

Review

"First Flight"

The Wright Flyer Experience Flight Simulator
from Bihrl Applied Research Inc.

by **Jorgen "Troll" Toll**

Back in 1903, December 17th 1903 to be exact, the brothers Orville and Wilbur Wright made the history books by being the first ever to construct and fly a powered aeroplane. Technically, this was only the "First Flight" by definition. The Brothers had constructed and flown gliders before their first powered flight.

Fast forward to present time. It's 2003. In a few weeks, flight enthusiasts from all over the world will celebrate the 100 year anniversary of the Wright Brothers first flight.

A replica of the 1903 Wright Flyer has been built according to original blueprints, documents and the original "Flyer" found at the Smithsonian institution.

The Replica will be flown on December 17th by one of the candidates found at **Experimental Aircraft Association (EAA) web site** .

The pilot candidates have been training hard in replica gliders, towed behind cars and with a flight simulator.

The flight simulator was supported in development by Bihrl Applied Research Inc. Bihrl is known for developing high-fidelity flight simulators for the military aviation industry. Their "First Flight" simulator build on test data obtained from wind tunnel testing of the 1903 Flyer replica, in NACA's Wind tunnel at Langley.

This Flight simulation by Bihrl is commercially available for the PC Flight Sim enthusiast.

We at SimHQ were lucky indeed to obtain a copy of this centennial flight simulation from Bihrl.

I have been testing and flying the simulator for a months time and the following article represent my impressions.

I have not flown the Wright Flyer replica, and can not relate to the authenticity of the representation of the Flyers performance. However, I am a commercially licensed pilot with 1500 hours in my logbook, so I consider myself to have a better than average knowledge about flying aircraft.

The Simulator comes packed in a DVD case and contains a single CD and a Quick start guide. Nothing more, nothing less.

Installation was simple and painless and requires around 200MB of hard drive real-estate, which is almost nothing by today's standards.

The menu screen, showed below, has options for 4 different flights, flight records and options.

The 4 flights available are:

Year	Aircraft	Location
1902	Glider	The Glider at Jockey's ridge
1903	Flyer	The First powered flight at Kill Devil Hill, Kitty Hawk, NC.
1911	Model B	The Wright Brothers first military demo flight at Fort Meyers, VA.
1911	Model B	The Wright Brothers first training base at College Park, MD.

The Options page has settings for graphics, controls and sound. Nothing very complicated, and with working default settings.



Menu

The “mission” for all flights is to recreate or even beat the Wright Brothers flight records. After a completed flight you are presented with a “telegram” showing your results compared to earlier attempts and the Wright Brothers results.

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RECEIVED at 176 C KA CS 33 Paid. Via Norfolk Va 170
Kitty Hawk N C Oct. 08
Bishop M Wright

Successful flights wednesday the machine flew beautifully even appeared to soar
We are convinced that the trouble with the 1901 machine is overcome speed through
air 28 miles per hour distance 868 feet time 99 seconds .

