The Noble Way To Stay Current

How the Noble Flight Simulator Turns Training Into Proficiency

by Laurie Einstein Koszuta

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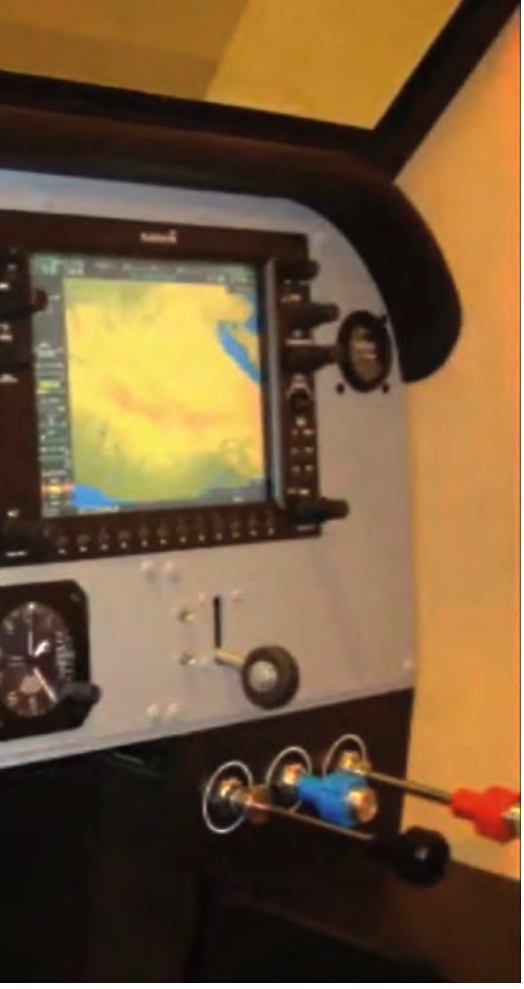
Building a flight simulator company was never part of Dr. Tyler Noble's plan, especially not one that carried his own name. Noble Flight Simulation (NFS) began as a personal quest: a way to sharpen his flying skills and become a safer pilot.

After earning his private pilot certificate in 2003 and his instrument rating the following year, Noble was preparing for medical school. He quickly realized that once school began, he wouldn't have the time or money to fly regularly and stay proficient.

At the time, his roommate casually suggested that he build a simulator to keep himself current. "The idea sparked a concept that soon became a calling," Noble explained.

As an undergrad at Virginia Tech, Noble had worked part time as a cabinetmaker, which gave him access to a complete workshop. There, he built a crude cockpit using a homemade Garmin G1000 replica and posted the build on YouTube. The response was immediate and enthusiastic, with viewers asking if he could build one for them.



Left, the first simulator interior *Tyler developed in 2008 and right, the first motion simulator he built not long after.*

What started as a side project grew into a business. During his medical residency in Cincinnati, Ohio, Noble began drafting detailed plans for a market-ready version. In 2014, he sold his first G1000 unit, marking the commercial launch of Noble Flight Simulation.

Software: The Real Bottleneck

From the start, interest in the simulator grew rapidly. But Noble quickly learned that the real challenge was no longer the hardware but rather the software.

In 2015, Austin Fang, a pilot and Ph.D. in aerospace engineering, purchased one of the first NFS systems and quickly became more than a customer. With his software background, Fang partnered with Noble to write the first custom code for the Cirrus Perspective platform. Then came a curveball. "Midway through that effort," Noble recalled, "Cirrus announced the Perspective Plus, which shifted our focus." Undeterred, the two pressed on, and after years of late nights and development hurdles, they released their first software version in 2020.

