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# PIPER CHEROKEE

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# 140

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**Yesterday's trainer graduates from  
flight school to general duty.  
It has been a graceful transition.**

BY J. JEFFERSON MILLER

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I learned to fly in a Cherokee 140. Like so many other student pilots of the 1970s, I trained in a red and white Flite Liner. It was not equipped with toe brakes or transponder—it had one nav/com and an overhead crank for stabilator trim that I always turned the wrong way. For the first 10 hours, the airplane gave me fits on landing.

My approach to landing was acceptable until I crossed the threshold. Then the Cherokee would porpoise down the runway as I overcontrolled in pitch. Finally, the bottom would seem to fall out—and the airplane would hit the tarmac on all three wheels, simultaneously.

"Get that yoke back in your gut!" my instructor would snarl, grabbing his yoke and yanking it to the stop. Eventually, I learned to round out smoothly and hold sufficient back pressure to arrive on the main wheels first. There is a very good reason to keep the Cherokee's nosewheel off the ground. It remains connected to the rudder pedals in flight, and it is deflected with rudder input. Landing with a crosswind correction means the nosewheel is cocked. A three-point or nosewheel-first touchdown ensures a diversion to the side of the runway. There have been many ground loop accidents in Cherokees because of this.

Once I learned the correct technique, achieving a proper flare was not too difficult. (Some say, though, that the stabilator could have been made a bit larger in order to enhance pitch authority in the flare.)

Aside from the early landing problem, I have good memories of initial

training. Some of my favorite hours were spent after I was turned loose from the pattern to practice airwork on my own. On late afternoons, I took off from La Fleur Airport in Northampton, Massachusetts, and flew north to practice steep turns, slow flight and stalls over the tobacco fields of the Connecticut River valley. Then I followed the meandering river home to the airport.

I enjoyed flying the Cherokee 140 but after I earned my license I was eager to move up from the humble trainer to an airplane that had a bit more pizzazz. That airplane was the Piper Archer, which dazzled me with its superior performance, long wings and a panel full of avionics.

Today, however, the humble trainer seems to have acquired a number of virtues that I did not appreciate fully during my initial training: virtues such as a low purchase price, economy of operation, ease of handling, respectable cruise speeds (113 knots at 75 percent power) and a spacious interior (compared to other trainers).

Perhaps I have grown nostalgic about the 140, but it seems an ideal purchase for someone in the market for a very inexpensive airplane.

Part of the Cherokee 140's appeal is

that it was not initially designed as a trainer. The Cherokee 140 is an early descendant of the first airplanes in the Cherokee line, the 150-hp PA-28-150 and the 160-hp PA-28-160, both introduced in 1961. In 1964, the trainer version was created by removing the rear seats and derating the engine to 140 hp (which was accomplished by changing the propeller pitch

and limiting rpm to 2,450).

The 140 is not a cramped little airplane like the Cessna 150, once its major competitor in the trainer market. The Piper trainer is as roomy as the retractable-gear Cherokee Arrow—at least in the front seats. The rear is not cramped, either: Those seats should be comfortable for small- to average-size adults. The 140 makes a good family hauler, if your family is small and you pay careful attention to weight and center of gravity limitations.

The 140's roominess, however, can lead careless pilots to overload the airplane and exceed center of gravity limits. The gross weight of most 140s is 2,150 pounds (the first several hundred 140s to be produced have gross weights of 1,950 pounds). Payload with full fuel on the heavier airplanes is 661 pounds. When flying a heavily loaded 140, careful consideration should be given to density altitude and its effects upon performance.

Compared to the sprightly handling of the Cessna 150 and the modern crop of two-place trainers, the control response of the Cherokee 140 is somewhat ponderous. But this is not all bad in an airplane that is now used more for recreational flying than for training.

*continued*



Along with slower responsiveness and higher gross weight (compared to other trainers) comes a greater feeling of stability in turbulence.

In the years following its introduction, the simple Cherokee trainer gradually took the form of the less austere Cherokee 150 from which it was derived. In 1965, horsepower was pushed back up to 150 by again changing propeller pitch. In 1966, the rear seats were made a factory option.

