

**STOL-flying classics, loaded
with history's mysteries**

BY THOMAS A. HORNE

The airplane stands tall and muscular, and has a huge wing—the same wing as the North American P-51. The cockpit is a giant step up from the tarmac, and you need to grab one of the interior, overhead structural tubes to haul yourself inside. There's a giant cabin door, designed to allow the loading of stretchers. The panel is nonstandard and features a tachometer that runs up to 3,600 rpm. Up front is a 295-horsepower Lycoming GO-480 engine that turns a geared,

Helio's macho machines

PHOTOGRAPHY BY MICHAEL P. COLLINS

96-inch-diameter, three-blade propeller at 64 percent of engine speed. A set of four Handley-Page leading-edge slats hangs down from the massive wing, which comes with certain pre-reinforced ribs—ribs ready for installing hard points for rocket launchers. This is no run-of-the-mill general aviation airplane. This is a Helio Courier HT-295.

The brainchild of Massachusetts Institute of Technology professor Otto Koppen and Harvard University professor Lynn Bollinger, the first 250-hp Lycoming O-540-powered Helio Couriers were designed and built in 1949 by the Helio Aircraft Corporation. (A prototype was made out of a converted Piper PA-15 Vagabond.) Back then, the airplane's objective was to come as close to stall-proof as possible—there being so many stall-spin accidents in the immediate post-World War II years. A byproduct of the design was the airplane's fantastic slow-speed and short takeoff and landing (STOL) performance. Koppen and Bollinger achieved their goals, and magazines of the day show the first Helio Courier taking off from a football field at M.I.T. It was airborne and climbing away by the 50-yard line.

Now it's my turn to discover

the world of Helio flying. I'm at the controls of a truly rare bird—one of only 19 tricycle-gear Helios ever built. And boy do I feel lucky; Helio lore is full of hair-raising ground loops in tail-wheel models. I've heard it said that ground loops are almost unavoidable in Helio taildraggers, and that not one of the 528 Helios ever built has a damage-free history.

My instructor is Mark Ograbicz, a veteran Helio pilot who has spent hundreds of hours in Helio slow flight (see "Ready Plane...Take the Plane," p. 52). He utters the words that usually presage big trouble—"let me show you something." He

taxis to the active runway, puts down 30 degrees of the Helio's huge flaps ("You use 40 degrees for taking off in mud or tall grass," he says), then turns the airplane into our 10-knot crosswind—meaning that the airplane is perpendicular to the runway. Now I know what's coming: Ograbicz intends to take off in the 100-foot width of the runway.

Then it's full power, an acceleration to 30 mph on the airspeed indicator, a tug on the yoke, and we're airborne well before we reach the edge of the runway. Some buildings are ahead, so Ograbicz cranks in a 45-degree bank—by then our airspeed has built to a hefty 45 mph—





and away we go. Power is pulled back to 3,100 engine rpm in the climb-out, and as the flaps are slowly retracted airspeed builds to a saner 80 mph. Now we're climbing at 700 fpm. At pattern altitude power is reduced to 2,700 rpm. Ograbicz finishes his demonstration with a 60-degree bank in orbit over the approach end of the runway. He drops the flaps, chops the power, and we cross the threshold at 55 mph. On short, short final the leading-edge slats pop out automatically with a startling slam, we touch down, and come to a halt in the length of the runway threshold markings. Neat!

My subsequent take-offs and landings aren't as bold as Ograbicz's, but they nonetheless are very short indeed. What surprises me most is the need for a substantial amount of power to arrest the monumental deceleration and sink



Something old, something new abounds in the panel of the trigear Helio Courier featured in this article. Mixture control (to the left of the throttle) is connected to a pressure carburetor and operates virtually automatically. There's a whole brace of avionics, including an EchoFlight StratoCheetah display capable of showing downlinked radar images and sending and receiving e-mail (top). In back, there's plenty of room for passengers or equipment such as Winged Vision's television monitor, used for sports coverage (above).

rates that can occur with full flaps. Even with the lift-augmenting effects of the leading-edge slats, those barn doors can really send you plunging—but fast. So on approach you have to carry some power, and after my first blunders I never forget that.

Let's see, who might want an airplane that can take off and land within 600 feet or so, that can safely bank 60 degrees at 60 knots, that's built for rough fields, that can haul up to 1,000 pounds with full fuel, that's so strong you can hang weapons on the wings? Why, of course, the military!

