Flying an Original 1909 Bleriot XI

It has been my honor to fly an original 1909 Bleriot this summer at Old Rhinebeck Aerodrome. It is the oldest flying airplane in the country, and its sister ship was the first plane to cross the English Channel, also in 1909. It has an original inverted “Y” Anzani engine which has been powering it for 100 years. Since it has no flying instruments, I have no idea how fast it flies, but would guess something around 30mph. It uses wing warping for roll control, which is marginally effective at such slow speeds. The rudder is small, but produces adequate yaw, albeit somewhat delayed after control input. Pitch control is very sensitive. The four-cycle 35 hp engine has a single magneto and starts and runs well, but having only three cylinders fires every 240 degrees of rotation, which is to say it is not the smoothest. Who knows how much horsepower it still produces? It barely makes enough speed to takeoff, and with its highly cambered airfoil seems to levitate as much as fly. In flight it feels like I imagine a butterfly would, affected by the slightest wind change. The margin between stall and level flight is only a couple of knots. Drag is very high, so it descends quickly with either less than full power or minor excess pitch. It lands nicely, but with little directional control. Built just six years after the Wright brothers first flew, it was an amazing accomplishment to have flown across the English Channel in a nearly identical airplane. Sitting in its wicker seat, surrounded by an incredible century of history and patina, and flying with the same sense of anticipation of the unknown as Louis Bleriot, is a humbling experience and an honor.

Prepping the Anzani engine for flight requires draining oil from brass plugs in the lower two cylinders to avoid hydraulic lock. Just before start, valves are opened for oil and fuel flow. The engine utilizes a “total loss” oil system, which means it has no oil sump to store and re-circulate lubricant. Oil is stored in a high gravity feeding copper tank, and briefly passes through the engine on its way to the pilot’s clothes. This is a messy airplane to fly, needing a thorough wipe-down after every flight. The remainder of the pre-flight involves checking dozens of wires and fittings, integrity of the wood members and fabric, and security of the somewhat complex landing gear. The engine is primed by pulling through several revolutions, and it usually starts on the first pull. There are only two instruments, oil pressure and RPM. Do a flight control check, warm the engine, pull the chocks and get your nerve up. It is wise to have the plane pointed in the direction you wish to fly before releasing the wing walkers, as there are neither brakes nor any kind of steering beyond the marginally effective rudder.

Takeoff requires full forward elevator to counteract tail heaviness. The tail must be lifted surprisingly high to get acceleration, as the highly cambered and “draggy” wing is mounted at a significant angle of incidence. When the plane seems to be going as fast as it can, forward stick pressure is released slightly and it lifts off nicely. Immediate forward stick pressure is again required to level off, as I don’t recommend flying the Bleriot any higher than you are willing to jump! Crosswinds are problematic, with original advice being no more than a couple of knots. It can handle more, but with caveats. Track must be established early in the takeoff roll, as there is marginal opportunity to change it once airborne. This requires wing warping into the wind immediately upon moving, since response time to roll inputs is very slow. The warping should not be released until certain it is not needed, because if the upwind wing picks up it may be an impossible challenge to get it level again. If winds shift while taking off, immediate landing is the best course of action. Designers thought 40 mph would be required before wing warping would be effective, a speed that is most likely not reached during a ground-effect hop. Another issue is the sometimes wonderful castering landing gear, ala Cessna 195 and B-52. It works great for landing, as the wheels nicely align themselves with the airplane track, a feature most likely included to protect the delicate structure. There is no pilot control over this feature, so it also works while taxiing and taking off, which is to say the plane simply moves sideways with the slightest crosswind or runway crown. In a large 1909 field, that wasn’t a problem, but with a runway lined with obstacles there is an issue.

Heading and track can be changed with rudder, but it is slow to react. It is quite small, requires significant engine rpm to have enough air flowing over it, and even then the pilot’s body blocks most of the flow. To

the airplane, rudder inputs seem more of a suggestion than an immediate request. In flight, roll control requires anticipation and long lead time. In stark contrast, pitch control is very sensitive. Bleriots are significantly tail heavy, which may be why they have a lifting horizontal tail. This is the opposite of later airplanes which use negative lifting tails and some degree of nose heaviness for stability. Because of instability caused by the aft c.g. and lifting tail, pitch control is overly effective and unstable, and unlike the sluggish wing warping and rudder, requires constant small corrections. Descent for landing is easy – just push the stick forward slightly for a slow descent. Drag is very high, so significant throttle reduction would result in immediate cessation of flight. (Early literature says 30 degrees nose down is required without engine thrust, which of course is not an option close to the ground.) Significant flare simply increases drag so much that descent rate increases. The landing gear is nicely sprung on bungees, so the plane lands graciously. The gear will caster for any drift, which makes for a nice crosswind touchdown, but also a total lack of directional control. The plane cannot be handled on the ground without wing-walkers.

The Bleriot is the worst flying airplane I have flown, and one of the most satisfying. Even with 25 flights, every one still demands complete attention and focus. Frank Tallman of Hollywood flying fame described the Bleriot as “perfectly awful to fly” and responsible for “more gray hair” than all the other 500 types he flew added together. Maybe, but at the “senior” end of my flying career I can’t imagine any plane being so rewarding or as much of an honor to fly.