



Five of the MoVenture aircraft:
Tango 2, Catbird, Glasair II, and

ONE MO

FOR THE RECORD BOOKS

MOJAVE'S MAD
MONKS AIM FOR OSH

BY JAMES WYNBRANDT

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HOW CAN A FORMULA ONE Air Racer with an 8-gallon fuel tank fly 1,500 nm nonstop? Elliot Seguin, EAA 841245, owner and builder of *Wasabi Siren*, asked himself that last spring after noting the absence of a sanctioned point-to-point speed record between Mojave, California (his home base), and Oshkosh, Wisconsin. The question was more than idle curiosity. "For me, Oshkosh is the center of the whole universe," Elliot said, recounting the visits he's made every year since age 8, when he camped under the wing of the family's Globe Swift with his father. He invokes the name of the founder of his employer, Scaled Composites, when explaining why finding an answer was so important. "As Burt

[Rutan] says, 'It's not really an airplane until you've flown it to Oshkosh.'"

Whether or not that statement sounds reasonable to you, it resonates with lots of the airplane addicts drawn to the Mojave area. Elliot's quest to get *Wasabi* to Wittman field in one hop for EAA AirVenture Oshkosh 2014 quickly became a group enterprise: members of a loose fraternity of local pilots and homebuilders who call themselves "the Mad Monks Squadron."

ATTACKING THE AIR WITH A CLUB

The group, nameless until appearing in the credits of Disney's 2013 animated feature *Planes* (their aircraft dubbed the cartoon airplanes' sounds), coalesced around engineers at Scaled and other aerospace types who create cool aviation things at work and build and fly their own dream machines the rest of the time. The name is

borrowed from Tom Wolf's *The Right Stuff*, spoken in reference to the era's barrier-busting engineers and test pilots at Edwards Air Force Base, just 15 nm from Mojave.

"It's not like there's a members list," said Justin Gillen, owner and builder of Tango 2, offering this basic eligibility test: You're a member "if you're hangared out here and working on your airplane or out flying when it's 20 degrees."

Pilots from nearby airports—Antelope Valley, Palmdale, Lancaster, Tehachapi—also belong. They share camaraderie and competitiveness, as they vie with each other and help one another to push performance envelopes and do "bad ass stuff," as they call it. And, according to charter member Doug Dodson, who flies a Glasair II-S FT, "Elliot is the maddest of the Monks."

Their *joie de vol* reached its apex at the annual Mojave Experimental Fly-In. At



Justin Gillen flew his Tango 2 with Jenn Whaley keeping an eye on *Wasabi* in the passenger seat.

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At the April 2014 event, five experimental aircraft attempted to break nine National Aeronautic Association records (a record number of record-breaking attempts in one event itself, according to organizers), and claimed seven new benchmarks, including the speed record over a 5,000 km closed circuit (211 mph) claimed by Zach Reeder, a Scaled project engineer, flying the legendary Rutan Catbird.

The fly-in's "great kinetic energy" inspired Elliot to consider getting his name in the record books on his way to EAA AirVenture 2014, he said, notwithstanding Wasabi's half-hour endurance. He first sought the counsel of Wasabi Siren's co-designer and co-builder, his girlfriend Jenn Whaley, a Scaled office manager. Designed primarily for racing and completed in 2013, Jenn said adapting Wasabi for long-distance flight "was always in the back of our minds."

"When we built the wings, we kept them open so we could modify them later if we wanted," she said. Later was now.

If he was going to attempt the flight, Elliot wanted someone on his wing. He asked fellow Monk and Scaled colleague Justin, EAA Lifetime 1017487, if he was interested in coming along with the Tango 2 (the *Tango Time Machine*). "Just to have eyes on him, to be the sag wagon," Justin recalled, using the bicycle touring term for a support vehicle. But few of even the most efficient experimental aircraft have a 1,465 nm range with reserves. Justin had chosen the 160-hp engine option (the lowest) for maximum fuel economy when building his Tango, but his tanks held only 58 gallons—not enough for the mission. If Elliott had to modify his airplane, so would Justin.

MO FOR THE MISSION

Endeavors like this don't stay quiet long in Mojave, and Elliot said news of the quixotic scheme "spread like



Elliot Seguin set a speed record for the Mojave-to Oshkosh flight in Wasabi.

wildfire." Even so, EAA AirVenture was barely three months away, and almost all of the pilots interested in participating would have to modify their aircraft for the flight—exactly the kind of challenge squadron members thrive on.

