

Honest Cherokees

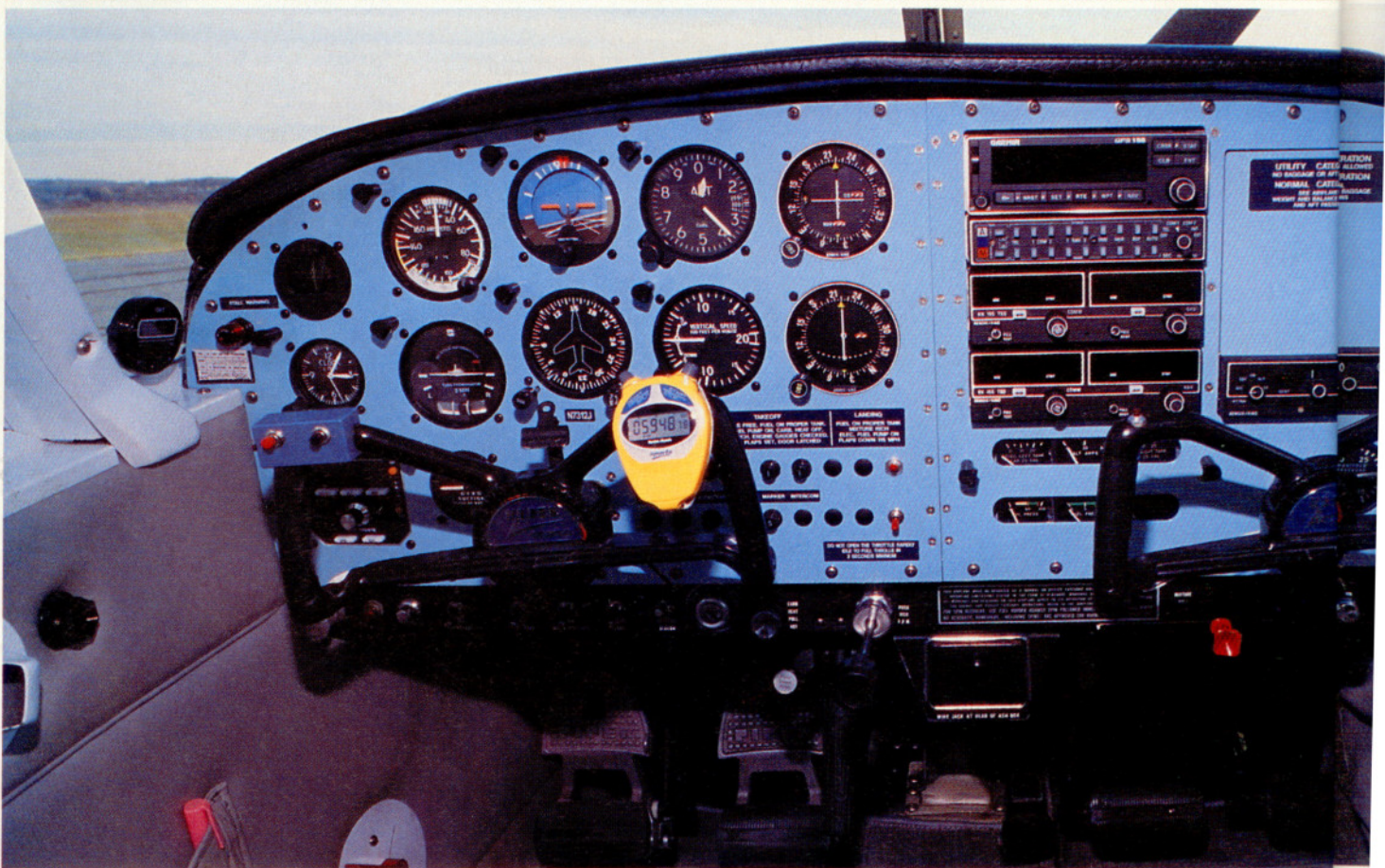
Son of Tri-Pacer, mother of modern Pipers, and still a good buy

