



Great Planes
RealFlight Simulator
G3 Expansion Pack 2
by Frank Granelli



Great Planes' RealFlite RC simulator has been one of the best RC simulator packages available for several years. The G3 version (photos 1 and 2) is the most current, and the most capable, RealFlight simulator. The G3 has several additional capabilities beyond the older G1 and G2 software packages. These improvements, and the G3 RC simulator itself, are studied in detail in Sport Aviator's Baggage Compartment, [The RealFlight G3 RC Simulator](#) article.



Photo 1



Photo 2

Over the years, Great Planes has offered update packages for its RC simulators. The G2 series has five separate "Add On" packages that greatly expand the number of airplanes and airports in the RealFlight virtual world. All of these G2 Add On packages will work with the G3 series as well.

But now there are new add on packages just for the G3 simulator. These "Expansion Packs" work only with the G3 series and add extra airfields and aircraft. Some of these aircraft are fun, and some will add to a new RC pilot's experience.



Photo 3

The first new "airfield" in Expansion Pack 2 is the Champaign, IL armory used for the Hobbico/Great Planes E-Fest last February. Since I was fortunate enough to be at this event, I can state first hand that this "photo field" (so-called because it is made from actual on-site photographs) is a faithful reproduction of this giant indoor airport. Fortunately, this rendition does not have the large hanging cable or the basketball hoop that added some extra interest for the RC pilots flying there. The food concessions that were serving some really great Midwest foods just outside the door are also missing (darn!).

The Eclipse, shown in photo 3, was designed by Jason Noll and took first place at both the 2006 ETOC (Electric Tournament of Champions) and at the 2006 E-Fest held at this airport. The Eclipse is a fun airplane to fly and very forgiving for a 3D competition aircraft. But I would not recommend the real thing for newer pilots. But remember this is just a simulator with a working "reset button" so have it and the best of luck.



Photo 4



Photo 5

The E-Fest site lends itself to any of the electric airplanes in either the original G3 simulator or in the Expansion Pack 2. The Ultra-Fly Radix 3D (photo 4) is another indoor 3-D performance aircraft. The Radix uses a lot of carbon fiber and is extremely light. Its minimum flight speed is

about 5 mph but it can really move if pushed. Its 30+ mph top speed still allows it to perform well indoors. Again, the Radix is not an airplane for the newer pilot but that doesn't apply to the virtual flight world.

However, the Aerocat's (photo 5) 70+ mph top speed makes it a handful indoors. Staying ahead of this little speed demon while flying indoors will sharpen any RC pilot's skills. If you are wondering where these speed readings are coming from, the G3 will put all the Navigation Readings, including airspeed, right up there in a separate view window if you want them. The Aerocat, while electric, is really better suited to outdoor flying. The same goes for the other electric-powered delta airplane in the G3 Expansion Pack 2; the Mini-Delta.



Photo 6



Photo 7

Of course, all the aircraft from the original G3 simulator package can also be flown at the E-Fest site. Wild RC's Mini-IFO in photo 6 is a perfect example. The E3D in photo 7 is a bit more challenging but can be flown indoors with a little practice. Remember that practice, without real-world consequences, is what RC simulation flying is all about. New pilots learn the skills they need in the real world without the real world rebuilding experience.



Photo 8

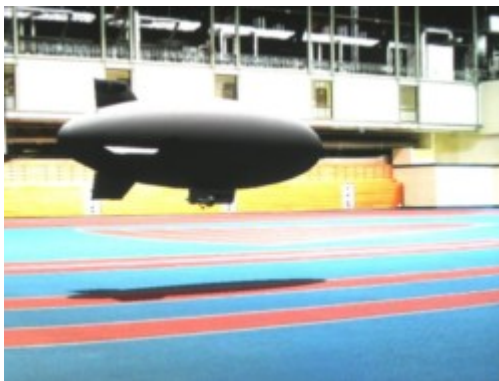


Photo 9

The electric-powered Watt Not helicopter (photo 8) from the original G3 package also does well in the E-Fest space. For relaxation, try flying the G3 blimp indoors. Learning to rotate the engine pods in the confined area will sharpen that skill for a really strange, and fun, airplane to come; the Wolf Spyder (photo 10 below).



Photo 10

There are some things to keep in mind flying in doors. First, the camera position, what Great Planes calls your viewing perspective is limited to the default, pilot from the ground, setting. The “Chase” (flying along behind the aircraft) and the “cockpit” views are not possible indoors. But in the small space, are they really needed? Probably not.