In 1969, Piper offered its luxury Cruiser package for the 140, which included standard rear seats and wheel fairings. Options for the Cruiser included a variety of IFR avionics equipment. Beginning with the 1969 model of the aircraft, the instrument panel was rearranged, placing flight instruments in the standard T-arrangement, and a multi-engine-style power quadrant replaced the push-pull engine controls. Circuit breakers were substituted for fuses, and rocker switches replaced toggle switches.

Piper continued to improve the 140 in 1970 with larger dynafocal engine mounts to reduce noise and vibration, new overhead air vents and six-way adjustable front seats. In 1971, headrests and inertial-reel harnesses were added. Two autopilots, Piper's AutoFlite II and AutoControl III were offered as options.

That year, Piper went back to basics with the Flite Liner, a stripped down version of the 140 trainer, which was intended for sale to Piper's 400 Flite Centers. The Flite Liner came as a two-seater, although rear seats were available as an option. Retail price of the Flite Liner was \$14,250, \$5,000 less than that of a Cruiser.

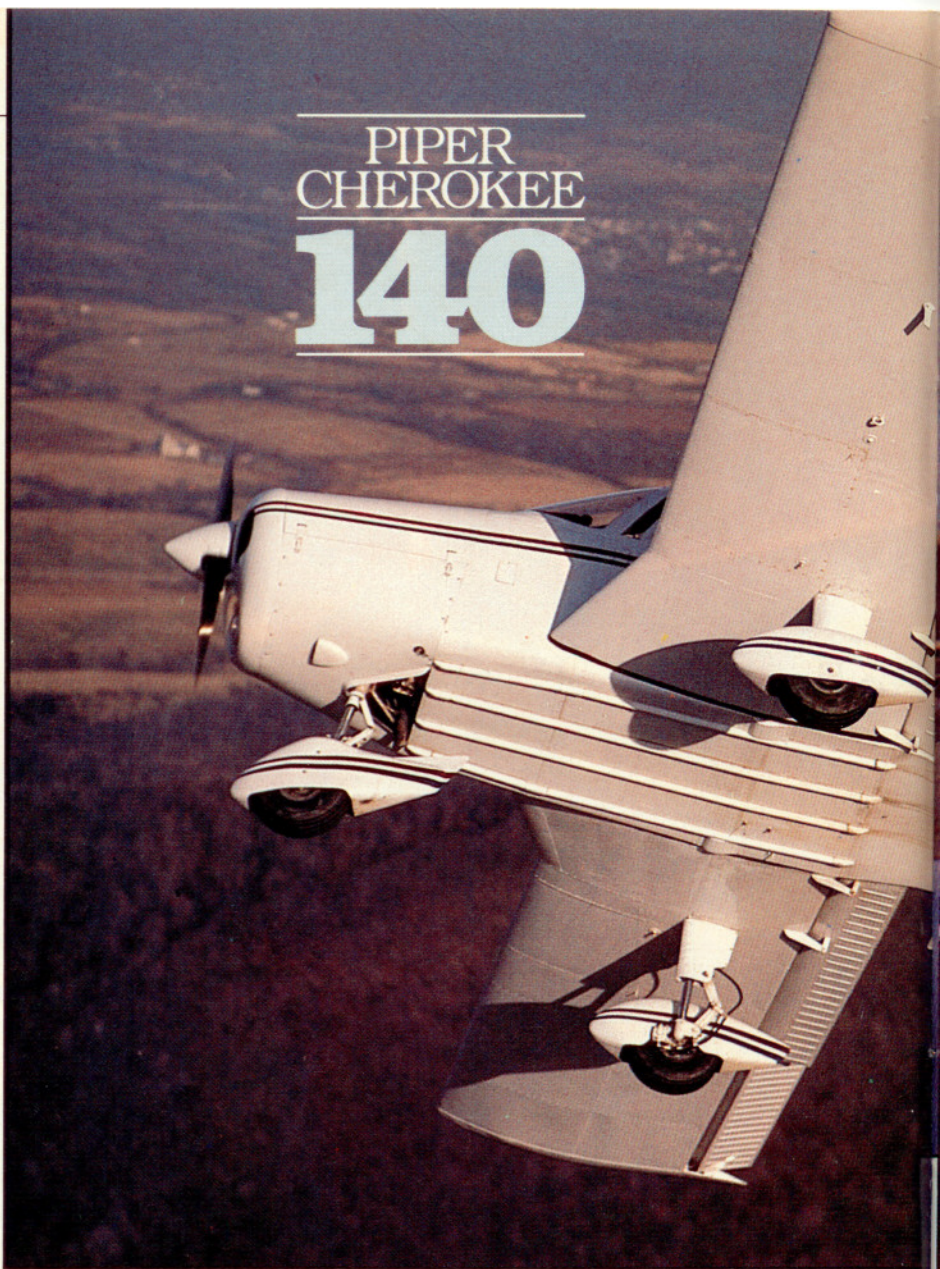
Air conditioning was offered as an option in 1972, and, the next year toe brakes were offered for the first time.