BY ALTON K. MARSH

What can you do when the manufacturer says its airplane is “affordable,” but your finance company says “impossible”? Consider a Cherokee—the forerunner of today’s single-engine Piper line. ■ Tim Averett, an airline pilot, bought a 180-horsepower 1966 Cherokee 180 in 1994, and he’s still smiling every time he departs Baltimore’s Martin State Airport. That’s because the performance of his 1966 aircraft—due to differences in airframe and equipment—at least meets and sometimes exceeds standard specifications for a New Piper Archer III. OK, maybe it’s not a fair comparison, but he’s still smiling. ■ The new Archer III is, after all, five inches longer—meaning a roomier back seat and a larger baggage area—and yes, the new aircraft cruises four knots faster. The Archer III has avionics unheard of when the 180 was built; and finally, it has that new-plane smell (see “Primary Piper,” November 1998 *Pilot*). ■ But

PHOTOGRAPHY BY MICHAEL P. COLLINS





According to one service department manager, there are no “Oh-my-God!” ADs—nothing that will melt your credit card.

Averett's aircraft—valued high at \$40,000 because it is equipped with at least a dozen speed and comfort modifications—obviously offers a savings over any new airplane. The savings will buy a lot of aerosol cans full of new-car smell down at the auto store.

Of course, you have to visit the parts store a little more often when you own a 33-year-old airplane. Averett noted that his aircraft's main landing gear has been modified with scissor links to avoid one of nine recurring airworthiness directives on the Cherokee line. But of the nine, according to one service department manager, there are no “Oh-my-God!” ADs—nothing that will melt your credit card.

The most serious AD occurred in May 1987, following a fatal accident caused by a wing separation in low-altitude turbulence on a high-time Archer that was routinely used for pipeline inspection. The AD was revoked but was replaced by two service bulletins. Owners were urged to add inspection holes to the baggage compartment and the inner wing. This permitted inspection of the aft spar attach fittings. Owners of Cherokees without baggage compartments were not required to cut the holes, because the spar was already accessible for inspection. Many owners have done spar inspections, but so far only a few—less than a dozen—have actually found corrosion, probably the same percentage that would be found on any other aircraft, according to the Cherokee Pilots Association.

Averett has added Knots 2U aileron, flap, and stabilator seals, and Met-Co-Aire wing tips. Of all the mods he has made, Averett says that the wing tips added the greatest benefits, improving handling and giving a small speed gain. Averett also installed a new cruise-pitch propeller and often beats his fellow competitors in Cherokee-class air races. During a demonstration flight, it was amusing to use the electric trim that spins the overhead trim crank as if by a ghostly hand.

Maynard McKissick Jr.—an airframe

and powerplant mechanic—not only smiles, he has reason to break out laughing when flying in his 1968 160-hp Cherokee 140. That's because McKissick cruises at 120 kt, the same as Averett, but on 20 fewer horses. However, McKissick generally runs his engine at 2,650 to 2,700 rpm, not quite full throttle while Averett throttles back to 75-percent power.

The majority of Cherokee 140s actually had 150-hp engines, but McKissick boosted the horsepower from 150 to 160 by personally changing the cylinders (only because they were cracked) and pistons. He also built the instrument panel, installed a new interior, and added vortex generators.

“I've owned nine airplanes, and this is the best of the bunch as far as I am concerned,” the Hummelstown, Pennsylvania, native and truck driver for Yellow Freight Systems said. (Aside from aviation, his other hobby is building coal-fired, live-steam model trains in his machine shop.) His previous aircraft included a Globe Swift; a Cessna 195 and Skyhawk; a Mooney; a clipped-wing Taylorcraft; an Aeronca Champ; a Pitts S-1C project that was sold before it was finished; and an Ercoupe. During a demonstration flight, the Cherokee held true to the 120-kt claim and all but refused to stall, thanks to the vortex generators. A cap on the vertical stabilizer came from Knots 2U and replaces the bulky rotating beacon of old.

McKissick's paint scheme was copied from typical colors found on a street rod. Owners are fiercely loyal to their Cherokees, some lavishing them with elaborate paint jobs. Visit Laminar Flow Systems' Web site (www.laminarflowsystems.com) if you want to see the paint scheme on Terri Rasmussen's 1972 Cherokee 180 based at San Carlos, California. She had two graphic-artist friends turn her aircraft into a bird-like “warrior spirit” rather than a Piper Warrior.