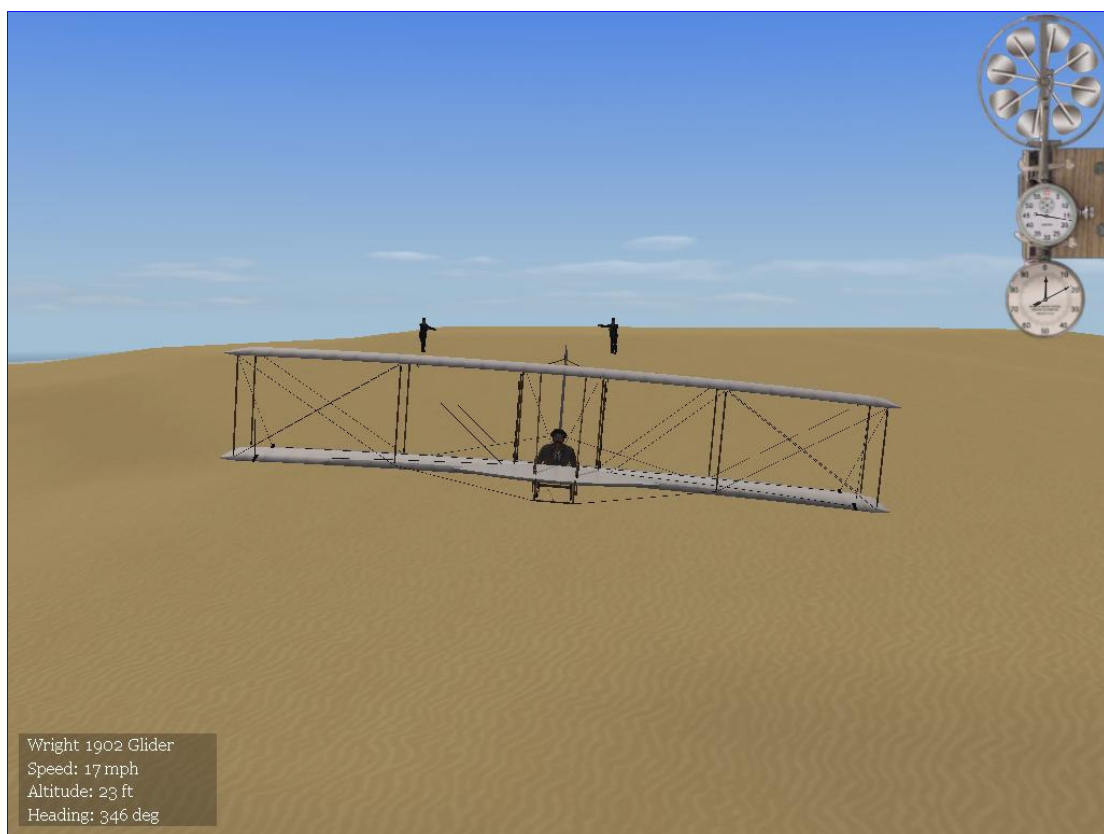
JT

	Fastest Speed (mph)	Farthest Distance (ft)	Longest Time (sec)
1	32 JT	1525 JT	173 JT
2	31 JT	1525 JT	173 JT
3	29 JT	1386 JT	135 JT
4	29 JT	868 JT	99 JT
5	29 JT	745 JT	68 JT

View Replay Save Replay Exit

Result

The Glider flight starts on the slope of Jockey's ridge, a popular site for hang-gliding to this day. The glider is supported and launched by helpers when you press Spacebar. The objective is to stay aloft as long as possible, flying as far and fast as possible. Sounds easy? Not in an inherently unstable aircraft, I can tell you!



A common trait for the early Wright aircraft, especially the canard constructions, is the instability in pitch. The short length of the “fuselage” and the absence of wing dihedral make for some interesting flight characteristics...!

The later 1911 Model B aircraft are somewhat easier to control in pitch because of the aft horizontal stabilizer.



1911 CP Sales Tour

Generally the aircraft have lots of induced and parasite drag. Combine high aerodynamic drag with under powered engines and you better be careful with those controls! Should you stall the aircraft you have little or no chance of recovering, as you undoubtedly will find out, should you buy this simulator!

Common errors are to chase the controls trying to fly the aircraft... The aircraft flies just fine, thank you! You, as its pilot, should concentrate on keeping the pitch stable and point the nose, gently, in the direction you want to fly.

Place the canard just below the horizon for a good stable flight.

Should the aircraft start to buffet, a prelude to a stall, you will hear this as a “rumbling” sound. Lower the nose a few degrees to lower your angle of attack and pick up speed. Do NOT, initiate a nose down recovery as if you were flying a modern aircraft!

The 1903 Flyer is launched on a rail as you throttle up. Keep the nose from digging in the sand. The aircraft will lift off and pitch up rather violently, if you are not prepared to ease off the pitch control, and lead to a stall that is unrecoverable at that altitude.



Whatever you do, maintain speed in the turns! If you have to pitch up in order to maintain altitude in the turns you are banking too much. Use the “yaw string”, the little cotton string in front of you, to check if you’re slipping in the turns.