From 1973 until they were phased out in 1977 (to make way for the new two-place Tomahawk trainer), both the Cruiser and Flite Liner remained essentially unchanged, except for annual price increases and variations in their paint schemes.

Finding a \$10,000 Cherokee 140 in airworthy condition should not be a challenge. More than 6,000 140s remain on the Federal Aviation Administration's registry. Most of the 140s that have survived years of hard landings as trainers are now in the hands of individual owners.

According to the *Aircraft Bluebook*

## PIPER CHEROKEE 140







ART DAVIS



*Price Digest*, average retail costs for 140s range from \$8,250 for a 1964 model to \$14,000 for a 1977 Cruiser.

*Bluebook* average prices are determined on the basis of the condition of an aircraft. In the case of the Cherokee 140, the average price of the airplane includes a nav/com, transponder and AutoFlite autopilot, a full gyro panel,

toe brakes, wheel pants, 850 hours on the engine since a major overhaul, good compression, original logs, good paint and interior, no major damage history, an annual within the last six months and compliance with all airworthiness directives.

If some of this equipment is absent or inoperative, if paint and interior are shabby, if the engine is run out and ADs have not been complied with, the airplane would be devalued considerably. A Lycoming O-320 overhaul costs about \$6,000; thus, a run-out engine would devalue the price of the aircraft by about \$3,500.

An informal survey of Cherokees in the field, accomplished by walking around the ramps of several airports in the vicinity of Washington, D.C., indicated that many Cherokees should be selling for substantially less than the *Bluebook's* average values. Most of the two dozen or so examples found on airport ramps lacked wheel pants, had cracking fiberglass wing tips, badly crazed windows, obsolete radios, moldy glare shields (with dead fly colonies in those hard-to-reach spots near the windshield), collapsed seat cushions and threadbare upholstery. Also, most of these aircraft appeared not to have been painted since they rolled out of the Piper factory.

