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ARCHER II

SIMPLE DREAMS

The Piper Archer II is an economical business tool

BY MARY F. SILITCH

Flying around the country on business or for pleasure in a high-performance single-engine aircraft, pulling up the gear on takeoff, climbing out swiftly to the higher altitudes that give you better performance, nosing over to level cruise, closing the cowl flaps and confidently settling in for a smooth, stable ride at more than 150 knots—what could be better?

It is when you reel off a couple of hundred dollar bills at your first fuel stop that you start wondering about the economies of high-performance speed. Those mighty 235- and 300-hp engines may get you there speedily and carry lots of load, but the 15 to 20 gallons of avgas they demand each hour become another important figure in your cost/benefit calculations. Balancing speed and load against monthly payments and fuel bills and coming up with a reasonable airplane-of-your-dreams does not require a home computer. A few quick calculations can point the way to a simpler airplane that will reduce your travel costs substantially.

Take the Piper Archer II, for instance, which is what Piper now calls the old Cherokee 180. It may not qualify as a full-blown dream airplane, but it certainly fits into the reasonable category. With a base price for an unequipped Archer of $44,470, a used price for a recent Archer of $50,000 or less

PHOTOGRAPHY BY ART DAVIS

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and a fuel consumption of less than 10 gph, it becomes more attractive.

Having spent a lot of hours lately in some of those expensive, high-performance airplanes, I thought it was time to become reacquainted with the simpler Cherokees. A trip was coming up that would give me a few hours in a 1981 Archer. When it burgeoned into a grand tour of the Midwest, I started feeling a little doubtful about whether the Archer was the airplane for an extended business trip with several scheduled stops. I was used to more powerful machines for instrument flying and certainly a lot more speed for business flying. And I remembered well a five-day trip from New York to Nevada in a little Cherokee just after I earned my private license. But the thought of those hundred dollar bills reaffirmed my choice, and I even turned down the chance to take a Turbo Arrow on the jaunt.

Ten days, 27 hours of flying and one weary backside later, I regretted only that the Archer did not have more comfortable seats. On my trip from Florida to Arkansas to Iowa back to Arkansas and then home to Virginia, it was not the airplane that kept me from any of my appointed rounds—there was a starter problem that delayed one takeoff, but that quickly was remedied when help arrived. Rather, it was the lack of equipment in the face of a very severe weather system that kept me grounded one day in Arkansas. Tackling a front full of midwestern thunderstorms in a single-radio, radarless, slow airplane is not my style.

The next day, the thunderstorms were gone, but the system still trailed over the northwest part of the state. The only real obstacles to IFR flight were the single radio in the Archer and the then-new controllers' strike; I wanted to do my part to avoid overburdening the system. But Cedar Rapids, Iowa, my next destination, was clear, so I went ahead and filed.

Over Missouri, the clouds disappeared, but I did not cancel IFR as planned because the Memphis Center frequency was as clear as the skies. I was curious to see how the system was operating. Just as I was beginning to wonder if my single King 170B had failed, as one does when silence prevails, the down-home voice of a mountain pilot came over the speaker: "Y'all sound about as busy up here as a Maytag repairman." I no longer felt guilty about clinging to my IFR clearance.

And I no longer had doubts about the Archer as an instrument airplane. It performed admirably, with quicker control response than the heavier, more stable aircraft I was used to, but not at all slippery or squirrelly. With a solid hour and a half on instruments, I had no trouble holding heading and altitude (and there was no autopilot to tempt me away from hand-flying).

Preflight is simple. One item that took some hopping in and out was extending the manual flaps so the hinges were visible for inspection. Hopping in and out of a low-wing airplane is definitely not as easy as it is in one with high wings. Even if there are no high wings to shelter you from sun and rain, however, low-wing aircraft do have an advantage in these days of striving for fuel economy. After draining the sump under each wing, you can pour the fuel right back in when you check the

quantity in the tanks, if there is no water or debris in the strainer cup. Try that in a high-wing airplane. If you need to fly with less-than-topped-off-fuel, for weight-and-balance considerations, there is a tab at the 17-gallon level, to help you judge how much fuel you have. There also is a fuel strainer on the lower left front of the firewall; the drain is under the nose of the aircraft, to the left.

