



PIPER CADET



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The Cadet offers schools versatility and familiarity.

BY THOMAS B. HAINES

P rimary students at Flight-Safety International's Vero Beach, Florida, training center are luckier than most. While students at many flight schools fly around in older, ragtag trainers, FSI students embark on their flights in spiffy Piper Cadets—fresh off the production line at the other end of the runway. The traffic pattern at Vero Beach is a veritable red, white, and blue streak of the airplanes.

The Cadet, first introduced in 1988, is



the result of Piper Aircraft owner M. Stuart Millar's desire to stimulate training. The creation of a new trainer was one of his prime objectives after buying Piper in 1987. The Cadet has been called a stripped-down Warrior, which somehow implies second-class citizenship. No offense need be taken. The Cadet is a first-class, though simple, teacher.

From the outside, the Cadet looks much like its Warrior cousin, sans a third fuselage window on each side, wheel-pants, and the baggage door. Back seats are optional on the Cadet, though some flight schools exercise the option for observers. The Warrior's usual modestly equipped panel is replaced with one a bit more Spartan. The biggest difference between the Warrior and the Cadet, though, is the price. A VFR Cadet sells for \$59,995. IFR equipment adds another \$10,000. A VFR Warrior, meanwhile, goes for \$88,900. The low price for the Cadet has contributed to Piper's much-publicized cash-flow problems of recent months. Company officials admit the price covers materials and labor only and does not pay for any overhead costs.

Piper had many reasons for using the Warrior as the basis for a trainer. Time and money were two of them. To develop a new model as a trainer would



have cost tens of millions of dollars and taken years, according to Robert D. Scott, director of customer training. There are no structural differences between the Cadet and Warrior, so Piper was able to simply amend the PA-28 type certificate to include the Cadet. Another cost saving: The Warrior and Cadet share production tooling. The Cadet is not the first trimmed-down PA-28 to serve Piper as a trainer. For years, a version of the Cherokee 140 served in that role. About the only difference between it and the 150-horsepower Cherokee was a restriction to 140 hp, lower gross weight, fewer windows, and two seats.

Piper could have resurrected the Tomahawk line, but the Cadet offers more versatility to flight schools, Scott says. The Cadet is less expensive to maintain than the Tomahawk because of its commonality with the rest of the PA-28 line. Flight schools need not carry two full stores of parts. For schools that like to put a second student in the rear seat to watch the flying student, the Cadet is ideal. That was not an option with the two-place Tomahawk. "We've learned that training can take place much faster if we can observe and then do. With the rear seats, students can do that," Scott explains. Because of the Cadet's commonality with the PA-28s and the rest of the fleet, students can more easily transition to larger Pipers.

In addition, the Tomahawk has generated a certain amount of controversy over the years. Some instructors praised the Tomahawk's stall and handling characteristics. The stall is abrupt, and without proper control management, a wing will drop quickly, providing a valuable lesson, according to some instructors. Other instructors believe a more docile trainer is a better teacher. The Cadet, as Scott demonstrates, wallows around with little tendency to turn ugly.

Scott agrees with the assertion of some instructors that the Tomahawk's challenging handling characteristics can be a good teacher. But that doesn't mean the Cadet also can't be an effective tutor, he maintains. "The Cadet is more forgiving and perhaps safer, and it produces pilots who are just as safe if the instructor does his job

Piper PA-28-161 Cadet

Base price: VFR—\$59,995; IFR—\$69,995

Specifications

Powerplant	Textron Lycoming O-320-D3G
Recommended TBO	2,000 hr
Propeller	Sensenich 74DM6-0-60
Recommended TBO	2,000 hr
Length	23.83 ft
Height	7.33 ft
Wingspan	35 ft
Wing area	170 sq ft
Wing loading	13.7 lb/sq ft
Power loading	14.5 lb/hp
Seats	2-4
Cabin length	8.08 ft
Cabin width	3.5 ft
Cabin height	4.08 ft
Empty weight	1,350 lb
Max ramp weight	2,325 lb
Gross weight	2,325 lb
Useful load	975 lb
Payload w/full fuel	687 lb
Max takeoff weight	2,325 lb
Fuel capacity, std	50 gal (48 gal usable) 300 lb (288 lb usable)
Oil capacity	8 qt
Baggage capacity	50 lb, 24 cu ft

Performance

Takeoff distance, ground roll	960 ft
Takeoff distance over 50-ft obstacle	1,500 ft
Rate of climb, sea level	670 fpm
Max level speed, sea level	120 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption)	
@ 75% power, best economy	116 kt/4.9 hr
9,000 ft	(51.0 pph/8.5 gph)
Landing distance over 50-ft obstacle	1,115 ft
Landing distance, ground roll	590 ft

Limiting and Recommended Airspeeds

Vx (best angle of climb)	63 KIAS
Vy (best rate of climb)	79 KIAS
Va (design maneuvering)	111 KIAS
Vfe (max flap extended)	103 KIAS
Vno (max structural cruising)	120 KIAS
Vne (never exceed)	160 KIAS
Vr (rotation)	50 KIAS
Vs1 (stall, clean)	50 KIAS
Vso (stall, in landing configuration)	40 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. □

well," Scott explains.

On a demonstration flight in Piper's prototype Cadet, N9142S, Scott shows how the well-mannered airplane can be driven around the sky at speeds as low as 45 knots. Such demonstrations give students great confidence in the airplane, he says. By pulling the power off and maintaining the same attitude, the airplane descends at a constant airspeed at about 1,000 feet per minute still completely in control.

Without the excess weight of the rear seats, wheelpants, and extra avionics, the Cadet outperforms the heavier Warrior in climbs. The basic empty weight of the Cadet is 1,350 pounds, about 150 pounds less than the average Warrior. Gross weight of the Cadet is down by about 125 pounds. While the Warrior seems to struggle at a rotation speed of 50 knots, the Cadet leaps off the runway and easily climbs out at 700 fpm. During our flight on a warm Florida day at 3,500 feet and 75-percent power, the Cadet burned about nine gallons per hour while producing a true airspeed of 115 knots—enough to get students out and back on their cross-country flights without the need for a calendar. The lack of wheelpants on the Cadet knocks about seven knots off the cruise speed, according to Piper. Scott recommends 65-percent or even 55-percent power for most training flights, which reduces fuel burn to as low as 6.6 gph while maintaining near 100 knots.

The Cadet's versatility as a trainer with just the right amount of economy, speed, payload, and durability has proven popular with flight schools, and even a few individuals, though more than 80 percent of the 323 delivered by late March had gone to flight academies and university flight schools. Piper has

orders for another 294. With Piper's cash-flow problems, the Cadet production line has been slowed while the company concentrates on producing aircraft that generate profits. Those who order Cadets today won't receive them until 1992, according to Piper officials.

But those flight schools willing to wait will find that students and instructors alike will recognize the new Cadet as a first-class citizen and a first-class trainer. □