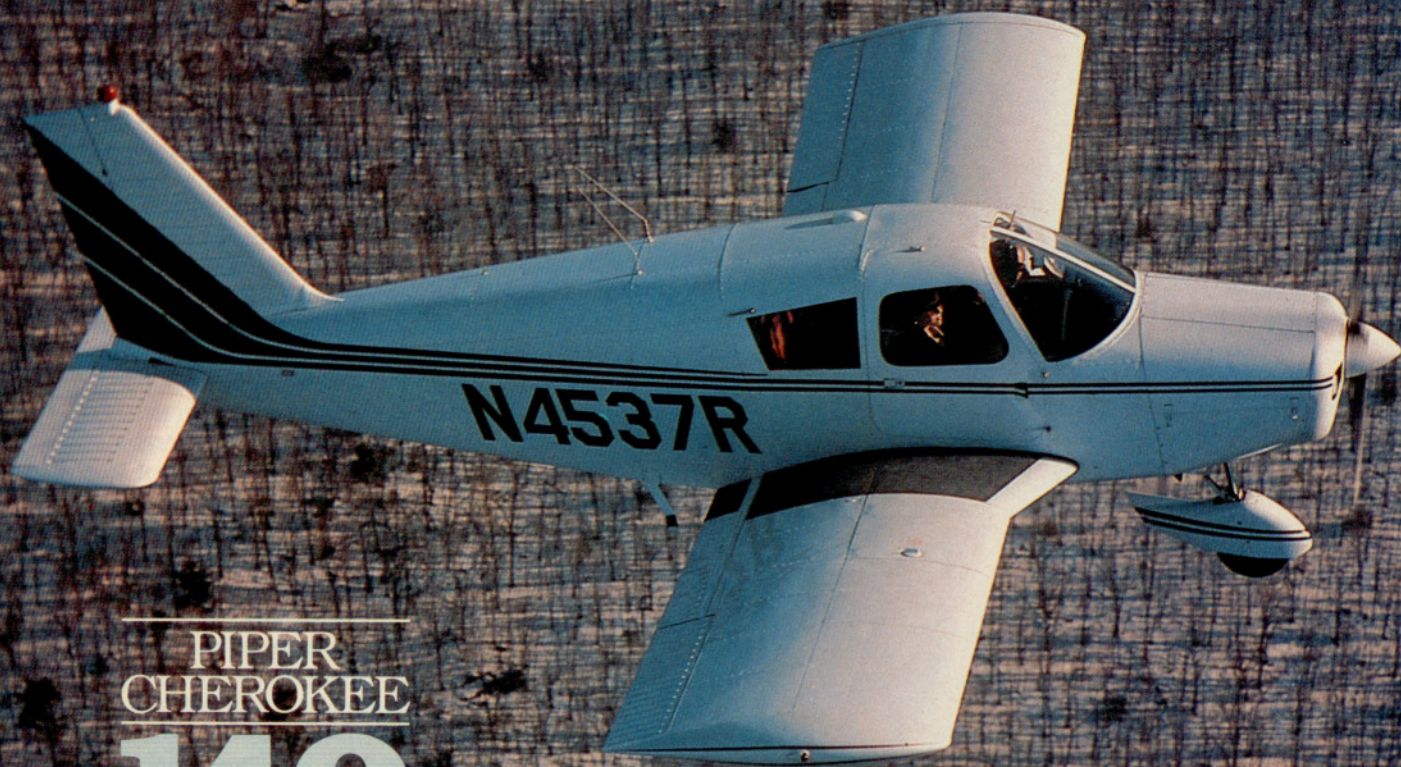
The Cherokee 140s were not the oldest airplanes on the ramp, but they were among the rattiest. Why were they not better maintained? Perhaps they carry the stigma of being trainers—weary old workhorses put out to pasture. An owner may feel a new coat of paint is too good for old Bess.

Perhaps it is because the Cherokees are not yet old enough to have attained classic status, at which point they will be rediscovered by those who love to restore airplanes as much as fly them. Or perhaps so many Cherokees are in poor shape simply because those flying on a shoestring cannot afford to spruce up their bargain-basement aircraft.

Whatever the reason, you will have your work cut out for you if you intend to turn one of these 140s into an airplane you will be proud to own.

Fortunately, you can draw upon many resources. A new paint job, costing around \$2,000, will do wonders for the appearance of one of these airplanes. A new interior is available from Airtex Products, in Fallsington, Pennsylvania (telephone: 215/295-4115). Wheelpants can be obtained from Wag





## PIPER CHEROKEE 140

*The 140's "Hershey bar" wing planform provides good slow-speed handling and docile aileron response.*

Aero, in Lyons, Wisconsin (telephone: 414/763-9586).

A number of retrofit kits are available from Piper, such as kits to install toe brakes (\$470), shoulder harnesses (\$355) and a new Piper fuel selector with detents (\$21.95). The example of John J. March, whose 140 is shown on these pages, illustrates the effort and expense necessary to turn a tired old trainer into an attractive and pleasant personal airplane (see "Revamping a classic," p. 37).

