Flying your own (quite stylish) off-road vehicle

BY JULIE K. BOATMAN

PHOTOGRAPHY BY MIKE FIZER

Pilatus PC–12

Personal Pilatus

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It's a nice problem to have. The high-performance single is just large enough for your family of five to make the trip from the Midwest to your second home in an exoctic locale. But with the tendency of young families to vacation together, you want an airplane that functions more like a Mercedes M-class—a true luxury sport-utility vehicle. After weighing the options, the Pilatus PC–12 is an easy choice.

There's certain appeal to owning a machine that is capable of taking you almost anywhere, from the mountains to the big city, in style—a vehicle you'd happily use every day. One of the sublime joys of being a pilot is that our "every day" is so much fun. Though the decision for most pilots may be hypothetical, PC–12s are filling this niche, with roughly 70 percent of these single-engine turboprops now "owner flown." Roughly 150 PC–12s are flying in the United States.

When *Pilot* first explored the PC–12 (see "Big Bird," October 1994 *Pilot*), the airplane was positioned like a Swiss army knife: rugged yet finely engineered—and available in configurations from the bare-bones backpack model to one suitable for opening a bottle of *Châteauneuf-du-Pape* on a villa terrace in Cannes. While refinements along the way have tweaked the model in response to customer feedback and technological updates, the same versatility still holds true. And if the transition into a turbine aircraft sounds appealing, the PC–12 offers

a step up in skill that's attainable by most reasonably experienced pilots.

Making the transition

A pilot's prior experience determines the required instruction, as in any transition. Many PC–12 pilot-owners we spoke to came from owning Beech Bonanzas or Piper Malibus—time that translates well, because of the operational speeds on the PC–12's low end. Stuart Phillips, the San Jose, California-based owner of N362PA, describes the transition as, "frankly, pretty straightforward. The Turbo Bonanza [I previously owned] had a higher pilot workload." Phillips, a general partner in a venture capital firm, uses his PC–12 for "60 percent pleasure and 40 percent business," and determined that the PC–12 was his best option among the choices of a Beech King Air, a Socata TBM 700, and a Cessna Citation. While Phillips was already second-in-command-qualified in the Citation, with a little more than 800 hours' total time, he faced a year of flying the Citation with a copilot before insurance requirements would allow him to fly with passengers. Instead, he was able to fly solo after 25 hours of dual in the PC–12, and he could carry passengers after another 25 hours of solo time. These requirements reflect the average among the pilot-owners we spoke with.

Training in the PC–12 is accomplished at Simcom Pan Am International Flight Academy's Orlando, Florida, facility, in a custom-built simulator. Training includes 20 hours in the sim and five in the airplane. Pilots either love the sim or they hate it, but all mention the high quality of the program. As for the 25-hour flight-time requirement, more than one owner flew a PC–12 down to Orlando and back, making a steep cut into the time allotment. Former PC–12 owner Mike Shell also conspired to ferry his unfinished airplane from the Pilatus factory in Stans, Switzerland, to the finishing facility in Broomfield, Colorado. The visit to Stans left Shell "most impressed with the factory—it's amazing. It's an honor to have a job in the factory there."

Ty Carter, an investment banker who now bases the second PC–12 he's owned, N78PG, at Johnson County Executive Airport in Olathe, Kansas, also has a standing offer to ferry a PC–12 back from Stans. "Since Angelo [Fiataruolo] became [CEO of Pilatus Business Aircraft], customer service has only increased—and it was great before."

Name your speed

The PC–12 cruises faster than Bonanzas and Malibus, but the approach, landing, and stall speeds are low—or can be flown low. For example, stall speed is 60 knots, and final can be flown at 80 knots. On his first demo flight in the airplane, Joe Stark, owner of N58VS, took a PC–12 into Seaside Municipal Airport in Oregon. Though the approach to the 2,300-foot, sea-level strip looked "kind of funky at first," Stark soon found that the airplane could stop by midfield with almost no braking. "With such low approach speeds, it's a no-brainer." An instrument approach can be established with the airplane configured for 120 knots, after dropping the gear and setting 15 degrees of flaps—much like Bonanza approach speeds.