There are several “zoom”: settings in the G3 simulation. If you plan to just fly around indoors, the auto zoom setting provides the best all-around flying experience. If you intend to try your hand at 3D however, I recommend using the manual zoom and enlarging the airplane three or four times. At normal size, the hovering airplane is easily lost in the background clutter. If I remember correctly, this also happened to the real-world pilots at the E-Fest. But they couldn’t grab binoculars in time to see their airplane the way the virtual pilot can in this simulation.

Moving Outside



Photo 11

The first Outdoor airfield is the “Aqueduct” shown in photo 11. This “airport” features a Roman-like aqueduct in ruins. At first glance, the only thought that comes to mind is what crazy person would put an airport this close to such a massive structure? The aqueduct is close to the runway and there are buildings close on the other side. Then I you realize that that is the whole point. The pilot must fly a perfect approach path in order to miss the old structure while not flying over the buildings. A simulator, while fun to fly, is primarily designed to improve your flying skills. Sometimes pilots get so lost in the art of flying new aircraft at wide open virtual fields that this purpose is lost. Flying the Aqueduct forces the pilot to concentrate and improve, or else!



Photo 12



Photo 13

There are two new aircraft in the Expansion Pack 2 that I have flown. Both these aircraft make excellent second or third airplanes. The first is the Great Planes PT-17 Stearman ARF kit (photo 12). I only have a few minutes on this airplane but can attest to its gentle responsiveness, light wing loading and easy handling. Judging from those few real-world minutes, the RealFlight PT-17 flies about the same as the real one.

Both the Great Planes PT-17 and the RealFlight PT-17 use OS 91 4-stroke engines. Both weighed around 12.5 pounds. The Real Flight specifications are listed every time the airplane is selected as a new aircraft in the simulation. That is why both aircraft flew and handled alike.

The same is not true for the other great "second airplane" in the Expansion Pack 2. The Curtis P-6E Hawk in the RealFlight program (photo 13) weighs just 11.6 pounds and is powered by an OS 91 4-stroke engine. The Great Planes P-6E Hawk reviewed in Sport Aviator ([The P-6E Hawk](#)) weighed 13.81 pounds and was powered by the strong OS 1.20 Surpass III pumped, 4-stroke engine. This engine is significantly more powerful than the OS 91 yet weighs only a few ounces more. There seems to be a weight discrepancy here.

This weight difference readily manifests itself in performance. The real-world Hawk was a delight to fly and easy to handle. Its giant wings provided extra lift that tamed this large scale aircraft, making it suitable as a second or third airplane. The airplane has no vices and is downright easy to fly and land. But the climb rate, even with the 1.20 Surpass III engine, while acceptable is a little short of impressive. Inverted flight is possible but inverted loops are not and extended knife-edge flight is impossible. This is not true of the RealFlight virtual Hawk. The climb rate is impressive and outside loops are easy to do. Level knife-edge flight is possible on the simulator.

The real-world Hawk pulls heavily to the wheels in knife-edge flight. The virtual Hawk has a slight pull to the canopy. Walking in knife-edge is a function of the Center of Gravity location (just a little bit), the wing and stabilizer incidences, fuselage shape, stabilizer and rudder locations and probably much more. Why the big knife-edge difference between the two airplanes is unknown, but it does exist. The virtual Hawk also has a slight pull to the right during takeoff. The real-world aircraft pulls strongly to the left but that difference could be due to the larger engine and propeller in the real-world airplane.

But there the differences ended. Since the controller is not a computer radio, the pilot has to hand-fly the elevator to prevent the knife-edge "walking". Landings are slow and easy, just as in real life and the airplane handles well. The virtual Hawk manages wind flying just as well as the real-world aircraft. Snap rolls, stalls and spins are identical.

If you are planning on getting a Great Planes P-6E Hawk sometime soon, (you should it is a great airplane) then reset the virtual airplane's weight to 12.8 pounds. This will simulate the real Hawk's climb rate and does not noticeably affect the airplane's other handling performances.



Photo 14



Photo 15

Of course, with all those arches around, what pilot could resist trying to fly through them? Not me, for sure. Sometimes showing off works quite well, as in photo 14. Sometimes, maybe not so well (photo 15). Either way, practicing the arch fly-thru's improves piloting skills.