"Oshkosh is like the mecca for us all," said Zach, the Catbird rebuilder and caretaker (along with Jim Reed). Zach, EAA 777411, said the pilots involved enjoyed the challenge of extending their planes' performance. "It was kind of a neat goal for a lot of guys to push their airplanes," he said.

Brandon Cangiano, an aerospace engineer and Lancair Legacy builder and pilot, overheard talk of the mission at work one day. "I went back to my desk, crunched some numbers," he said. He figured with another 20 gallons of fuel onboard, he'd have the necessary reserves. Doug, the Glasair II pilot, rushed for "a sharper pencil to see if my plane can do it" when he got wind of the plan.

Dustin Riggs, who'd arrived in Mojave four years earlier with no pilot certificate and little more than vague dreams of getting involved in aviation, would fly Dick Rutan's globe-girdling Long-EZ, *Ol' Blue*, which Dustin, EAA 1106968, had meticulously rebuilt after becoming the legendary aviator's acolyte.

Word of the plan reached EAA headquarters, and soon the group had an invitation to make a group

To account for performance differences, MoVenture would have staggered departures, calculated for a rendezvous over the Mississippi River at La Crosse, Wisconsin, and a group arrival at Oshkosh during air show prime time. *Ol' Blue* would take off at 3 a.m.; *Wasabi*, the Tango, and the Glasair at 4 a.m.; and the Catbird and the Lancair at 5 a.m. They could count on good weather at departure, given the area's placid summer patterns, but had to consider the possibility of afternoon convective activity from rendezvous to destination. For final preparation, the MoVenturers underwent formation flight training

together once modifications were complete; most lacked formation flying experience.

MOMENT OF TRUTH

The group gathered on the ramp at Mojave airport in the wee hours of July 28. *Ol' Blue* had a fuel pump problem on start-up and had to scrub its 3 a.m. departure. Elliot preflighted *Wasabi*. He'd had little sleep, endlessly reviewing checklists and contingencies in his head. "I was real nervous," he admitted. *Wasabi* had never been this heavy for takeoff—20 percent over its maximum standard weight—and more critically the wingtip-to-wingtip tank design created the possibility that the fuel load could push the aircraft in a lateral direction that it might not have enough rudder authority to counteract or braking action to stop before it departed the runway.

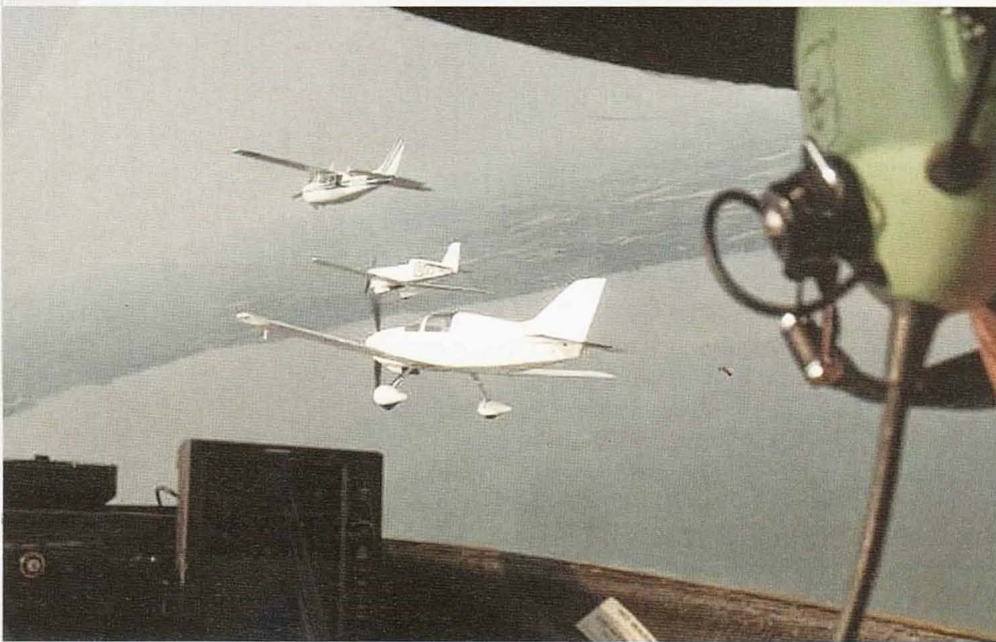
"I did a really slow power application, because P-factor would be the biggest exciter of directional instability," Elliot said. Moments later he found himself looking down at the runway lights from the air, turning on course, and thinking, "Holy smokes, we're going to do this!"