Approaches can also be flown with the speed up. "If they want me to shoot the approach at 180 knots, I can do it," says Phillips. At times this can lead to controller confusion. "ATC doesn't know how to treat you. I can climb out at 150 or 160 knots indicated with a good rate of climb." In owning the first PC–12 based at San Jose International Airport in California, he's doing his job in educating the controllers.

Operators verify true airspeeds in cruise near the book value of 270 knots. Stark recalls one flight with six passengers, a complement of luggage, and full fuel at 22,000 feet resulting in a true airspeed of 265 knots, and this was "as low as I've seen." Most of the time, Stark sees 268 to 270 KTAS at cruising altitudes of 21,000 to 30,000 feet. Other pilots report true airspeeds around 265 knots consistently.

Systems knowledge

New systems form the bulk of what transitioning pilots need to focus on—but the PC–12 has a particular methodology to how its systems are grouped. Once you understand it, the rest falls into place. "The panel is logically laid out. You get used to the flow in different phases of flight," says Phillips.

The PC–12 is engineered so that a lot of the complexity is behind the scenes. Operational procedures are straightforward, and life in the cockpit is more about management than mental gymnastics. Take the fuel system, for example. Looking at the pilot training handbook published by Simcom, the fuel controllers and pumps appear intricate.

But the balancing act they perform means that the pilot makes minimum input and the computer takes it from there. When boost pumps are in the auto position, they maintain the fuel balance in the right and left tanks to within 5 percent. Two wet wing tanks feed the single engine, and the fuel pumps adjust automatically when one side gets too heavy. An excess of fuel goes to the engine, and the extra juice is returned to the tank. However, unless something deviates from standard, the pilot does little but monitor these happenings from the flight deck.

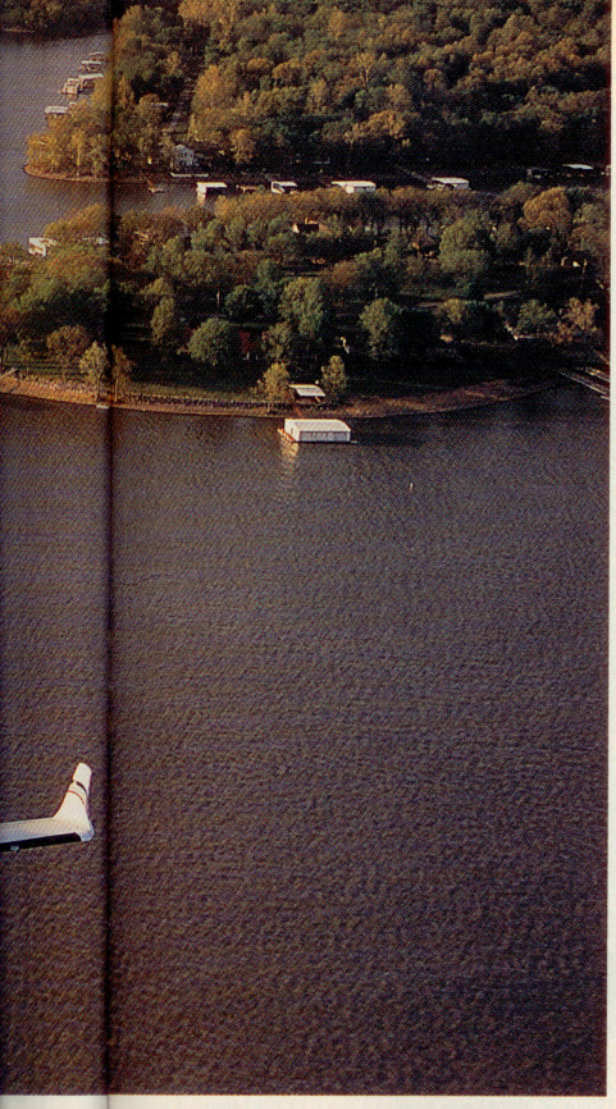
Systems are color-coded on the checklists and panel for easy identification. As an example, generator-one switches are colored blue, and yellow markings identify those powered by generator two. The electrical system draws from the two generators for twinlike backup—though the second generator isn't as powerful as number one—and the battery can carry the load for 30 minutes should both fail. If the battery goes kaput as well, an emergency power source (EPS) supplies a mechanical horizontal situation indicator (HSI) and number-one nav for about 30 minutes—enough to get you on the ground no matter how you slice it.