Climbing into the low seats in the small cabin may be a problem, but once you are in, it is more sports-car snug than tight on room. There is even less room in the rear seats, especially if you are larger than the average FAA person. Up front, you quickly can develop a close relationship with your copilot as you brush elbows. There are economies of space—the fire extinguisher is tucked under the panel to the right, and the fuel-selector valve control is next to the pilot's left knee on the side panel (there is no door on the left side). It takes a pretty friendly copilot to reach over the pilot's knee and change tanks. And change tanks you must, as there is no Both position on the fuel selector. The choices are Right, Left or Off.

Total fuel capacity is 25 gallons in each wing tank (24 usable), and fuel burnoff is not as critical to trim as it is in, say, the Piper Cherokee Six series aircraft, where after the first hour in the air, you know by the feel of the controls that it is time to switch tanks.

There is an engine-driven fuel pump to feed fuel from the Archer's low wings, and an auxiliary electric pump as stand-by. The auxiliary pump should be turned on for takeoffs, landings and when you are switching tanks so that there will be an uninterrupted flow of fuel should the engine pump inadvertently fail.

The Archer that temporarily was my business transportation had a non-businesslike Wedgewood-blue interior, one of the more attractive small-aircraft interiors I have seen lately. The material, which covered the side panels as well as the seats, was a tasteful brushed velvet, and the whole effect was set off by the well-fitted plastic of the instrument panel and the snug headliner. There was attention to detail that I was happy to see, giving me hope that the internal mechanisms that really count had received the same care.

After seeing daylight through the closed doors in some of those high-performance singles, it was good to hear the vacuum rush of air when the snug Archer door opened. The cabin door is on the right side and has a powerful lever toward the front of the door that latches securely. Additionally, there is another latch at the top of the door. If you fail to latch these before takeoff it is nice to know that the door can be closed in flight; the operating manual has full directions about slowing to 87 KIAS, closing cabin vents and opening the pilot's side window.

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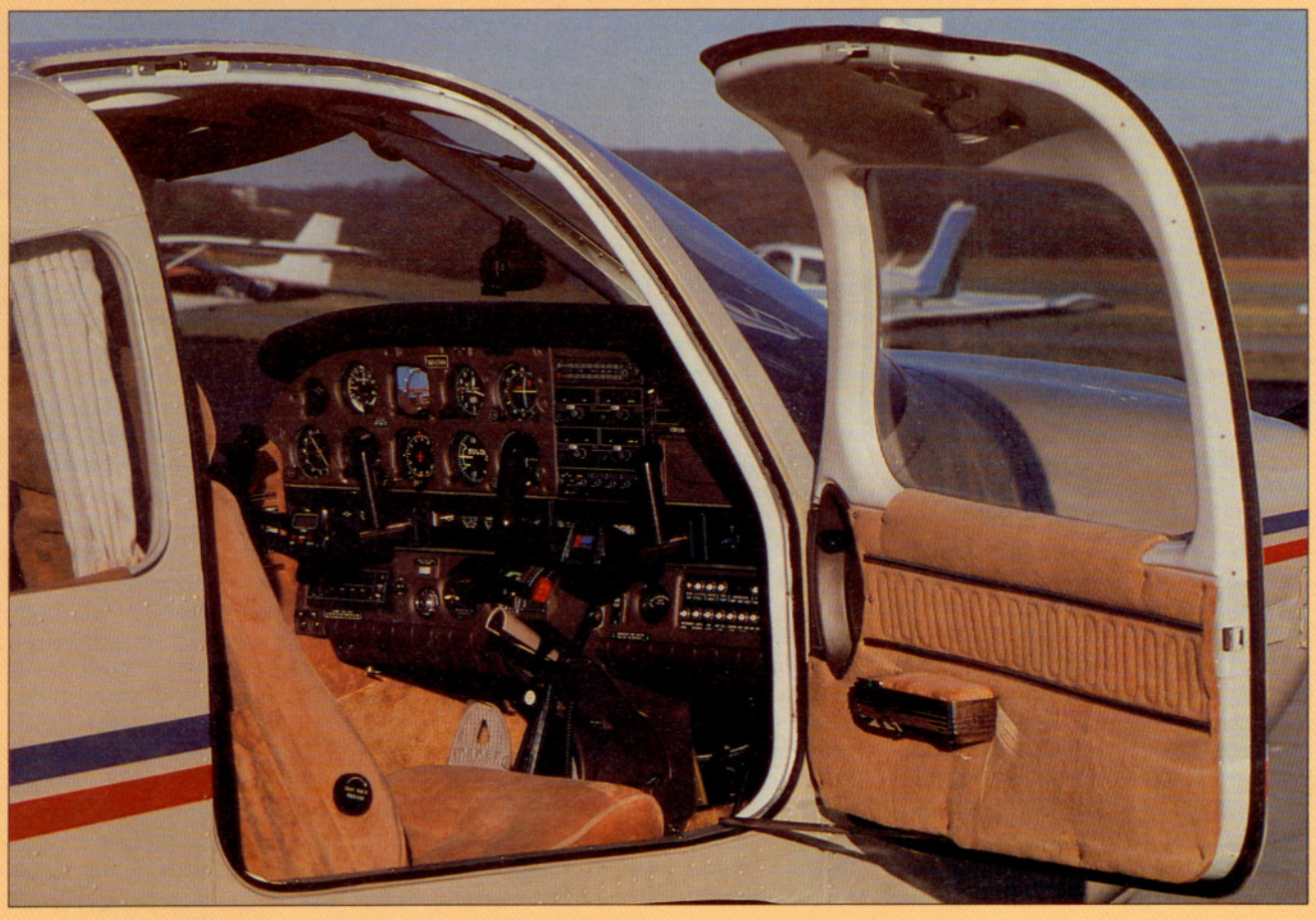
Lower operating costs offset the Archer II's slower speeds.



