Valentin 17E II

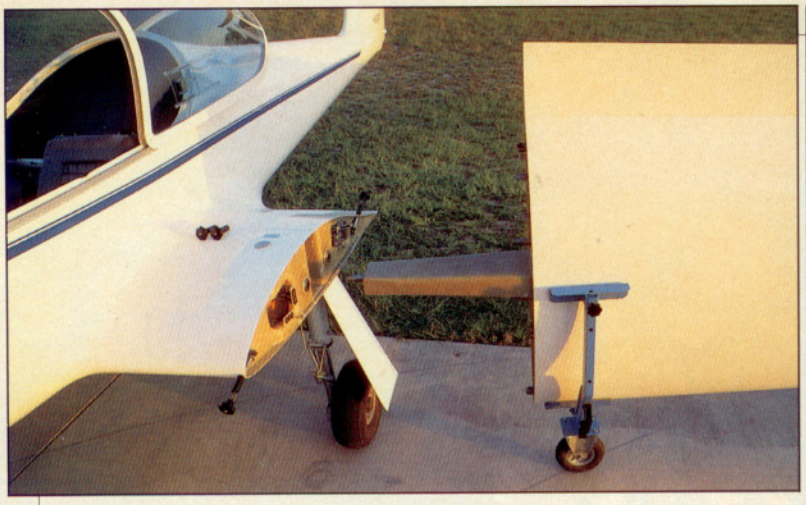
Taifun

The German antidote to civilization

BY MARC E. COOK

What defines recreational flying? It could be that your cup of Constant Comment calls for loading up the Skylane and taking the family on a camping trip. Perhaps you're not content unless you're strapped to an aerobatic wonder, thumbing your nose at gravity. Or maybe you'd rather be hopping from one grass field to another in an airplane absolutely no more complex than it needs to be. There are more

PHOTOGRAPHY BY MIKE FIZER



Taifun's wing demates outboard of landing gear and fuel cells. Push rods and roller bearings connect controls from fuselage automatically.

definitions, but chances are that your concept of made-for-fun flying doesn't include taking off from your home airport, heading for the hills, and shutting down a perfectly running engine.

Unless, of course, your recreational flying involves a motorglider like the Valentin Taifun 17E II.

Not that the Taifun is firmly locked in the no-work, all-play mode. Philip Morris, owner of Morris Aviation, Limited, is the sole U.S. distributor for the Taifun and flies a 17E for business as well as pleasure. Based on his experiences using the Taifun to visit prospective buyers across the Southeast, Morris is adamant that the Taifun is not only a splendid recreational device—the 17E's glide ratio is not far from a purebred sailplane's, and its engine ends forever the glider-tow blues—but it can be a good traveling companion, as well.

The Taifun we flew belongs to Robert H. Fergus, and it joins a Ryan STA, Fairchild F-22, and a number of other desirable classics and antiques in his collection. At press time, it was the first 17E II in the country. The 17E II model differs from the earlier 17E with a new electric constant-speed propeller and electro-hydraulic landing gear.

The transition from airplane to glider provides a real thrill for first-time motorglider pilots. The drill is to run the Limbach engine at low power for a few moments with the cowl flap open. Then, move the electric propeller switch into the Feather position and turn off the single magneto. Thirty seconds later, the short prop's blades will be parallel to the wind—now you're in a glider. Next, you turn off the master switch to save battery power. In Fergus's airplane, there was no separate "feather" position on the master; in most Taifuns this setting would reduce electrical load without shutting down the radios or the electronic vertical speed indicator.

Gliding in the Taifun, the cockpit is engulfed in silence, with just the subdued rush of wind over the canopy to remind you you're still moving. Hold the airspeed around 60 knots and look for a ridge or a few cumulus clouds—that's where you'll find the action. After the initial apprehension of seeing the prop stopped dead in the windshield, you eventually stop treating the scene as an emergency situation and begin to enjoy the ride. For a pilot with no glider experience, the feeling of cheating gravity, taking lift and altitude straight from the atmosphere, is most acute.

With every free ride aloft, gravity has its say, too; at some point the lift runs out and you're left falling slowly. In the Taifun, with a 28.6:1 glide ratio and a claimed minimum sink rate of just 226 fpm, the descent is leisurely. Were the Taifun a nonpowered glider, you would be busy looking for lift or a place to land, depending on altitude. Not so in the 17E; simply turn on the master and magneto, unfeather the propeller, and the engine will come to life shortly.