They'd plotted individual GPS departure routes with separation until a join-up at 15,500 feet, but the plan collapsed almost immediately. "All the terrifying stuff happened in the first hour," Elliot said. Just miles to the east, air mass thunderstorms filled the normally clear skies, and *Wasabi*, the Tango, and the Glasair dodged cells trying to stay VFR, lightning providing the only illumination. Justin had ADS-B aboard the Tango and kept the others informed of their relative positions. It wasn't until just before reaching Las Vegas, as the sun came over the horizon, that each

cleared the weather. An hour later *Wasabi* and the Glasair had formed up on the Tango, Justin handling the radios for the flight of three. By then the Catbird and Lancair were en route, and even *Ol' Blue* was finally airborne, Dustin having fixed the balky pump, all in radio communication, despite the distance separating them.

The journey was also unfolding on the Internet, as GPS Spot Trackers onboard the aircraft identified their positions for display on the MoVenture website. From the Catbird, serving as the mission's command platform, Rebecca took and e-mailed photos that were posted on the site in near real-time, while Niki made hourly calls via satellite phone with the arrival coordinator, Doug's wife, Gail, already at EAA AirVenture.

Aboard *Wasabi*, which unlike the others had no autopilot, Elliot kept the ball centered and tracked his fuel



The MoVenturers underwent formation flight training together before flying to Oshkosh.



Justin Gillen, an engineer at Scaled Composites, built and flies the Tango 2.



RUTAN LEGACY DAY

Burt Rutan, the visionary aircraft designer whose innovations made history and changed the aviation world, will be back at EAA AirVenture Oshkosh in 2015 to commemorate the 40th anniversary of his iconic VariEze aircraft. EAA has designated Tuesday, July 21, as Rutan Legacy Day honoring the legendary designer's return to Oshkosh, with all owners of Rutan-designed aircraft invited to participate.

Rutan's designs have been groundbreaking for more than 40 years, beginning with the VariViggen in the early 1970s through the concepts that became the SpaceShipOne and SpaceShipTwo vehicles that are launching the era of space tourism.

His use of canard wings and composite materials changed the look and efficiency of homebuilt aircraft, with more than 1,000 airplanes based on his designs now flying in the United States alone.

"There are few individuals in the history of aviation who can match Burt Rutan's imagination and accomplishments," said Jack Pelton, EAA chairman of the board. "His presentations are eagerly anticipated whenever he is in Oshkosh. Although he officially 'retired' several years ago, his innovative mind continues to push forward with new concepts and ideas that he'll share at EAA AirVenture in 2015."

Rutan is perhaps publicly known best for his SpaceShipOne design, which in 2004 won the \$10 million Ansari XPRIZE as the first successful private spacecraft. He also designed the Voyager, which in 1986 became the first aircraft to fly around the world nonstop on a single tank of fuel. That accomplishment earned him, along with pilots Dick Rutan and Jeana Yeager, the Presidential Citizens Medal. Burt Rutan was also named to the National Aviation Hall of Fame in 1995 and EAA's Homebuilders Hall of Fame in 1998.

His VariEze aircraft first flew in May 1975, with the prototype causing a sensation at that year's EAA Oshkosh fly-in. That canard design evolved into other Rutan aircraft innovations, such as the Long-EZ, that are still being built today. Rutan's multitude of interests has also led him into successfully exploring space flight and into electric flight.

Dustin Riggs meticulously rebuilt Dick Rutan's Long-EZ O' Blue.

consumption, pumping 2 gallons from the wing into the header tank every 30 minutes. At 15,500 feet, using about 50 hp from the 160-hp O-200 engine, *Wasabi* was burning some 4 gallons per hour. Hours ticked by.

Nearing the rendezvous waypoint—the Mississippi hidden beneath a solid undercast—the two flights prepared for their join-up, with the Tango's ADS-B showing both converging on the spot simultaneously. In his Lancair, Brandon was diligently scanning his 12 o'clock position. "Right in front of me were three airplanes in a row, exactly where I expected them to be," he said.

"We couldn't have asked for any less drama," said Jenn, who watched the Catbird and the Lancair join the formation from behind. "I can't even explain how weird it was. You're sitting in the airplane and thinking, 'This is exactly what we briefed, and it's happening.'"

