



Sims for the Beechcraft Crowd

By Henry Fiorentini

There are two major players in the home simulator market: Redbird and FlyThisSim. I will be comparing three Redbird products and two FlyThisSim products.

FAA Certification

Basic Aviation Training Devices (BATD) are required to have all of the physical aircraft functions and switches to allow a complete startup-to-shutdown experience without the use of a mouse. Here is an excerpt from the FAR 61.57(c)(3) that addresses BATDs for maintaining currency:

(3) Use of an aviation training device for maintaining instrument experience. Within the 2 calendar months preceding the month of the flight, that person performed and logged at least the following tasks, iterations, and time in an aviation training device and has performed and logged the following —

- (i) Three hours of instrument experience.**
- (ii) Holding procedures and tasks.**
- (iii) Six instrument approaches.**

	Redbird		FlyThisSim
	Jay	TD2 + Horizon	Touch Trainer + VisX
FAA Cert	None	BATD	BATD
Price	\$2,500	\$7,995 \$10,774(1)	\$4,900 \$7,400
Screens	27"	27" +2 × 27"	24" & 10" touch screen + 3 × 24"
Yoke buttons	None	None	PTT pitch & roll trim
Controls	yoke throttle switch panel flaps, starter	yoke throttle switch panel =	yoke (or sidestick) throttle (vernier or levers) switch panel rudder pedals



(iv) Two unusual attitude recoveries while in a descending VNE airspeed condition and two unusual attitude recoveries while in an ascending, stall speed condition.

(v) Interception and tracking courses through the use of navigational electronic systems.

The big question becomes, do you need a CFI/I with you to log this? Yes. FAR 61.56(g)(4) tells us:

(4) A person can use time in a flight simulator, flight training device, or aviation training device for acquiring instrument aeronautical experience for a pilot certificate, rating, or instrument recency experience, provided an authorized instructor is present to observe that time and signs the person's logbook or training record to verify the time and the content of the training session.

FAA has issued two Policy Letters upholding the requirement for an FAA certificated instrument ground or flight instructor to be present in order to log time in a flight simulator or Aviation Training Device toward IFR currency or experience requirements: August 6, 2010 (see <https://www.bonanza.org/images/pdf/simcfirequiredloi1.pdf>) and October 10, 2014 (<https://www.bonanza.org/images/pdf/simcfirequiredloi2.pdf>). Redbird disagrees with the FAA's interpretation, citing an e-mail exchange with a Safety Inspector from FAA Flight Standards (posted at www.kingschools.com/flight-simulators/redbird/docs/approved-instrument-recency-experience-without-a-

[flight-instructor.pdf](#)). But this exchange predates the most recent FAA legal opinion and is not itself an official FAA interpretation.

Note that instrument currency with a BATD must be renewed every *two* months per FAR 61.57(c)(3), not every six months as applies with recency of instrument experience in an airplane. [The bottom line: You may not be able to remain IFR *current* without a flight instructor using a BATD, but it will probably do a lot to help you remain IFR *proficient*. —ABS].

Basic Hardware and Software

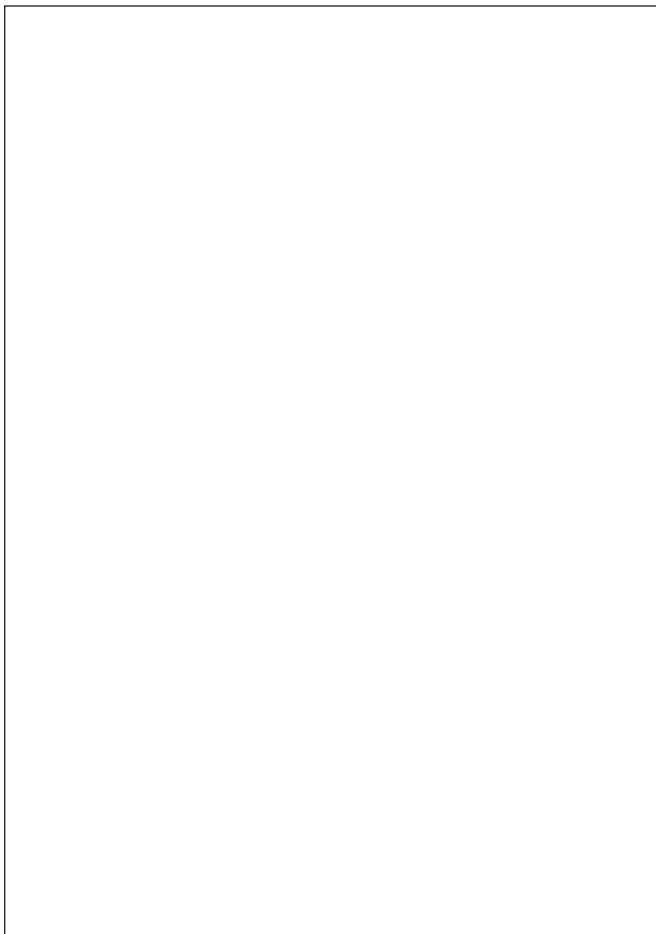
The Redbird Jay, while popularly promoted by AOPA, is not a serious contender for my purposes but is included in my comparison table for reference. While Redbird makes simulators all the way up to full motion simulators, only their TD2 with the Horizon upgrade is considered herein. Similarly, the FlyThisSim TouchTrainer and its equivalent upgrade, called VisX, is considered here. The Redbird Horizon upgrade offers an extra pair of 27" monitors. The VisX system adds three more 24" monitors and an extra video card. The (1) footnote to the Horizon in the comparison table notes it includes the rudder pedals required by the FAA for logging time, and a table that is not included in the base price. Both are included in the FTS base price. GPS emulation to iPad devices like ForeFlight is included in the FTS price, but raises the Horizon price to \$11,373.

