



## **Aeronautical Schizophrenia— From MU-2 to Eclipse and Back**

# My Torrid Affair With a

My story is one of having taken a 360-degree aeronautical journey right back to where I started. Sharing this with you will provide a comparison between the Eclipse 500 Jet and the Mitsubishi MU-2 turboprop, and by extension, to other high-performance turboprops as well.

I've been happily flying MU-2s for the past 14 years. My Solitaire is the last of the MU-2 models produced. It is certified to FL 310 and has a real world 1,325 km range with 45 minutes of reserve. Throttling back somewhat from high-speed cruise at Flight Levels 270 or 280 delivers 290 to 300 knots true air speed (depending on temperature and weight) while burning 72-75 gph. At 19,000 to 21,000 feet cruise speeds of 315 to 320 knots are the norm with 90-plus gallons per hour going out the tail pipes. There's room for seven passengers, and there's plenty of baggage space as well. Parts are readily available, and Mitsubishi support is top notch. The MU-2 has been economical, reliable and the easiest to maintain of all the twins I've ever owned.

All has not been rosy, however. Over

the years accidents have prompted the FAA to conduct three separate investigations to assess the safety of the aircraft. Each investigation gave the aircraft a clean bill of health. A recent Special Federal Air Regulation mandates initial and annual recurrent training for MU-2 drivers to address the issue of less than proficient pilots flying the aircraft. Subsequently, as pilots have trained to this new level of proficiency there have been no MU-2 accidents whatsoever over the past two years. There is almost universal approval by the MU-2 community of this new training. The aircraft flies like a complex jet and demands a proficient pilot at the controls. The new training program is a big step forward.

So with all of the above "good stuff," why would I ever consider jumping ship

and buying a VLJ? I'd analogize the situation to the married man who sees a sexy young thing and forsakes everything in favor of excitement, regardless of the consequences. Having been married for 43 years I'm happy to report that I haven't made that mistake, but the Eclipse siren with her cute tail certainly turned my head!

My journey began seven years ago at Oshkosh when I sat in a mock-up of the Eclipse 500. Thoughts of being the captain of my own jet cruising along at FL 410 was intoxicating, especially since I could buy the jet for less than the price of a new piston-powered Baron! An advertised 1,280 nautical mile NBAA IFR range while burning 45 gallons per hour was irresistible. I was hooked and had to have one of these sexy machines.

With some perseverance I was able to



BY KEN WOLF

purchase delivery position number 196 at a relatively nominal price. This delivery position was perfect. Not too early, so Eclipse would have time to get its production act together, but this position was still one of the deliveries at a fixed price of \$995,000. Couldn't be better! I was told certification and delivery would start in late 2004.

The years passed, and I continued flying the MU-2 while waiting for my jet. The 2004 date slipped, and slipped, and slipped. Nevertheless, my enthusiasm for the machine continued unabated. I waited through the change from Williams to Pratt engines and the redesign of the aircraft to accommodate the new engines. Next I waited through the Eclipse type certification and production authorization approvals from the FAA, which seemed to take forever but ultimately arrived.

Aircraft delivery ultimately commenced in 2007. As with virtually all new aircraft designs there were glitches, many of which have been previously recounted in the press. The big ones were the need for an

aerodynamic clean up of the airframe, larger tip tanks and a redesign of the avionics suite. The aerodynamic clean up allowed Eclipse to successfully achieve the promised 370-knot high-speed cruise. The larger tip tanks minimized a loss of NBAA IFR range from an initial promised 1,280 nm to 1,125 nm. The avionics suite redesign is still a work in progress. Eclipse deserves praise for persevering in the face of adversity, but the cost of solving these various problems has been a multi-year delivery delay for a very patient customer base. It now appears that Eclipse is "on the step" with aircraft rolling off the line at the rate of about one per day.

Initially, training to fly the Eclipse was challenging. Simulators were not available, certified trainers were few in number, and FAA personnel for the required type rating check ride were also sparse. Early aircraft often had a number of operational problems at delivery that further delayed training. Consequently, training in the plane was long, arduous and often unsuccessful. The advertised two weeks

training event morphed into as long as a month or so for the early Eclipse owners. With simulators coming on line as this article is being written and aircraft being delivered with greater functionality, these training problems are being eliminated.

During all of these trials and tribulations my lust for a jet wrestled with practicality. Owning an Eclipse would allow me to fly up to 50 knots faster with 20 gallons less fuel burn per hour. But the MU-2 carries 153 more gallons than the Eclipse, and this extra fuel capacity would more than compensate for the MU-2's extra 20 gallons per hour fuel consumption. After close to four hours of flying the Eclipse must be back on the ground, but by this time the MU-2 had burned only 80 of those extra 153 gallons, leaving 73 gallons for an extra hour of high-altitude cruise before the MU-2 must land.

