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THE BENEFITS OF ADDING AN AIR OPERATIONS OFFICER TO CH-148 CYCLONE HELICOPTER AIR DETACHMENTS

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Service Paper

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AIM

1. The aim of this service paper is to inform the Commander of 1 Canadian Air Division of the benefits that adding an Air Operations Officer (AOO) to an embarked CH-148 Cyclone (Cyclone) Helicopter Air Detachment (HELAIRDET) will have on operational effectiveness. Due to safety limitations imposed by maximum crew days, HELAIRDET aircrew often do not have enough time in them to operate the aircraft, process the collected data and contribute to the routine administrative tasks required as a department on one of His Majesty's Canadian Ships (HMCS). An embedded AOO would focus specifically on the equally important ship-based responsibilities of the HELAIRDET, maximizing the use of the Cyclone and optimizing the time of the aircrew.

INTRODUCTION

2. HELAIRDET staffing differs from sail to sail, depending on the aim of the training or operational mission and availability of personnel space (bunking) on the ship. For example, on a force generation sail, a HELAIRDET may bring extra pilots to maximize training opportunities, but these bunks might not be available on a force employment sail if the deploying ship is required to embark additional crew members such as lawyers, intelligence officers or padres. There are, however, minimum staffing numbers based on historical precedence and earlier agreements between the Royal Canadian Air Force (RCAF) and the Royal Canadian Navy (RCN). These staffing structures are used as the baseline requirements when a ship needs to reallocate bunking between departments. In most circumstances, a HELAIRDET sails with eight aircrew (four pilots, two air combat systems officers (ACSO) and two Aerospace Electronic Sensor Operators (AesOp)) and 12 technicians, for a total of 20 personnel.[1] This breakdown includes two flying crews, one of which includes the HELAIRDET Commander (Det Comd), and an assortment of technicians capable of conducting all first line maintenance and any associated technical administrative work. The mandate for the HELAIRDET is to support flying operations up to 12 hours per day, which is a cycle limited by workday restrictions imposed on aircrew.[2] This 12-hour day does not account for any of the pre and post flight requirements such as briefings, post mission analysis of data, ship administration or follow-on mission planning. The challenge for crews is that these numbers are based on the operating tempo of the Cyclone's predecessor, the CH-124 Sea King, and do not account for the intricacies of the Cyclone such as extensive data analysis or mission archiving.

3. This paper explores how the addition of an AOO to a HELAIRDET is a solution that not only increases operational effectiveness of the embarked HELAIRDET, but also

[1] Canada. Department of National Defence. 'CH148 Master Implementation Plan Version 3' (Commander 1 Canadian Air Division, August 2017), 14; CH148 SAMA, 'CH148 Fleet Employment and Training Plan' (1 Canadian Air Division A4 Maintenance, February 2019), 21.

[2] Canada. Department of National Defence. 'CH148 Master Implementation Plan Version 3', 14.

meets the intent of RCAF and Canadian Armed Forces (CAF) directions related to data management practices. First, discussing the workload requirement for the Cyclone explains how aircrew are routinely unable to achieve all their tasks within their maximum permitted workday. Next, an overview of the benefits of adding an AOO to a HELAIRDET emphasizes the value of a non-flying HELAIRDET member. Finally, publication amendments are identified that will ensure that any potential decision is agreed to by all interested parties.

DISCUSSION

Crew Duty Day Limitations

4. The regulations governing maximum crew workdays and minimum crew rest prior to flight make it difficult for a HELAIRDET to optimize its effectiveness but are critically important to ensure safety during flight operations. At sea, aircrew are limited to 16 working hours in a 24-hour period and 42 working hours in a rolling 72-hour period, which mitigate acute and chronic fatigue when conducting flying operations.[3] In addition, there is a mandate for 12 hours of rest before flying, during which time aircrew cannot be involved in any work-related activities. This can be reduced if the Det Comd considers there to be a temporary necessity but that does not change the maximum number of hours aircrew can work in a 72-hour period.[4] Incorporating refueling and other between-flight servicing tasks, the two crews on a HELAIRDET can fly either three (3.3 hour) or four (2.5 hour) flights in a 12-hour flying day.[5] To minimize the potential impact that the crew day would have on following days there is limited time outside of this flying window to do additional work, such as planning future missions, interacting with other ship departments or processing data collected from the flights, all of which are critical to operations.