That engine should be familiar to anyone who's peeked under a Volkswagen Beetle's skirt. Limbach claims that only 10 percent of the parts now used are VW items—the rest are either built in-house or by outside vendors, but its roots are obvious. For just 2.4 liters (146 cubic inches), the Limbach's 90-horsepower output is quite good. It produces that

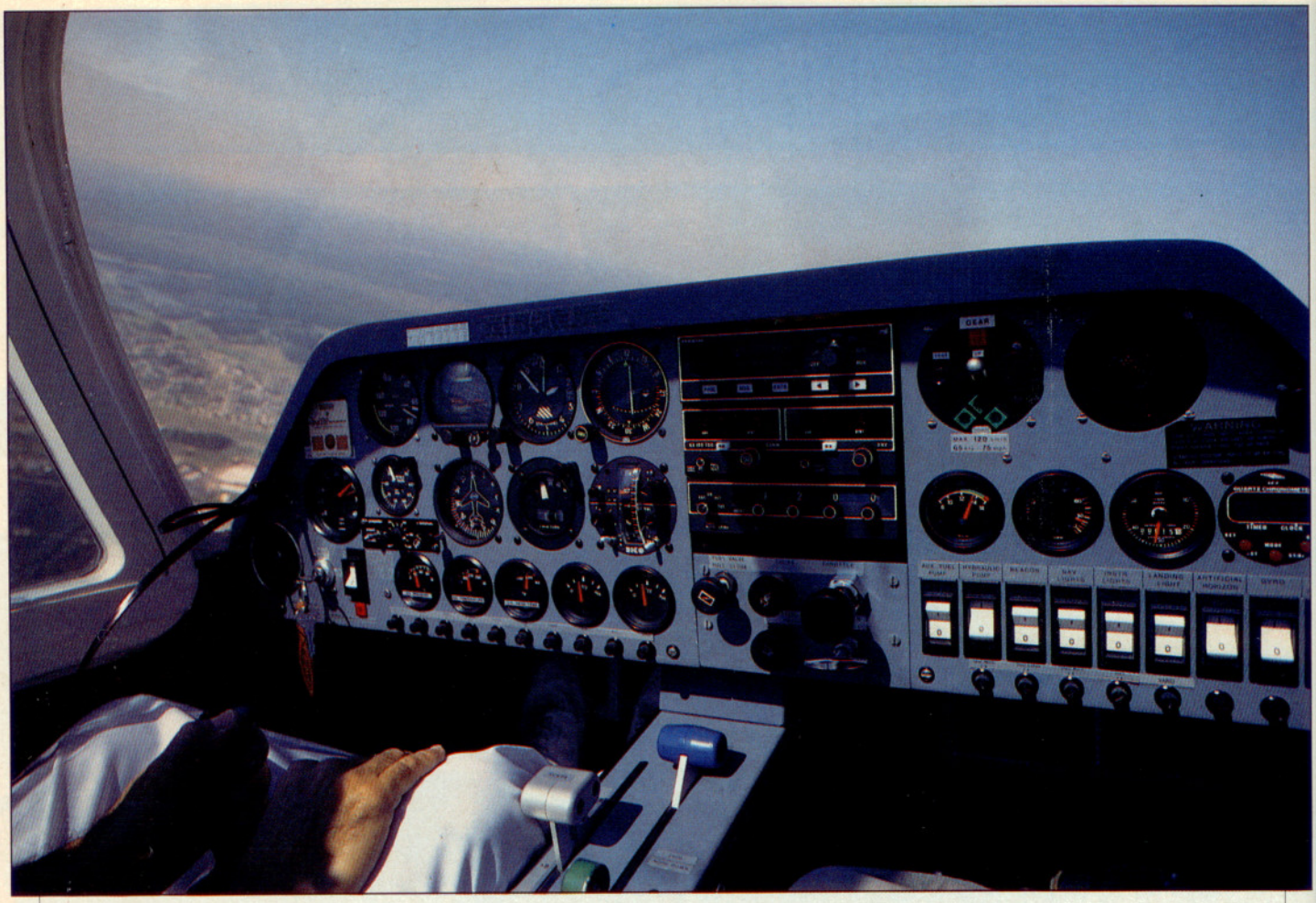
The Taifun's engine mates directly to the 64-inch-diameter wood-and-composite propeller.

power spinning 3,000 rpm; there is no gearbox—the engine mates directly to the 64-inch-diameter wood-and-composite propeller. Time between overhauls is 450 hours and will rise to 1,000 hours as Limbach gains more experience with this particular version. Overhauls, according to Morris, are $2,500.

