

NFTC operates 18 Hawks on behalf of the Royal Canadian Air Force for advanced flying training and fighter lead-in training.



Above: Eight students from class 1403 pose with flight instructors after their graduation flight during the author's visit.

Training NATO's finest

Dirk Jan de Ridder visits NATO Flying Training in Canada, where military pilots from around the world are trained.

The sun rises at 15 Wing Moose Jaw (formerly Canadian Forces Base Moose Jaw) as a Hungarian instructor and his Canadian student walk to their Harvard II, soon followed by two Singaporean trainees for solo flights on the Hawk. The first few of around 100 sorties to take place every single day at NATO Flying Training in Canada (NFTC) are about to begin.

A lot has changed since Wing Commander Colonel Alex Day was trained here as a pilot. Colonel Day: "Twenty-five years ago, when I came through here, it was a completely military operation. We had our Tutor aircraft, military aircraft which we [only] use for the Snowbirds now, maintained by military technicians and the entire operation was supported by military people. That had the inefficiencies that any military unit conducting a training operation has, such as the increased overhead required to maintain the military people with their qualifications and skills. When the Tutor was retired as a training platform we partnered with Bombardier Military Aviation Training (BMAT) to create the NFTC construct. By centralising a lot of that service support function, they were able to find a lot of efficiencies that the military could not find. The base is pretty much the same and what we actually train the pilots to do hasn't changed too much. It really is the support construct [that makes the difference]."

Colonel Day continues: "The aircraft are great. I'm flying the Harvard and it's a great, high-performance airplane, but docile enough so that brand new students can be confident enough in operating it. I only got here

last summer, so I haven't completed the flying instructors course yet, but I hope I can find enough time to get that done. It's a simple airplane to start, but it's got some advanced features on it that allows the new concepts that we want to teach pilots. The Hawk is really well suited as a lead-in fighter [trainer] between the Harvard and our fighter world. It's got advanced performance in comparison to the Harvard, not as capable obviously as the F-18, and again it's a good airplane. It serves us well. The Bombardier team does an excellent job providing the resources on a daily basis."

NFTC

Launched in 2000, NATO Flying Training in Canada (NFTC) became one of the first military pilot training facilities to be outsourced. Bombardier became the main contractor and it currently has approximately 200 civilian employees supporting basic flying training, advanced flying training and lead-in fighter training. The latter takes place at Cold Lake, Alberta, but falls under 15 Wing command. NFTC offers NATO air forces and its allies the opportunity to train their student pilots with modern aircraft at a state-of-the-art facility, perfect flying weather and over 700,000 square kilometers of air space at both locations combined.

Trainees arrive at Moose Jaw after completing basic military training and primary pilot training which, in the case of Canadian students, takes place at Portage la Prairie, Manitoba, with the 3 Canadian Forces Flying Training School (3CFFTS), another element of 15 Wing. 3 CFFTS is run by the KF Defence Programs and is

also responsible for multi-engine and helicopter pilot training.

Structure

Responsibilities are clearly divided between the Royal Canadian Air Force (RCAF), the main contractor and participating air forces. The aircraft are owned by an independent non-profit organisation and leased to BMAT on behalf of the Canadian Department of National Defence. Peter Boniface, general manager of BMAT: "Bombardier Military Aviation Training takes care of providing the aircraft, ground operations of the aircraft, facilities, food services, fixed training devices and instructors. We

develop and deliver the ground-based instruction. We look after the runways and the security of the base. Pretty much we do everything, with the exception of some key support services like the military flight instructors and air traffic control. Although we provide all of these services for the Canadian military, they are responsible for ensuring the quality of the services provided. They manage the operations, so they determine how many pilots they are going to train, how often they are going to fly during the day, so they have that operational control of the program." Participating countries form part of the international program

management and are responsible for quality control and providing trainees as well as instructor pilots. Peter Boniface: "The contracts vary depending on what the country is asking for. Some of them will come in for a short period of time, that could be two or three years. It is different for each individual country. The only foreign students that we have at the moment are the Singaporeans and a few Hungarians, but historically we have had students from multiple other countries. Within the contract [with the Canadian Department of Defence] it is defined how many pilots will go through the program on a yearly basis. Most of the time all slots are filled, but not always, due to failure to graduate and that sort of thing, but we have flexibility for additional flying."