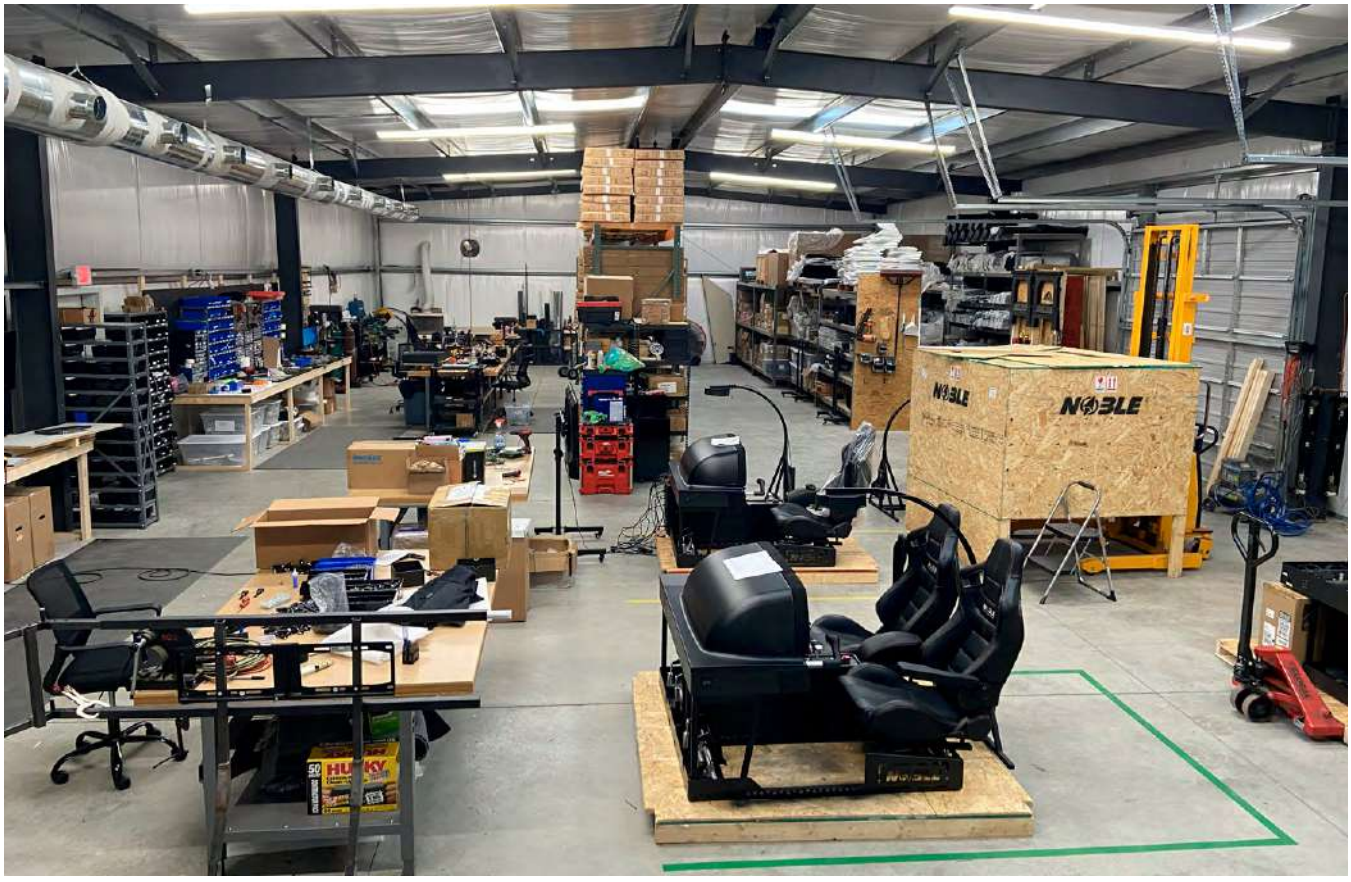
Soon after, the pair added a third partner, Jed Saffarini, who brought business focus and expertise in high-performance learning systems from his tenure as president at Kaplan, a professional training firm. During his own pilot training, Saffarini recognized an opportunity for simulators to provide structured lessons, an idea that was ahead of its time in private pilot training.

Authenticity as a Core Value

"The mission for the partners has never been about chasing profits," Noble said. "What drives us is building tools we personally want as Cirrus pilots and owners."

That authenticity has resonated with their customers. "The company was founded on a commitment to safety and community as a defining trait," Noble emphasized.