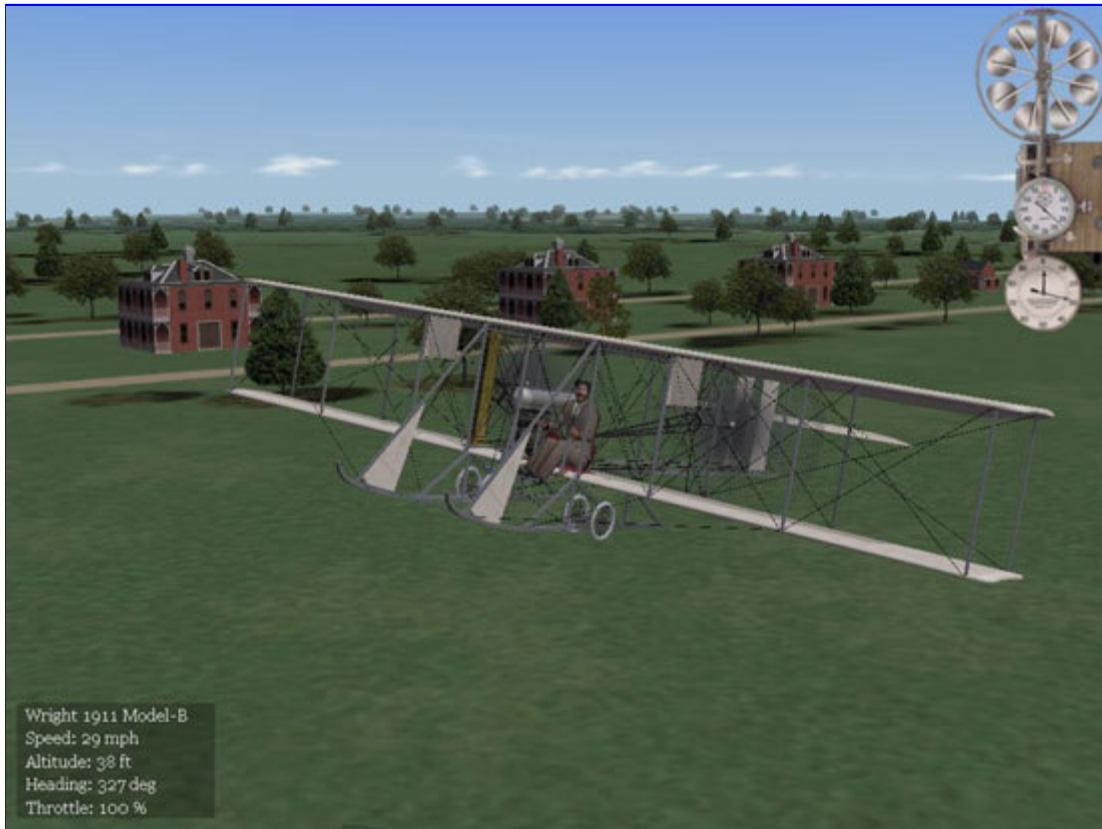


1903 landed

The 1911 Model B aircraft has more power, and wheels. It takes off as a conventional aircraft. It is more forgiving than the other aircraft but not what I would call a high performance aircraft, by any means.

When taking off, apply power and let the speed build up. The tail should lift off the ground shortly. Let the aircraft accelerate until it lifts off the ground in level flight.