The Catbird took point position on the right of the five-ship formation, and the legacy formed up on the left. Everyone checked in with sufficient quantities of fuel and oxygen. Chatter on their 122.75 common frequency turned to the undercast. "We were

debating how to get through, and this big opening just popped up in front of us," Niki said.

Doug, leading the formation, recalled nosing over into the hole, "and everything went from bright blue to green." For a desert dwelling group like the Monks, the experience was almost overwhelming. "To come out of the clouds, like this hole in the sky was made for us, and see green pastures and water was magical," Rebecca said.

Continuing onward, after nearly 10 hours in flight, their objective was almost in sight. "Elliot pointed it out first," Justin recalled. "I think his transmission was, 'Hey, is that Winnebago?'"

WHERE MOVENTURE AND AIRVENTURE MEET

Justin had been using his tail number, N131RG, to lead the flight, but now, switched to the air show controllers, he checked in using the group's mission name: MoVenture. They would perform a fly-by in formation down the flightline and then circle to land, but first they had to wait for a lull in the air show—their anticipation, and in some cases bladders, at the bursting point. Vectored to a

THE SKIGULL

After retiring in 2011, Burt Rutan did not embark on any new designs or builds and even wondered if he had the persistence to develop another aircraft. His highly innovative spirit would not stay still, however, as he then spent two years doing preliminary designs on what would become the SkiGull. Burt, working out of his garage in Coeur d'Alene, Idaho, claims this airplane will be his last project.

The SkiGull, which is being featured in the antennaFILMS documentary *Looking Up, Way Up: The Burt Rutan Story*, is described as a motorglider that can land on a variety of surfaces (water, snow, unimproved land, etc.) allowing access to remote areas like never before.

"Imagine an aircraft able to land in large swells near any ocean shoreline, ride the waves to the beach, from where you could hike in for lunch and gas," Burt said in a statement released by antennaFILMS.

"Imagine also going to snow fields anywhere there is around 400 feet of relatively smooth snow, or to a dirt patch right at Puma Punku, or any part of the Amazon, including the tiny rivers that feed it. Imagine doing an eight-month exploration trip around the world without ever going to an airport."

One of Burt's longstanding policies is to not release any drawings or images of his designs until they fly, and accordingly he's not releasing any for SkiGull before test flight but has released some general teasers.

The design features a retractable ski system that will allow SkiGull to operate in most beach waves, large ocean crests, and very rough lake/river water. Without the skis it can operate from water, but it would then be severely limited to relatively smooth water, like other seaplanes.

It will be a two-place aircraft completely compatible with seawater so it will be made entirely with composites or titanium, and no aluminum.

Since the aircraft has not flown, Burt currently estimates it should have the range to fly from California to Hawaii without ferry tanks, and cruise at 170 knots.

"I know it sounds like Walter Mitty, but if it flies well, Tonya (Burt's wife) and I will explore the world with it, visiting the places you cannot easily get to any other way," he said.



Doug Dodson built a 15-gallon transfer tank so his Glasair II could make the nonstop trip to Oshkosh.

pair of successive holds, they watched smoke trails being painted in the sky while circling south of Wittman field. After half an hour, the air boss uttered the unforgettable words, "MoVenture, the airspace is yours." Justin aimed for the approach end of Runway 36, flanked by his Monk mates.

"It's an unreal experience," Brandon said, recalling the moment. "There aren't too many people who get to fly right down the air show centerline of Oshkosh during an air show. That's not for mortal men—that's for Yeager and Hoover. But for plain old guys from Mojave?"

The air boss invited them to make a second fly-by. With the MoVenture journey almost complete, a new adventure was about to begin, of basking in a heroes' welcome, of watching the daily air show from their honored parking spot on Boeing Plaza, and even posing for group photos in formation in the skies over EAA AirVenture. But for now, this final moment belonged to the man who inspired the implausible mission, and new NAA/FAI speed record holder

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(260.00 kmh) for the Mojave to Oshkosh flight, Elliot Seguin.

"When I rolled out on final for that low pass coming over the fence, I'm at race speed, hauling ass, knowing Jenn is in the airplane behind me," Elliot said. Suddenly a sight on the ground brought him back to his very first visit to Oshkosh. "I could see the spot where me and dad had sat under the wing, eating cheese curds and watching the air show!" he said, his voice still filled with wonder. "Holy smokes!" *EAA*

James Wynbrandt, EAA 568059, is a multiengine, instrument-rated pilot who lives in New York City.