

He's not on the electric power grid, and he doesn't have running water at his home near Krobo Mountain in Ghana (on Africa's "Gold Coast"). In that way, his lifestyle is probably like that of a lot of flight instructors. No, seriously...

Jonathan Porter (also known as Captain Yaw Obruni, meaning "the foreign pilot who was born on a Thursday") is a 43-year-old English expatriate with a Scottish wife and two children. They moved to Ghana in 1994, after living several years in France; it won't be long, he says, before the happy couple applies for Ghanaian citizenship. He speaks fluent English and French, plus some local languages -- Twi, Ewe and Krobo - and he's working on his Chinese.

When he worked as a CNC/robotics engineer, Jonathan was in the USA frequently, but his heart is in another hemisphere. He wrote, "Africa: it is so dynamic and full of challenges and surprises. For example, you get up in the morning to find out what needs repaired, what has broken that shouldn't have, whether a snake is on the porch or scorpion in your boot, and then you set about the pioneering work that is needed for development with people who are keen and enthusiastic -- full of interest and history. Don't get me wrong; America has some great stuff, like shops where you can buy whatever you want, power that is reliable, water that you can drink everywhere, doctors, nurses, roads, and schools with windows in -- but Africa seems to be amongst the last havens for daily adventure and challenges that make a difference and provide new life opportunities to so many. When I look at the troubles in the schools in America and Europe and then I do my Aviation Education visits and then think about speaking to over 3,000 children at once - without a sound system and being able to hear a pin drop as they hung on every word I spoke about aviation and motivation towards aiming higher and achieving more... We LOVE Africa and it has our hearts!"

Although he holds a First Class medical, he was rejected years ago on medical grounds by the RAF, and flying remained a dream for much of his life. When he started flying, it was by chance. "In 1988 I purchased a trial lesson for [wife] Elizabeth for her birthday, but she did not feel that it was for her on that day. So I got into the plane in her place (G-AWUN, a C152) at Shoreham aerodrome in Northamptonshire, England -- and I caught the disease within seconds. It was as if a part of me was found; something I did not know was missing was suddenly awakened, and I quickly went on to take about 15 lessons, until our money ran out. Three years later, whilst living in France, I discovered 3-axis, two-seater kit planes (the RANS Coyote and the Weedhopper) that we could afford, and I quickly got my French UL license. Later, I passed the Ghanaian PPL and the British PPL, and worked with the Ghanaian authorities to create the Ghanaian National License (for aircraft 2 seats below 1,100lbs) and became one of the first instructor/examiners of the rating."

Jonathan counts his early C-150 and C-152 in his logbook, which now also includes that Weedhopper and RANS Coyote; he's also flown a Piper PA28 and Cub, the C-172, a De Havilland Tiger Moth and the Jodel Masqarat. He added, "The

Photography by Marcel Stieber; home and factory - farm with strip



largest plane I have also been at the controls of is a DC8, and the fastest an Aermacchi military jet. My regular steeds are X-Air aircraft and the bush-capable and practical Zenith CH701. We are about to start building a CH801 for applications in West Africa." He has also been a volunteer instructor for the British Air Cadets.

Normally, he flies "about 15 hours per week in flight training, aerial display work, banner towing, agricultural survey ops, surveillance, and test pilot work." He also trains "young West Africans how to build aircraft, which they do remarkably well." The passion runs to another major project: "We are



Photography by Marcel Stieber; The Team - Left to Right Jennifer, Patricia, Rosina, Elizabeth, and Jonathan

currently setting up West Africa's first 'flying doctor' service and using the CH701 with Rotax 912UL 80hp low compression engine, and plan to use the CH801 with the Superior XP360, 170Hp low compression engine as a flying ambulance with a stretcher on board and a medical pod/cargo unit under the belly."

