

SPORT

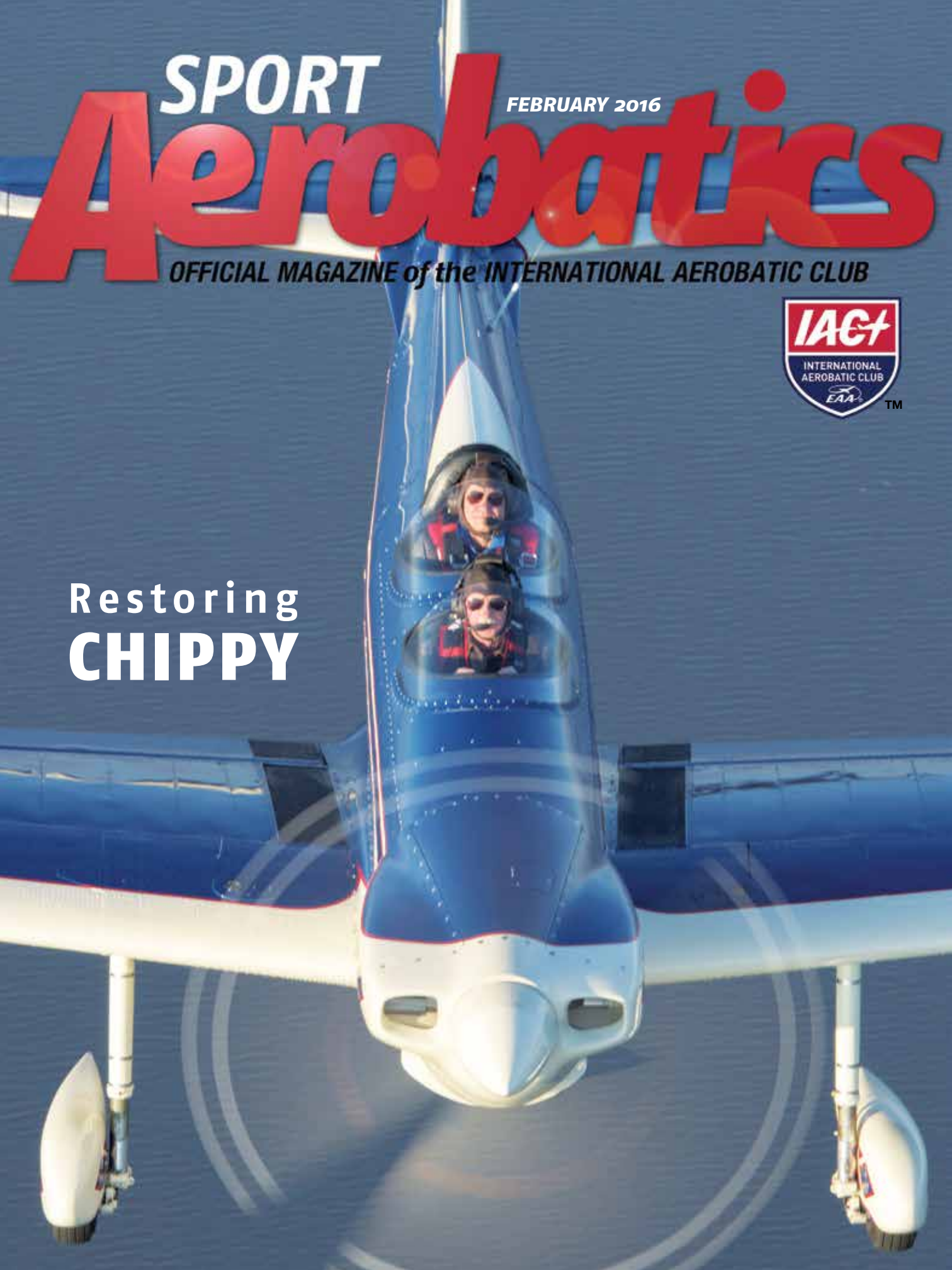
FEBRUARY 2016

Aerobatics

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB



Restoring
CHIPPY





DARIN LACRONE

Restoring Chippy

Winning a Bronze Lindy at Oshkosh

BY MARK MEREDITH

IN NAVAL AVIATION WE CALLED IT THINGS FALLING OFF AIRCRAFT. We had a program for it, of course, with formatted official reporting under the header *TFOA*. Too often it was reporting little blue practice bombs that went astray (oops), or canopies that blew off at 40,000 feet and became someone's backyard greenhouse. But that was then and this is now: Who should I report this to? My

Super Chipmunk right cheek cowl-ing is now in a Maryland farmer's field, somewhere over yonder. The cowl-ing departed while rolling upright from a half-Cuban, tumbling down over our heads. It missed the tail and my brother, exposed in the front cockpit, but pretty much ruined a golden fall afternoon of gentleman aerobatics. So began my education as the new owner of a very tired air show bird.

