Fresh Air Matters... with Capt. Yaw

After more than 20 years of being in the left seat of an aircraft, I still love flying. But be careful so as to understand what I mean by 'flying'. I do not mean being a passenger in an airliner, nor do I mean flying with an autopilot; and definitely not flying under Instrument Flight Rules! No, by 'flying' I mean being at the controls, up in the pointy end of the aircraft, in sight of the ground, flying. It matters not whether it is flying instruction, display work, aerial dispersal, banner towing, agricultural survey, or another trial flight for a visitor – as long as it is 'real flying'. I do have a preference for landing on short dirt or grass strips, those that pull upon the thousands of landings' experience, and that stretch me to become a little more flexible and supple as a pilot – and help to open up rural Ghana a little more.

Nonetheless, a Visual Flight Rules pilot still uses instruments. Some of them are obligatory, such as the altimeter (for height or altitude), the ASI (Air Speed Indicator), engine instruments, slip ball (a glorified spirit level) and a compass. Others are 'luxury' instruments, such as VSI (Vertical Speed Indicator), VOR (VHF Omni-directional Range) navigational aids, DME (Distance Measuring Equipment), HSI (Horizontal Situation Indicator), Attitude Indicator (often called an artificial horizon) and almost always a GPS (Global Positioning System) of some sort.

If the instruments have 'mechanical' analogue dials we call them 'steam gauges'; if they are displayed on a 'virtual screen' – whether digital or not - we call them 'glass'; if there is a predominance of 'glass' or computer screens we call it a 'glass cockpit'. I am OK with glass and enjoy it when it is there, but I love steam; it feels more reliable and robust – and I think that is important!

I must say that I enjoy 'some of the instruments all of the time, and all of the instruments some of the time'. Now, don't get me wrong, it is not that I don't 'like' them; it is just that some of the instruments are more useful and helpful than others, at different times in different circumstances.

I have recently started to really enjoy the terrain-aware systems on the GPS systems we use. It is worth taking a moment to explain the GPS concept. It was started by the US military for military navigational purposes; and is now used by civilians for the navigation of boats, planes, cars and walkers in the wilderness! By using satellites in defined orbit around the earth, and sending synchronised time and identity signals, the GPS receiver in your car, boat or aircraft can work out where they are on the surface (or in my case, above the surface) of the earth.

Now, when you add a database of altitudes of the different areas of earth, you can work out how close the aircraft is to the ground. If the aircraft 'appears' as if it will collide with a fixed object in the next two minutes, a warning is flashed onto the GPS screen! OK, I fly in sight of the ground when I can, so why do I like it? I can look at a moving digital map of where I am flying and see if there is any terrain (hills, mountains, ridges) within five hundred feet of my current altitude on my course or in my area of operations – with a view of hundreds of kilometres ahead. This is great when doing low-level flights for agricultural survey operations, and on long, visual cross-country flights. It is probably one of the greatest safety assisting facilities on this piece of equipment. Yes, I can admit to having tested it in Ghana. I have flown deliberately in the vicinity of most of the hills and ridges of Ghana to test the reliability of the database – and it is good! It is not infallible, but it is outstanding – and it works exceedingly well in our airspace!

Another page that I am using more and more is the 'glass panel' page of my GPS with some very useful virtual instruments – mainly represented in analogue dial form!

The Ground Speed Indicator is a great plus for planning purposes. It lets us know how fast we are moving over the ground, as opposed to how fast we are moving in the air. Drift is a problem experienced by mariners and aviators alike and, with constantly-changing winds, it really is a challenge at times here. This corrected ground speed is fascinating. If flying into wind at an indicated 150km/hr and the wind is strong, you may only read 110km/hr on the ground speed indicator. Conversely (and I had this recently), you could have the wind behind you and with an indicated airspeed of 150km/hr, and achieve a ground speed of 200km/hr. It makes a big difference, and it is good to know the effects of hidden forces that can help or hinder our progress.

On the same 'page' we also have a turn indicator, a small altimeter and a vertical speed indicator. Then there is my favourite instrument of the week - and it is bright and large, right in the middle of this fact-filled glass delight - a virtual HSI or Horizontal Situation Indicator.

You can designate any town, road or other known location as a 'beacon', then this HSI will tell you which way to turn, your bearing to/from it, how far away and how far off track you are. It is fabulous. I can designate any town, airport or just a piece of land; for example, in the middle of the Afram Plains, as my 'target' and I can fly an accurate route to it, using this tool. I can even report to the Air Traffic Controller my radials from the 'designated' location and distance to run in the same way as with VOR and DME equipment that costs many tens of thousands of dollars more than my little GPS!

I believe that the GPS has really opened up opportunities for us to develop rural Ghanaian aviation in a safe and responsible manner. I also believe that we are not exploiting the opportunities afforded to our businesses to benefit from the outstanding regulatory framework that our Civil Aviation Authority has established to protect us all in regards to aviation developments. There really is no longer any excuse for us to resist developing the whole nation equally and to use aviation as a valid vehicle of 'Development Deployment'. It has already been written in the 'GPS Satellite stars', but when will it be written in our hearts?

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