In the Eclipse for overflying weather and maximizing range I could fly up to FL 410. Flight Level 280 was the limit in my non-RVSM certified turboprop. But an FAA requirement to wear an oxygen mask when flying single pilot above FL 350 tempered my enthusiasm for aviating at these higher altitudes. Climbing to FL 410 to overfly weather for a short period of time would be nice and the mask not too uncomfortable, but three or more hours of sucking oxygen to maximize range didn't seem very appealing. Unfortunately, flying at lower mask-free altitudes would extract a substantial range penalty. In the MU-2 my monthly 1,000 nm trip could be accomplished nonstop against a 60-knot headwind with almost an hour reserve without an oxygen mask. In the Eclipse the choice was to fly high wearing an uncomfortable mask or fly lower and make a fuel stop. With the latter choice it would take longer to get to my destination in the Eclipse than in the slower MU-2!

While the Eclipse offered a very quiet cabin, the MU-2 would give a smoother ride in turbulence thanks to a 50 percent heavier wing loading. Passengers could sit in upright comfort in the MU-2 compared to sitting in a low sports car-type seat in the smaller Eclipse cabin. Six passengers could comfortably be accommodated in the turboprop versus four in the jet. The MU-2 offered 43 cubic feet of baggage space compared with 16 cubic feet in the Eclipse. Lastly, the MU-2 pilot's electrically driven flight instruments were backed up by copilot vacuum-powered gauges while the Eclipse sported an all-electric panel with no analog backup.

Another big consideration was winter operations in the Northeast with snow and ice on the runway. The MU-2 offers very effective thrust reverse for stopping on slippery runways. The Eclipse has neither thrust reverse nor anti-lock braking. Also, the MU-2's wing-mounted engines allowed for easy visual inspection from the cockpit of the air inlets to ensure that they were free of ice as well as the opportunity for visual inspection of the entire engine in the event of a fire warning light.

I would miss this advantage in the Eclipse with its rear fuselage-mounted engines. While neither aircraft offered speed brakes, the large MU-2 propellers function as such and slow the aircraft rapidly when power levers are brought to idle.

Economics and convenience also played a role in my decision. Even though the Eclipse went faster on less fuel, when one considered both the lost opportunity cost of the extra million dollars tied up in the Eclipse compared to the MU-2 and

the increased insurance premiums for a \$1.7 million jet, the MU-2 became the more economical choice. An added bonus was the fact that not buying the Eclipse would save \$75,000 in state sales tax and would eliminate the time consuming and expensive process of selling the MU-2 and training in the Eclipse. Maintenance for the MU-2 was a convenient 30 miles down the highway compared to more remote Eclipse repair sites at Albany, New York; Gainesville, Florida; and Albuquerque, New Mexico.

So what did I decide? I sold my Eclipse position and upgraded my panel with WAAS capability, air data computer, active traffic surveillance, roll steering, a new audio panel and a refurbished interior, all for what the sales tax on the Eclipse would have been! This helped soothe my wounded heart, but did not diminish my admiration for Eclipse and what the company has accomplished. Imagine a twin jet burning 45-75 gallons per hour of jet-A! Eclipse is to be commended for its bold efforts and admirable perseverance. One can not help but root for "the little engine that could!" The owner of a high-performance single, a piston twin or even some of the slower turboprops will appreciate the performance increase of an Eclipse if he or she can accept the space and range constraints of this machine.

In summary, lust lost and practicality prevailed. My circumstances of already flying a "near jet" meant that I'd achieve only modest performance increases with the Eclipse (15 percent TAS increase at most). Maximizing range in the Eclipse would be a trade off with comfort, in that wearing a mask was obligatory for long-range flying. Reduced passenger and baggage space, and loss of thrust reverse for the slick winter runways here in Maine, were issues as well. Economics and more inconvenient maintenance also argued against the Eclipse. Regrettably, I had to say goodbye to my cute little mistress. I realized that my "MU-2 wife" for the past 14 years has been a very capable performer, and polygamy is not allowed! Ah, for what might have been! ✈

#### About Ken Wolf

Ken is an eye surgeon and an ATP rated pilot with 5,000 hours of flying time. He lives in Lewiston, Maine, and teaches eye surgery worldwide aboard the Project Orbis DC-10 Flying Eye Hospital. Ken has been a subscriber to *Flying* for more than 44 years.

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