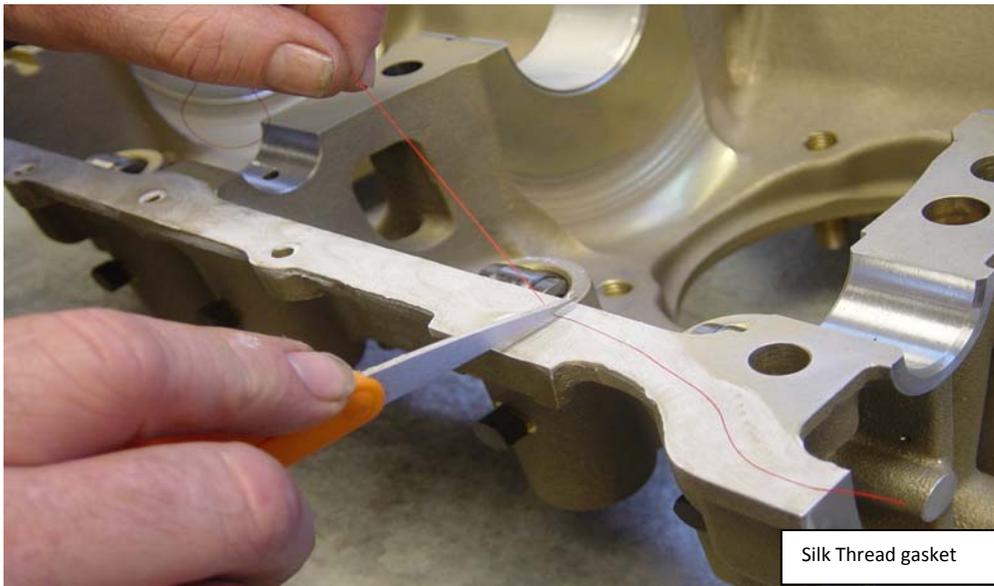
What's his typical mission? "Almost all of my flying is bush work. I probably do about 3,000 landings per year (remember, I instruct!), fewer than 100 of which are on tarmac; most are on dirt strips. My home strip is 600' long by 20' wide, with sharp 'fall-away' each side and rocks and trees at the far end." Just to keep it interesting, "We only mow the centre 15' most of the time, to keep me sharp." It gets better: "The approach is 'bent,' avoiding an abandoned quarry with strong thermals and some very tall trees. The departure is between trees and requires an immediate right turn on climbout." The training airfield is tons larger: "It has an 1,800' x 60' landing area." The small strip, and similar terrain where the airplane will be needed, were obvious factors in choosing his new project, the Zenith CH801.

"Mister Jonathan' decided on the XP360, "In order to power our CH801 4 seater STOL. We needed a suitable engine that could run on lower octane fuels and still deliver a punch. We needed to find an engine providing 170-180HP that was time tested, robust, reliable and could operate on 91 octane fuels -- and from a supplier that would offer us support in the most remote parts in tough conditions. The engine should be non-certified to enable legal repairs in the bush by pilot engineers in 'get me home' conditions, suitably robust as to not need them under normal circumstances, etc." Why not a car engine? "We did not want an automotive adaptation since they are always *automotive* adaptations, and especially since EVERY flight we do is mission-critical; there are few options on a cross country over rain forest!" Another prime consideration that led to the classic solution: "We are working hand-in-hand with our Civil Aviation Authority and they also prefer aircraft engines in aircraft - funny that, eh?" After a lot of work and deliberation, "We chose the Superior XP360 with 170HP and roller tappets, carbureted, and with impulse magnetos, because it's rock solid, proven, reliable and field-service friendly. It was the only engine that met ALL of our requirements." He wanted a practical, workhorse engine. "I never understand the desire for higher compression and higher power. You generally get the same range per tank of fuel with the lower compression, just a few percent increase in time to reach the destination... We tend to operate 'low and slow,' spotting, SAR, and working on medical mission work - so why increase the wear and forces by upping the compression - unless you are going for Reno?"

Actually being able to build the engine was another important factor that led to Jonathan's choice. "In order to operate in the bush you need a total understanding of your equipment. How much more understanding can you get, than from building the very engine you are going to fly with?"

This was Jonathan's first proper aircraft engine build, but he's built airplanes, including a Weedhopper in the 1990s, followed by several X-Airs, a Zenith CH701, and now (soon) the CH801. He relies on his airplane for critical work over rough terrain, and so will mate a Sensenich fixed-pitch prop to his XP360 because of its track record and simplicity.

At the Build School in May of this year, Jonathan was impressed by "How wonderfully friendly and unpretentious everybody was - from the reception staff to the company President and all of the staff along the way. They treated each other with respect and treated me as a member of the team. It was like home away from home." The "nuts and bolts" made their own impression: "I found the quality of build and parts outstanding and beyond that of the 'mainstream' engines of similar class. I found all of the build techniques straightforward and well-explained. Working with Darrell was



a joy; he's a man from the field with down to earth and competent skills, able to explain everything I needed. I really enjoyed meeting 'Abel, the Superior Engine Build Man' who never tired of showing me how it is done by a man who builds an engine a day! Everybody, without exception, was interested in what we do in Africa, aeroplanes and training people to fly, and everybody encouraged me and consequently my team."

