ACFT Services

Performance Plus…and Minus?

By John Morris

One of the many plus points of the PC12 is the ability to travel long distances, at a high gross weight and then land/takeoff on short runways. In addition, if it is a sea level airport the performance is *very* hard to beat!

I recently had the opportunity to fly from the east coast of Florida to Saint Barthelemy (TFFJ), Guadeloupe. The straight-line distance was approximately 1100 NM. No problem for the PC12. Well, almost.

St. Barth's is internationally known as a Caribbean resort-type Destination Island with access via boat or small commercial or general aviation aircraft. It is uniquely known for its airport, or really for the standard arrival to the airport over the heads of observing tourists standing at a traffic circle approximately 500 feet from, and 50 feet above the end of the runway. That doesn't sound like anything special except for the surrounding hills and the short, single runway that makes for a very interesting, non-standard approach angle that can give most pilots minor heart palpitations! This airport is considered the 3rd or 5th, depending on source, most dangerous commercial airport in the world!

Because of the location and length of this runway, the French Civil Aviation Authority (DGAC) requires a prior checkout, with a DGAC approved flight instructor familiar with the special operations at St. Barth's. I was able to accomplish this in the PC12 by pre-arranging to first stop in San Juan to pick up an instructor, who is PC12 qualified, and then proceeding to St. Barth's where I completed the requisite training while staying on the island for several days. Note: The checkout can be accomplished in any aircraft that is suitable for St. Barth's but would be wiser to have the training performed in the aircraft intended to be operated into this airport.

(See diagram for reference). The runway itself is 650 meters (2132 feet), oriented 10/28. Elevation at the end of 10 is 49 feet while at 28 it is 4 feet giving the runway a slope of 3 percent. Since the island is located in "Trades" the typical winds are from an easterly direction. As a result the majority of the landings are to Runway 10. However, if the winds are light enough or not too "performance" detrimental for a tailwind landing then the preferred landing would be to Runway 28 due to the upslope.

The airport is operated as Day/VFR only with an advisory tower. Unicom is used for all operations and the tower will assist with coordination of arriving and departing traffic but responsibility lies with the pilots. At the height of the season over 300 flights per day operate out of this airport.

As you can see on the diagram I have labeled the East approach (A), South approach (C) and the North approach (B). The altitude for (A) is 1500 feet, (B) 1000 feet, and for (C) 800 feet. The most interesting approach is the East approach (A). In order to see the entire runway (visual confirmation of aircraft arrival ahead or departing) we need to be 1500 feet AGL at 1.5 nm from the runway. [You don't have to be at this altitude but…]. Logically, by this point, we also have to be fully configured for landing and start descending on the AOA, power basically at idle to maintain AOA. The other approaches have the same basic requirement except you start at a lower altitude and you "may" be able to adjust you power/speed slightly. To me the least favorable of the three approaches is (C) due to the very close proximity to the hills even though it is the better visual for the left seat.

Back to the (A) approach and the reason for the "Minus" performance. Since we have an obstacle we would plan a landing using the Landing – Total W Reverse chart. Calculating a landing weight of 8000 lbs, +24º C, 8 kts head wind *and* 3% down slope I estimate a landing distance of 1650 feet. No problem since 2132 feet available. On second thought, this may be a problem. A typical landing over an obstacle puts the aircraft down somewhere beyond the end of the runway shortening the available remaining runway. St. Barth's has aim point marks at 550 feet from each end. I observed the majority of the aircraft landing on 10 touching down nearer to the taxiway (1000 feet) leaving 1200 feet remaining. With the runway slope it appears to deceive the pilots causing additional float before touchdown. My initial touchdowns, while practicing, averaged near the 1000' point. In order to better utilize more of the runway you have to drop the nose *after* the traffic circle to a "crazier" angle but pitch up prior to…you know – ouch! Loco!!!

Which brings up another performance point. I was doing this training with one other pilot and a light fuel load. St. Barth's does not have Jet A. For the return trip to Florida I should be able to depart off of this runway with a full fuel load, or near, depending on Pax/Bags. So to refuel I would have to pop over to another island (two within 22 nm), and then return to St. Barth's prior to the planned departure. Maybe another problem? What will my landing weight be with just one pilot and more fuel than my initial landing from Florida? Can I safely land back at St. Barth's? Will the winds allow me to land on 28 instead of 10? Can you, or should you, count on winds anyway?

Speaking of takeoff – Would you takeoff, from St. Barth's, using 15º flaps or 30º flaps? The pilot I was training with recommended 15º. I choose 30º.

The good news is that for this particular flight profile (Fla-St. Barth's) the PC12 can easily go to one of the other islands for return fuel, then head for Fla (and Customs), or fly to San Juan, 45 minutes VFR, clear Customs and refuel, then proceed to Fla. Since I was training I went to one of the close by islands for fuel. I would not assume on landing the PC12 at a higher gross weight at this particular location due to the unpredictable winds and runway location.

The PC12 has tremendous performance and I believe that at times we, the drivers, need to be reminded that not all is a plus, as it may seem. Had you considered from the takeoff question using the Accel/Stop charts? Ever thought about runway upslope versus tailwind?

"A safe pilot is always learning"

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ACFT Services provides training ONLY for all PC12's, no other aircraft.