects or people, they may require more Hail Mary’s than they anticipate. The lousy wheel braking capability is a powerful inducement to stay airborne rather than land in a field.

Enjoy flying the Pegasus.