Building a simulator that was high-fidelity enough to be an FAA-approved training device, while remaining affordable to Cirrus pilots and owners, was no small feat. At the time, a custom re-hosted Garmin solution could have cost over $60,000 per unit, pushing the cost of each unit into the hundreds of thousands.



***The 7,000-square-foot** NFS production facility at Myrtle Beach, South Carolina, where all manufacturing, assembly and testing are done.*

To make simulation accessible, the NFS team had to rethink the entire engineering stack. Their answer was to integrate the company from top to bottom vertically. This involved in-house software development, encompassing everything from sheet metal production to circuit board design and manufacturing. Today, all manufacturing, assembly, and testing are done at the 7,000-square-foot NFS Headquarters in Myrtle Beach.

"Aside from obvious off-the-shelf items like projectors or TVs, everything in our simulators is designed, built and integrated by us," Noble emphasized. "We're not just importing generic parts and reselling them because we truly operate like an original equipment manufacturer."

Now, hundreds of units are used uniquely by pilots to train at home, in hangars and basements, maintaining proficiency, currency and familiarity in their daily flying.

The SR Focus

The Noble team wrote its own avionics code based on the line replaceable unit (LRU) architecture of the Cirrus aircraft. That modular design makes it possible to keep pace with Garmin's evolving updates and upgrades across various software versions.

From the beginning, Noble's team made a deliberate decision to focus solely on the Cirrus SR series. "This kind of work is incredibly demanding and immensely complex," Noble noted, "and even the differences between Cirrus generations require massive amounts of development effort."

For that reason, NFS supports only Garmin-equipped Cirrus aircraft. "We chose not to build an Avidyne line," Noble said. "The reasoning is simply that the likelihood of a G2 Avidyne owner investing in a $15,000–$20,000 home simulator is relatively low."

He continued by saying that "for those pilots, flying with a safety pilot or instructor is far more economical. By contrast, later-generation Cirrus models, such as the G5, G6 and G7, carry significantly higher operating costs. Renting a G7, for instance, can run $600 an hour. In that case, a home simulator quickly becomes a cost-effective option."

Some have asked why NFS hasn't developed a Vision Jet simulator. Noble's answer is practical: The FAA certification requirements for a type-rated aircraft are much higher than for an Advanced Aviation Training Device. "For most Vision Jet owners, the value wouldn't justify the investment unless it was for a professional training center," he explained.

The NFS team at the Cirrus Vision Center in 2021 (L to R): Partner Tyler Noble, Partner Amjed Saffarini, Operations Director Brandon Bawgus, Partner Austin Fang and Customer Relations Manager Sheyla Brill.

Respectful Relationships

Because of its focus on the Cirrus pilot, NFS maintains a strong, respectful relationship with Cirrus, though without formal ties. There is no official, no formal agreement, financial backing or exclusivity between the companies. “We know people throughout Cirrus, from the executive level on down,” said Noble, “and we see them at every major show. Cirrus sees the value our simulators bring to their brand and their customers, who are also our customers, and they want us to succeed.”

Beyond Cirrus, NFS has also secured key partnerships. To date, NFS has donated hundreds of thousands of dollars to the COPA Safety and Education Foundation through cockpit simulator auctions. The company also donates a complete cockpit unit for auction every year at the annual COPA Migration Gala. NFS is also the exclusive Garmin-equipped Cirrus simulator vendor for COPA’s North America CPPP programs, further reinforcing its role in training.

Jeppesen Partnership

“One formal partnership does stand out, and it is something we’re very proud of,” Noble said. NFS is the only simulator manufacturer licensed to provide direct access to Jeppesen databases for its customers worldwide. “This ensures the legality and peace of mind of delivering Jeppesen data in the simulators,” Noble explained. “Other companies have relied on unapproved workarounds, exposing customers to potential legal risk. We went directly to Jeppesen, and after several years of discussions, they chose to partner with us.”

