The Piper Archer II

All new – hardly
Much improved – heartily

by WILLIAM GARVEY / AOPA 480899

■■ We pulled up to the pumps at Tampa's Peter O. Knight Airport, shut down the engine and clambered out. A man strolled by, glanced at the plane and asked, "That the new one?" Yes, it was. He smiled, nodded and walked away. Later, while reminiscing about the casual exchange, I deduced that the man had to be a Piper freak, for only those who know Piper aircraft intimately, and probably only those who own or fly 180s regularly will know at a glance that the Piper Archer II is the "new one."

The 180-hp Cherokee has been with us since 1963, and during the ensuing 13 years its overall lines and performance have changed ever so slightly.

The most noticeable change in the newest 180 and the item that probably gave away my mount's true identity is the stenciled lettering on the engine cowl. It reads Cherokee Archer II. The "II" is new this year and signifies a major engineering alteration to the aircraft.

Piper has replaced the 180's traditional fat, flat constant chord wing with an airfoil that tapers outboard of the flaps. Though this wing is three feet longer than the old Archer's, its surface area remains the same at 170 sq ft. The wing gives the Archer a higher aspect ratio, thus reducing induced drag and boosting performance.

The wing first appeared two years ago on the 150-hp Warrior. That aircraft's quick roll response so impressed the public that Piper decided to adapt the wing to the Archer but only after adding another wing rib.

The Archer II's ailerons, also new, are 100 inches long and 7 square feet in area, or about 35% longer and 32% larger than their predecessor's.

The tapered wing combined with the large, long ailerons have indeed given the Archer II zesty roll control, but the alterations caused gains in speed, climb and load as well.

Empty weight for both the old and new Archer is 1,390 pounds, but gross weight for the Archer II is now 2,550 pounds, a 100-pound increase thanks to the wing change.

At gross weight the Archer II is rated to climb at 740 fpm, or 15 fpm more than its fat-winged forebear.

And, lastly, the new Archer has an advertised 75% cruise of 144 mph, which is a boost of 3 mph over the 1975 version.

It is because of the new wing and its resultant performance increases that Piper is advertising the Archer II as an all-new airplane. While such a claim necessitates a rather liberal definition of the word "new," the company has achieved substantial improvements in an already popular product.



Two workhorses, a Tampa Bay tug and the Archer II. Photo by the author.

Some 6,338 Cherokee 180s have been sold since the aircraft was first introduced. With the adoption of the new airfoil the popularity of the Archer II, the newest 180, is not likely to decline. In fact 98 Archer IIs had been sold by January's end, a figure Piper's marketing people regarded as excellent.

For anyone who has flown an Archer or a Warrior or, for that matter, an Arrow, the Archer II's cabin, fuselage, and empennage will be quite familiar. They're virtually identical on all three models. The magic word at Piper is commonality; the more parts that can be interchanged among models, the less expensive will the aircraft be to build, buy and maintain.

While the Archer II is less expensive than its competition—Cessna's $27,250 Cardinal, Beech's $26,450 Sundowner and Grumman American's $24,170 Tiger—it is by no means cheap. Base price on the Piper is $23,170, and you can tag another $6,000 or more on to that before you'll have enough equipment to plow into a cloud.

The demonstrator Archer II we flew, N7734C, listed at $38,883. It came with a full King panel (Narco packages are available), including dual 170Bs, dual VOR/LOC and glideslope, switch panel and transponder. Included among other options were gyros, fairings, electric pitch trim, heading and roll-control autopilot, heated pitot, strobes, a verti-



The airplane may look like its 180-hp forebears, but the Archer II's new wing provides higher load, better climb and faster cruise. Photo by Eric M. Sharp.

cally adjustable pilot's seat and soundproofing.

The Archer II panel, like that of its sister Cherokees, is compact, logical, readable and reachable and has exceptionally good lighting for night flight. I would have preferred tach placement higher on the board rather than down below the small fuel gauges next to the throttle. Also, the fuel-selector switch is not well positioned; it is hidden on the interior wall next to the pilot's left knee.

Somewhat offsetting this last fault is the dummy-proof latch Piper has engineered into the fuel switch. There are firm indents for both the right and left tank positions, and to turn the switch to "OFF," you must use two hands—one to turn the handle, and the other to depress a button that blocks the handle travel to the "OFF" position.

Piper also prints takeoff and landing checklists right on the pilot's panel. This is a minor feature but an excellent one. All manufacturers should follow Piper's lead here. Loose-paper checklists are too easily lost in the shuffle.

The Archer II's interior is spacious, well-aired and well-lighted. There are floor vents for each of the four seats, and our test craft was equipped with four overhead vents, a $240 option. Air-conditioning is available for $1,755, but this option's 70-pound additional weight might be more than you'd care to sacrifice. Options on our Archer II weighed 136.6 pounds, reducing useful load to 997.4 pounds.

Vertically adjustable seats are available for both pilot and copilot, and their $135 price (each) is money well spent. Forward visibility improves noticeably as the seat goes up.

There's 24 cubic feet of space in the rear luggage compartment, and this can be reached either from the rear seats or through a large, external cargo door. The compartment is rated for 200 pounds and comes with tiedown straps as standard equipment.

All Cherokees got a newly designed door for '76. Comprised of a one-piece skin, one-piece inner frame and some 20 fewer parts, the new door is supposed to fit as snugly as a U-boat's hatch with no chance for water or air leaks. No chance, that is, unless you forget to latch one of its two handles completely.

Sealed properly, the door is an excellent one. Too bad there's not one on each side.