Back in 1953, when production lines in Pittsburg, Kansas, first started churning out what were then called H-391 Couriers, the airplane immediately caught the Army's eye. From the late 1950s through the mid-1960s more than one-third of all Couriers went to the U.S. armed forces, under the U-10A, -B, and -D model

designations. Many served with Air America—the then-clandestine airline operated by the CIA—in Laos and Vietnam. Couriers were especially adept at operations out of hastily cleared jungle landing strips, unimproved roads, and other makeshift landing zones. Many military versions had published maximum gross weights of 4,000 pounds—600 pounds more than the civilian models.

Show up in a Helio Courier, and you're sure to draw a crowd. In that crowd you can expect to encounter that reticent gawker who tersely allows, "I used to fly these," and nothing more. Ah, the stories these pilots could tell.

One legend has it that Helio was asked to build a Courier with no identifying marks whatsoever. That airplane, it's rumored, carried covert operatives and repeatedly penetrated Soviet air defenses without being detected. The airplane

landed on a frozen lake in the middle of Siberia, where its crew was sent to observe and take measurements of a series of Soviet nuclear test explosions.

In Southeast Asia, similar mystique prevails. Nearly all the Couriers left behind from the Vietnam War, it's said, wound up in the hands of Cambodia's Khmer Rouge, which then sent a few to India, Pakistan, and the People's Republic of China.

In 1968, Helio began manufacturing a seven-airplane production run of the H-500 (military U-5A) Twin Courier. There's no mistaking a Twin Courier. It had its engines mounted above the wing with an auxiliary airfoil running between them. All of these 250-hp Lycoming O-540-powered airplanes saw service in Vietnam. In 1969, the first in a production run of 18 HST-550 (military designator AU-24A) Helio Stallions were built, and these, too, went to Vietnam. These fire-

breathing 10-seaters were powered by a 680-shaft horsepower Pratt & Whitney PT6A-27 engine; had a 101-inch-diameter, three-blade, reversible-pitch propeller; could climb at 2,200 fpm, and cruise at 180 knots. It was the *ur*-Courier of all Couriers.

Production of all Couriers, Twin Couriers, and Stallions ended in 1974, when the type certificate and tooling were sold and then made the rounds of several firms, none of which built an airplane. One of those owners had the temerity to reportedly sue the CIA, claiming that the agency manufactured copies of Helio airplanes without permission.

Today, Helio Enterprises of Prescott, Arizona, is the Helio Courier type certificate owner. Company owner David Maytag (yes, of the appliance-manufacturing Maytags) says that he plans to put piston-powered Helio Couriers back in production in

Ready plane... take the plane!

Flying the golf profile

Bob Mikkelson is president of Winged Vision Inc., an outfit that provides aerial video imagery for major sports events. His airplane: a Helio Courier, of course. "It's the only airplane out there that can maneuver safely at the kinds of airspeeds I need for the kind of shooting I do," Mikkelson said. "Television producers want a nice, steady shot—the kind of shot that you get from a blimp—and the Helio does a real good job of steady, slow-speed flying."

Mikkelson and his Helio do a lot of work for MetLife. When MetLife advertises at closely spaced multiple events, *Snoopy 1* and *Snoopy 2* (MetLife's blimps) sometimes can't make it to all venues, so Mikkelson gets the call.

This June, *Snoopy 1* was supposed to cover the Seniors Open Golf Tournament at the Saucon Valley Country Club in Bethlehem, Pennsylvania. But fate intervened. Out in Arizona, *Snoopy 1* hit its mooring mast and suffered substantial damage. Mikkelson's phone rang, and he swung into action.

Problem was, Mark Ograbicz—his pilot—was getting married and couldn't fly the Seniors. When asked if I'd be interested in standing in for four days' worth of Helio flying, the answer was a definite yes. Soon, the groom-to-be was checking me out in the Helio.

Two days later I was helping Mikkelson install the camera pod at the Allentown-Bethlehem Airport, and climbing into the left seat for the first of six flights over the country club. Our photography would be part of ESPN's and NBC's coverage of the Seniors. Mikkelson sat in back with his joystick and other video paraphernalia. As we taxied out I saw a Gulfstream IV (N1JN), a Bombardier

Challenger (N1TW), and a Cessna Citation X (N1AP). These were, of course, Jack Nicklaus', Tom Watson's, and Arnold Palmer's airplanes.