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The weather was warm for my Archer travels, and the optional cabin air blower and the optional overhead ventilating system provided welcome blasts of cool air. I later briefly tried an Archer with air conditioning, also available as an option, which was even cooler—but the fan is $965 and the air conditioning $3,325.

The panel layout is straightforward and compact. Flight instruments are directly in front of the pilot, with avionics grouped in the center panel. Engine instruments and fuel gauges are strung along in a thin line under the pilot's panel, with the tachometer underneath, to the pilot's right, where it is harder to see and monitor. The exhaust gas temperature gauge is just beyond the power quadrant and carburetor heat control. Circuit breakers are on the lower panel, to the copilot's right.

There was room for more avionics to the right of the center section in my Archer, since it had only the single nav/com, an encoding altimeter and an automatic direction finder (ADF). Aside from wishing for more electronic aids—which are the purchaser's prerogative, not the manufacturer's—I also would have liked an avionics master switch, which Piper began to offer as an option with the 1981 models. When you do have several pieces of equipment to protect by turning off before each shutdown, a single switch is a great boon.

The flap lever is between the seats, on the floor; it is manual, but not as hard to operate as the one on some of the older Beech singles, which can give you tennis elbow trying to pull up the last notch of flaps. The Archer has 40 degrees of flaps. Elevator-trim control is located just behind the flap lever, taking up the small floor space between the seats. Rudder trim is just below the power quadrant.

The simplicity of the Archer adds to its value as an instrument airplane—especially for the pilot who flies alone. Once off and into the clouds, you can concentrate on the essential gauges and not have to worry about propeller settings, cowl flaps or retractable landing gear. On approach, too, you can concentrate on flying the airplane, not managing systems.

An Archer pilot I met in Cedar Rapids, Iowa, echoed my feelings about the aircraft. "It's a no-problem, don't-have-to-worry-about-it airplane," said Charles L. Verble, AOPA 631042, of Abilene, Kansas. The director of real estate for a midwestern discount chain, Verble bought his 1979 Archer in April 1981, with 340 hours on it; by late October, he had flown it another 200 hours. He travels around eight midwestern and western states, checking locations of new stores. Since he travels alone, the company Cessna 340 was not economical for him to use, so he looked for an airplane more practical for his operations. He previously had a Piper Warrior, but wanted something faster. He took his instrument training in his Archer and found it an excellent airplane for IFR flights. "I'm usually alone, and it's a simple airplane to fly—not that much to forget," he said. Verble's Archer is much better equipped than the one I flew, I might add—he has a full King package, including RNAV, and a Century III autopilot (without altitude hold).