Many of McKissick's mods—including the engine upgrade and the vortex generators—came from A.M.R.&D. owned by Art Mattson of Woodstock, Illinois.

Some Piper owners have opted for snazzy paint schemes and brightened the panels. Maynard McKissick Jr. copied his Cherokee 140's paint scheme from the colors used on street rods, a fitting choice because he planned to turn his aircraft into a fast mover.





Designer Fred Weick said the Cherokee used half as many parts as the Comanche and also had half as many rivets.

Mattson, by the way, never brags about his speed modifications—he just wins races at the Sun 'n Fun EAA Fly-In to prove the value of his products. He won in his category from 1992 through 1997 in his 1967 Cherokee 140, with an average groundspeed of 130 kt. During four of those years, the Experimental-category aircraft (because it is used as a test bed) had a 150-hp engine, but was converted to 160 hp in 1996. That same year, he flew from Denver to Oshkosh nonstop at an average groundspeed of 110 kt and a fuel burn of fewer than six gallons per hour. Mattson's aircraft is now used for new projects. He has replaced his magnetos with an Elec-

troAir electronic ignition system and is also working on a new cowling.

You'll still have a good performer, though, even if you can't afford a quest for speed. Both Averett and McKissick value their aircraft at \$40,000, but the average price of a Cherokee is far less. *Vref*, for example, lists the 150-hp Cherokee 140 B through E models (1969 through 1973) as ranging from \$22,000 to \$31,500. Values for the Cherokee 180 produced from 1968 to 1973 range from \$31,000 to \$44,000. It was known as the 180 Challenger only in 1973. Check *Vref* on AOPA Online (www.aopa.org/members/vref) to price a specifically equipped aircraft.

According to data from the FAA, there are still 11,000 Cherokees with 140-, 150-, 160-, or 180-hp engines on the registry. A brief look at the history of the Cherokee will help you to figure out which model you might want. The design—Piper's twenty-eighth model—was created by the late Fred Weick after Piper was unsuccessful in purchasing the type certificate for the Mooney M20 series. The constant-chord wings—tapered on present-day Pipers—came to be known as *Hershey Bar wings*.

Weick once said that the Cherokee used half as many parts as the Comanche and also had half as many rivets—1,785 rivets as compared to 3,714 rivets for the Comanche. The stabilator of the Cherokee used 10 parts, while that of the Comanche used 36. Terry L. Rogers of the Cherokee Pilots Association said. The floor of the aircraft was also the bottom skin of the airplane, which necessitated outside stiffeners (increasing drag slightly), but which made for a simpler design with a lower profile.

Production began in 1961, just months after both 150-hp and 160-hp models were certified. Piper thought the 160-hp model would become the best seller. The 180-hp model was certified in 1962 and was produced until the mid-1970s.

The 180-hp model eventually became the one most customers wanted. It

Where to find the mods

Here's where modifications for the two aircraft in this story were purchased:

Wing tip mods for Pipers are made by Met-Co-Aire, Post Office Box 2216, Fullerton, California 92837; telephone 800/814-2697; or visit the Web site (www.metcoaire.com).

Speed modifications are made by Laminar Flow Systems, 1585 Aviation Center Parkway, Hangar 804, Daytona Beach, Florida 32114; telephone 904/253-8833; or visit the Web site (www.laminarflowsystems.com).

Engine upgrades, vortex generators, gap seals, prop tips, and stabilator tips are available from A.M.R.& D., 11412 Charles Road, Woodstock, Illinois 60098; telephone 815/338-7347; or visit the Web site (www.bigbookdirect.net/amrd).

Knots 2U Ltd can be reached at 703 Airport Drive, Burlington, Wisconsin 53105; telephone 414/763-6152; fax 414/763-5125; or visit the Web site (www.knots2u.com).



This Cherokee 180 gave its owner speed and utility, and attracted buyers. It was sold shortly after this article was written.

evolved into today's Archer III. Initially it had exactly the same fuselage as the Cherokee 140/150/160.