The drill was to simply circle over the country club while the golfers golfed and Mikkelson shot the action. The challenge for me was learning the course and getting used to flying at 50 knots in a 15- to 30-degree bank. You have to fly this slowly to minimize the appearance of a rotating image on the television screen.

So there I was, flying along at 18 to 20 inches of manifold pressure and 2,300 rpm, at what felt like a ridiculously slow airspeed. I spent the night before and part of the morning trying to memorize what all 18 holes would look like from the air, but the real thing doesn't look quite like the handouts given to spectators. Meanwhile, I hear cacophony through my headset. Allentown Approach is telling me about traffic. Mikkelson is saying things like "let's go to eight" or "see the cut in the trees?" And way in the background I can hear the television commentators, the applause, the director yelling at his cameramen and other staff, and an eerie whispering among what must have been the technical staff on the course. It was surreal. "You'll never think of TV sports the same after this," Mikkelson said, and he was right.

The chatter picks up.

"Roll purple," says the director, meaning a tape deck. "Five-four-three-two-one, roll Elvis (another tape deck). Standby Amber. Roll Amber. Ready, Dog (a cameraman's nickname). Dissolve, Dog."

Now I hear music that segues into a commercial.

Then it's Allentown. "November-One-Eight-Juliet-Yankee, traffic now 12 o'clock, 200 feet below you, heading north." Great. And there he is, a Cessna 310 that's also maneuvering around for a look at the tour-

nament. I can do without sightseers, who probably are looking more at the ground than scanning the sky.

"And here at the beautiful Saucon Valley Country Club..." the announcer now says. I look down at my monitor and see that Mikkelson has framed the clubhouse.

"Ready plane...take the plane!" says the director, and our video instantly becomes part of the show.

Then there's this whispering among the technical staff on the course. "You might like the ketchup and hot water...What do you call it, egg cream?...Clevelander...I'll put you in the belly of the beast...Look at the guy wearing seersucker...You ought to see him at night..."

"Fleischer tight, Bob! Plane, you on eight? Take the plane" and "Get the caddy the hell out of the way," yells the director.

The whole time Mikkelson is quietly shooting the play below. He can track a drive from the tee to the fairway, or zoom into an extreme closeup of a single golf ball. He can find wayward golf balls faster than the caddies. Meanwhile, the camera mounted on a pod under the left wing stays rock-steady, in spite of any turbulence. The gyro stabilization keeps the lens pinned to the location Mikkelson has selected with the joystick on his console.

There's a ridge to the west of the country club, and by midafternoon it's throwing off turbulence. Some of the bumps make the inboard slats pop out in a sudden, slamming action. I guess the inboard portions of the wing are near the stall. It's unnerving, but I get used to it.

Now we're having trouble with our reception. Dave Steiner, our "catcher" on the ground (he aims an antenna at the airplane and catches our microwave video transmissions), complains that our picture is being affected by interference from the scads of



electrical gear surrounding him. Vertical bars are appearing on our imagery.

"I could try putting the Humbucker on it," Steiner says. A Humbucker is a brick-like object that filters out interference from nearby electrical groundings. You fit it onto a ground wire. "Yeah, try the Humbucker," Mikkelson says. Now I'm into it. "Yeah, the Humbucker," I add.