But we skipped *TFOA* reporting. Embarrassed by my negligence in losing a big piece of an airplane that everyone told me not to buy, my brother, Chris, and I flew home at low power, landed, and high-tailed it for the hangar. I had maybe 20 hours in the logbook including the ferry home from Florida, all of it flown with trepidation because this was clearly a project plane. The intent had been to fly it some,



Above, Chipmunk BF370 began life in the RAF (1951-55), attached to the No. 4 Basic Flying Training School (BFTS), Sywell, Northampton. There are no pics of BF370, so this is a different squadron aircraft.



Chipmunk BF370 left the RAF for Australia in 1957. It was certificated as VH-BSQ and served as a civil/military trainer for the Tasmanian Aero Club, Launceston, until 1965. Below are members of the club gathered around Chippy in the late 1950s.



In 1965 Chippy was converted as third SA-29 Spraymaster at Bankstown, Australia, and recertificated as VH-GEB. Mods include forward part of fuselage interior and front seat removed to install a hopper, rear seat raised, and single seat bubble canopy installed. It also received a dorsal fin, Scott-style tailwheel, and attachments for spray equipment and controls (skin holes and doublers still very much in evidence today!) It still had the stock 145-hp Gipsy Major engine. It flew out of Tintinara, Southern Australia, landed in a field and was badly damaged. Once repaired, it continued to operate as a Spraymaster until 1969.

restore it some, then fly it some more. Okay, time for a new plan.

Plan B evolved into a five-year, 5,000-hour rebuild that changed my life and the life of Super Chipmunk N7DW in some pivotal ways. During the first three years, Chippy increasingly dominated resources and time after work and on Saturdays. But now it was time to finish. I left secure, reasonable work—a Navy career, then nine years as a Navy contractor—to devote full-time to finish this unreasonable, seemingly endless project. I figured I could swing the loss of income for a year or so, and surprisingly my dear wife, Martha, went along.

The reality was 18 more months and all the money I had set aside for it! Rebuilding brought self-inflicted pain and expense, but also the pleasure of challenges surmounted; the restoration of a classic whose beauty shined through all the dents and chipping paint. A modern-ish airplane with the look of a golden age racer. Flying once again in the spring of 2014, we now have two AirVentures and two Sportsman aerobatic contests behind us (Wildwood and Warrenton). At Oshkosh 2015, Chippy



Chippy in 1969 after it was sold to the Adelaide Soaring Club, Gawler, South Australia. Note the tow rope attached. It began its conversion to a Super Chipmunk soon afterward, completed in Texas in 1974.

won a Bronze Lindy as Champion Custom Classic.

What is the allure of an old Super Chipmunk when there are so many cheaper, far more capable, ready-to-fly aerobatic birds?

Any story about a de Havilland DHC-1 should begin with Art Scholl and his spectacular part in making a sweet little trainer famous. His part-Canadian Chipmunk was so much more than de Havilland ever imagined when it developed it in 1945 to replace the woefully obsolete Tiger Moth biplane. Sporting modifications designed by renowned aerobatic pilot and manufacturer "Pappy" Spinks, Art Scholl flew one of his three Super Chippies before an estimated audience of 80 million people over a 20-plus year career. He also competed as a member of the U.S. team in international competition from 1963 through 1972. His N13Y now hangs (inverted, of course) from the overhead of the

Smithsonian Udvar-Hazy Center, and his similarly modified N1114V hangs in the EAA Air-Venture Museum in Oshkosh.

Art Scholl added grace to his flying and style to his showmanship that made him a crowd favorite—like when he stepped out on the wing during a low pass, or flew with his little black dog, Aileron. He was the first modern pilot to fly night shows with pyrotechnics. And he was a pro: a Ph.D. aeronautics professor, CFI, and A&P who ran an FBO and aerobatic school and produced his own flying films.

