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PC-12

VERSUS THE WORLD

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PC-12 VERSUS THE WORLD

We fly the PC-12 NG on a cross-country outdoors adventure and learn firsthand why everybody wants a piece of Pilatus.

BY ROBERT GOYER
PHOTOGRAPHY
BY JOHN DIBBS



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“This is what flying is all about,”

I thought to myself as we sped along the surface of the Willamette River, the beyond-crisp western Oregon air rushing past. Our trusty fishing guide extraordinaire, Chad Wiest, from On the Line Guide Service, directed our boat by intuition, through the near darkness to a spot that promised to contain the treasure we were seeking: spring Chinook salmon. Our chariot to this spot was the Pilatus PC-12 NG, and back at the cozy little GA airport in nearby Scappoose, the big single was stuffed to its gills with gear for this ultimate long weekend. We had packed bikes, coolers (in optimistic anticipation of our legal take of Chinook), golf clubs and, thanks to an afternoon sortie the day before, several cases of Willamette Valley wine.

It had already been a good trip. Twenty minutes later, it started to get a lot better, as first I landed a 20-pound hatchery Chinook (a keeper), and then my buddies Aaron and Jed followed suit, each taking a big (though not quite as big, I reminded them) salmon over the next few hours.

Yes, the PC-12 NG was our ride for this excursion, and it'd be hard to imagine a better one. Coming out of Colorado a few days before, we crested the Rockies, went nonstop to Seattle, then cavorted around the San Juan Islands, collecting photographs and memories along the way. It really was what flying is all about. Magic carpet stuff.

Swiss Niche

The question "What airplane would you buy if you won the lottery?" seems as though it would have a lot of different answers, depending on what pilot you asked. The truth is, the most common answer by far, at least in my experience, is "a PC-12 NG." It shouldn't be surprising that more than a few pilots would want to buy one with their winnings. A lot of pilots with the means to buy one do just that. It is a remarkably versatile airplane. But the fact that so many pilots looking for very different kinds of lift — a rugged toy hauler, a sleek and spacious business transportation machine or a fanciful portal for adventure — would all pick the same airplane says something about the PC-12 NG.

It's about as perfect a compromise as one could imagine.

The PC-12 NG is not a one-of-a-kind airplane. There are a few other pressurized singles: the Piper piston-powered Mirage and turboprop Meridian, and the quick and pretty Daher-Socata TBM 850, as well as a few emerging models. There are other rugged turboprop singles, including the seminal Cessna Grand Caravan and the slightly smaller Quest Kodiak. And there are other nine-passenger near-midsized cabin transportation airplanes, including the Citation CJ2 or CJ4, the Beechcraft King Air and the Embraer Phenom 300. There are other would-be competitors, all of which do one or two things better than the PC-12 NG. The Phenom is faster, by a lot, the TBM 850 is also substantially faster, the Caravan is less expensive to operate, the Meridian costs about half the price, and the King Air has that extra engine.

But when all is said and done, it's tough for any of the PC-12 NG's competitors to measure up across the board, or to even come close. Let me summarize its remarkable features. The PC-12 NG is rugged enough to set down on a short gravel strip at high altitude, it's pressurized for hopping weather and keeping passengers comfy, it's fast enough to make it a

>>> The essence of the PC-12 NG: high-style elegance contrasted with rugged versatility. The cabin is relatively easy to reconfigure, with a straightforward modular track system. In back, there's a lot of room for toys.

great regional flyer, it's got great range for when the mission stretches out, and it boasts a reconfigurable cabin roomy enough to let you play FedEx with a large load or pile in the passengers and their gear for a long weekend in the woods. The big side-loading door aids in loading gear, up to dirt bikes. And when you head to the front of the airplane, you'll discover a cockpit that rivals those of many high-end bizjets. What other airplane matches this description? That's right, no other airplane does, and Pilatus and its would-be competition know it.

Now, this is not to say that there are no competitors of the PC-12 NG. There are, and great ones too. They generally offer something that the PC-12 NG lacks, most typically high cruise speeds. But in every case, you're giving up something when you choose not to go with the PC-12 NG.