5. The HELAIRDET crew day is built around a flying window (flying program), which is not always in line with the routine schedule for the remainder of the ship's company. A common workday onboard HMC ships is 0900 until 1800 for everyone, with a reduced footprint of personnel after-hours. When the flying program occurs overnight for a mission or exercise, there could be extended periods of time where no HELAIRDET personnel are available to conduct planning or administrative duties. This has the largest impact for two members, the Det Comd and the Operations Officer (OpsO). The Det Comd is also the head of the Air Department on the ship and is responsible to the ship's Commanding Officer (CO) accordingly. It is not possible for the Det Comd to attend the CO's routine meetings when engaged in flying operations and even more impactful if the flying program is outside of the ship's standard workday. This results in delayed communication between the CO and the Det Comd, or the CO being woken up after hours to attend to HELAIRDET issues. The OpsO is a junior ACSO who negotiates the

[3] Commander 1 Canadian Air Division, 'Royal Canadian Air Force Flight Operations Manual', December 2023, 219.

[4] Commander 1 Canadian Air Division, 208.

[5] Matthew Dukowski, 'Addition of an Intelligence Operator on CH-148 Helicopter Air Detachments', 2022, 1.

HELAIRDET's plans with the ship. The inability to deconflict interdepartmental requirements could result in schedule incompatibilities for training or maintenance serials. If a problem arises outside of the aircrew duty day that requires deconfliction (e.g., a ship maintenance issue), the ship's planners must determine if the problem or flying is the priority without consulting the HELAIRDET.

6. While it could be argued that with two crews it is possible for one person to remove themself from flying when it is necessary to conduct administrative or planning, this is a bad practice as it puts additional strain on the remaining aircrew. For example, if the Det Comd removes themself from flying to participate in planning meetings, then the person of the same position on the other crew (pilot or ACSO) is required to fly with both crews. This means they are not able to participate in pre-flight briefings and they are at an increased risk of fatigue, which could impact the HELAIRDET's ability to sustain extended periods of this tempo. The same can be said for the OpsO and their need to plan the flying program and work with the other departments. What is of more concern for the OpsO, is that since they are the junior ACSO on the HELAIRDET, they should be focused on gaining experience in the aircraft to increase their qualifications and should not be removing themselves from the flying program due to conflicting requirements.

Effective Data Management

7. The Cyclone records mission data from its Mission Data Management System (MDMS) and can replay most of the recordings on its Mission Planning and Analysis System (MPAS). In addition to recording and replaying information, pertinent missions can be archived for further analysis at the Cyclone's main operating bases. These tasks are normally carried out by one of the ACSOs or AESOps; however, must also be conducted during the confines of the crew duty day. During busy flying programs, mission recordings are only saved if there is a significant event that meets triggering requirements to archive missions like a flight safety incident or contact with a vessel of interest.[6] In these circumstances, archiving data is an order and the task is prioritized accordingly. Other missions are generally deleted following a flight, along with any recorded details the crew may not have noticed. If the HELAIRDET had a crew member who specifically focused on ground responsibilities, it would enable the HELAIRDET to fully exploit their mission data, improving opportunities to collect intelligence or processing information that would be helpful to the crews on follow-on flights.