Many NATO countries send their pilots to Euro-NATO Joint Jet Pilot Training (ENJJPT) at Sheppard AFB, but NFTC has had a different approach from the start, as Colonel Day explains: "When we established the program here, we did have a lot of input and participation from other nations and we wanted to make sure we captured as much of their desires and wishes as possible. We took that and we made sure that those were all incorporated into the syllabus, so that we could provide the pilots what NATO and other partners desired. At ENJJPT they've taken a mostly USAF training program and they've invited other nations to participate in it. The big benefit [of NFTC] is being able to incorporate the desires of our partners."

Apart from Canada, countries to have used the program comprise Austria, Denmark, Hungary, Italy, Saudi Arabia, Singapore, the United Arab Emirates and the United Kingdom. The nature of NFTC allows countries to train their future pilots without having to acquire (additional) training aircraft themselves or worry about support personnel or aircraft maintenance. They simply pay for the amount of students being trained. A great concept in times of shrinking European defence

budgets, one would think, but the amount of foreign students has decreased over recent years. Colonel Day: "We have definitely seen decreases over the past four, five years as country's defence budgets shrink. We will have to see if this is going to be a long-term trend or if things turn around as economies hopefully start to expand again. It is hard to say, but we continue on and we deal with those countries on an individual basis to make sure we can provide them the quantity and quality of training they desire. Right now, Canada has taken advantage of the fact that there has been a reduction from other countries, by expanding our own pilot throughput. That may last another few years. There is obviously room in the program itself for other countries to come in. [The program] is expandable, so if a country comes in and we determine that the program needs additional instructor pilots, there is a formula that for every x number of students we need them to provide y number of instructor pilots."

CT-156 Harvard

NFTC received 26 T-6A Texan IIs, designated CT-156 Harvard II in Canadian service, by 2002 of which 23 remain in service. Students log their first flight in the CT-156 after a 10 week flight training course. This is the start of Phase II flying training, that must be successfully completed by all students, regardless of their future airframe. Phase II consists of four sub-phases: clearhood (basic flying), instrument flying, low-level navigation and two-ship formation flying. Students must complete clearhood and basic instrument flying before completing Phase II with enroute instrument, low-level navigation and formation flight training. Previously, each flight was scripted, but the sub-phases are now divided into blocks, enabling students to carry out the type of training that best suits them and the weather conditions. Captain Chris Fukushima, a former Sea King helicopter pilot with 600 hours of instruction on the



Top: A Hungarian Air Force flying instructor prepares his aircraft for a solo flight.

Middle: A Canadian instructor pilot straps in, only moments before his students will start the engine.

Left: Harvard and Hawk operations are supported by civilian ground personnel.



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*A student and his instructor
take off from Moose Jaw
in a CT-156 Harvard II.*





Students flying the Hawk spend more time flying formations and formation aerobatics with two and four aircraft.

Harvard explains: "We expect them [the students] to come up with a plan that makes sense for the training and the more they progress through training we expect them to make better plans. However, the instructor will of course make their plans fit what he needs from them. We operate in what is called a block program, meaning that you have a certain number of flights to get to a certain level on a number of manoeuvres. So as opposed to having to do manoeuvres A to Z on every flight, instructors now have the latitude to focus on specific manoeuvres."

Students are expected to know the parameters of each manoeuvre before starting a flying phase. Everything is taught in ground school and explained in the simulator before taking

to the air. Flight instructors confirm a student's knowledge during pre-flight briefings before explaining how to carry it out and demonstrating it in flight. Students must then replicate the manoeuvre. The instructor then offers his critique and explains how to improve the manoeuvre. This training method is called EDIC, which stands for explain-demonstrate-imitate-critique. Every flight and every ride in the simulator are graded, but their progress through each block is what will eventually earn them their wings.