Operation of the Limbach departs from airplane norm. There is no mixture control, but there is a choke to be used for starting. Moreover, the twin Bing carburetors have no dedicated supply of heat; should carb icing be suspected, you merely close the cowl flap and let the warm engine-cooling air do its thing. Another interesting feature, introduced on the 17E II, is an electric constant-speed prop. You select the Start position (which locks the blades in fine pitch) for start and taxiing and the Auto position for takeoff. Engine speed is determined by a small rheostat on the panel, which is marked for speeds between 2,000 to 3,000 rpm. In flight, the prop works admirably, changing pitch as quickly and unobtrusively as most constant-speed props. Feathering the prop takes almost 30 seconds, which seems like an eternity when it comes time to *un*feather.

Also changed from earlier 17Es is the landing gear. Previously, the tricycle gear was manually operated—a crank mounted atop a sliding block on the console was used to twist and turn the gear into the wells—and incorporated fully enclosing gear doors. The 17E II's system is both simpler and more complex. Now, a small hydraulic power pack lifts the gear with little more pilot muscle than is required to flip a toggle switch. One tradeoff is that to keep weight and complexity under control, the gear doors have been dropped; and although the main gear folds neatly into two wells in the belly, the nosewheel hangs slightly in the slipstream. According to Valentin, the cruising speed loss is small, partly compensated by the more efficient prop.

The new gear system is vastly easier to use and well worth any such weight or aerodynamic compromise. Moreover, deleting the gear handle/crank from the console made room for the spoiler handle there. Before, the spoilers were con-



trolled by two long handles (one to the left of the pilot's seat and one right of the copilot's)—this arrangement made for a lot of hand switching, given the left-hand stick for the pilot.

Given the power, the Taifun is a veritable speed demon. Normal cruise speed at 75-percent power (2,600 to 2,800 rpm, depending on altitude) is said to be 110 knots; with two aboard and half fuel, we saw an indicated 115 knots in slightly warmer than standard conditions. A zero- or eight-degree reflex flap setting is used in powered cruising flight and, depending on weight, boosts level speed slightly. Maximum climb rate is claimed to be 600 fpm; we beat that figure, too, showing a sustained 700 fpm in choppy air.

Top off the two 11.9-gallon wing tanks (total usable is 23.5 gallons) and, on the Limbach's miserly 4.1-gph fuel consumption, you can fly about 4.7 hours with an hour's reserve; no-wind range with reserves is more than 500 nm. Moreover, the Taifun's cabin is comfortable enough that a day-long flight won't make you feel as though you've just been through some sadistic amusement park ride.

Fergus's Taifun was extensively equipped with full electric gyro panel and a Bendix/King nav/com, a transponder, and a loran. With this equipment, his Taifun had a slightly lower useful load than the 17E's standard 502 pounds. Full fuel payload works out to 361 pounds in a standard Taifun.

For a sailplane, the Taifun is conventional in construction—using fiberglass over a foam core—and Valentin extracts every advantage of that medium. The 17E is smooth and exceptionally clean. Antennas are buried either behind the baggage compartment bulkhead or in the vertical fin, and all wing/fuselage junctures join as seamlessly as putty on a bowling ball. To help improve rollover strength, the Taifun employs carbon-fiber reinforcements in the windshield bow. Fit and finish of the Taifun we sampled was exemplary, the paint glassy smooth. If you're one who appreciates all things mechanical, the build quality of the Taifun will thrill you.

Wingspan of the Taifun is a hangar-stretching 55.8 feet (or 17 meters, as the model number represents), and to help solve storage problems, the wings detach. On previous 17Es, the wings remained with the airplane, pivoting at the trailing edge and supported by a sling at the tail. Intricate dollies are now provided that support the wing as it is being removed for storage; Valentin claims that removing the wings is a one-man job—only if you're possessed of good balance and patience, though.

At the trailing edge of each wing live narrow-chord ailerons and flaps, the area split equally between them. Control surface connections are faired in, and even the tiny silver-dollar-size fuel caps are flush-fitting. If you watch the control surfaces move during flap deployment, you'll swear something's broken deep inside the Taifun. At the in-trail flap setting, the flaps and ailerons are flush; select the eight-degree reflex or positive eight-degree flap positions, and the ailerons move to the same position as the flaps. When you slide the mechanical flap lever into the plus-15 notch, though, the ailerons remain at plus eight. Run the flaps fully down (30 degrees), and the ailerons return to the zero-degree, or in-trail, position—this is to help preserve roll authority at low airspeeds.

Otherwise, the Taifun's control system is conventional, with a T-tail mounted atop a wide-chord vertical stabilizer and twin control sticks. To help

simplify construction, the rudder is hinged at its left edge, giving it slightly better authority in that direction. At about one-quarter span, the Taifun's wing sprouts Schempp-Hirth spoilers. These panels hinge out of the wing and extend vertically about five inches; the effect on the wing's lift is remarkable. Putting the boards to the wind causes the 17E to descend smartly, yet with little change in pitch or airspeed.