Though flying with higher-level systems, such as the glass cockpit, may seem "very overwhelming" at first, according to Stark, "if you put 10 hours in the airplane, it all comes together."

Low approach speeds make the transition into the PC-12 easy on pilots—and the airplane's short-field performance quite remarkable.

Glide ratio

Because this is a turboprop, there's a different start procedure and way of



Several cabin configurations make for a wide variety of loading options, from luxury passenger accommodations to rugged workhorse capability.

thinking about power than are used for piston engines. However, unlike larger jets, the 1,605-shaft-horsepower Pratt & Whitney PT-6A-67B up front is rigged so that the lag between throttle input and power output is minimal—two or three seconds at most. The PT-6 is relatively bulletproof, with an average catastrophic engine failure rate of one per 160,000 hours. Though pilots like Carter, who has about 60 hours in King Airs and Citations, could clearly choose to purchase a twin turboprop or jet, the operating costs of the PC–12—with its single engine—are low enough to close the deal. "The engine is so reliable, I don't have any concerns," adds Carter.

When it comes to getting back on the ground without power, the PC–12 resists it. With a nearly 16:1 glide ratio (best glide speed is around 110 knots, same as V_X), and a maximum cruising altitude of 30,000 feet, the PC–12 can lose its engine and still have 35 to 40 minutes—depending on the terrain below—and an 80-nm range until touchdown. At 20,000 feet, there are still 29 minutes and 64 nm to work with. Some sound peace of mind hangs on that engine—with none of the pilot-induced chaos that can occur during a loss of engine power in a piston twin.

Flight controls

Regarding the control feel, Shell remarks, "You learn how to use the trim more." The airplane is solid and must be flown with trim—especially at cruise airspeeds. The flaps are huge, allowing for the low stall speed, which means the ailerons fight for space on the outboard trailing edges. They aren't big. But aileron trim relieves the pilot workload, and the airplane's fuel management system alleviates any lateral trim issues by keeping the wings within 64 pounds of each other. Aileron and pitch trim are actuated by a coolie-hat/trigger combination on the yoke, and rudder trim is on the power lever (what most pilots think of as the throttle).

For comparison, Phillips finds the PC–12 similar in feel to a Citation, and Stark notes that control pressures are roughly twice as heavy compared to those of the Malibu he owned previously.

Instrument panel

The PC–12 comes standard with an electronic flight information system (EFIS) on the pilot's side, and most owners opt for a copilot EFIS as well. The instrument panel is well laid out, with VSI, altimeter, and airspeed indicator grouped with the EFIS attitude indicator screen and HSI screen. A backup mechanical VOR display and a small, electrically powered attitude indicator are on the pilot's side, with flight director systems and the radio stack in the center. Bendix/King radios are standard, and Pilatus will soon offer the new KMD 850 IHAS installation and avionics packages from other manufacturers, including Garmin, in response to customer demand.

Pilots really do have a preference when it comes to the boxes in the panel, and some PC–12 owners have opted in the interim to replace the Bendix/King packages up front with custom installations. One popular choice is to put in Garmin GPS receivers—the GNS 530 and 430 in various configurations—and TCAS.

Another modification that Phillips found critical was a Heads Up CMS400 cockpit checklist system. The unit, mounted in front of the power quadrant in the center pedestal, offers audio challenge-and-response checklists over the airplane's intercom. For single-pilot operations, "it's worth its weight in gold," says Phillips.