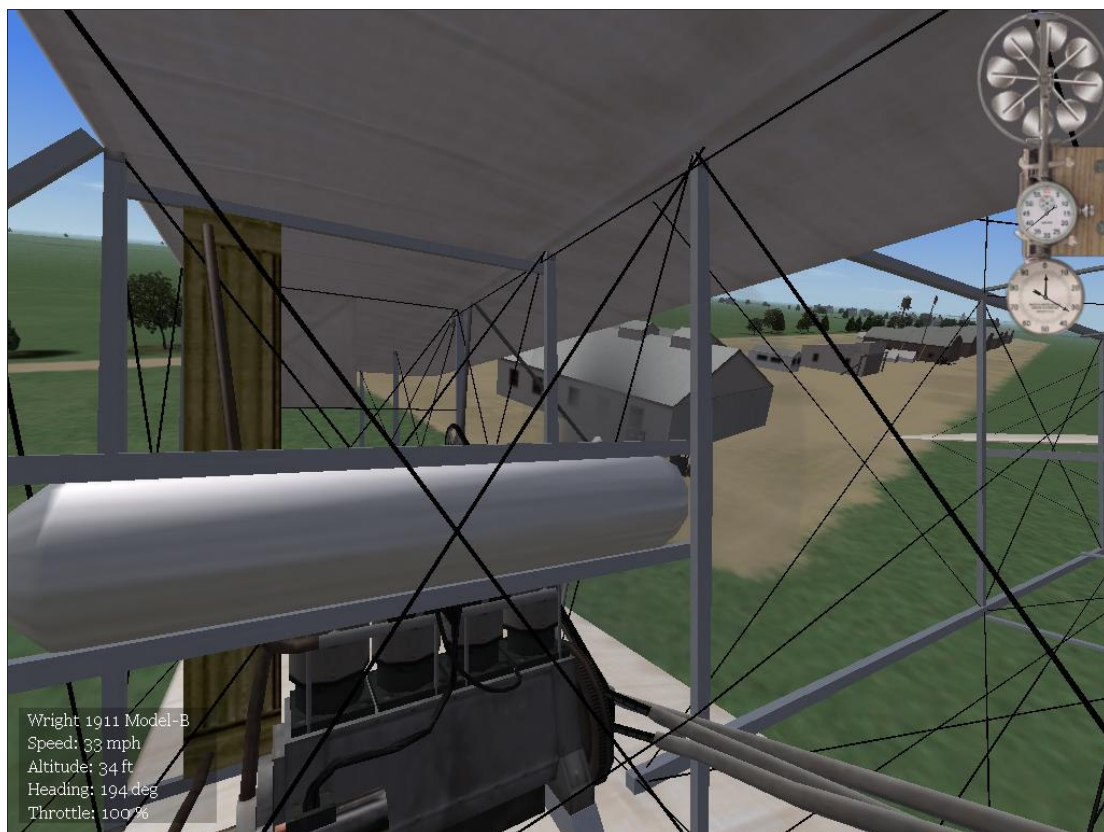
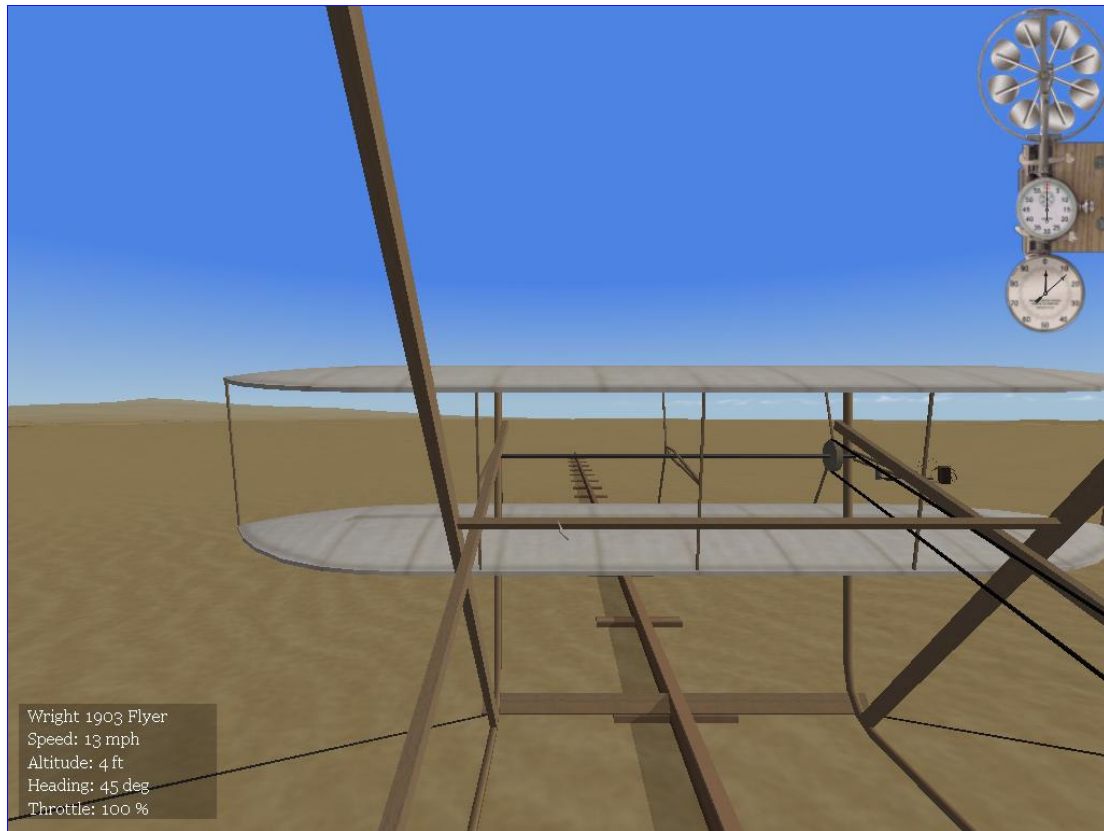
Be careful with the pitch control!



