





EURO-NATO JOINT JET PILOT TRAINING: A VIABLE FUTURE-FLIT CANDIDATE

Major Philippe Turcotte

JCSP 47

Service Paper

Disclaimer

Opinions expressed remain those of the author and do not represent Department of National Defence or Canadian Forces policy. This paper may not be used without written permission.

© Her Majesty the Queen in Right of Canada, as represented by the Minister of National Defence, 2021.

PCEMI 47

Étude militaire

Avertissement

Les opinons exprimées n'engagent que leurs auteurs et ne reflètent aucunement des politiques du Ministère de la Défense nationale ou des Forces canadiennes. Ce papier ne peut être reproduit sans autorisation écrite.

© Sa Majesté la Reine du Chef du Canada, représentée par le ministre de la Défense nationale, 2021.

Canada

CANADIAN FORCES COLLEGE - COLLÈGE DES FORCES CANADIENNES

JCSP 47 - PCEMI 47 2020 - 2021

SERVICE PAPER – ÉTUDE MILITAIRE

EURO-NATO JOINT JET PILOT TRAINING: A VIABLE FUTURE-FLIT CANDIDATE

By Major Philippe Turcotte

"This paper was written by a candidate" attending the Canadian Forces College in fulfillment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied, except with the express permission of the Canadian Department of National Defence."

Word Count: 2,397

« La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le *ministère de la Défense nationale du* Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale. »

Nombre de mots : 2.397

EURO-NATO JOINT JET PILOT TRAINING: A VIABLE FUTURE-FLIT CANDIDATE

AIM

1. In less than four years, the NATO Flying in Canada (NFTC) Fighter Lead-In Training (FLIT) program will come to an end with the retirement of the CT-155 Hawk jet training aircraft in March 2024. To maintain the production of ab initio fighter pilot, the Royal Canadian Air Force (RCAF) will increase its participation in the Euro-NATO Joint Jet Pilot Training (ENJJPT) program to bridge the resulting capability gap until the Future-FLIT (FFLIT) option is selected and tentatively reaches Full Operational Capability (FOC) in 2030. The aim of this service paper is to offer recommendations to the RCAF Chief Fighter Capability and present the use of ENJJPT as the preferred FFLIT option. The selection of the T-7 aircraft and Advanced Training System by the United States Air Force (USAF), the maintenance of an organic FLIT capability within the RCAF, the cost benefits, the reliability and the flexibility provided by the ENJJPT program makes this course of action the best FFLIT option.

INTRODUCTION

2. In the RCAF, a CF-18 pilot trainee needs to complete four phases of training. Phase I, Portage-La-Prairie, Manitoba, is a selection phase on the Grob piston-engine trainer. Following this phase, student proceed to Moose Jaw, Saskatchewan, to conduct NFTC Phase II and III on the CT-156 Harvard II. Upon successful completion of that training, jet pilot candidates will begin training on the CT-155 Hawk aircraft for NFTC Phase IV-Transition, where they will learn basic jet flying skills, before proceeding to Cold Lake, Alberta, to complete NFTC Phase IV, called FLIT, still flying the Hawk trainer.

3. The Department of National Defence (DND) has been using the NFTC program to conduct basic and advanced pilot training since 2001. The 20-year contract, valued originally at \$2.8 billion, increased to \$3.4 billion, then further to \$4.2 billion during the first few years due to more foreign nations joining the program and different contractual adjustments. The FLIT portion of the contract accounts for approximately 50% of this cost.¹ NFTC was designed to work in a comparable way as ENJJPT and required foreign participation to be viable. Unfortunately, the contract showed multiple flaws as highlighted by the Auditor General of Canada audit in 2006.² The main issue was lack of performance measures and high fix cost for Canada. As the year progressed, all international partners except Hungary migrated their training to ENJJPT. The NFTC program proved to be unreliable for those nations due to excessive weather impact on flying operation and various other flawed assumptions (available training days, instructor-student ratio,

¹ P. A. Rennison et al., "Strategic Context Document: Future Fighter Lead-In Training," Treasury Board of Canada Secretariat (Ottawa, Canada: Government of Canada, September 3, 2019).

² Office of the Auditor General of Canada Government of Canada, "Chapter 3—National Defence— NATO Flying Training in Canada," Canada.Ca, May 1, 2006, https://www.oag-

simulator utilization rate).³ The extended course duration created a ripple effect on followon training timeline. Some NATO partners rely on US foreign military sales training for their operational training and could not afford to lose cockpits. Denmark, United Kingdom, and Italy are a few of the countries that abandoned NFTC, now relying on ENJJPT to meet their FLIT requirements.