Modifications to improve takeoff and landing performance and increase speed are available from Laminar Flow Systems, in St. Thomas, Virgin Islands (telephone: 809/775-5515). The company makes aileron and flap gap seals and flap hinge, leading edge and landing gear fairings. Installation of all Laminar Flow Systems modifications

### Piper PA-28-140 Cherokee

Base price \$11,605 (1965)

Current market value \$8,500

#### Specifications

Powerplant	Lycoming O-320-E2A, 150 hp, 2,700 rpm
Propeller	Sensenich M74DM, 74 in
Length	23 ft 4 in
Height	7 ft 4 in
Wingspan	30 ft
Wing area	160 sq ft
Wing loading	13.4 lb/sq ft
Seats	2-4
Empty weight	1,201 lb
Gross weight	2,150 lb
Useful load	949 lb
Payload w/full fuel, std	745 lb
Payload w/full fuel w/opt tanks	661 lb
Fuel capacity, std	216 lb (204 lb usable) 36 gal (34 gal usable)
Fuel capacity w/opt tanks	300 lb (288 usable) 50 gal (48 usable)
Oil capacity	8 qt
Baggage capacity	200 lb (200 cu ft)

#### Performance

Takeoff distance, ground roll	800 ft
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Takeoff distance over 50-ft obst	1,700 ft
Rate of climb, sea level	660 fpm
Max level speed, sea level	123 kt

Cruise speed/range, no rsv, std fuel

(fuel consumption)	
@ 75% power, best economy	113 kt/673 nm (50.4 pph/8.4 gph)
@ 65% power, best economy	110 kt/716 nm (43.8 pph/7.3 gph)
@ 55% power, best economy	94 kt/755 nm (33.6 pph/5.6 gph)

Service ceiling	14,300 ft
Absolute ceiling	16,800 ft
Landing distance over 50-ft obst	1,090 ft
Landing distance, ground roll	525 ft

#### Limiting and Recommended Airspeeds

Vx (Best angle of climb)	64 KIAS
Vy (Best rate of climb)	74 KIAS
Vfe (Max flap extended)	100 KIAS
Vs1 (Stall clean)	55 KIAS
Vso (Stall in landing configuration)	47 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.



(approximately \$4,000) will yield about a 21-knot speed gain for the 140, according to the company.

If you decide to buy a 140 with a high-time engine, your biggest expense will be the engine's overhaul or replacement. The 140 is equipped with a low-compression O-320-E engine that runs on 80-octane fuel. Today, most of these engines are being run on 100-octane fuel, which can take its toll on engines in a number of ways. Spark plug fouling and erosion of valves and valve seats are two common problems. (For information on how to operate an 80-octane engine on 100-octane fuel, see "Red Gas Blues," November 1983 *Pilot*, p. 51)

Cherokee 140s can be run legally on autogas, if the necessary supplemental type certificates are obtained and if pilots abide by their provisions. The STCs are available from two sources. The Experimental Aircraft Association provides the certificates for \$75 to EAA members, \$90 for non-members (300 Poberezny Road, Oshkosh, Wisconsin 54903-2591; telephone: 414/426-4800). Petersen Aviation also provides Cherokee 140 STCs for \$75 (Route 1, Box 18, Minden, Nebraska 68959; telephone: 308/832-2200).

A Cherokee 140 owner can replace the engine with a 160-hp version of the O-320 that is designed to run on 100-octane fuel. This conversion is available from RAM Aircraft, in Waco, Texas (telephone: 817/752-8381). According to RAM, the engine change improves rate of climb by 200 fpm, cruise speed by nine knots, and fuel consumption by .2 gph. The list price of the new O-320 is \$12,097. With trade-in of the old engine, the price drops to \$8,340.