1911 FM sales tour

“First Flight” has a replay feature so you can view your flights safely on ground. You will find that changing views to outside and side views, in flight, will make it harder to check the pitch angle. Fly the aircraft from the cockpit view, and use the replay feature to watch the flight from the outside.

The views are from the cockpit, to the sides, outside, flyby and fixed ground views. The cockpit is rendered in 3D except for the instruments which are 2D and follow your view angle. Vital information about the flight, such as speed, altitude, heading and power is displayed as numbers in the lower left corner. A bit unrealistic, I know, but a compromise due to the fact that you would have more sensory input when flying the real thing. You just can't feel the wind on your face when sitting in front of a PC monitor, If you see what I mean.



Graphics

The graphics in “First Flight” are very nice! They are not, by any means, industry leading, but they do the job! Ground detail is good enough to give a good sense of speed over the terrain which is essential for landings.



Glider Shadow

Sound

Nothing very special here. Engine sounds, wing buffeting rumble sounds and wind. An occasional seagull is heard, but not seen.

The “feel”

The feeling of flight is most definitely there! Flying these old crates was, and is, challenging. Just read about the centennial flyers on the web (follow links below) to see what I’m talking about.

“First Flight” captures the thrill of early aviation. Being able to take off in the 1903 Flyer is a challenging task! To succeed with this task in real life must have been awesome! To succeed in the simulator may not be as gratifying, but is never the less very awarding.

Price

\$50 is pricey for a niche flight simulator like this. To the aviation enthusiast it is a collectors item and as such isn’t more than what we normally would pay for other aviation articles.

For the Simulation enthusiast \$50 represent the normal price for a flight simulator these days. Granted we normally would expect a little bit more than 3 aircraft and 4 locations. But it is “the” flight simulator for the reenactment of the first powered flight on our PC:s. And it’s, as far as I know, bug free...

I for one, will use this simulator on the 17th of December, to honor the legacy of two of aviation's greatest pioneers. I would’ve wanted to go to Kitty Hawk to watch the re-enactment of the flight for real. But going virtually will have to do...



Sunrise

System Requirements:

- Windows 98/2000/XP
- Pentium 3 or higher CPU
- 64MB RAM
- CD-ROM
- Soundcard
- Joystick (2 for realism, as that's how these aircraft was controlled)
- Video Card with DirectX 8.0 3D acceleration. 32MB

Test System Specs:

- Windows XP Pro
- Pentium 4 2.4GHz
- 512MB RAM
- Hercules GTX Sound

- CH Products USB Yoke and Pedals
- NVIDIA GForce 3 Ti 200 64MB

Links:

Bihle Applied Research

Interesting links:

<http://www.wrightexperience.com>
<http://www.countdowntokittyhawk.org>
<http://www.firstflight.org>
<http://www.firstflightcentennial.org>
<http://www.killdevilhills.com>