All that airplane behind you

Pilots do need to get used to having nearly 10,000 pounds of gross weight attached to that control wheel. The PC–12 , though it comes with luxury interior options, is built to operate like a sky truck. The sheer size of the airplane, and its corresponding cost, had some owner pilots initially wary. "My God, this is a big airplane," Stark remembers thinking during some of his first flights.

Stark's company manufactures cabinets and doors, and he makes good use of the PC–12 hauling cabinet samples and supplies on sales calls across the western United States. "Every time you see the advertisement [for the PC–12], you see that big [aft cargo] door. Once you have that big door, it's great."

The PC–12 is a lot of airplane to insure. Depending on pilot qualifications and the amount of money down on the hull, premiums can run from $15,000 to $40,000 a year, or $1,200 to $3,300 a month. Put into context, though, the average owner is paying $20,000 to $30,000 a month on the airplane itself, so an extra couple grand every month doesn't hurt so much. The bulk of the premium is hull insurance, not liability, notes Stark, who has about 2,600 hours total and 200 in the PC–12. "Insurance is steep—it doesn't relate at all to safety issues," implying that insurance companies can get the high premiums.

i Links to additional information about the PC–12 may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

As far as maintenance goes, most owners are satisfied with the aircraft as delivered, and only reported minor squawks during the critical first few hundred hours. "It's one of the most maintenance-free aircraft—and we've never waited for a part," notes Carter. He described his first PC–12 as having a "perfect" maintenance history over 1,600 hours, and he purchased a new one simply to take advantage of avionics and interior upgrades now offered by Pilatus. When a truly capable, flexible airplane is manageable for the average pilot to master, the outcome is clear: There are a lot of happy PC–12 pilot-owners to testify on its behalf. AOPA

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SPECSHEET

Pilatus PC–12

Base price, standard configuration: $2.7 million

Specifications

Powerplant	Pratt & Whitney PT-6A-67B, 1,605 shp
Recommended TBO	3,500 hr
Propeller	Hartzell constant-speed 8-ft, 9-in dia
Length	47 ft 3 in
Height	14 ft
Wingspan	53 ft 3 in
Wing area	277.8 sq ft
Wing loading	35.7 lb/sq ft
Power loading	8.2 lb/shp
Seats	2 crew/9 passenger
Cabin length	16 ft 11 in
Cabin width	5 ft
Cabin height	4 ft 9 in
Cargo door width	4 ft 5 in
Cargo door height	4 ft 4 in
Maximum ramp weight	9,965 lb
Useful load	4,233 lb
Payload w/full fuel	3,108 lb
Maximum takeoff weight	9,920 lb
Maximum landing weight	9,920 lb
Zero fuel weight	9,040 lb
Fuel capacity, std	407 gal (402 gal usable) 2,442 lb (2,338 lb usable)
Oil capacity	2.9 gal
Baggage capacity	400 lb, 40 cu ft

Performance

Takeoff distance over 50-ft obstacle	2,300 ft
Max demonstrated crosswind component	
flaps 0	30 kt
flaps 40	15 kt
Rate of climb, sea level	1,680 fpm
Maximum cruise speed	270 KTAS
Maximum range w/30-min rsv @ 30,000 ft, std configuration	2,261 nm
Maximum operating altitude	30,000 ft
Landing distance over 50-ft obstacle	1,830 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb)	110 KIAS
V_Y (best rate of climb)	120 KIAS
V_A (design maneuvering)	158 KIAS
V_{FE} (max flap extended, 15 degrees)	163 KIAS
V_{LE} (max gear extended)	236 KIAS
V_{LO} (max gear operating)	177 KIAS
V_{NE} (never exceed)	236 KIAS
V_R (rotation)	75 KIAS
V_{S1} (stall, clean)	86 KIAS
V_{SO} (stall, in landing configuration)	60 KIAS

For more information, contact Pilatus Business Aircraft Ltd., Jeffco Airport, 11755 Airport Way, Broomfield, Colorado 80021; telephone 303/465-9099; fax 303/465-9190; or visit the Web site (www.pilatus-aircraft.com).

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.