8. Failing to process recorded data and only archiving missions requested by orders not only means that crews are losing out on opportunities to improve their procedures while deployed but it is also counter to CAF and RCAF policies regarding data collection and dissemination. Defence Administrative Orders and Directives (DAODs) identify the need to leverage data to improve capabilities, including "at or near-real time."[7] By not

[6] 12 Wing Fleet Standards, 'Recording Requirements in Cyclone Operations', 9 June 2022, 1.

[7] Canada. Department of National Defence, 'DAOD 6500-0, Data Management and Alalytics', November 2011, http://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives/6000-series/6500/6500-0-data-management-and-analytics.html.

attempting to learn from each mission, crews are not maximizing their opportunity to benefit from the data they are collecting. Regarding data reporting, the DAODs also require that Level 1s establish an "access by default" culture, which requires an effective system of cataloging and pushing data for future use.[8] While the effectiveness of the HELAIRDET's current cataloging system is outside of the scope for this paper, employing a dedicated member to focus on post-mission activities is a necessary requirement to meeting this aim. Finally, the *Department of National Defence (DND)/CAF Data Strategy* is encouraging CAF members to improve their data literacy to understand how best to use collected data to its advantage.[9] The only way for the Maritime Helicopter community to establish this is to ensure that there is someone dedicated to processing and pushing collected data from the deployed HELAIRDET to the main operating base, and consequently pulling data that may be of use to the HELAIRDET from the main operating base.

The Benefits of the Air Operations Officer

9. The AOO trade was introduced to "professionalize the management of air and space operations, enhancing RCAF operational effectiveness at all levels."[10] It started with an initial cadre of members who transferred from other trades and now accepts direct entry officers. Their aim is to support members inside of the aircraft by specializing in areas outside of the aircraft, which could include shore or sea-based roles.[11] Adding an AOO to a HELAIRDET is both within the mandate of the trade and addresses all the previously identified challenges. Although there may be requirements for additional training at the Wing or Squadron level, as AOOs are not currently employed on HELAIRDETs, it is outside the scope of this paper.

10. As planning flight operations is one of their primary skillsets, the AOO would be employed as the HELAIRDET OpsO and could participate in planning meetings on behalf of the Det Comd when required.[12] AOOs are not limited by the same crew rest requirements as the aircrew. This means that they could follow the same schedule as the remainder of the ship's company or be available for questions as they arise. While this suggestion does not imply that an AOO does not need rest and recovery time, it does mean that if something was required after their working hours it would not impact the HELAIRDET's ability to conduct flying operations.

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[8] Canada. Department of National Defence, 'DAOD 6500-1, Data Access', January 2023, http:://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives/6000-series/6500/6500-1-data-access.html.

[9] Canada. Department of National Defence. *The Department of National Defence and Canadian Armed Forces Data Strategy*, 2019, 14.

[10] Canada. Department of National Defence, 'The RCAF Now Has Its First Air Operations Officers - RCAF PERSpectives - Royal Canadian Air Force', 19 April 2021, https://www.canada.ca/en/air-force/corporate/reports-publications/rcaf-perspectives/the-rcaf-now-has-its-first-air-operations-officers.html.

[11] 'Air Operations Officer | Canadian Armed Forces', accessed 7 February 2024, https://forces.ca/en/career/Air-Operations-Officer/.

[12] 'Air Operations Officer | Canadian Armed Forces'.

11. The AOO would also serve as the data management officer to enable the effective processing and dissemination of data following missions. In addition to processing post-flight data, the AOO will be able to gather any collection requests for the crews from the ship or other organizations. It is often difficult for aircrew to communicate new request during short breaks between flights. As a ship based OpsO, the AOO can collect any supporting information (e.g., imagery, positions, etc.) and communicate the requests to the crews as appropriate. As AOOs gain experience on HELAIRDETs they will be able to provide adequate lessons identified to improve the data collection processes, which is also required to enable the *DND/CAF Data Strategy*.