4. ENJJPT is a multi-national pilot training program, specifically designed to produce fighter pilots for the NATO alliance. The program, created in 1978, is hosted by the United States Air Force (USAF) and is located at Sheppard Air Force Base (AFB), Texas.⁴ There are currently 14 NATO countries participating in the program, almost all of which are sending both student pilots (SP) and instructor pilots (IP) to conduct Undergraduate Pilot Training (UPT) (Phase II-III), and Introduction to Fighter Fundamental (IFF) (Phase IV) training. The RCAF has been sending two SP to ENJJPT since 2010, completing the equivalent of NFTC Phase III, IV-Transition, and IV (FLIT). RCAF participation into the ENJJPT program has steadily increased since 2016 to reach 6 SP annually. There will also be a total of 5 RCAF instructor pilots (IP) in 2021. To meet the Fighter Force (FF) requirement of 18 candidates per year, the participation will incrementally increase to reach 12 SP and 9 IP by 2026, with the option to increase to a total of 18 SP by 2029, and the required increase in IP as per the ENJJPT manning formula (approximately 14 IP).

5. Having been a flight commander at NFTC from 2013 to 2016, and the Canadian Senior National Representative (SNR) at ENJJPT from 2016 to 2020, observations made in this paper reflect the experience and knowledge acquired while occupying these positions. The analysis is also based on my experience as a CF-18 pilot, and T-38C instructor pilot.

DISCUSSION

Advanced Pilot Training – T-7A

6. The USAF has selected the Boeing T-7A Red Hawk trainer as its next generation training aircraft following the T-X competition. It will replace the 60-year-old T-38C Talon fleet. The contract, valued at 9.2 billion US dollars, includes the purchase of 351 aircrafts, as well as the associated ground-based training system (GBTS).⁵ The Advanced Pilot Training (APT) system will be specifically geared towards the student progressing to next-generation fighters like the F-35, which 7 ENJJPT nations have already purchased. To that extend, Air Education and Training Command (AETC) is concurrently developing the Pilot Training 2.5 syllabus, evolving the training methodology towards competency-based

³ J. Clow and Canadian Forces College, "RCAF Pilot Training and ASD: Assessing and Improving a Dysfunctional Paradigm for the Future" (Canadian Forces College, 2015), 31, https://www.cfc.forces.gc.ca/papers/csc/csc37/mds/clow.pdf.

⁴ SAFB PA, "Euro-NATO Joint Jet Pilot Training Program (ENJJPT)," Sheppard Air Force Base, October 17, 2012, https://www.sheppard.af.mil/Library/Fact-Sheets/Display/Article/367537/euro-natojoint-jet-pilot-training-program-enjjpt/.

⁵ Loren Thompson, "Why Boeing's T-7 Red Hawk Trainer Is Shaping Up To Be A Breakthrough Success For The U.S. Air Force," Forbes, February 13, 2020,

https://www.forbes.com/sites/lorenthompson/2020/02/13/why-boeings-t-7-red-hawk-trainer-is-shaping-up-to-be-a-breakthrough-success-for-the-us-air-force/.

proficiency and exploit the integrated capabilities of the T-7A training eco-system. This syllabus will seek to download training from the operational aircraft, greatly reducing the number of flying hours required at the Operational Training Unit (OTU).

7. The US Secretary of the AF (SECAF) has confirmed that Randolph AFB, Texas, will be the first AETC establishment to receive the trainer in 2023 and they plan Initial Operating Capability (IOC) at the end of 2024 with 25 aircrafts. Delivery rate will then increase and the next AETC base should take delivery of the trainer in 2028. The remaining 3 bases will receive the T-7A between 2029 and 2031, reaching Full Operational Capability in $2034.^{6}$

8. The bed down order (except for Randolph AFB), has not been confirmed by the SECAF yet, and it is unknown when Sheppard AFB (ENJJPT) will receive the aircraft. In the worst case, it would be receiving the aircraft last, but the delivery rate would then be at the highest level and implementation would be rapid. ENJJPT is planning to receive a total of 108 aircrafts, where 43 will be used for the FLIT equivalent IFF course. To increase student throughput and take advantage in the advanced simulation capabilities, the number of simulators will be increased by 6, reaching a total of 16 aircrew training devices.⁷

Organic RCAF FFLIT capability

9. Using ENJJPT to conduct FFLIT would still represent an organic capability, although not located in Canada. ENJJPT is a cooperative program where the US acts as the host and is regulated through a memorandum of understanding between the participant's ministry of defence. The RCAF would be required to send the number of IP commensurate with the number of SP committed to the program. Approximately 20 pilots would be required to meet the manning mandate. This number, comparable to the current size of 419 Squadron, would contribute to maintain the core capability of training FLIT candidates within the RCAF. Each nations' instructors are normally assigned to squadron where they have their own students. This allows the nations to teach, mentor, and supervise their students throughout the training at ENJJPT.