The first navigation missions take place in the training area, before flying to regional airports for actual instrument procedure experience. Low-level visual navigation sorties are flown at

500 feet and students must meet a Time On Target (TOT) to simulate a tactical environment. Students are paired for the final phase, formation flying, during which they learn to maintain a position of approximately 10 feet. An instructor previously acted as the formation leader, but students now plan and fly the entire mission. They lead half of the mission and are the wingman during the other half. Snappers, members of the standards flight, assess every student in flight at the end of each phase. Students then fly as if they fly solo without a back-seater and the snapper only intervenes whenever really necessary. Students are assessed on their flying performance, academic results and officer development.

Students fly about 95 hours

on the CT-156, before they are streamed into fighter, helicopter or multi-engine pilot training. Pilots going to the helicopter or multi-engine community then continue their training with 3 CFFTS at Portage la Prairie. Only future jet pilots and first-tour instructors continue their training at Moose Jaw. They fly more hours in the Harvard during Phase III training, before flying the Hawk. This phase include 'fighter jet specific' elements like maximum performance turns, formation aerobatics and integrating GPS into low-level flying.

CT-156 Hawk

NFTC operates 18 Hawk Mk115s, designated as CT-155. They all belong to 15 Wing, but about half of them are permanently

located at CFB Cold Lake for lead-in fighter training. Most students will continue the course coming from the Harvard, but individual countries can also have their students enter training in phase IV. The Singaporeans, for example, fly the PC-21 in Australia before flying the Hawk in Canada. Several countries, including Hungary which trains its helicopter and multi-engine pilots domestically, send their students to NFTC specifically in order for them to become jet pilots.

A Hungarian instructor, who was trained at NFTC, then flew the L-39 Albatros and MiG-29 Fulcrum before returning to Moose Jaw as a qualified flying instructor on the Hawk in 2011, explains what progress students are expected to make: "When they come to the Hawk, they have already received their wings on the Harvard, which means that we expect more from them. We

are not holding their hands. They have to come up with sequences and mission profiles for every mission. They know what to do and they have to come prepared to the pre-flight briefing. During the formation phase two students are paired up. They plan and fly their sorties together. There is [only] one mission in that phase when the student is flying solo as a wingman and there is an instructor in the lead aircraft."

Instructors get to fly more than in most operational squadrons, but they also have to maintain their currencies flying without students. He continues: "As instructors we have specific hours we have to fly on our own, just to keep up our currency. In order to make sure that we are proficient enough the system is quite hard on this. When we fly our own proficiency missions, we practice instructions as well as other required stuff which encompasses more than

what we present to the students. To be familiar with the aircraft and familiar with instructing it is actually a higher level of training [than the students receive], just to provide better quality training to the students. While the students are evaluated by our standards flight, instructors are evaluated by 15 Wing standards controlled by 2 Division in Winnipeg."

The Hawk flying phase at Moose Jaw is like a basic conversion course from the Harvard to the Hawk. Students learn how to fly the aircraft at Moose Jaw, while at Cold Lake they learn how to fight the aircraft. With five air-to-air ranges and a shooting range covering 10,000 square kilometers, no place is better suited for Fighter Lead-In Training (FLIT) than CFB Cold Lake. FLIT starts with offensive and defensive basic fighter manoeuvres, before another element is integrated for 2-vs-1 and 1-vs-2 air combat manoeuvring, as well as working with ground control intercept operators. Some low-level refreshment then introduces the air-to-ground phase. Actual training bombs aren't dropped from the Hawk, but its onboard avionics perfectly simulate this. An ACMI (air combat manoeuvring instrumentation) pod mounted on the wingtip records all flight characteristics and tactical data enabling students to debrief their missions into the smallest details. After successfully completing some 120 flight hours on the Hawk, students will have completed their training at NFTC and they are ready to start flying real fighter jets.

NFTC Sold

After a failed attempt to dispose of the program in 2003, Bombardier announced in early 2015 that it would sell its military training unit which includes the NFTC program, to CAE, a Canadian maker of flight simulators. Peter Boniface: "Bombardier has determined that military flying training is not our key business. The key business is building, manufacturing and supplying support services of civilian aircraft. They have made the determination to divest the Bombardier Military Aviation Training division. At this point in time there is a definitive agreement that has been signed with CAE. CAE will buy the business as a unit and that includes all the personnel. There is no indication that anything will change." •



Above: A Hawk taxiing back after a regular 1.5 hour training.

Top: The Hawk course includes formation take-offs with up to three aircraft.