Both Redbird and FTS are using “in the same ballpark” CPUs (computer processors) and video cards. FTS has twice as much RAM (memory) as the Redbird (8GB vs. 4GB), and includes a second video card with the VISX, vs. one video card in the Horizon. This gives FTS a marked potential advantage for image rendering. I can’t opine whether they utilize all the memory or not, but the difference is noteworthy. FlyThisSim is currently using 64 bit graphics, compared to TD2’s 32 bit graphics.

None of these devices require any special setup or certification. Pretty much “unpack it, set it up, and run.” In reality I’m guessing it will take a few hours, including mounting the monitors, installing the table, etc., but not much greater than that.

Basic Design Philosophy

It turns out the real dividing crux between Redbird and FlyThisSim is the software and pilot interface that they use, which is arguably as different as night and day. Redbird uses Prepar3D (pronounced “prepared”), a descendant of Microsoft’s Flight Simulator that had physical knobs mounted on an acrylic panel overlaid on your monitor. FTS bases its sim on XPlane software and uses touch screen technology to interact with the avionics on the screen. Both use physical controls for yoke, throttle quadrant, switches, and rudder pedals.



My personal motivation in a sim is. “How much will I feel like I am sitting in *my* plane when I’m flying it and trying to build mental neural pathways in my head?”

Redbird offers a choice of two panels (glass or legacy panel) and does not offer any choices of aircraft type. From Redbird:

The Bonanza avionics panel is not available for the TD2. The TD2 is a generic, single-engine piston aircraft. Think of the TD2 like a 182RG. The TD2 gives you the options of high performance engine, constant speed prop and retractable gear... but still a generic high wing, single-engine flight model. On the TD2 you have the choice of 6-pack “steam” gauges with a [GNS]530, or the G1000. Each of the Redbird devices is designed to enhance the training experience for pilots of all levels, from student to ATP.

By comparison is the following statement from FlyThisSim:

FTS uses X-Plane for its aerodynamic and visual system modeling. It provides simulations for all touch screen instrumentation and switches. FTS can simulate 79 different aircraft (e.g. Beech, Cessna, Piper, etc.). The VisX system for Beech offers 21 [different] instrument panels, nine for the Bonanza and 12 for the Baron. They include KFC 200 AI/HSI, G500/600 and Aspen Evolution integrated with GNS430W/530W with GPSS, Garmin Transponder and Audio Controllers as well as G1000 Flight Deck combinations. These panels contain the KFC 150, KFC 200, KFC 225, STEC 55x or GFC 700 autopilot.

Screen and Controls

That difference then drives the resultant screen layout and the control of the avionics, which is my most important deciding factor between the Redbird experience vs. the FlyThisSim experience. From Redbird:

On the TD2, on the pilot side, you can physically reach out and touch the real buttons and knobs just like in the aircraft. You can press the buttons and turn the knobs. It’s as real as it gets.

FlyThisSim uses a virtual panel, touch screen technology instead. From FlyThisSim:

The TouchTrainer provides a 24" photo-realistic touchscreen in front of the pilot displaying the majority instruments, and a 10" touch screen off to the right where the avionics stack is usually located. Using the touch screens, you flip switches, rotate knobs, operate levers, etc., as you would in the aircraft.

This is apparently the same (or close to) the same touch screen technology that we have come to live with in

iPads, etc. Going down this road, FlyThisSim can “paint” the background anyway its software wishes, and respond according to where the pilot touches.

So all the switches, knobs, and levers on the TD2 are physical. Being actual, physical knobs like a real airplane is very nice, but they are in one fixed position with no choice of avionics behind them, which is not so desirable. The choice is yours: Physical switches in a fixed position with fixed avionics, or touch screen switches with variable avionics that might more likely look like your airplane.

Maintenance, Maps & More

The TD2 has a 90 day warranty, and Redbird also offers extended warranty plans (one year at \$695 or two years at \$895). All of the Redbird devices use Lockheed Martin’s Prepar3D. It includes a worldwide database, permitting practice at every charted airport in the world. On the TD2 you can use the RealNav program to update the NavData in real time, just like in an airplane. You can get quarterly updates for \$495/year or monthly updates for \$995/year.

FlyThisSim includes one year of maintenance and support with the product, which includes all NavData map updates. Annual maintenance (with NavData updates) is \$300/year thereafter. Just the NavData alone is \$78/year. Navigation data covers the United States (including Alaska). The subscription service will keep your data current, and will also add ~2000 radio-based approaches (ILS, LOC, VOR, and NDB). The support plan covers broken hardware (fixed or replaced) as well as software updates, new features, enhancements, and bug fixes.

FlyThisSim has a few unique features. For one thing, the TouchTrainer can send its virtual GPS position over your wireless network to an iPad running ForeFlight or WingX, providing the simulated position on maps, taxiway maps and the terrain hazard warning display. Effectively, ForeFlight, or WingX thinks you really are at that location, and behaves as it normally would, allowing you to fully integrate your iPad into your simulated flying. Redbird offers similar functionality via a \$599 product called Cygnus that transmits a fake GPS signal to any surrounding device (like your iPad) to trick it into thinking that you are wherever the Redbird says you are.

Additionally, FTS offers an auxiliary 10” screen for an instructor to mess with your simulation behind your back, such as unexpectedly modifying the weather or making certain instruments inoperative without warning.

Learn more about the vendors through their websites (www.redbirdflightsimulations.com, www.flythissim.com), for their next airshow appearances, or when you might be able to get a demo.