The speed is adequate for his rounds, too. The airplane I flew averaged 128 knots true airspeed on my midwestern trip, and on at least two legs (one at 6,000 feet at 65-percent power and one at 9,500 feet at 70 percent), it flew 130 knots true. When you usually file for a 150-knot cruise, it takes a bit of getting used to; at first, I found myself calling approach control long before I

should have. But if you are moving up from a Warrior, as Verble was, 130 knots is a respectable step forward.

The Archer consistently burned less than 10 gph of fuel. On the last leg of my midwestern swing, into Virginia's Dulles International—at 7,000 feet, 50°F, 65-percent power and 120 knots true airspeed—the Archer burned 9.2 gph. Book figures call for 10.5 gph, best power, at 75-percent power, and 8.8, best economy. Verble confirmed my fuel-consumption findings—a touch more than book figures, even though we both leaned according to directions. (The directions in the engine manual are better than those in the pilot's operating manual.)

Even with a fuel burn of 10 gph, with fuel prices at $2 a gallon, that is $20 an hour for fuel. Twenty-seven hours of flying cost me $540 in fuel, but took two people from Vero Beach, Florida, to Arkansas, to Cedar Rapids, Iowa, back to Arkansas and on to Virginia. For a few bucks more, we also could have worked in Wichita, as planned—had the weather cooperated.

Landing distances are short enough to squeeze Archer business pilots into any strip they would need to use. My favorite testing ground is a crop-duster's field located in Arkansas. It is 2,000 feet long, paved, but very narrow. Landings generally are made to the north, and there is usually a crosswind from the west. About halfway up the field, a string of hangars line the strip, with an office at the north end. If I can land and have a long taxi to my hangar, the first one, then I know it was a good short-field landing.

Final approach speed for the Archer with full flaps is 66 knots, and the only obstructions on approach are the five-foot-high rows of cotton. I had no trouble sneaking the Archer up to the hangar without having anyone in the office note my arrivals. The gear is wide enough to make anyone's landings look good, should someone be watching, and the Archer has gained the reputation of being a good crosswind airplane. One pilot I know switched from his high-wing Cessna 140 when a student pilot landed safely in a wind no one else would tackle. He bought a Cherokee 180.

For takeoff, you lift the nose at about 65 knots. Using the best rate of climb speed, 76 KIAS, I was climbing out at 800 fpm from a sea-level airport with a

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Cozy but comfortable, the 180-hp Archer has a useful load greater than the Skyhawk's.

PIPER ARCHER II

Base price (1982) $44,470
Price as tested (1981) $55,005
AOPA Pilot Operations/Equipment Category: IFR

Specifications

Powerplant	Lycoming O-360-A4M, 180 hp @ 2,700 rpm Recommended TBO 2,000 hr
Propeller	Sensenich, 2 blade, fixed pitch, 76 in dia
Wingspan	35 ft
Length	23 ft 9.6 in
Height	7 ft 3.6 in
Wing area	170 sq ft
Wing loading	15 lb/sq ft
Power loading	14.2 lb/hp
Seats	4
Cabin length	8 ft 1 in
Cabin width	3 ft 5.5 in
Cabin height	4 ft 1 in
Empty weight	1,413 lb
Empty weight (as tested)	1,580.5 lb
Useful load	1,137 lb
Useful load (as tested)	969.5 lb
Payload w/full fuel	849 lb
Payload w/full fuel (as tested)	681.5 lb
Gross weight	2,550 lb
Fuel capacity, std	300 lb/50 gal (288/48 usable)
Oil capacity	8 qt
Baggage capacity	200 lb/26 cu ft

Performance

Takeoff distance (ground roll)	870 ft
Takeoff over 50-ft obst	1,625 ft
Max demonstrated crosswind component	17 kt
Rate of climb, sea level	735 fpm
Max level speed, sea level	129 kt
Cruise speed, 75% power	
8,000 ft	129 kt
5,000 ft	124 kt
Fuel consumption (best power mixture)	63 pph/10.5 gph
Cruise speed, 65% power	
8,000 ft	119 kt
5,000 ft	114 kt
Fuel consumption (best power mixture)	54 pph/9 gph
Cruise speed, 55% power	
8,000 ft	105 kt
5,000 ft	101 kt
Fuel consumption (best power mixture)	46.8 pph/7.8 gph
Economy cruise speed, 55% power	
12,500 ft	107 kt
Fuel consumption	37.8 pph/6.3 gph
Range @ 75% cruise w/45-min rsv, std fuel, best economy	
8,000 ft	520 nm
5,000 ft	500 nm
Range @ 65% cruise w/45-min rsv, std fuel, best economy	
8,000 ft	555 nm
5,000 ft	540 nm
Range @ 55% cruise w/45-min rsv, std fuel, best economy	
8,000 ft	570 nm
5,000 ft	545 nm
Service ceiling	13,650 ft
Landing over 50-ft obst	1,390 ft
Landing distance (ground roll)	925 ft