In a world where compromise is built into the game, the



Double the Fun: PC-24

When Pilatus launched its newest GA product, the PC-24, it was looking to recapture lightning in a bottle. The basic design takes the magic of the PC-12 NG and re-creates it in a twinjet, at least in theory. The PC-24 will boast two big Williams FJ44-4A engines of 3,400 pounds of thrust mounted high on the side of the fuselage for great ground clearance, because — you guessed it — the PC-24 is meant for rough strips. It's also designed to go fast (up to 425 knots) and to go high (up to 45,000 feet). It's got a big, midsize-class fuselage too, giving passengers a 5-foot near-stand-up cabin. It also features a huge rear cargo door, very much in keeping with the big portal on its single-engine sibling.



PC-12 NG represents a product that is very cleverly conceived and very delicately positioned. It occupies its own niche and, in so doing, has, ironically, created a universe of competitors in neighboring niches below and above.

Describing the Beast

Launched around 20 years ago now, the PC-12 NG has sold consistently well for longtime Swiss airplane maker Pilatus (named after a mountain near the factory, in Stans, Switzerland). The project was far from a slam-dunk. The concept of a single-engine pressurized turboprop might sound like a natural today, but that's only because the PC-12, along with the TBM 700 (now 850), proved the concept. The concern with a big and fast single is, of course, what to do if that one engine fails. The advantage of a turboprop engine, compared with a piston, is that not only is it more powerful — a lot more powerful — but it's also a lot more

reliable. Engine loss, in Pilatus' view, was an acceptably small risk. That is the argument today, and it was the argument a couple of decades ago, when Pilatus launched the bird. At the time a certain percentage of people bought it and sometimes, consequently, bought a PC-12 as well. Today, the concept of a turboprop single is a no-brainer. A friend who's been selling PC-12s since the model's inception told me that in the early days the single-engine safety discussion was a big part of the sales process, whereas now it hardly comes up.

Today's model is the PC-12 NG, "NG" standing for "next generation." The sweeping enhancements associated with the NG change came in 2008, though some of the upgrades were worked in slightly earlier and others have kept coming. Keeping straight what improvements came when requires an advanced degree in PC-12 history from the University of Stans, but ultimately today's PC-12 NG has a higher gross weight than the original model as well as aerodynamic improvements,



including mid-winglets, that make it a faster, better-performing airplane than before. There's better lighting, a more durable and more comfortable interior, and more power than ever. In all, the PC-12 NG represents a huge improvement to an already remarkable airplane.

Chief among the improvements is the update to the Pratt & Whitney PT6-67P, which upped the horsepower from 1,000 to 1,200 shp for takeoff and climb and also improved the engine's thermodynamic rating. This means you can run it hotter, which means you can ask for more power under both higher and warmer conditions. Pilots will see shorter takeoff runs and better climb performance, areas in which the PC-12 already excelled. The increase in power also means better cruise speeds, around 10 to 15 knots better versus legacy airplanes, making the PC-12 NG's speed, if not competitive in terms of cruise, then at least less of a disadvantage.

The PC-12 NG is a big airplane; people who see it for the first time on the ramp are often taken by that fact. It's nearly the size of a C90 King Air, but because it's a single-engine airplane, it somehow seems outsized. It's also a no-nonsense-looking airplane, which you'd expect from the Swiss. It's made of metal (as is the newly launched PC-24 bizjet), made very ruggedly and made to last. It's got big, beefy gear for landing in the rough, oversize wing spars, and a reconfigurable cabin for swapping from executive transport to cargo or big toys.

One of the biggest surprises for me when I first flew the PC-12 NG years ago is that it is in every respect a serious turbine-class product with exactly the same kinds of systems and the same kinds of hardware you'd see in a King Air or, for that matter, a Citation. And, when you think about it, why not? The PC-12 NG has every system, except those related to a twin instead of a single, as those other airplanes do. The PC-12 NG is a single-pilot airplane (most King Airs and many Citations are as well), so it's laid out to accommodate that, with controls and switches arranged to keep them within reach. At the same time, flying the PC-12 NG is not like flying a high-performance single. There are systems to be learned, from pressurization to turbine management, there's a nicely implemented crew alerting system (CAS), emergency oxygen and emergency gear extension, among many others. The FAA doesn't require a type rating for the PC-12 NG, as it's neither a turbojet (a seemingly arbitrary distinction these days) nor a 12,500-pound airplane. Training in an airplane such as this is critical though. Luckily, the insurance companies have stepped in to mandate regular recurrent training for their customers who fly PC-12 NGs (as well as other similarly complex airplanes commonly flown by owner-pilots).