Art had more than 200 movies to his credit, flying in pilot favorites such as *The Right Stuff*, *The Great Waldo Pepper*, and *Top Gun*. In the words of ICAS in describing the Art Scholl Showmanship Award, "His exacting, exciting and entertaining performances were a reflection of the best in our industry. He was a dedicated professional who practiced tirelessly to get the most

from himself and his airplane without sacrificing safety." Recipients of the award are a who's who of aerobatic performers and announcers since 1986, the year after he died while filming *Top Gun*.

Art Scholl is arguably the most famous air show pilot of all time... or at least to those of us of a certain age. In 1971 when he was flying his red, white, and blue Chipmunks, I was a 13-year-old kid on a red bike. On Saturdays I would pedal miles across Riverside, California, around Mount Rubidoux to dusty Flabob Airport where Art was based at the time. Flabob was a dream airport for a young wannabe pilot (and still is), especially one enamored of the romance and design of airplanes.

Flabob was and is a grassroots airport, full of characters who have contributed hugely to the history of aerobatic, experimental, and sport aviation. In my favorite photos of my dad, Roy, he was a steely-eyed 19-year-old in a leather flying

THERE'S NOTHING LIKE A PITTS



PITTS PILOTS ARE SPECIAL

And it is special to be able to fly a Pitts. It fits you like a glove, is a most honest airplane, does everything you ask it to, and with 260 hp and a +6, -5 design it does it IMMEDIATELY. Virtually telepathic.

So, if you want to take one for a spin, a loop or a roll, call us.

CALL 307.885.3151 OR VISIT AVIATAIRCRAFT.COM

AVIAT AIRCRAFT INC.

HUSKY ★ PITTS ★ EAGLE
P.O. Box 1240 Afton, WY 83110

©2016 Aviat Aircraft, Inc.



Chippy in its initial livery as a Super Chipmunk (1974–1988), certificated in the United States as N7DW. This photo was taken in 1984 in Texas. It flew the airshow circuit with Doug Warren and Howard Davenport (the latter flew Chippy partnered with Duane Cole). The hopper is still up front serving as a ferry tank; many of the other Spraymaster mods are still in place, but the wings are clipped and it has an IO-540 engine.

helmet in his war-surplus PT-22. In family lore he was usually upside down, terrorizing the jack rabbits around Flabob. He never really grew up, but the Air Force still let him fly tankers and Phantoms. He instilled in me a love for the old planes and for that special airport. I recall many a solitary summer day walking the lines of Wacos, Texans, Ryans, and big-wing Stinsons. The airplanes I could see were not pristine showplanes but ragged and weedy. Eventually I dared to venture back to the hangars, where I discovered another side of Flabob—the birthplace of the Stits and the Starduster (we bought the plans), EAA Chapter 1, and many a racer, replica, or restored beauty. The community of pilots, builders, and educators at Flabob have preserved that spirit through the decades—witness the recently completed art deco beauty, the Waco Sky Siren.

The Flabob hangars are where I first discovered Art Scholl. Not at

an air show—I never saw him perform! But by shyly hanging around while he tinkered or dragged out a Chipmunk to practice his routine. I never forgot those Chipmunks.

Though I've always been "bent" as a builder, it never occurred to me I would ever rebuild and fly a Chipmunk myself. I had a 25-year Navy career as first an A-6 Intruder bombardier-navigator and then an aircraft maintenance officer aboard aircraft carriers, keeping the jets flying. It was a career devoted to achieving mission-capable airplanes ready to launch off the pointy end; an exciting, fulfilling life, though far removed from the old classics. Then as a 47-year-old, I regretfully took off the uniform and compensated for the loss by finally becoming a pilot! After just a few years of flying very nice spamcans, my Flabob roots took hold, and I went on the hunt for an interesting project. So many airplanes, so little time!

A casual browse of the online

listings stopped me cold. There was Chippy, red, black, and stunning, looking as much like a Ryan as a Chipmunk. He was for sale by Bruce Moore, EAA's photoshop pilot. So I sold the family Bonanza. Feigning due diligence, I made an exploratory trip to Florida. A knowledgeable friend and A&P also inspected him for me, but I ignored his caution and wrote the check. To the most casual observer, it was obvious I was nuts.

So began a journey that was so much more than I bargained for: a journey of discovery, meeting great airplane people at every turn. As I suppose all rebuilds do, it began with years of deconstruction. It more resembled archeology: unearthing mods on top of mods; extracting and labeling nasty-looking bundles and wires to nowhere; painstakingly removing paint layer by layer: white, red, blue, black, green, gold, gray.

