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IMPROVING CP-140 MAINTENANCE WITH COMBINED WORKFORCES

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AIM

1. The aim of this paper is to improve CP140 Aurora maintenance operations resulting in increased aircraft availability for the Royal Canadian Air Force (RCAF). Although it is recognized that options exist where other efficiencies could be gained, for this paper improvements will be limited to workforce composition (military regular, military reserve, public servant and contractor) across all levels of maintenance.

INTRODUCTION

2. The RCAF's ability to recruit, train and retain aircraft technicians sufficient to balance the needs of all aircraft fleets is stretched. Recently, all fleets have been directed to determine a plan to convert 10% of the workforce to public service positions.[1] Specific to the CP140 various workforce models for have been tried, functions once performed by the RCAF are now contracted out, and workforce structure has been balanced and rebalanced between units to attempt to improve aircraft availability. Although these measures have been able to mitigate some issues, there are many challenges that persist. The RCAF needs to gain productivity out of its limited workforce to maintain the pace of operations. Several reports have been prepared in recent years and action on recommendations is on-going. The opportunity to make establishment and organisational changes is now.

[1] Lieutenant-Colonel Christopher Shapka, telephone conversation with the author, 29 Jan 18.

3. On the support and sustainment side, the relationship between the Department of National Defence (DND) and TLIR contractor IMP Aerospace (IMP) has been strained in recent years and there exists mutual distrust. Attempts to bridge issues between DND and IMP have been numerous but since the beginning of the Optimized Weapon System Management (OWSM) contract in 2005 the urgency to establish a better relationship has been paramount. Since the introduction of the CP140 to RCAF service in 1980, third line or depot-level maintenance (known as third line inspection and repair (TLIR)) has been conducted by IMP on a continuous basis. Over the years the amount of time an aircraft has spent at depot has increased enormously and while not unexpected as an aircraft ages, the real issue at hand is that the schedule has become more and more unpredictable with scheduled out-dates continuously delayed. No aircraft has ever finished TLIR ahead of schedule or even on-schedule since 1992.[2] Currently and simultaneously, OWSM is being renegotiated and TLIR VI is under development providing an excellent opportunity to reset the model.

DISCUSSION

4. The CP140 fleet has seen its maintenance workforce's limitations exposed in recent years. That the existing workforce is acting at maximum capacity was exposed by the need for a contracted periodic inspection to meet operational need for the first time, the inability to handle contingency requirements without contractor lead (such as the runway excursion of CP140103 and subsequent repair), and dramatic increases to required contractor mobile repair parties

[2] Major Max Leclerc, *AEPM-993377v3 CP140 OWSM-TLIR EFFORT AND INDUCTION DATA SINCE FLEET INCEPTION*. Director Aerospace Equipment and Program Management (Maritime), 31 Jan 18.

(MRP) to conduct what are normally RCAF core unit activities (e.g. structural repairs and first/second-line inspection requirements).[3]

5. The Strong, Secure, Engaged (SSE) defence policy will see the introduction of new fleets with no guaranteed increase (and likely decreases based upon experience with CH147, CC130J and CC177 fleets) to maintenance establishments of legacy aircraft fleets such as the CP140.[4] At the same time there is no replacement programme to renew the capability the CP140 delivers to Canada until at least the mid-2030s.[5] Other studies initiated by DND such as the KPMG report for Defence Renewal have made recommendations regarding DND-controlled aspects related to maintenance, but their mandate has excluded third-line contractor support.[6] This paper proposes that there are tangible gains to be made by crossing that boundary in both directions. It will also be complementary to the three personnel-related recommendations made in the report (RCAF3 – Minimize non-wrench turning activities, RCAF15 – Increase work unit technical skill, RCAF5 – Improve shift structure and handover process).[7]

6. TLIR is contracted by the CP140 Weapon System Manager (WSM) organisation at Director General Aerospace Equipment Program Management (DGAEPM) to IMP under the framework of OWSM. This contract provides a wide range of scope to adjust practices and

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[3] Department of National Defence, *CP140 Annual Operating Plan 11*, 31 Mar 17; Department of National Defence, *CP140 Annual Operating Plan 12 Monthly Report*, 5 Jun 17.

[4] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*, June 2017, 109.

[5] Ibid, 65.

[6] KPMG LLP, *Defence Renewal Change Management Services: Maintenance Execution, Final Report Volume I*,[2016a])., 11.

[7] KPMG LLP, *Defence Renewal Change Management Services: Maintenance Execution, Final Report Volume II*,[2016b])., 192-211.

processes to best suit the needs of both parties, all that is required is both parties' consent to amend the contract. TLIR work is conducted by technicians employed by IMP who is responsible for their training, qualification and authorisation (TQ&A). Both DND and IMP have been trying to change TLIR to improve performance with several rounds of negotiation up to the Director General and Executive Vice-President levels.

7. First- and second-line maintenance for the CP140 is conducted by the RCAF with a combination of military regular and reserve force members, public servants, and contractors. The majority of work however, is by uniformed members, and the RCAF is responsible for technicians' TQ&A as well as setting maintenance policy. The common ground with industry is regarding airworthiness policy, rules and regulations (set by DGAEPM) and the commonality of training curriculum in that IMP has adopted virtually identical content and delivery to that given by the RCAF. In other words, there already exists the opportunity to train RCAF technicians at IMP.