Apex Excels

One of the least well-understood facets of the PC-12 NG is the new-with-the-NG avionics system from Honeywell, known as Apex. Today's Apex, Build 8, is better than ever, and it was remarkably good to begin with.

For those of you not familiar with Apex, the system is based on Honeywell's Primus Epic, just like the EASy flight deck in the Falcon. For a time, Honeywell seemed happy to let people



>>> On the outside, the PC-12 NG is a thing of beauty. On the inside, it's a technological marvel. The Apex flight deck uses the platform of Honeywell's Primus Epic suite to give the PC-12 NG a lot of capability with single-pilot user friendliness.

think that Apex was a stand-alone light-GA product, not closely related to its world-class big bizjet Epic system despite the fact that the lineage is obvious to those who have flown both. This is not to mention the impossibility of developing such a remarkably complex and capable system for a small market; the PC-12 NG is by far the most noteworthy airplane to date with Apex in it.

Since the last time I flew the airplane, a couple of years back, Apex has gotten even better. The main improvements are the addition of synthetic vision — which, in my opinion, Honeywell does better than anyone — and the greatly improved integration of charts, now geo-referenced, and weather data into the system. There's also the adoption of the excellent L-3 Trilogi all-in-one standby instrument, along with dual FMSes.

Flying Apex is a very air-transport kind of experience. The fit of the displays — indeed, of the entire cockpit layout — is clean and sharp, a perfect complement to the PC-12 NG's style. Every display can be windowed, in essence giving you a dozen or more customizable mini displays. Depending on your phase of flight, you can have an approach chart showing on one display, systems information (perhaps a fuel system page) in a window on another, and flight-plan information

on another. Pilots can set up the system not only to their liking, but also to best fit their current needs.

While the system feels very different from Garmin's popular G1000 suite, common in aircraft of this class, once you get the hang of using it — which does take a bit of time — the capability is nothing short of remarkable. Pilatus here benefits from a decade of work by Honeywell and its partners in creating Epic. It's a big-airplane feel in a turboprop single, but pilots will be delighted with Apex.

Muscle and Beauty

That night, my three fishing buddies and I met up again at a dive along Route 30 to have a few beers and swap lies. In the process, we engaged in some flight planning. We'd head out of Scappoose the next a.m. At that point we'd top the tanks on the 12 with jet-A and ride the prevailing westerlies nonstop to Austin, a five-plus-hour, 1,500 nm trip we'd likely fly at 270 at best true.

The Oregon morning dawned wide and blue. After rousting ourselves we headed for bacon and eggs at the local eatery named, so far as we could figure, "Restaurant," and then made a quick stop at Dutch Brothers for coffee and more coffee and headed to the airport.

With all of the gear and full fuel, we were at just under 10,000 pounds for takeoff from Scappoose. Good thing we had not caught more fish.

Flying the PC-12, as opposed to learning how to manage

the systems, was not a particularly challenging transition for me when I was first introduced to the airplane nearly a decade ago, and I felt comfortable in the big Boeing-style pilot's seat in the 12 as we started up and taxied out from Scappoose (a great grass-roots GA airport, I'd like to add).

Apex (along with Jed, who is possibly the highest-time PC-12 NG pilot on the planet) guided me through the bizjet-style preflight checks. Starting the PT6 is an easy affair, or maybe I'm just getting used to flying turbines, a thought that makes me smile. Taxiing out, I remembered how remarkably maneuverable the PC-12 NG is, though it's important to remember how big a wingspan — 53.3 feet — it has.