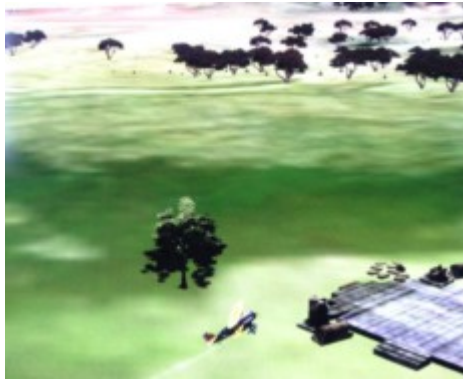


Photo 16



Photo 17

Flying at the Aqueduct offers a different pilot perspective. You can stand on top of the Aqueduct and fly the airplane from that perspective. No, I don't think I could climb up there in the real world, nor would I want to. But here, virtually, I can. Slope soaring pilots are used to this perspective. But I have only flown at one real-world power airfield that offered it. The Aeroguidance Society in Vestal, NY has one side of the field overlooking a large valley at least a thousand feet below.

It was a very different feeling and I wish I had this simulator expansion package to practice on before flying there. You can also use this piloting location to try landing on top of the aqueduct but that leaves the world of RC simulation and enters the games arena.



Photo 18

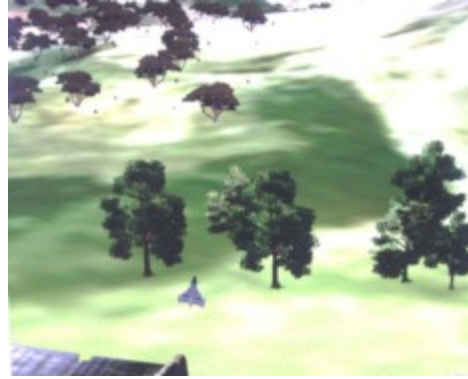


Photo 19

The Pogo is another interesting airplane to fly at the Aqueduct. Either position, ground level (photo 18) or from atop the aqueduct (photo 19), offers the pilot a real challenge. The Pogo was a real-world Navy aircraft prototype. It was meant for vertical takeoffs and landings with transition to horizontal flight in between.

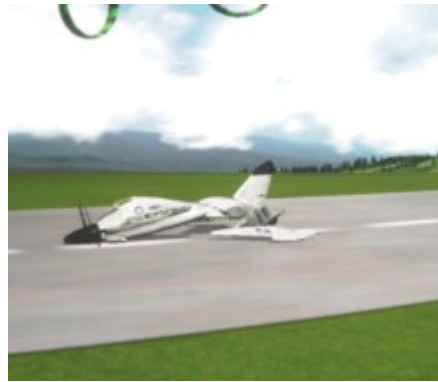


Photo 20

While horizontal flight performance was acceptable for its time, the early 1950's, even the best Navy test pilots had difficulty landing the thing. The RealFlight Pogo is no different. Photo 20 shows the result of most of my landing attempts. I am thankful for that reset button when flying this airplane.

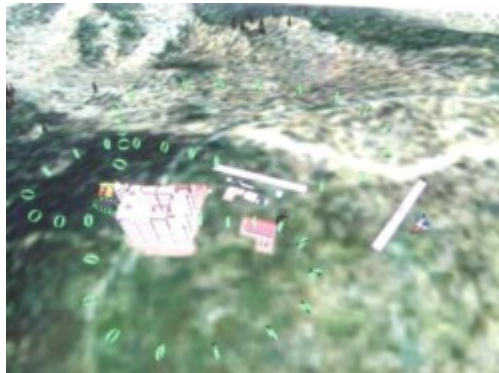


Photo 21

Photo 20 of the broken Pogo, a very common occurrence, was taken at the last new airfield in the G3 Expansion Pack 2; the Obstacle Course. This airfield, shown in photo 21 has two different runways. The first leads into the obstacle course as seen in the photo. The obstacles are those green rings. The idea is to fly your airplane through all the rings and then land.

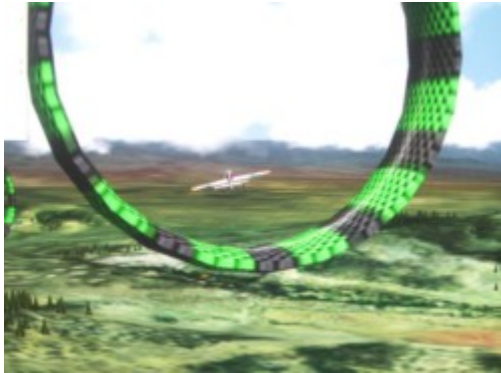


Photo 22

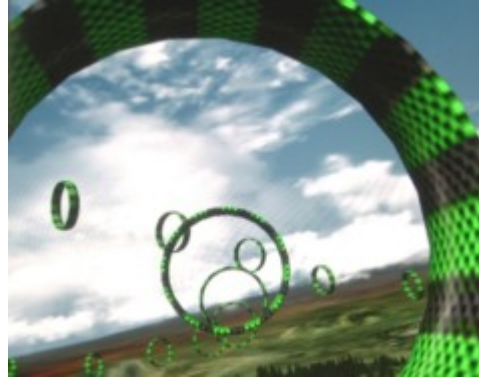


Photo 23

It is not possible to fly the obstacle course from the usual RC pilot's position. You can't see all the rings from the ground. Instead, use the chase position (photo 22) or the cockpit view (photo 23) to complete the course. It is fun and challenging; more challenging than the obstacle course in the main G3 simulator. But again, this leaves the realm of the RC simulator and enters the game world.