10. The RCAF can also ensure its training objectives are met since all student-sending nation "jointly develop course training standards, training syllabi, and training programs."⁸ The ENJJPT Wing, in conjunction with all the SNR, annually reviews and makes modification to training syllabus to ensure every participating-nation training requirements are met. The program offers a track system that provides flexibility and cost saving measures for nations that do not require some parts of the training. For instance, students redirected to multi-engine aircraft will not fly the 4-ship formation phase and some other advanced formation sorties, avoiding unnecessary training cost. In the FLIT/IFF phase, there are different tracks for air-to-air, air-to-ground, and multi-role trainees. There is also

⁶ Jim Pillar, "ENJJPT Steering Committee 80 - T-7A/T-38C Status Update," HQ AETC (Texas, USA: Department of the Air Force, August 16, 2020).

⁷ Ibid.

⁸ "Euro-NATO Joint Jet Pilot Training Memorandum of Understanding" (Texas, USA: ENJJPT, December 28, 2015), 4.

a track being developed specifically geared towards candidates that will move on to the F-35, ensuring that training is maximized and tailored to that community.

11. The RCAF currently has one exchange pilot assigned to the pilot instructor training squadron at Randolph AFB, flying the T-6 aircraft. Since Randolph AFB is the selected initial location for the T-7A, the RCAF could leverage this position and seek the possibility of participating in the development and implementation of the APT system. This pilot could provide valuable inputs and early lessons learned to the FFLIT project team. This would require minimal coordination since this position is currently filled with an experienced RCAF IP and could be implemented in the short term.

Cost benefits of ENJJPT

12. The main benefit of using ENJJPT for FFLIT is cost related. The largest cost associated with flying training is the aircraft itself. Using ENJJPT would alleviate this aspect with the USAF supporting the capital expenditure of the aircraft. The NFTC contract has shown that the largest Canadian expense was causally related to the payment of the aircraft. The infrastructure required to sustain the associated jet training fleet would also be significant.

13. The cost of tuition at ENJJPT is approximately \$1.1 million USD (\$1.5 million CAD). The lack of up-front capital expenditure is compensated by an attrition charge that is calculated and included in the aforementioned tuition cost. Germany and the US are currently the owners of the T-38 used at ENJJPT. "The attrition charge is 4% for Germany and 1% for the host [US]."⁹ The German portion of the charge will not be carried once all the German's T-38 are divested. They currently own approximately a quarter of the ENJJPT T-38 fleet.

14. The concept of shared cost at ENJJPT has the benefit of also splitting the risk associated with aircraft operation and management. Users are first charged the flying hours that their students and instructors have flown. ¹⁰ To that is added the shared portion of the fix cost (building maintenance, aircraft modifications and upgrades). This part of the cost is proportional to the number of students committed into the program for the FY being charged. If student commitment is planned and managed according to the ENJJPT Plan of Operation, the RCAF can increase or reduce the number of students it sends to the program and be charged only for that number of students.

15. There are two other cost to add to the tuition if selecting ENJJPT as the FFLIT location. The first one is the cost of temporary duty for the 10-month duration of the course, which is estimated to be approximately \$500,000 for twelve students. On a per student cost, this is not significant. Since most of the cost is due to meals, there could be additional research made to seek alternate feeding solutions. Although food service is provided on base, the accessibility for student has been difficult due to the flying schedule often conflicting with set mealtimes. Online meal preparation and delivery service could be an

⁹ Ibid., 7.

¹⁰ For IP, only hours flown for continuation training and proficiency are accounted. Hours flown in the instructor role are charged to the country of the student being trained.

option to reduce this cost. The tuition includes the cost of accommodation while the students are on course.

16. The second is the extra cost related to the instructors outside-Canada posting. As per the National Joint Council Foreign Service Directive, different allowances compensate the member for his service in a foreign nation as well as the increased cost of living. This amounts to approximately \$4,000 per month per instructor, including the rent and utility assistance¹¹. It is comparable to the cost of temporary duties for the students. It fluctuates slightly but has historically decreased. Relocation cost follows the same policy as domestic moves and does not represent an additional cost.

Program Reliability and flexibility

17. The ENJJPT program has proven to be exceptionally reliable throughout its operation by meeting graduation timeline consistently since its creation. The infrastructure, maintenance contract, and favorable weather have enabled the program to be efficient and delivers a winged pilot in 55 weeks. An additional 11 weeks renders a FLIT graduate, ready to start training at the OTU. At NFTC, this same timeframe produces a winged-pilot, with approximately 8-12 months of training remaining to complete Phase IV-Transition and Phase IV. This timeline could be improved slightly but only if the aircraft chosen for Future Aircrew Training is able to operate in icing conditions.