At the departure end, I advanced the power lever and felt the airplane accelerate quickly. The PC-12 NG more levitates than rotates as it reaches flying speed. We were climbing strongly through the cool air despite our heavy weight and quickly got cleared by the controllers right through what would have been our intermediate altitudes as we headed directly up to FL 270. It took us 24 minutes to get there.



>>> One of the upgrades in the NG model is the addition of servo tabs on the ailerons, which provide better roll response.

Fuel management is one of my favorite parts of flying the PC-12 NG, because there is essentially none required. The tanks are self-balancing. If one tank gets a bit heavy, the system automatically sends from it until things are once again in harmony.

At FL 270 we were initially seeing 265 knots while burning just under 400 pounds per hour. The airplane we were flying, the factory demonstrator, was not yet RVSM certified, so we weren't able to head up to 290, but Jed told me that he typically sees a savings of around 50 pounds per hour at that altitude with a slight reduction in cruise speed.

The trip back to Austin was a pleasure. We experienced headwinds of 100-plus knots going out of Denver to Seattle earlier in the week, whereas on this flight, our tailwind did the trick, averaging 20 to 40 knots.

After crossing the Rockies and gazing down at the Wasatch Front before Salt Lake below, we continued our cruise to Austin. As usual, we got slam-dunked on the arrival, to the point where our cabin rate of descent was a whopping 650 fpm compared with our over 2,000 fpm actual rate of descent — just one more reason to love pressurized airplanes.

My last landing of the trip back in Austin was anticlimactic and telling. We kept our speed way up on the way in to keep the controllers happy. Speed control in this airplane is an absolute piece of cake. Pick your speed and make it happen using a combination of speed brakes, power reductions and gear. We landed long ("long" being a relative descriptor when it comes to the PC-12 NG) and made the reverse high-speed turnoff. Back on the ramp, we divvied up the salmon. Man, was it good eating. Not as good as the fishing or the flying, but still pretty darned good. ⤴

2013 Pilatus PC-12 NG

The PC-12 NG we flew for this report was the factory demonstrator model outfitted with the standard Apex flight deck (Build 8.3.5) with synthetic vision, geo-referenced charts, checklists and much more. For our trip, the airplane had been reconfigured with six seats and an extra-large cargo area to accommodate all of the gear for our adventure.

Approximate price, as tested	\$4.582 million
Engine	Pratt & Whitney PT6A-67P, 1,200 shp
TBO	3,500 hours
Cabin length	16.9 ft
Max cabin width	60 in
Max cabin height	58 in
Seats (typically equipped)	1 + 7
Length	47.2 ft
Height	14 ft
Wingspan	53.3 ft
Wing area	277.7 sq ft
Wing loading	37.6 lbs/sq ft
Power loading	8.7 lbs/hp
Max ramp weight	10,495 lbs
Max takeoff weight	10,450 lbs
Max zero fuel weight	9,039 lbs
Max usable fuel	402 gals/2,704 lbs
Pressurization	5.8 psi
8,000-foot cabin @	26,000 ft
Max rate of climb	1,920 fpm
Takeoff runway, 50 ft obstacle	2,650 ft
Max operating altitude	30,000 ft
Max cruise	280 kt @ 28,000 ft
Fuel flow, max cruise	360 pph
Fuel flow, long range	263 pph
Range, high-speed cruise, NBAA reserves	1,560 nm
Range, long-range cruise, 45 min reserve, 1,000 lb payload	1,768 nm
Landing runway 50 ft obstacle	1,830 ft
VMO	240 kt/0.48 Mach
Stalling speed, MTOW	67 kt

SPECIFICATIONS PROVIDED BY THE MANUFACTURER



TBM 850

The Daher-Socata TBM 850 and the PC-12 NG are both powered by a single Pratt & Whitney PT6A engine, but the PC-12 NG is a much larger airplane, with nearly three times the cabin volume and a much greater payload. Despite its size, the Pilatus' short-field performance capability also beats the TBM. However, the TBM 850 bests the PC-12 NG in speed, efficiency and price.