Assuming a Cherokee 140 owner has complied with all non-recurrent airworthiness directives, he need only be concerned about a few potentially expensive ADs. Most significant is AD 63-23-2, which requires inspection and, if necessary, replacement of engine valves every 500 hours. This AD only pertains to pre-1968 140s equipped with O-320 engines that have 7/16-inch valve stems. These engines have 1,200-hour overhaul intervals. Engines produced after 1968 had half-inch valve stems and 2,000-hour overhaul intervals. These engines are not affected by the AD. Most of the pre-1968 engines still in service have been modified with the half-inch valves.

## REVAMPING A CLASSIC



J. JEFFERSON MILLER

John J. March, AOPA 848233, did not search for a Cherokee 140. It was a happy coincidence that brought him and his 140 together. The airplane he owns now, N4537R, was loaned to him in 1975 by the fixed base operator performing the annual inspection on his 1946 Cessna 140.

After four years of flying in the close quarters of the two-seat Cessna, he and his wife quickly became fond of the comparatively spacious Piper. Rather than returning the Cherokee, he bought it for \$5,500 (\$3,000 cash plus a \$2,500 trade-in allowance on the Cessna).

While it may sound as if March acquired the airplane at a bargain price, by his own description, the airplane was a "dog," with faded paint, worn interior, tired gyros and a single outmoded Genave 90-channel nav/com. Over the following 10 years, March invested \$10,000 in refurbishing the airplane.

He likes to say that the airplane was rebuilt incrementally. In 1977, he purchased a factory-new O-320 for \$5,000. In 1979, he and his wife installed a new

Airtex interior (\$818). In 1982, the aircraft was repainted.

During each annual inspection, new components replaced old ones, or the old components were overhauled thoroughly. The windshield was replaced. Cleveland chrome disc brakes were added. New gyro instruments were installed. Aileron and stabilator trim tab hinges were replaced. The gear struts were rebuilt. The aircraft was rewired from the battery box forward. And Wag Aero wheel fairings were installed for \$249.50, replacing fairings that had been lost at some point in the airplane's past as a trainer.

Efforts made to reduce noise and vibration have paid off in a relatively quiet cabin. A new cowl was fabricated to replace one with elongated screw holes. According to March, the elongated holes, caused by repeatedly removing and reinstalling the cowl, had allowed enough looseness to create a great deal of vibration and noise in flight. March also replaces door seals every two years to prevent air from whistling around the door edges.

The result of all this tender loving care is an airplane that is a pleasure to look at and a pleasure to fly. You would hardly guess that the airplane was 20 years old unless you noticed the arrangement of the panel instruments. And you certainly would not suspect that the airplane had seen 4,500 hours of hard use as a trainer.

Like Timex watches, properly maintained Cherokee 140s seem to be able to take a licking and keep on ticking. —JJM

Another recurrent airworthiness directive, 62-26-6, requires inspection of the exhaust system for cracks every 50 hours. Three ADs (ADs 73-7-4, 78-9-7 and 82-13-1) require periodic inspection of certain Bendix magnetos found in Cherokee 140s. The affected magnetos are Bendix series -20, -200, -600, 1200 and -2000.

Finally, the Cherokee 140 is affected by a recent AD (84-26-2) requiring inspection of paper air-induction filters every 500 hours. The AD applies to all aircraft equipped with paper filters.

One recent Piper service bulletin should be of concern to prospective 140 purchasers. The bulletin, number 789, which was issued for several models of Cherokees, recommends inspection of the aft wing spar for corrosion near the fuselage. Major corrosion

in this area could be very expensive for an owner to correct.

Despite this litany of ADs and the single service bulletin, the 140 is relatively inexpensive to maintain and operate. March calculates the hourly cost of owning and operating his 140 at between \$40 and \$44, based on 70 hours of flying time a year. This cost includes the price of fuel. His annual inspections have cost about \$500 each.

The Cherokee 140 is surely one of the most affordable two- to four-place aircraft available. And with a bit of interior and exterior improvement, it can be as attractive and as capable as many more modern, and more expensive, aircraft. For a pilot who yearns to own an airplane but is constrained by a small budget, the Cherokee 140 may represent a wise investment. □