What About Failures

Customers often ask if NFS simulators can replicate failures in the same manner as real airplanes. “Absolutely,” said Noble, “and that capability is growing.” Thanks to their architecture, which models each Garmin line-replaceable unit (LRU) separately, failures unfold naturally. Turn off the virtual air data computer, and the same instruments fail in the simulator as they would in the aircraft.

“We’re still prioritizing normal procedures before diving deep into abnormal ones,” Noble noted, “but failure modes are very much part of our roadmap.”

The Team

Noble is the first to acknowledge that the success of NFS hinges on a great team of employees. “I concentrate on hardware design,” he said. “When the G7 was announced, I spent late nights redesigning components, reusing existing parts to reach

Inside the Noble Flight Simulation G7

The new Noble Flight Simulation G7 simulator represents a significant redesign from the G6, both in hardware and system integration. Instead of relying on USB connections, which company founder and CEO Tyler Noble said are prone to occasional dropouts, the G7 utilizes a CAN bus network, a technology commonly used in modern aircraft and vehicles. Each Garmin Touch Controller (GTC) touch-screen functions as its own computer, connected over Ethernet, enabling faster, more stable communication.

All mapping, avionics logic, and software are entirely written in-house, with no reliance on X-Plane or Garmin trainers. The result is an industrial-grade system that mirrors the Garmin G3000 found in the real Cirrus G7. Even the LCD displays use the exact part numbers as Garmin’s GTC units, ensuring true colors and a rapid response.

prototyping in just a couple of weeks. Everyone was working hard to get the G7 onboarded."

That same all-hands push extended to the software side. "The G6 release was followed by a major effort to bring G7 to parity with a comparable functionality level," Noble explained. To keep pace with Garmin's changes, the goal is to release refinements and new features on a steady cadence every few months. Looking ahead, NFS continues to innovate with the latest Cirrus SR G7+ releases in the market."

Certification and Standards

Before a simulator can be classified as an Advanced Aviation Training Device (AATD), it must demonstrate a baseline level of fidelity and functionality. FAA examiners then fly the system themselves to ensure that it accurately replicates flight performance and instrumentation and is worthy of logging in a pilot's flight book for currency.

Today, NFS simulators meet that standard and are in use worldwide, including the UK, Germany, Belgium, Spain and Japan.

The Road Ahead

The outlook? "Through the roof," Noble said, noting that Cirrus is pushing simulation deeper into training, as they grow demand for well-prepared pilots.

Noble Flight Simulators *were incorporated into the COPA Pilot Proficiency Program training in 2022.*

"Pilots are eager to master sophisticated avionics safely and cost-effectively," Noble added.

With rental rates of $500–$800 per hour, a high-fidelity simulator has become the practical path to proficiency for pilots and training centers without burning Hobbs time or budget.

"The hard part is emulating what billion-dollar organizations like Garmin and Cirrus have refined over decades," Noble said. "And then doing it all over again when a new generation arrives."

The new sim faithfully replicates the tactile details of the G7 cockpit, including high-quality stitched trim, push-button ignition and a checklist scroll wheel. A three-phase, servo-driven control-loading yoke uses the same type of motors found in actual autopilot systems, providing realistic aerodynamic feedback.

Pilots can plug in real aviation headsets beneath a flip-up armrest, just like in a real airplane and hear ATC, alerts and intercom chatter directly through their headsets, complete with isolation modes. Even the CAPS handle mimics the mechanical feel and 45-pound pull force of the real system.

Built on the Garmin G3000 platform, the G7 introduces a new touch screen interface and reorganized menus. Because of the complete software overhaul, pilots can't simply toggle between G6 and G7 configurations. For existing G6 owners, Noble offers a trade-in and retrofit program that reuses many of the structural components.

The simulator supports Jeppesen charts and offers full instrument approach capability, with visual approaches to be added soon.

The G7 simulator began hardware deliveries in August 2024, following Cirrus's January 2024 announcement of the G7, and has quickly become the preferred tool for both Cirrus-approved training programs and advanced at-home IFR proficiency.

"We put a tremendous amount of attention into reproducing the little details that Cirrus spent so much time perfecting," Noble said. "When you sit in it, it doesn't look like a simulator – it looks and feels like a real aircraft."