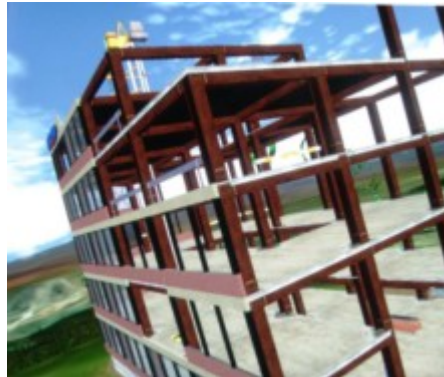


Photo 24

This field has a new twist. Instead of just flying through the rings, you also have to negotiate a building that is under construction. This can be difficult and challenging. It reminds me a little of the Millennium Falcon's flight through the unfinished "Death Star" interior in Star Wars VI.

In addition to the runway with the ring obstacles, there is another runway here that is removed from the rings. This is the Event Runway. You can access this position by going into "View" on the main menu, selecting Camera Position and clicking on Event Runway.



Photo 25

Photo 26

The first airplane suited for Event Runway is the F-22 Raptor. This airplane is powered by turbines and can reach level flight speeds near 300 mph. That is warp speed to us propeller jockeys. In addition, the RealFlight F-22 features thrust vectoring, just like the full size aircraft. Notice that the engine outlets are pointed downwards in photo 25 when the elevators are in the “down” position. Photo 26 shows the thrust rotation when the elevators move to full “up.” This airplane, equipped with flaps, brakes and retractable landing gear, is fun to fly but a bear to land well.



Photo 27

Expansion Package 2 includes a 1.20 size Ketana 3-D and Scale Aerobatic (IMAC) aircraft. The Ketana is one of the most popular such aircraft in the world. Besides being extraordinarily good at 3-D maneuvers such as hovering, Blenders and Harrier Landings, the Ketana can fly just about any aerobatic pattern thrown at it. The G3 Expansion Package 2 has two Ketanas. The airframes are identical with a wingspan probably around 75 in. But the Glow version weighs just 9.8 pounds while the electric-powered Ketana weighs in at almost 11 pounds.

The electric version flies correctly as it should, heavier on the wing and faster to snap roll. The glow version’s stall speed, actually more like a harrier landing attitude than a true stall, is around 15 mph. The electric’s stall speed is 20 mph. Both are educational to fly and quickly teach the new RC pilot why scale aerobatic airplanes with 3-D control settings are not good second or third aircraft.



Photo 28

Finally, a simulator that has a true Precision Aerobatic (Pattern) airplane. Pattern airplanes, called that because they are designed to fly a series of precise aerobatic maneuvers, are the easiest model aircraft to fly well. Good pattern airplanes takeoff and land at speeds about that of a basic trainer. They are excellent wind airplanes since they are designed to land well in cross winds up to 40 mph (the current contest limit). Any good Pattern airplane flies slowly, no more than 100 mph, flies exactly where it is directed to and has no bad habits, such as snap rolling with elevator input.

However, its one strong point, flying exactly where it is told to fly, is also its only weakness as a beginner's airplane. It will go where you point it so make sure you point it the right way. Since its response is so precise and quick, the pilot must be equally precise and quick or a Pattern airplane will fly all day with one wing low.

A good Pattern airplane makes about the best third airplane an RC pilot could have. And this expansion pack has one of the best mass produced Pattern airplanes; the Venus II. The Venus II is powered by an O.S. 1.20 Surpass II yet weighs just 7.25 pounds. Vertical performance is good to say the least. Landing speed is 22 mph which is exactly how the real-world Venus II lands. I have flown more than a few Venus Pattern airplanes the last few years and the simulator exactly matches their flight performance to my memory.

Well, almost exactly matches it. The simulator Venus II pulls towards the canopy during knife-edge flight. True, the real-world Venus II does this exact same thing. So it is a match. But in the real world, no pilot lets the Venus fly like this. Pattern airplanes almost all have computer radios or analog radios that allow the pilot to mix the elevator to the rudder.

