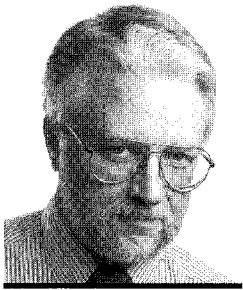


# Silicon Pilot

By John D. Ruley

## Proficient Flight



"November 16460 is cleared to Stockton airport. Fly runway heading for radar vectors Oakland VOR, victor 244, Manteca VOR, direct. Climb and maintain 5,000. Contact Bay departure on 120.9, squawk 4342."

That's a route I'm very familiar with, though it will be my first take-off from San Francisco International

Airport. I check the notes on my clearance pad, read it back, get permission to take off, and climb into a broken overcast for what should be a routine flight.

Twenty minutes later, I pulled off a good landing after the VOR 29 approach at Stockton, right down to minimums; the flight was anything but routine. Problems I faced included a mechanical fuel pump failure, blown circuit breaker on COM1, and a failed attitude indicator. Worse, when I declared an emergency and asked for no-gyro turns, I was told that no radar coverage was available and I'd just have to do the best I could on my own navigation. It was a heck of a busy 20 minutes.

The saving grace was that this all took place on the ground, in a modified Frasca 142 Flight Training Device (the FAA doesn't call it a simulator since it doesn't have a motion base). This simulated flight came at the end of a grueling one-day IFR refresher session at Proficient Flight, a simulation company in Waukesha, Wis. (less than an hour's flying time south of Oshkosh).

The Frasca 142 looks like someone cut the nose off a business twin just behind the pilot and co-pilot seats; and added a jumpseat and desk behind them for an instructor. (Find photos on the Proficient Flight link at the end of this article). It sits in a room, with projection TV screens in front and to the left and right sides. From the pilot's seat, you have a bit less than 180-degree field of view, enough to see realistic runways, basic terrain and a lot of clouds. The clouds are quite realistic, including ragged edges that limit visibility when

you're right at MDA on a non-precision approach. If you get a little high on a circling approach, you're likely to lose sight of the airport, just as you would in a real airplane.

Despite the absence of a motion base, the Frasca 142 provides a remarkably realistic "feel," by employing a technology that goes back to the original Link Trainer: an air compressor that works pistons attached to the yoke and rudder pedals. Unlike the older electro-mechanical FTDs that many of us have experience with, you trim the Frasca 142 realistically, pushing against the yoke and then trimming off the pressure. Ditto for the rudder pedals. In other respects, while it doesn't

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provide a perfectly accurate panel for any specific airplane, the Frasca 142 can provide type-general training for practically any complex piston-engine single or twin. The tachometer and manifold pressure gauge have dual needles (which line up when simulating a single), and there's a removable cover for half the engine instruments. A quick-change interchangeable yoke finishes the job. When I flew it, I had typical style throttle, mixture and prop control levers. In just a few seconds this can be switched for a twin-engine quadrant. Electric flap and gear switches are provided, as are a full set of realistic switches for the starter, magnetos, and lights. There's also a full set of circuit breakers, which the instructor can pop remotely (that's how she failed my radio).

The overall effect is so realistic that it's possible to get ver-

tigo while flying the FTD. While you never actually leave the ground, the combination of realistic instruments, engine sounds and the feel of the yoke and pedals will fool your brain into thinking you're moving when you're not actually moving.

The radio stack is also realistic and includes dual King flip-flop COM radios and RNAV/VOR receivers. There's also a KLN-94a approach-capable GPS, but we left that turned off while I was in the FTD since I don't have an IFR GPS in my airplane.

During my session at Proficient Flight, I logged more than four, solid hours of simulated IFR time in the Frasca, practicing things I hadn't done in years. Among the more striking examples: unusual attitudes on partial-panel, no-gyro vectors to a precision approach radar arrival, and DME arcs (which I hadn't practiced since my initial instrument training, about five years ago).

Unlike hood work in a real airplane, there's very little down time in the FTD. You get a clearance, read it back, take off and settle on your initial vector. Just when you're starting to relax, the instructor says, "Let's skip ahead a bit" and suddenly you're at the initial approach fix, about to enter your holding pattern, or whatever.