Way too much of my life passed alone in a dark hangar, breathing



In 1988 N7DW joined N66RP as a member of the TAG Hauer aerobatic team. The aircraft were modified to open cockpit by Chuck Stockdale and Iranian pilot Nadir Fahn who flew them together until 2000. N7DW wears the black and green scheme.

through a fresh air respirator hose, lying in the belly across a spar carry-through with a can of stripper and a toothbrush, working the crevices to remove paint that was like sedimentary rock. Reskinning the fuselage from the bones outward would have been better. But shiny metal finally revealed itself inside and out... along with cracks and corrosion to add to the fix list. No way out of this

hole but to keep digging (...wait, that's not how it goes!). Eventually a friend tipped me off to the wonder of water-based stripper, a garden nozzle, and a Shop-Vac to suck out the bilge water. Life was good again.

With bare metal came rebuilding and new skills. To rebuild Chippy, I needed a whole new skill set. I didn't know what I didn't know. There was no kit or plan, but lots



Another photo of one of the many paint schemes the aircraft wore during this period. N66RP (inverted) currently lives in New Jersey looking much like it did in this photo but no longer wearing cologne.

of example airplanes and best of all, homebuilder web logs. If you dial the phone number of most small airplane part vendors, the company president or other expert picks up the phone, ready to educate or even point you to the competition for a better solution. Chippy taught me about aluminum fabrication and riveting, fabric recovering, plumbing, and electrical systems. The wind screen fairings, tailcone, strakes, and many complex wing/empennage fairings needed replacement. So I watched videos, built a scrap pile, and finally made friends with the English wheel and other forming tools. Bill Finagin's Pitts S-2C in the hangar next door became the firewall forward model.

The missing right cheek cowling launched a five-year saga. Super Chipmunk cowling molds were lost over the years so it started with making a male mold over top of the engine, then having a professional and new friend, John Hogsansen, fabricate female molds for the whole front end (they've now been used on two other Chippy rebuilds). A new nose bowl presented a chance to update a clunky snout to improve cooling and drag. The racer crowd—MXs, RVs, and F-1 Rockets—offered many lessons about how to build high-performance induction and cooling systems, as did Ken Paser's terrific book *Speed With Economy*. Through their knowledge and John's skill, the beat-up glass cowling transformed into carbon fiber artwork almost too lovely to paint. Plus it delivers a little ram kick, perfect oil temps, and 300 degree CHTs!

When I consider the extent of the "major repairs and alterations" I performed as a non-certified mechanic, I cannot take for granted the amazing freedom we have with experimental aviation in the United States. With support from the Baltimore FSDO, Chippy now sports a new experimental exhibition airworthiness certificate with minimal limitations. We success-



Chippy N7DW in 2008, owned and flown by Bruce Moore, EAA photoshop pilot. This is the configuration when I bought it in 2009.

fully completed first flight and a five-hour (!) test period. Next came paint, just in the nick of time to depart for AirVenture 2014.

Chippy flew again thanks to the help of EAA Chapter 571, friends and mechanics at Lee Airport in Annapolis, especially Larry Donaldson, expert Chipmunk restorer Jesse Schneider in Tulsa, and Tom Schwietz of Aero Engines, who gave me confidence the prop would keep spinning. Kevin Burns at Scheme Designers worked patiently with me for four years as I evolved the vintage paint job, and Ken Reese of KD Aviation in Trenton worked magic with final prep and paint—no small feat with tape lines over hundreds of round-headed rivets. The vicious chipmunk on the rudder is a reimagining of the leaping beast on the tails on my old A-6 squadron, the VA-35 Black Panthers. If anyone is interested, the rebuild is documented in photos on Chippy's Facebook page, Super Chipmunk Restoration.

A Working Life

Throughout the years of building, in conversations with an extensive Chipmunk appreciation society around the globe, I slowly uncovered stories of N7DW's flying adventures. Like all good Brit-

ish-built Chippies, it began life in the Royal Air Force in 1951. It then immigrated to Australia in 1956 to join the Tasmanian Aero Club, registered as VH-BSQ. With surplus Chipmunks in easy supply, by 1965 both Britain and Australia began converting a handful of them to crop sprayers. Chippy earned a new moniker as an SA-29 Spraymaster, registered VH-GEB. The experiment quickly fizzled; purpose-built Cessna Agtrucks and Piper Pawnees easily outperformed 145-hp Chipmunks. But ever the working plane, Chippy now became a glider tug, in the process suffering multiple landing accidents, including replacement of one wing.