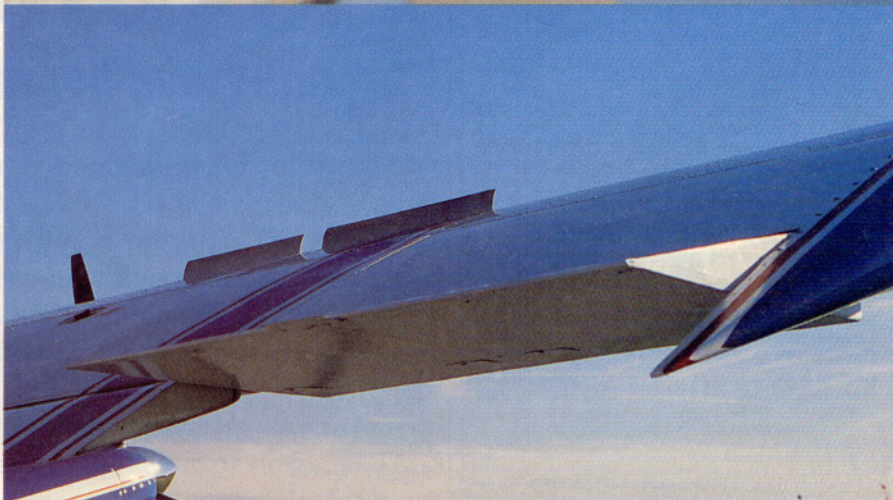
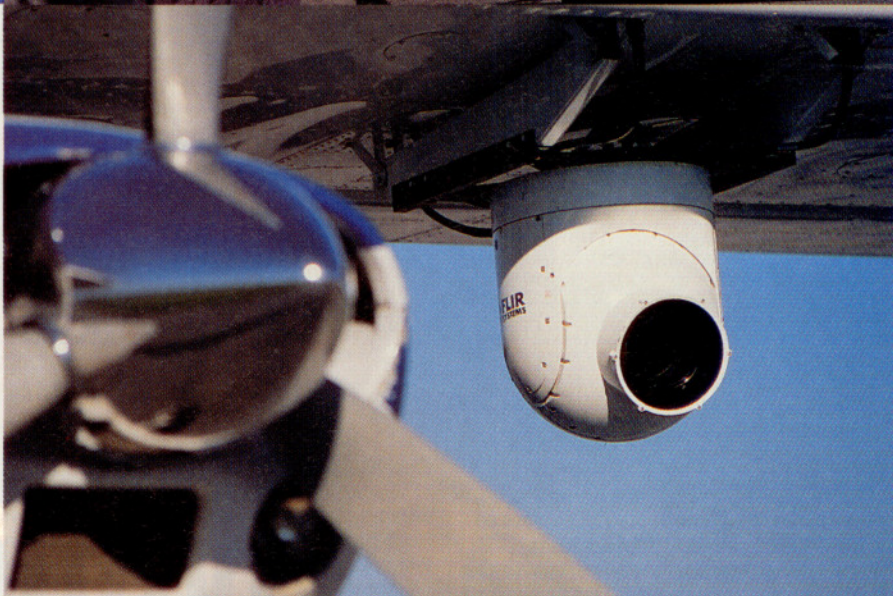
Steiner's Humbucker works, and all remains well for the rest of the four days we fly the Seniors. That night at dinner Steiner, who's been aiming at us all day, says dryly, "You made 90 circuits of the course today."

On Friday we taxi out behind N1AP; Arnie has failed to qualify and is going back home to Latrobe, Pennsylvania. By Saturday we're shooting for NBC and I know each hole of the course. By Sunday NBC is taking a lot of pictures from the Helio. That's a clue that our pictures are just as good as those from the blimps.

For the trip home from Allentown to Frederick, Maryland, we took the camera pod off its mounts (affixed to this Helio's armament hard points) and saw a 120-kt cruise. With the pod installed, we'd be doing good to see 100 kt. As usual my approaches were made at 60 to 65 kt, with half flaps. "Skyhawk-style," according to Ograbicz. I'm not yet up to the full-flap, 40-kt approaches and 200-foot landing rolls that Ograbicz, with his 700 hours in Helios, can pull off. The slats pop out as I flare—boom-boom—and we still land within 500 feet.

It was a great four days and a great 23 hours flying a most unique Helio Courier (one of only 19 tricycle-gear versions ever built) on a most interesting job. Oh, and Hale Irwin won.

Bob, I'm ready to go again. And don't forget to bring the Humbucker. —TAH



Four independently operating slats (top left) extend at high angles of attack and give the Helio Courier its exemplary slow-speed behavior. Attaching Winged Vision Inc.'s 80-pound gyro-stabilized lens to the hard points (above) takes muscle and steady hands. Once powered up, the lens can be swiveled across a huge range of movement. Interceptors (above) act like spoilerons to assist the Helio in slow-speed turns.

the first quarter of 2001. Maytag became involved with Helio Couriers when he and a partner bought a distressed Helio Stallion in the Philippines in 1992. The restoration project sparked a real interest in the marque, one thing led to another, and in 1994 wrested the type certificate from its prior "owner"—who, it is alleged, obtained it fraudulently. Maytag says the production facilities of Bacau, Romania's Aerostar will be used to build new Heliocouriers. In fact, an FAA production type certificate should have been awarded to Aerostar by the time you read this.