But in 1967, the Cherokee D began to take on its own personality and was offered with a third window. From 1970 to 1972, a stretched Cherokee was in development that had a five-inch plug

placed between the front and rear seats. The new model also had a wider door and a 50-pound maximum gross weight increase.

As the airplane evolved, so did the name. According to the book *Development and History of Piper Design* (no longer in print), deliveries of the

stretched Cherokee 180 began in 1972 (a 1973 model) as the Cherokee Challenger, but the name was not changed to Cherokee Archer until 1974. The word *Cherokee* was finally dropped in 1979, and it became just the Archer.

The Cherokee began as a lot of Tri-Pacer systems encased in an aluminum

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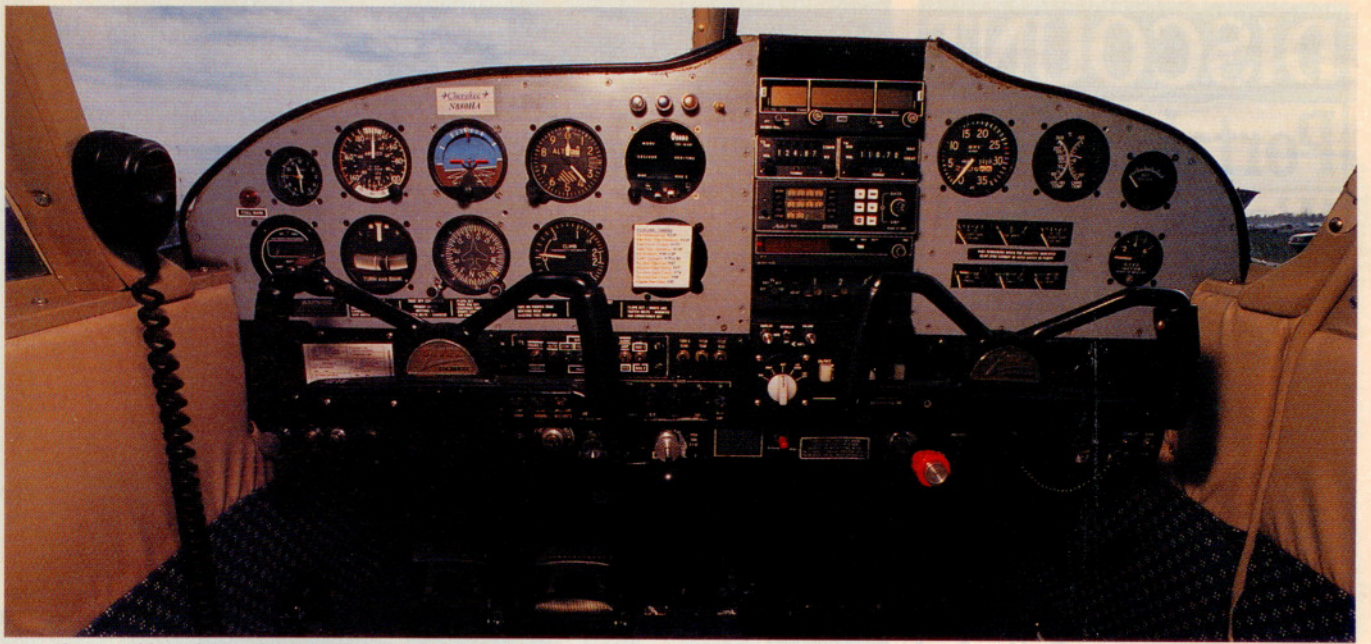
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The panel has changed a little between the Cherokee 180 and the Archer; the Archer lacks the elevated eyebrow above the avionics stack.

airframe with a low wing. Similarities with the Tri-Pacer include the overhead trim crank, a centrally located brake handle beneath the instrument panel instead of toe brakes, semicircular yokes, and a fuel valve on the left lower side panel. Later Cherokees sported a throttle quadrant, overhead air vents,

toe brakes, and even air conditioning.

The 140 received a dynafocal engine mount system in 1969, noticeably reducing the Chitty-Chitty-Bang-Bang engine vibration that early Cherokees shared with the Tri-Pacer.