The simulated flight from San Francisco to Stockton was the only part of the training completed entirely in real-time. Non-flying time is spent doing ground school: discussing regulations and procedures, talking through what we just did, and what we're going to do next. I started about 9 that morning; and Greg Plantz, the owner, took me to dinner at 8 that night, completely worn out.

That, believe it or not, was the short course. Greg also offers a two-day course, which goes on to include type-specific procedures training. It fulfills the recurrent training required by many insurance companies for twin pilots, and also completes all the requirements for an FAA instrument proficiency check. Greg says that while he tries hard to interest single-engine pilots in the two-day course, most can't imagine what kind of instrument training could take more than one day. To be completely honest, that was my idea when they invited me; but having gone through the one-day course, I honestly wish I had time for the second day.

Now let me get to why this is significant — I don't know how things work where you fly, but my home base is Central California and in the summer there's very little weather to fly. Going back and forth to coastal areas, I can expect to fly enough approaches to stay current, but I rarely spend more than ten minutes or so in the soup. I do a little hood work from time to time, just to keep my hand in (and to fulfill the requirement for holding pattern practice) but not all that much.

Greg's invitation to Proficient Flight was delivered a few weeks before the 2003 AirVenture in Oshkosh, which is notorious for lousy weather in the summer. I didn't plan to stop there — I have family in Ohio and West Virginia, so I'd be headed further east, into worse weather. Under the circumstances, Greg's invitation couldn't have come at a better time.

Over the next week after my proficiency training, I flew a lot of weather, around three hours of actual IMC, including vectors around thunderstorms near Des Moines, Iowa, on my way home; much of it in turbulence. After the day at Proficient Flight it all seemed remarkably easy. The course was easily worth the day I took off for it. While I was a competent instrument pilot when I arrived (the staff complimented both me and my flight instructor on how well I kept the FTD under control), I was a far more confident instrument pilot by the time I left.

I learned a few things I'd either never known or long since forgotten. Proficient Flight CFII (and airline first officer) Susan Kohr gave me a quick-and-dirty way to estimate the time required to turn to a heading that simplifies partial-panel turns (ten seconds per major division on the compass). She also reviewed FAR 91.175(c) with me, and I discovered that it is legal to descend below MDA on an instrument approach once you have the approach lights, if (and only if) you're in a position from which a normal landing may be made. At that point you're legal to descend to 100 AGL but must not go lower unless you have the runway itself in sight.

Greg Plantz spent time reviewing DME arcs and showed me an easy way to make them work: fly straight toward the station until you reach the specified range, turn 90 degrees in whichever direction you're supposed to fly, and

just make shallow turns as necessary to maintain a constant range. He also showed me a much better and safer way to fly circling approaches than I'd been taught: descend to the MDA, wait until the approach lights (or runway end) comes into sight, turn 40 degrees toward whichever direction you want to circle, and count 10 to 15 seconds depending on how fast your airplane is. That should put you on a ¾ mile downwind. From there you fly to the other end of the runway, count eight seconds, and start a 30-degree, banked turn toward the runway. Do it right, and you're lined up perfectly in anything short of a gale-force crosswind.

Greg charges \$595 for the one-day course, \$1,095 for the full two-day course. His office is located close enough to Waukesha airport that he's usually able (and willing) to pick up clients and drive them himself, or have one of his staff do so; and he's negotiated discount rates at a couple of local hotels.

Since Proficient Flight is located less than an hour's flying time from Waupaca, COO members who are interested in this kind of training might want to consider arranging a visit before or after next year's Great Cessna Fly-in.

Is Wisconsin too far for you? Frasca FTDs are available at a lot of other places; check the link below for a list. I'm going to check out a couple of the northern California locations myself; maybe next year I'll be able to get a review done before leaving for Oshkosh.

### **FOR MORE INFORMATION**

Proficient Flight

<http://www.proficientflight.com/>

Other U.S. Facilities offering

Simulator-based IFR Training:

[http://www.frasca.com/web\\_pages/information/uscustomers.htm](http://www.frasca.com/web_pages/information/uscustomers.htm)

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*John D. Ruley is a private pilot, aircraft owner, and freelance writer specializing in aviation and personal technology. He's also a volunteer pilot with Liga International [www.ligainternational.org](http://www.ligainternational.org) and president of the Modesto Airport Pilot's Association. He's happy to receive email from readers; write to him at [jruley@ainet.com](mailto:jruley@ainet.com)*