	PC-12 NG	TBM 850
Price (in millions)	\$4.582	\$3.368
Typical seating capacity	8	6
Cruise speed (kt)	280	320
Payload with full fuel (lbs)	1,009	931
Max payload (lbs)	2,257	1,443
IFR range (nm) (full seats)	1,309	1,102
Balanced field length (ft)	2,450	3,100
Cabin volume (cu ft)	330	120
Cost per nm	\$5.0	\$4.39



Cessna Citation Mustang

With more than six feet of additional length, the PC-12 NG fuselage dwarfs the Mustang's. The estimated operating cost

per nautical mile is comparable, and the range and short-field capabilities favor Pilatus. But where the Mustang beats the PC-12 NG is in the initial purchase price, which is more than \$1.3 million less, and the speed, which is 60 knots faster.

	PC-12 NG	Mustang
Price (in millions)	\$4.582	\$3.2
Typical seating capacity	8	5
Cruise speed (kt)	280	340
Payload with full fuel (lbs)	1,009	600
Max payload (lbs)	2,257	1,200
IFR range (nm) (full seats)	1,309	718
Balanced field length (ft)	2,450	3,380
Cabin volume (cu ft)	330	144
Cost per nm	\$5.0	\$4.97



Embraer Phenom 100

The Phenom 100 is an unlikely competitor of the Pilatus, with its twinjet configuration and smaller fuselage. The price and operating cost of the airplanes are similar. However, with a greater payload and better short-field capabilities, the PC-12 NG allows its users to carry additional passengers and more stuff into more places than the Phenom 100 owner can.

	PC-12 NG	Phenom 100
Price (in millions)	\$4.582	\$4.055
Typical seating capacity	8	6
Cruise speed (kt)	280	390
Payload with full fuel (lbs)	1,009	580
Max payload (lbs)	2,257	1,312
IFR range (nm) (full seats)	1,309	926
Balanced field length (ft)	2,450	4,376
Cabin volume (cu ft)	330	208
Cost per nm	\$5.0	\$5.43



Beechcraft King Air 250

With nearly the same volume, the King Air 250 is slightly shorter and narrower than its single-engine rival. It has the safety of two Pratt & Whitney PT6As, but the King Air's 12-knot speed benefit increases the cost per nautical mile more than 50 percent above the Pilatus'. And the purchase price of the King Air is more than \$1.4 million higher.

	PC-12 NG	King Air 250
Price (in millions)	\$4.582	\$6.016
Typical seating capacity	8	8
Max cruise speed (kt)	280	292
Payload with full fuel (lbs)	1,009	165
Max payload (lbs)	2,257	2,020
IFR range (nm) (full seats)	1,309	636
Balanced field length (ft)	2,450	3,925
Cabin volume (cu ft)	330	303
Cost per nm	\$5.0	\$7.57



Cessna Citation CJ2+

The CJ2+ is powered by two Williams FJ44 engines, which help it beat out the PC-12 NG by 133 knots. The initial purchase price of the CJ2+ and its operating cost are significantly higher. Yet the occupants of the Pilatus enjoy much more leg- and headroom than the jet travelers, and the PC-12 NG can carry a few hundred pounds of additional cargo.

	PC-12 NG	CJ2+
Price (in millions)	\$4.582	\$7.04
Typical seating capacity	8	8
Cruise speed (kt)	280	413
Payload with full fuel (lbs)	1,009	715
Max payload (lbs)	2,257	1,720
IFR range (nm) (full seats)	1,309	1,194
Balanced field length (ft)	2,450	3,810
Cabin volume (cu ft)	330	248
Cost per nm	\$5.0	\$7.49

SPECS BY CONKLIN & DE DECKER

step right up.



Step into an entirely larger world of possibilities with the Pilatus PC-12 NG

If you're currently flying a piston single or twin, it's only natural to imagine the possibilities -- if only you could fly farther, faster, carry more, and still get into those small airstrips off the beaten path. One aircraft stands alone at the pinnacle of those dreams -- the Pilatus PC-12 NG. With its legendary Swiss craftsmanship, ease of handling, and supremely spacious cabin, it's no wonder the Pilatus PC-12 NG is the #1 choice of pilots stepping up to turbine power. Call today to find out how easy it is to step up to a PC-12 NG. You'll be amazed at the world that awaits you at the top.

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