After its last accident in Australia, it was disassembled and stored starting in May 1970. This was the heyday of Art Scholl's Super Chipmunks, so in April 1971 (I was on my red bike at the time) work began at Bankstown near Sydney to similarly convert it. Work stalled. Dean Whitaker of Marrero, Louisiana, rescued it along with two other Aussie Chippies that he imported to the United States in May 1972, eventually certificated N7DW, N8DW, and N13DW (all still flying today). Dean immediately sold N7DW and N8DW to Doug Warren in Big Spring, Texas.

Over the next two years Doug completed N7DW's Super Chipmunk mods that were finally signed off by Emile Bryson in June 1974. Modeled on Pappy Spinks' design, they clipped the wings 19 inches on each side, enlarged and beefed up the rudder, extended the ailerons by stealing from the flaps, sheeted the wings with 0.020 aluminum, and installed a single-place bubble canopy and O-435 engine with inverted oil.

The N7DW stories kept coming, especially after we got back in the air and could begin getting out and about. After flying it in shows for a few years, in June 1978 Doug Warren made a trade with Howard Davenport: Chippy for a Decathlon and some cash. Howard had been flying air shows with Duane Cole starting when he was 17 years old in 1973. With Chippy as his new mount, he added an inverted ribbon cut to his routine, similar to Art Scholl's. But not for long! In 1979 he and Duane were in loose formation, returning to Houston after a show in Silver City, New Mexico, when the oil pressure plummeted and temperature spiked. Howard could smell oil fumes.

With the closest airport 30 miles away, he signaled to Duane and they landed together at a rest stop on Interstate 10 near El Paso. They parked Chippy, then after a little chat with the highway patrol, took off again in Duane's Decathlon. Howard later returned with a truck and a mechanic. Back in the hangar, they could see that the crankshaft bearings were demolished, but Howard had no prospects for paying for a new engine. Doug Warren came to the rescue by taking Chippy back, swapping a Super Taylorcraft for the disassembled pieces. After installing an IO-540, he continued air show flying until he sold it again in 1987 to Iranian-American pilot Nadir Fahn.

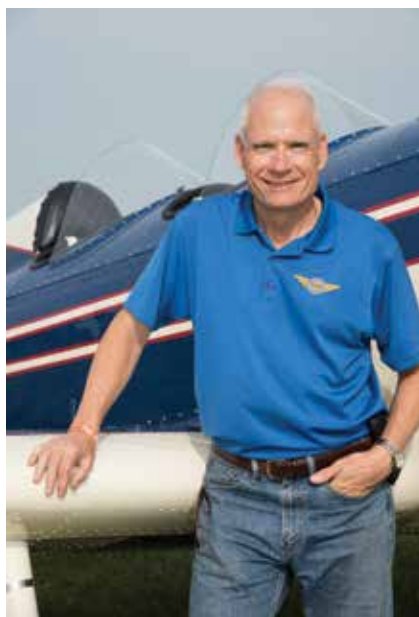
Nadir and his air show partner Chuck Stockdale modified N7DW to an open cockpit in 1988. They



TYSON RININGER



Tail art



Mark Meredith



Cockpit

removed the chemical hopper after a dozen years of service as an air show ferry tank and built new front controls. Together with Chuck's father and brother, they also modified Chipmunk N66RP to the same open-cockpit configuration and then flew them as a two-ship team. Over the next 12 years, they flew the circuit with support of several sponsors including TAG Heuer, developing a formation routine that included a tailslide to an

inverted ribbon cut by sister ship N66RP. Search YouTube and you'll find lots of fun videos, including TV news stories of their performances. Chipmunk 66RP carries on today, still wearing Stockdale's red and black Mystery Ship scheme, now owned and flown by Bob Rosen of East Hampton, Long Island.

Retired from performances in 2000, Chippy N7DW eventually made it into the capable hands of Bruce Moore in 2003, who began

breathing new life into him by replacing the engine, fuel bladders, and engine mount before I took the baton in 2009.