In flight, the Taifun's control forces are considerably lighter than a powered airplane's; Morris says the Taifun's responses are about average for gliders, though. In cruising flight, however, the long, narrow ailerons require a hefty tug at the stick compared to the effort required to move the elevator and rudder. The Taifun's controls are obviously optimized for sailing; at 60 knots or so, the 17E feels most comfortable and is well balanced in all axes.

Even in landing configuration, full flaps and wheels down, the Taifun is reluctant to decelerate. Approaches work well at between 55 and 65 knots; the preferred method is to run the engine back to idle abeam the numbers and use the spoilers for glidepath control. The precision allowed by the spoilers makes you wish every airplane had them—even from an absurdly high approach, using them brought the Taifun down right over the numbers.

The Taifun's tricycle gear sees to it that there are no ground-handling surprises, other than to be careful of those wing tips hanging way out there. Other unusual items to look for: The spoiler handle also controls the wheel brakes—you don't want to land with the handle

Valentin Taifun 17E II

Base price: $82,000

Price, as tested: $126,000

Specifications

Powerplant	Limbach L-2400, 90 hp @ 3,000 rpm
Recommended TBO	450 hr
Propeller	Muehlbauer two-blade, full-feathering, 64-in diameter
Length	25.6 ft
Height	7.5 ft
Wingspan	55.8 ft
Wing area	189.5 sq ft
Wing loading	9.9 lb/sq ft
Power loading	20.8 lb/hp
Seats	2
Empty weight	1,372 lb
Max takeoff weight	1,874 lb
Useful load	502 lb
Payload w/full fuel	361 lb
Fuel capacity, std	23.5 gal (141 lb)
Oil capacity	4 qt

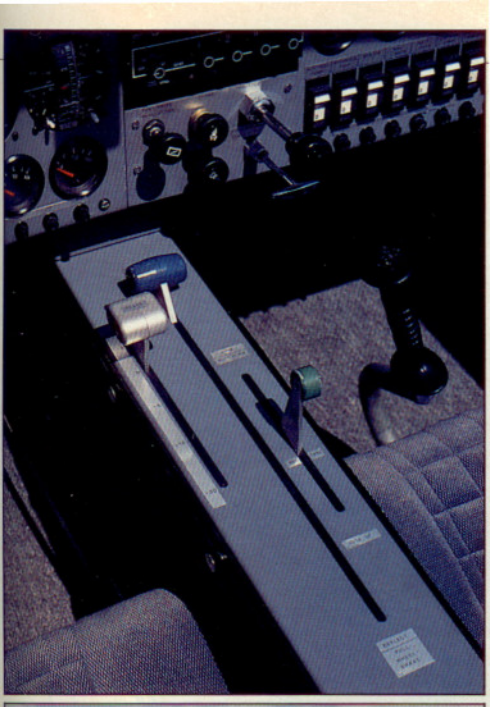
Performance

Takeoff distance	833 ft
Takeoff distance over 50-ft obstacle	1,558 ft
Rate of climb, sea level	571 fpm
Max level speed, sea level	118 kt
Cruise speed/fuel consumption	
5,000 feet	111 kt/4.2 gph
Service ceiling	19,000 ft (est)
Landing distance	656 ft
Landing distance over 50-ft obstacle	1,148 ft

Limiting and Recommended Airspeeds

Vy (best rate of climb)	57 KIAS
Va (design maneuvering)	100 KIAS
Vfe (max flap extended)	
−8 to +8 degrees	132 KIAS
+15 to +30 degrees	81 KIAS
Vle (max gear extended)	132 KIAS
Vlo (max gear operating)	65 KIAS
Vne (never exceed)	132 KIAS
Vs1 (stall, clean)	44 KIAS
Vso (stall, in landing configuration)	39 KIAS

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. □



all the way back. Also, the long wing maintains substantial lift in ground effect and then sheds it abruptly when it is ready to quit flying—the trick is to use a gentle flare and let the Taifun settle onto the runway. Crosswind landings also ask for nonstandard procedures. Because the wing is so long, you cannot bank into the wind very far without the risk of dragging a tip, so you must make a half-crab, half-slip approach mindful of the bank angle.

A Taifun 17E II as well-equipped as Fergus's will cost $126,000; base price, with basic instruments and no radios, is about $82,000. The price depends on the strength of the dollar over the Deutsche mark, so the numbers may vary.

Forget for a moment what purists say about motorgliders being half-breeds, excelling in neither powered nor unpowered flight. That's simply not true in the case of the Taifun. Its sophistication affords it good performance in both soaring and powered flight—the Taifun is an airplane that is as good getting you there as it is showing you a good time. Now *that's* recreation. □