12. Deploying an extra member on a HELAIRDET is not a new idea. From the initial Cyclone deployment in 2018, Canadian Joint Operations Command (CJOC) has approved additional members to deploy in a mission support role.[13] Since then, that position has been filled when additional bunking is available onboard ships but has largely been used for creating force generation opportunities for junior aircrew.[14] While this may seem like a better option, as aircrew hold certain qualifications that AOOs do not, this is not the case. In this role, aircrew have competing priorities between their ship-based planning and analysis duties and the flying required to gain the experience needed to upgrade their qualifications. As aircrew, they still must adhere to crew day restrictions regardless of their primary duties. Employing an AOO is a better solution, as the stated support tasks are critical to flying operations and should not be suspended due to a busy or irregular flying program.

13. Adjusting HELAIRDET composition to adapt to new trades is not a new force employment concept. The minimum number of technicians required on a Sea King HELAIRDET was 11. Cyclone HELAIRDETs require 12 technicians, which now includes an Air Weapons Service Technician (AWS Tech).[15] Adding an additional technician did not add a new capability, as the AWS Tech's qualifications were previously held by existing technicians. The addition did have a positive impact that was unrelated to qualifications. The extra technician increased the availability of personnel for in-flight servicing, resulting in an improved maintenance cycle onboard ships that could support two 12-hour shifts. There are likely to be similar tangential benefits of adding an AOO. Crews will be able to focus on flying duties and building experience instead of focusing on planning requirements. For a fleet with only five years of operational experience, every lesson identified from embarked crews is important.

Updating Publications and Agreements

14. Establishing an AOO on HELAIRDETs requires updated documentation between the RCAF and the RCN. To ensure that all required parties understand and agree to this change, two documents need to be updated: the *Maritime Helicopter Force Employment*

[13] Matthew Dukowski, 'Addition of an Intelligence Operator on CH-148 Helicopter Air Detachments', 1.

[14] For Op REASSURANCE in 2022, the author's HELAIRDET brought an extra TACCO in order to meet critical force generation demands.

[15] CH148 SAMA, 'CH148 Fleet Employment and Training Plan', 12.

Concept (FEC) and the *CH148 Cyclone Master Implementation Plan (MIP)*. The *FEC* identifies the expected roles of personnel on an embarked HELAIRDET, and the *MIP* is the agreed to plan between the RCAF and the RCN. It should also be noted that the current *MIP* does not identify 12 technicians as required for Cyclone operations, however this has been standard practice amongst all Cyclone HELAIRDETs.

CONCLUSION

15. The Royal Canadian Navy is in the process of building new ships and the CH-148 Cyclone is the primary air asset incorporated into their planning. It is important to understand how the current HELAIRDET staffing structure is limiting the operational effectiveness of the Cyclone and the potential benefits that embarking an Air Operations Officers would bring. HELAIRDETs often sacrifice or rush important ship-based tasks to meet extensive or irregular flying programs, due to the restrictions imposed on them by regulations that are critical for flight safety. Adding an Air Operations Officer to a HELAIRDET is not only an effective way of resolving these limitations but meets the mandate of why the trade was created. With an AOO embarked aircrew are available to fly without creating increased demands on their already restricted crew days and the AOO can ensure that ship-based tasks which are critical to the operational effectiveness of a HELAIRDET are not mistakenly treated secondary duties.

RECOMMENDATIONS

16. Maritime Helicopter Air Detachments should be restructured to incorporate an Air Operations Officer as a standard member.

17. The *Maritime Helicopter Force Employment Concept* should be updated to include an Air Operations Officer as a standard member of an embarked Helicopter Air Detachment.

18. The *Master Implementation Plan* should be updated to include the Air Operations Officer as a standard member of an embarked Helicopter Air Detachment.

19. The *Master Implementation Plan* should be updated to include the 12 technicians that are considered standard for a Helicopter Air Detachment.

20. 12 Wing specific training for Air Operation Officers should be assessed to ensure they are properly trained for sea-going duties.

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