Porter came to Superior after a trip to Missouri, where he took a factory tour of the Zenair plant.

He plans to order more, but this first CH801 / XP360 will be his showpiece and workhorse, once he gets it flying in October. He plans to assemble a lot of in-flight data. "We expect to fit the Dynon EFIS. We will add lots of sensors and then install a pseudo-real-time telemetry system to track the aircraft and its parameters in flight. [In flight] we can use CDMA to transmit packets over the TCPIP protocols over the mobile phone network to a server which we can then monitor. We are developing the software ourselves (I have a background in Robotics) and will have it working next year."

Of all the cool high-tech things this robotics engineer learned at the Build School, he really loved "The silk thread gasket for the crankcase. You have to see it to believe it; I can't wait to build another engine just to do the silk thread bit!" Building the engine also gives him an edge back home, not just when he's doing routine maintenance, or even troubleshooting, but also when flying. "The closest thing that man has come to creating a lifeform is the aeroplane. All aeroplanes have personalities and come alive when their hearts start to beat as the pistons in that heart pound up and down and the lifeblood of the fuel flows along the lines through the lungs of the carburetor to be oxygenated before they enter the combustion chamber and then the heavy hot breath of the exhaust pumps out through the muffler with wisps of smoke like an athlete jogging along on a frosty morning - our engines keep us alive in our creations... For the bigger aircraft the Superior is the kiddie and I look forward to seeing a fleet of Superior powered CH801 aircraft in the coming years."

OK - but in a practical sense? "Not a day goes by without talk of engines in our house - whether from our son Matthew who runs a research farm, or one of the girls that we are teaching to build aircraft, engineers from Ghana Civil Aviation Authority,



missionaries looking for an engine solution or another group of school children having an educational visit (which we love). I talk about Rotax and Superior engines EVERY DAY - and what I learnt on the course enables me to speak with confidence, accurately and reliably about the bigger engines. A friend asked me if it was the course that was "Superior' or the engine. Clearly it is both!"

He summed up: "[Pilots] are always trying to be in tune with the man-machine interface to ensure that our reliance, especially over the hostile terrain that we so often encounter in West Africa, is treated with respect and care to provide long life. The course at Superior taught me specifically about the Superior 'heart' so that I can treat it correctly, not only to protect the lives of the pilot and passengers but to be pivotal in the development of flying doctor services, emergency relief and evacuation missions that will save many more lives in years to come."

Do It.

Asked what advice he would give a friend, regarding building his own engine at the Superior Build School, Jonathan emphatically replied, "DO IT! If you are building an aircraft that needs an engine of this size and you want something that you can rely on through proper care and understanding, failure to go to the build school should be a crime! Nobody lets a doctor examine them without the doctor first going to school - as a pilot and aircraft builder we have the responsibility of the lives of those who fly in and under (as in on the ground) our aircraft - this Build School is a brilliant concept for all homebuilders! Seriously, if you do not do this you will regret it - and it could save your life!



Photography by Marcel Stieber; Working on the HTS

Superior always wants to know what could make the school experience better, and Jonathan's advice was, "I would like there to be a list of 'extras' needed - alternator, belts, radiators, exhaust systems, etc., that would make it easier to work out the balance of parts." [Good news: Superior will work with anyone who has a special mission, to develop just such a list.]

We plan to send two of our Ghanaian girls who are training as Aircraft Technicians to Superior in 2010 to do the build school - building another engine or two for medical aviation aircraft in West Africa - Africans building aircraft and their engines in order to train Africans to fly and to improve the lives of and save the lives of Africans - now *that* is development. [Note: Jonathan wanted us to add that people interested in making donations to or volunteering to help Medicine on the Move for the support of medical aviation developments in West Africa should contact Elizabeth at ep@medicineonthemove.org.]



Photography by Marcel Stieber; The African girls from Left to Right: Patricia, Jennifer, Rosina

[Editor's note: Usually, I get a kick out of writing these articles, but Jonathan did such a wonderful job of describing his experience, that I hesitated to add anything but the merest thread, to weave it all together. Thank you, Jonathan - you made my job easy! - Tim Kern]