A few trim flights and the real-world Venus II always flies a straight line in knife-edge. I suggest that the programmers make a concession to reality and adjust the virtual Venus II to fly straight in knife-edge as it would in the real-world after trimming. With the analog transmitter supplied with the G3, such trimming is not possible so it must be adjusted in the software.

Of course, the G3 allows the use of any brand 4-10 channel transmitter as well. Using your own transmitter, it is easy to trim away knife-edge walking. Still, I wish that Great Planes had made the adjustment in the software because many new RC pilots have only the transmitter that came with their first RTF airplane and that transmitter is usually a basic 4-channel analog one.



Photo 28A

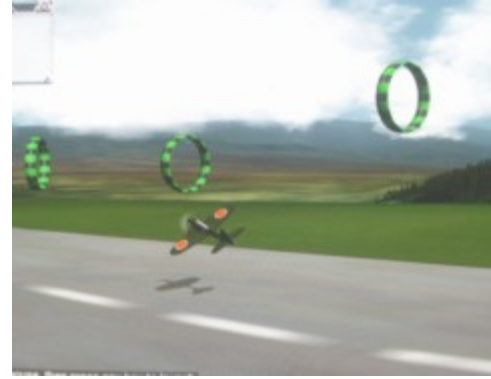


Photo 28B

There are three electric-powered “warbirds” in this expansion package. While they can be flown indoors, they are more suited to flying from the event runway. These are the ElectriFly models. The F-6F Hellcat and its perennial nemesis, the Japanese Zero, can fly slowly but respond very quickly. Performance is good but quick for a new RC pilot. Flying these airplanes will start to put an edge on your flying skills.



Photo 28C

The ElectriFly P-51 Mustang flies about the same as the Hellcat and Zero. At first, it would appear that these “park flyers” would be the ideal airplanes for flying the obstacle course. But that did not prove to be the case as launching from mid-air makes flying through the first ring difficult. Flying the obstacles also requires zooming in on the airplane before takeoff, use the “+” key, and this is not possible with the air launched aircraft. These airplanes will teach you both airspeed control, they do not like to fly at extremely slow airspeeds, and proper aileron technique. Their ailerons are extremely sensitive, even on low rates, and the airplanes can be stalled resulting in snappish roll behavior.



Photo 29



Photo 30

The last special airplane in the new expansion pack is the Wolf Spyder. This very interesting airplane uses four powerful electric motors, one in each corner, for vertical lift-off and landings. But the motors tilt for straight flight like the Marine's V-22 Osprey. Unlike the Osprey, whose propellers are too large to clear the ground in horizontal flight, the Spyder can be landed like a conventional airplane. Its big, 20-inch diameter propellers easily clear the ground.

This is a big airplane, weighing about 25 pounds. I do not know if there is a real-world version of this aircraft, but there should be. While it can takeoff and land at zero airspeed, horizontal top speed with the landing gear retracted is over 240 mph. If somebody kits this thing, put me on the list to get one.

The Spyder can even takeoff and fly on the two rear engines. How to do this? With the airplane sitting still on the ground, retract the landing gear. After the airplane squats on the runway, advance the throttle just a little. The two front propellers are now "broken" and will not work. Keep the landing gear retracted and, while holding full up elevator, slowly, very slowly, advance the throttle. As the airplane picks up speed, it will take off. There is no hovering in this configuration, but the airplane can be landed conventionally if you control airspeed and throttle. I'll let you figure out how best to do this.



Photo 31



Photo 32

The four new helicopters are all 90-sized. The Raptor on the left is great for helicopter practice and some wild aerobatics. The same holds true for the Stratus on the right side.



Photo 33

The other two helicopters are the regular Aurora and the 3-D version. Save the later until after you have some stick time on the other three.

Summary

The G3 simulator package was the most realistic simulator Great Planes ever made. The Expansion Pack #2 adds to that experience. None of the new airplanes can be considered basic trainers like some of those in the original G3 package. But some, like the Stearman and the Hawk, are very good second or third airplanes. The Venus II gives a new pilot a feel of what flying a true precision airplane is like. There are many “foamies” for indoor fun and 3-D practice.

There are “games” to fly on the obstacle course and some very different airplanes you would never expect to actually fly RC. Some may call these non-RC challenges useless for simulator work. This is not true.

Actually, flying and mastering these challenges develops piloting skills that suddenly appear when things go wrong at the field. The airspeed control developed from flying the Raptor and Spyder come in handy when trying to stretch that glide back to the runway when your airplane’s power system “tain’t working no more.” Trying to fly through the rings teaches you to look ahead, and to plan ahead, of the airplane.

The expansion pack adds 14 new airplanes and 4 new helicopters plus 3 new airfields. All of them add to the G3 experience, and to your piloting skills.

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