Limiting and Recommended Airspeeds

Vx (Best angle of climb)	64 KIAS
Vy (Best rate of climb)	76 KIAS
Va (Design maneuvering)	113 KIAS
Vfe (Max flap extended)	102 KIAS
Vno (Max structural cruising)	125 KIAS
Vne (Never exceed)	154 KIAS
Vr (Rotation)	65 KIAS
Vs1 (Stall clean)	54 KIAS
Vso (Stall in landing configuration)	48 KIAS

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, at sea level and gross weight, unless otherwise noted.

Operations/Equipment Category reflects aircraft model's maximum potential. See June 1981 Pilot, *p. 103.*

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There have been few changes, and few problems, over the years.

temperature of 59°F. Best angle of climb speed is 64 KIAS, and enroute climb is 87.

The only problem I had with the Archer was with the starter. On the first few stops, it was difficult to operate, and one day, it finally refused to work at all. I found Ken Reed, who runs the aerial application operation at the Arkansas airport, and asked him to take a look. He discovered loose connections at the solenoid and ignition switch; after he tightened them up, the starter performed better. One of the problems with starting Cherokees is the location of the battery. Instead of being near the engine, it is behind the baggage compartment in the rear, making the use of a rather long cable necessary. The long cable tends to emphasize minor problems in the starting circuitry, particularly in cold weather. (The optional ground power plug is useful.)

The investigation of the starter problem did have its advantages; I learned how easy it is to remove the one-piece top cowling and have complete access to the engine.

Problems with the Archer's predecessor, the Cherokee 180 series, have been relatively few. There were a couple of outbreaks of leaking fuel tanks because of sealant deterioration; the last was several years ago. Recent airworthiness directives (ADs) called for the replacement of the oil-pump-driven impeller and shaft in some engines; inspection of Slick magnetos for cracks; inspection of the ammeter and ammeter connection (shorting of ammeter terminal posts could cause smoke in the cockpit or complete electrical failure); and metal-hardness tests of the impulse coupling assembly on some Slick magnetos. (A 1978 AD called for the inspection of impulse couplings on Bendix magnetos.)

Base price for the 1982 Archer II is $44,470, up $5,120 from 1981. A recent *Trade-A-Plane,* however, did not list a single Archer for more than $50,000; some were 1981 models, most were well-equipped. (One ad said hopefully, $64,000 list.) Going back to the days when the Archer was a Cherokee 180, you no doubt would find even better bargains.

The basic Cherokee design was introduced in 1961, in 150- and 160-hp versions. Prices for the 150-hp Cherokee ranged from $9,795 to $12,795. The Cherokee 180 came along in 1962, with an engine time between overhauls (TBO) of only 1,200 hours; that was upped to 2,000 hours in 1967, with new half-inch valves in the engine. (The Lycoming O-360 is a pretty reputable engine, by the way.)

The year 1973 is a significant one to remember for the used-Cherokee shopper—five inches of legroom was added in the rear, along with a larger cabin door and bigger windows. Gross weight went up 50 pounds and two feet was added to the wingspan. The Cherokee 180 that year became the Challenger, but the name did not last; by 1974, it was the Archer.

In 1976, when the new tapered, higher-aspect-ratio wing was introduced, it became the Archer II. The most recent improvement was the addition of new gear fairings that gave an eight-knot increase in speed. For 1982, however, a new paint scheme, lockable fuel caps and rear-seat harnesses are the major changes.

For a no-problem, don't-have-to-worry-about-it airplane, the Piper Archer II fits the bill. You may be dreaming of a gas-guzzling superspeedster, but these are times for simpler dreams for many of us. □

"Apples to Oranges" overleaf