18. The ENJJPT program has also proven to be flexible. The RCAF rapidly leverage its capacity as demonstrated by the surge in RCAF students sent to Texas in 2011-2012 following the Hawk engine problems. Between 2016 and 2020, the RCAF has been able to adjust its participation between 2 and 6 SP without significant cost implications. The ENJJPT Plan of Operation allows nations to change commitment without financial implication if done 12 months ahead (24-months for direct entry into Phase III). Inside this timeframe, nations can exchange or sell committed entries to nations that require them. The RCAF has leverage this capability numerous times, adjusting to the OTU absorption rate and fighter force requirements.

CONCLUSION

19. With the current delays in its major aircraft and training projects, the RCAF will face staffing challenges to meet critical decision and execution points. The establishment of a larger footprint at ENJJPT during the bridge period will set the stage for a seamless transition to FFLIT. ENJJPT has proven to be reliable and cost effective at providing high quality pilot graduate. The Advanced Pilot Training system and the T-7A Red Hawk will be at the forefront of innovation and technology, further increasing the integration with Canada's future fifth-generation fighter. In the end, the RCAF will continue to directly train its future fighter pilots while building and strengthening partnership with its NATO allies.

¹¹ National Joint Council, "Foreign Service Directives : April 1, 2019," April 1, 2019, https://www.njc-cnm.gc.ca/directive/fsd-dse/index-eng.php.

20. There are numerous interactions between the various projects that have not been explored but the selection of ENJJPT for FFLIT could impact the choice of aircraft required for the RCAF basic flying training phase. On the other end, if the RCAF selects a basic training system that incorporate aspect of FLIT, it may negate the benefits of the ENJJPT option. The economic impact on Canadian industries should be further considered and evaluated as well.

RECOMMENDATIONS

- 21. The following recommendations are offered:
 - a. Consider the use of ENJJPT has a viable FFLIT option;

b. Communicate intent with ENJJPT Steering Committee, 19th Air Force and AETC on the RCAF intent to significantly increase ENJJPT footprint. There may be additional advantages to become a major partner in the future of ENJJPT and APT;

c. Participate in the USAF development of the T-7 UPT and IFF syllabus by leveraging current Randolph AFB exchange position. Whichever the selected course of action, participating in this state-of-the-art project at the developmental stage may be valuable to the RCAF FFLIT program.

BIBLIOGRAPHY

- Clow, J., and Canadian Forces College. "RCAF Pilot Training and ASD: Assessing and Improving a Dysfunctional Paradigm for the Future." Canadian Forces College, 2015. https://www.cfc.forces.gc.ca/papers/csc/csc37/mds/clow.pdf.
- Government of Canada, Office of the Auditor General of Canada. "Chapter 3—National Defence—NATO Flying Training in Canada." Canada.Ca, May 1, 2006. https://www.oag-bvg.gc.ca/internet/English/parl_oag_200605_03_e_14960.html.
- National Joint Council. "Foreign Service Directives : April 1, 2019," April 1, 2019. https://www.njc-cnm.gc.ca/directive/fsd-dse/index-eng.php. "Euro-NATO Joint Jet Pilot Training Memorandum of Understanding." Texas, USA: ENJJPT, December 28, 2015.
- Pillar, Jim. "ENJJPT Steering Committee 80 T-7A/T-38C Status Update." HQ AETC. Texas, USA: Department of the Air Force, August 16, 2020.
- Rennison, P. A., M. Lalumiere, P. T. Finn, and A. D. Meinzinger. "Strategic Context Document : Future Fighter Lead-In Training." Treasury Board of Canada Secretariat. Ottawa, Canada: Government of Canada, September 3, 2019.
- Sheppard Air Force Base Public-Affair. "Euro-NATO Joint Jet Pilot Training Program (ENJJPT)." Sheppard Air Force Base, October 17, 2012. https://www.sheppard.af.mil/Library/Fact-Sheets/Display/Article/367537/euronato-joint-jet-pilot-training-program-enjjpt/.
- Thompson, Loren. "Why Boeing's T-7 Red Hawk Trainer Is Shaping Up To Be A Breakthrough Success For The U.S. Air Force." Forbes, February 13, 2020. https://www.forbes.com/sites/lorenthompson/2020/02/13/why-boeings-t-7-redhawk-trainer-is-shaping-up-to-be-a-breakthrough-success-for-the-us-air-force/.