During the production run there was a battle waged against the Cessna

150/152 trainer. A 140-hp model, made by increasing the propeller pitch and reducing engine rpm, was introduced in 1964 as a two-seat trainer. But after objections from the market, in 1965 the engine was quickly restored to 150 hp and was dubbed the Cruiser. Piper also made it a four-place aircraft again—





McKissick's street-rod-painted Cherokee 140 looks right at home above the vibrant red colors of a Maryland sunset (top). Tim Averett's 1966 Cherokee 180 sports a cargo door (above).

offering a pair of detachable rear seats—and called it the Cherokee 140-4. But from 1965 on, Cherokee 140s had 150-hp engines.

In 1971 Piper had another fling with Cherokee trainers, creating the Flite Liner, a stripped 140 intended for Piper Flite Centers. Aircraft used for training will show high total hours and may have had a rough life. Buyers may want to approach with caution.

Speaking of caution, can you trust the average, well-treated Cherokee? Did the wing-spar incident reveal some dark

secret hidden in the aircraft's design? Consider this: The first production Cherokee, a 1961 160-hp model, is today registered to an owner in Americus, Georgia. The first prototype stretched Cherokee 180, built in 1972, is now registered in Frankfort, Indiana, while the second prototype is based in Santa Rosa, California.

Additionally, it is hard to overlook the endorsements from McKissick, who looks at, in, and under the aircraft with a mechanic's eye, and Averett, an airline captain and company check pilot. □

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Links to additional information on Piper Cherokees can be found on AOPA Online (www.aopa.org/pilot/links.shtml). E-mail the author at alton.marsh@aopa.org

Piper Cherokee 180
Price as tested: \$40,000

Specifications

Powerplant	180-hp Lycoming O-360-A4A
Recommended TBO	2,000 hr
(Piper Cherokee 140	140-hp Lycoming O-320)
(Piper Cherokee 150	150-hp Lycoming O-320)
(Piper Cherokee 160	160-hp Lycoming O-320)
Propeller	Sensenich fixed-pitch, 2-blade, 76-in dia
Length	23 ft 6 in
Height	7 ft 4 in
Wingspan	30 ft
Wing area	160 sq ft
Wing loading	15 lb/sq ft
Power loading	13.3 lb/hp
Seats	4
Empty weight, as tested	1,375 lb
Maximum gross weight	2,400 lb
Useful load, as tested	1,025 lb
(Piper Cherokee 140	770 to 949 lb
(Piper Cherokee 150	945 lb)
(Piper Cherokee 160	990 lb)
Payload w/full fuel, as tested	725 lb
Fuel capacity, std	50 gal (48 gal usable)
	300 lb (288 lb usable)
(Piper 140/150/160	36 gal [34 gal usable]
Oil capacity	8 qt
Baggage capacity	200 lb, 17 cu ft

Performance

Takeoff distance, ground roll	720 ft
Takeoff distance over 50-ft obstacle	1,625 ft
Rate of climb, sea level	750 fpm
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption)	
@ 75% power, best economy	124 kt/4.1 hr
7,000 ft	(60 pph/10 gph)
(Piper 140	104 kt/4 hr/9 gph)
(Piper 150	112 kt/4 hr/9 gph)
(Piper 160	114 kt/4 hr/9 gph)
Service ceiling	13,000 ft
Landing distance over 50-ft obstacle	1,150 ft
Landing distance, ground roll	600 ft

Limiting and Recommended Airspeeds

V_x (best angle of climb)	64 KIAS
V_y (best rate of climb)	74 KIAS
V_A (design maneuvering)	112 KIAS
V_{FE} (max flap extended)	100 KIAS
V_{NO} (max structural cruising)	122 KIAS
V_{NE} (never exceed)	149 KIAS
V_{SI} (stall, clean)	58 KIAS
V_{SO} (stall, in landing configuration)	50 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. For additional information, contact AOPA at 800/872-2672 or the Cherokee Pilots Association, Post Office Box 1996, Lutz, Florida 33548; telephone 813/948-3616; or visit the Web site (www.piperowner.com). Another source is the Piper Owner Society, 7450 Aanstad Road, Iola, Wisconsin 54945; telephone 715/445-5000; or visit the Web site (www.aircraftownergroup.com).