One aircraft-related item that usually goes unmentioned in reports such as this is the owner/operator's manual. The text for the Archer II is a big, loose-leaf-like binder with complete, detailed information. It is easy to use and understand, a vast improvement over manuals of the past.

In paging through this and the associated owner's literature, I came across the aircraft warranty agreement. Piper guarantees the aircraft and parts for 180 days after purchase. (Lycoming guarantees the engine for 180 days, and King the radios for one year.) This seems like an awfully brief warranty period for a $38,000 piece of machinery. You get a better deal on a car costing one-fifth that price.



Photo by the author.

Also during this perusal, I noticed a propeller-maintenance sheet inserted by the Sensenich Corp. Towards the bottom of the sheet was the fascinating suggestion that Archer II owners purchase a second $570 propeller for use when "the other one is being inspected and/or repaired." While such advice is of dubious practicality, if followed, it would make the good folks at Sensenich mighty happy.

What makes the 76 inches of Sensenich steel go round and round is a four-cylinder, 100-octane-fed Lycoming O-360-A4M. The Piper 180 was born with a Lycoming O-360, but this latest version is good for 2,000 hours between overhauls. The 294-pound, air-cooled mill sucks avgas at 8.8 gph, which, in



The Archer II's panel is compact, readable and reachable. The door is new this year, as evidenced by the new handle. Photo by the author.

these fuel-conscious times, works out to about 16 miles per gallon at 140 mph.

Weight and balance problems on the Archer II are simple to compute since Piper includes oil and all fluids excepting usable avgas in the aircraft's empty weight. Our test Archer II had an empty weight of 1,552.6 pounds, leaving 997.4 pounds for fuel, passengers and luggage. With the two 25-gallon tanks (48 gallons total usable) topped, we still had 709.4 pounds to devote to people and gear.

That meant that with full fuel our Archer II could carry those four mythical 170-pound passengers plus almost 30 pounds of miscellany. And, says the book, it could have carried that load 745 miles at a 75% cruise speed of 144 mph.

Those figures make the Archer II an appealing craft.

But, appeal involves more than just numbers, a fact sometimes lost upon those who spend too much time around airplanes that look virtually the same, year after year. The Cherokee design, dated as it may seem now, is an attractive one. Some of my passengers, not too familiar with private aircraft, spent a lot of time just sitting in the airplane, touching the seat fabric, the control wheel and smiling a lot. "What a pretty airplane," they'd say. And it is, it really is.

Their comments turned to quiet once the engine cranked up, and we rolled for takeoff. Here, an understanding of the Archer II's numbers would have reassured them. Peter O. Knight Runway 21 is 3,400 feet long; we could have been satisfied with a third of that.

The Archer II's climb ability is comforting. One afternoon we tried an obstacle climb takeoff from Merritt Island. Temperature at the waterside port was 80°F, the wind was light, and we were some 325 pounds under gross. With flaps set at 25 degrees (no flaps are used on normal takeoff) and engine at full bore, the Archer came unstuck at 55 mph and was climbing past the 200-foot mark when we crossed the end of the 3,600-foot runway.

As we passed through 3,300 feet we were registering an 800-fpm climb with the airspeed indicator reading 87 mph, the best rate of climb speed. At 4,500 feet the rate of climb was 750 fpm, and at 8,400 feet we were still rising 650 feet every 60 seconds.

A cruise speed check at 8,500 feet with an OAT of 45° F and the engine turning 2,500 rpm showed us tripping along at 139 mph TAS. At 2,400 rpm it was 130 TAS, and at 2,300 rpm we were still covering 125 miles every hour.

Later, having descended into the 70° F air at 2,500 feet, we put the throttle almost to the stop. With rpm at 2,650 (redline is 2,700 rpm), we trued out at 150 mph.

Cherokees are traditionally docile in stalls, and the Archer II lives up to that tradition. Power on, power off, clean or dirty the break was ever so gentle and the horn ever so loud. Rudder control during the stalls was minimal, but roll control was excellent at the slowest of speeds, a reassuring fact during those squirrelly crosswind touchdowns. The aircraft has a demonstrated crosswind component of 20 mph, and its 10-foot-wide wheelspan helps see to it that once it's on the runway, it will stay on the runway.

In summary, the Archer II is as advertised—an economical, uncomplicated, true four-passenger aircraft of modest but adequate performance. It is comfortable, attractive and capable of using almost any American airport. It may not be an "all-new" airplane, as Piper would have you believe, but it is markedly improved over its predecessors.

The 180-hp Cherokee may have been born 13 years ago, but don't let that fool you. It's not getting older—it's just getting better. □

1976 Piper Archer II

PA-28-181

Specifications

Empty weight	1,390 lb
Gross weight	2,550 lb
Useful load	1,160 lb
Baggage	200 lb
Wingspan	35 ft
Wing area	170 sq ft
Length	23 ft 9 in
Height	7 ft 3 in
Fuel capacity	50 gal (48 gal usable)
Oil capacity	8 qt
Engine	Lycoming O-360-A4M, 180 hp
Propeller	76-in Sensenich, fixed pitch
Wing loading	15 lb/sq ft
Power loading	14.2 lb/hp
Base price	$23,170

Performance

Top speed	147 mph
Cruise, 75% power	144 mph
Range, 75% power	745 mi
Service ceiling	13,650 ft
Rate of climb	740 fpm
Takeoff run, 25° flaps	865 ft
Takeoff over 50-ft obstacle	1,625 ft
Landing roll, 40° flaps	915 ft
Landing, over 50-ft obstacle	1,392 ft
Stall speed, 40° flaps	61 mph