Maytag plans panel, electrical, and fuel system improvements to bring the Helio Courier up to FAR Part 23 standards. Trigear versions will be fitted out with the original air/oil shocks (later model trigear Helios used Cessna 185 main gear and a Cessna 310 nosewheel assembly), and the seats will be beefed up to withstand a 19-G crash. Previously, Aerostar built Yak 50s and -52s for the Soviet Union. "There's much to be done, but we plan to enter production at Aerostar sometime in early 2001," Maytag said. Price of a new Helio has yet to be established, but should be "around \$350,000," he said.

Nowadays, Couriers and Stallions are

hard to find, inasmuch as so many have been crashed, or are either rotting in a jungle somewhere or in the hands of hostile regimes. They're not even listed in *Vref* or *The Aircraft Bluebook/Price Digest*, so there's little baseline pricing information on these truly unique airplanes. The airplane photographed for this article sold for \$75,000 when new, but the owner estimates that it's worth about \$175,000 now. As for Stallions, you can name your price. At last count there were only two flyable HST-550s left in the world. Both reportedly serve as jump airplanes for sport parachuting operators. Truly lucky buyers will come across the handful of military airplanes that have survived the Southeast Asian wars. You won't find a list of commendations in their logbooks, but you will have a military pilot's operating handbook, complete with checklists for dealing with small-arms fire to the fuel tanks, bailing out, taking off from two-foot-deep rice paddies, and mounting and launching air-to-ground rockets. Now *that's* an airplane with character. □

E-mail the author at tom.horne@aopa.org

Helio Courier HT-295

Base price: \$75,000 (1974)

Price as tested: \$175,000 (1998)

Specifications		Maximum level speed, sea level	145 kt
Powerplant	Lycoming GO-480-G1A6	Cruise speed/endurance w/45-min rsv, opt fuel (fuel consumption)	
	295 hp	@ 75% power, max cruising	130 kt/6.3 hr
Recommended TBO	1,400 hr	8,500 ft	(19 gph)
Propeller	Hartzell, 3-blade	@ 65% power, economy cruise	120 kt/8.1 hr
	96-in dia	8,500 ft	(14.8 gph)
Length	31 ft	@ 55% power, best economy	110 kt/10.4 hr
Height	14 ft 10 in	8,500 ft	(11.5 gph)
Wingspan	39 ft	Service ceiling	20,500 ft
Wing area	231 sq ft	Landing distance over 50-ft obstacle	520 ft
Wing loading	14.7 lb/sq ft	Landing distance, ground roll	270 ft
Power loading	11.5 lb/hp	Limiting and Recommended Airspeeds	
Seats	6	V_X (best angle of climb)	70 KIAS
Cabin length	10 ft	V_Y (best rate of climb)	90 KIAS
Cabin width	45 in	V_A (design maneuvering)	89 KIAS
Cabin height	48 in	V_{FE} (max flap extended)	69 KIAS
Empty weight	2,125 lb	V_{NO} (max structural cruising)	140 KIAS
Empty weight, as tested	2,420 lb	V_{NE} (never exceed)	174 KIAS
Maximum ramp weight	3,400 lb	<i>(The Helio does not stall in the conventional manner. While the following speeds are not published by the manufacturer, they provide a useful comparison to other aircraft.)</i>	
Maximum gross weight	3,400 lb	V_R (rotation)	35 KIAS
Useful load	1,275 lb	V_{S1} (stall, clean—lower green arc)	52 KIAS
Useful load, as tested	980 lb	V_{SO} (stall, in landing configuration)	
Payload w/full fuel	555 lb	(lower white arc)	46 KIAS
Payload w/full fuel, as tested	260 lb	V_S (minimum control speed)	26 KIAS
Maximum takeoff weight	3,400 lb	<i>All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.</i>	
Maximum landing weight	3,400 lb		
Fuel capacity, std	60 gal (58.2 gal usable)		
Fuel capacity, w/opt tanks	120 gal (116.4 gal usable)		
Oil capacity	12 qt		
Baggage capacity	80 lb, 15 cu ft		
Performance			
Takeoff distance, ground roll	335 ft		
Takeoff distance over 50-ft obstacle	610 ft		
Max demonstrated crosswind component	17 kt		
Rate of climb, sea level	1,150 fpm		