Colorful Scars

We all keep our scars, and every piece of this Chippy has a story to tell. The 1965 ag mods were of everlasting consequence to N7DW's future life: Chippy will be forever "unique" for good or ill. To make room for the hopper, the ag com-



TYSON RININGER



DARIN LACRONE



TYSON RININGER

pany mechanics ripped out the fuselage guts, including many parts of the flight control system such as the rudder bars and much of the support structure. The pilot was moved to the rear, in a seat jacked up under a high ag-style bubble canopy. Hopper controls and spray bars sprouted from the fuselage side and wings. Fifty years after its ag mods, I found myself

patching the scars, removing corroded doublers, and fabricating structural and flight control parts more closely resembling de Havilland originals.

Why does Chippy have open cockpits today, when Doug Warren's little Mustang bubble would feel so cozy on a cold winter day? Well, it does look like the Skiles Skystreak in the *Great Waldo Pep-*

per movie, but that's not the real reason. Chuck Stockdale wanted to fly the press up front, but the de Havilland two-seat canopy and rails were long gone, transplanted to some needy Aussie Chipmunk. Open cockpit just made sense. (Though a few in the Chipmunk Inquisition loathe the look—"That's just wrong!")

Why the big turtledeck aft of

the rear seat? My neighbor Mike Barron and I formed it to hide a new steel rollover bar/harness mount, a stand-in for the beefy head protection once provided by the stock de Havilland windscreen. Yeah, and it gives Chippy the look of a 1930s racer when the front cockpit is covered!

Early in the rebuild, I discovered steel fin spar doublers from tip to base of the aft fuselage bulkhead. I wondered, is this a typical Super Chipmunk mod? Chuck filled me in; the fin spar mounting broke...he tiptoed home with the whole vertical stabilizer flopping! I've learned to be curious—and cautious—as Chippy reveals his secrets.

I've now added a few chapters of my own to Chippy's adventures with many more to come...though no more disasters, please! With a fourth rebuild completed, retirement is nowhere in sight for this hard working Chippy. Or for me either. I now instruct full-time at Navy Annapolis Flight Center and take my students up for a fun flight every now and then in Chippy. He's readily convertible between the single-seat racer look I prefer and a tandem we can share with friends. I've been careful and incremental about opening up the envelope, both the plane's and my own. With a bit of expert coaching from Bill Finagin, Chippy and I are improving our Sportsman performances. One day he may even get to relive some of his old glory in local shows. Gently, though; Chippy is an old bird.

IAC

You Can't Scare Us!

We Can Teach ANYONE to Land a Pitts!

- 44 Years Experience.
- Train for Skybolt, Eagle, Model 12, S-1S, etc.
- We love crosswinds.
- We love low time pilots.
- We love narrow, short runways.
- Yeah, we love akro too.

Stay at "Our Place"—Families Welcome!

Pool Area

**Budd Davison's
Plus 5 Aviation, LLC**

602-738-2045 - buddairbum@cox.net - Phoenix, AZ 85028

Visit us at www.airbum.com

De Havilland Canada's DHC-1 Chipmunk first took to the skies in May 1946. Its Ontario plant needed to fill the void after wartime production of Mosquito, a project to retain some of its 7,000 highly skilled employees. Even with the shrinking demand for military aircraft, it was obvious the British Commonwealth nations needed a new primary, aerobatic trainer to replace the obsolete de Havilland Tiger Moth biplane. Despite no contracts or outside funding, it gambled on a clean sheet design. It was a gamble that richly paid off! From the same fertile minds would soon spring the DHC-2 Beaver, DHC-3 Otter, and many other iconic north country critters still in great demand today.

The lead design engineer was Wsiewolod J. Jakimiuk (sounds a bit like "Chipmunk"), a Polish émigré who fled his homeland at the start of the war after designing two successful World War II Polish fighters. With war's end, he and de Havilland management adopted the idea of

"build it and they will come." With no military specs or negotiations to slow them down, they worked fast through design and prototyping. In seven months they created a rugged, all-metal aerobatic monoplane trainer suitable to the demands of northern flying. The design team built it around the same 145-hp Gipsy Major engine used in the Tiger Moth because they were durable and available, with all the needed squadron maintenance skills already in place. They also economized by using Tiger Moth cockpit fittings and flight controls.

Chippy became a graceful blending of the past and the present: tandem taildragger meets modern metal construction; fabric control surfaces and Mosquito-like DH tail meets cantilevered wing and semi-monocoque oval fuselage. Because it was a trainer, the new Chipmunk also took a "wide stance," with rugged landing gear and a long tail to protect against ground loops.

IAC