8. Given the above a new model for a mixed maintenance workforce is proposed as follows:

a. Establish an embedded RCAF technician presence in the depot as part of IMP's workforce for use on CP140 TLIR;

b. Establish IMP Technical Support Teams (TSTs) to be embedded in RCAF units responsible for CP140 maintenance;

c. Establish a combined technician training centre to train both RCAF and IMP CP140 technicians;

d. Establish additional Reserve Force positions at RCAF units to augment the workforce, and anticipate the requirements and impact of personnel management expected with The Journey.

RCAF Technicians At TLIR

9. DND already has a presence in depots for quality assurance, positive control of loaned and borrowed assets, as well as to forward position technical and programme experts and authorities for efficiency. RCAF technicians also make regular visits to IMP for activities that IMP technicians are not trained for. For the CP140 however, integrating its own technicians and supervisors into the contractor workforce would be a new concept. Potential advantages include:

a. Insight into industry best practices that could be leveraged in RCAF units;

b. Depth maintenance experience and unique work opportunities not normally available for military technicians;

c. A posting that allows the benefits of no secondary duties to distract, an urban location, and allows a technician to continue to work on the same platform to avoid skill degradation but continue career development; and

d. Team-building with industry, providing intangible motivation by connecting depot technicians with a daily link to those they are supporting; and

e. Understanding of the depot and industry challenges to assist DGAEPM in support contract framework improvement.

10. There would be challenges to overcome with this initiative in particular as the contractor may see this as an intrusion into their facility to be used as leverage in contract negotiations. To overcome this hurdle it must be stressed that the military personnel would be there not to collect information that could be used against the company but rather for their own personal and career development, as well as to create comradery amongst the entire CP140 technician workforce, a net win for both parties. Any information about the contractor would only serve to help DND understand industry's challenges and limitations.

11. It can also be argued that DND need simply "buy more contractor," but recent requests to augment the IMP workforce have not been successful as the contractor requires guarantees of business before making the investment to hire and train additional personnel that DND simply cannot make. A uniformed workforce at TLIR could be increased and decreased as necessary to account for rapid changes in production volume.

12. On the other hand, the RCAF may view this initiative unfavourably as it allows technicians to explore retirement options and puts an attractive recruiting pool directly into IMP's facilities. To counter this view, the United Kingdom's Royal Navy (RN) model for Merlin helicopter maintenance is given. The Merlin Depth Maintenance Facility run by a

contractor and serving the same function as IMP's facilities has employed contractor and military personnel side-by-side since 2006 (beginning with the RN Sea King helicopter). Although not without challenges, it has met the needs of the RN and has been renewed several times.[8]

13. Integration of the workforce concerning technical tasks would be straightforward given the similarity of TQ&A processes and procedures already being used. Administration of the military force would require military supervisors and taking advantage of the CP140 Detachment that is already in place.

IMP Technical Support Teams

14. The pace of operations for the CF188 has forced the fleet to become a leader in integrating a military, civilian and contractor workforce[9] and it is recommended that the CP140 fleet make use of existing contracts to move in the same direction. The benefits of augmentation with non-uniformed personnel are obvious given military demands keep technicians from their primary jobs for upwards of 50% of their time at work.[10] The following advantages are foreseen:

a. Increasing the number of technicians working at first and second line units;

[8] Major D'Arcy Giguere, personal email with the author, 4 Feb 18.

[9] Lieutenant-General M.J. Hood, *Fighter Maintenance Renewal Capability Plan – ADM(Mat) Support*, Commander Royal Canadian Air Force: file 3000-2 (A4 Maint), 28 Nov 17.

[10] KPMG LLP, *Defence Renewal Change Management Services: Maintenance Execution, Final Report Volume II*,[2016b])., 193.

b. Maximizing the wrench-turning hours available each day by making use of contractor personnel not subject to additional military demands;

c. Building the mission/operational focus and understanding of contractor personnel, increasing productivity and comradery with the military;

d. Providing opportunities for military technicians leaving the service to remain employed within the fleet reducing training time and ensuring continuity of corporate knowledge;

e. Little additional administration required at the units as this contract will be managed by the WSM; and

f. Greater ability for the contractor to assess and recommend improvements at first and second line, a requirement of the current OWSM contract.

15. The arguments against TSTs are usually the reduction of "shore" positions for RCAF technicians who will then have no time for recuperation after deployment, that it makes it easier for military members to leave the service, or simply that public servants can better fill these positions. To counter this, this proposal has TSTs augment the current military workforce, rather than replace it. While it is true that some uniformed members will leave to become contractors, it is likely that this would have happened regardless but the advantage now is that their skill and knowledge will remain in the fleet. The experience of the CF188 fleet and the RN with the Merlin are both examples where this structure works.

Combined CP140 Technician Training Centre

16. For some time now, 404 Squadron (Sqn) has been unable to accommodate increased demands for the training of CP140 technicians. Given IMP's requirement to also train CP140 technicians, it makes sense to look at combining the technician training to yield the following benefits:

a. Increased number of annual technician training billets by increasing number of courses and eliminating course vacancies;

b. Lower overhead costs through resource sharing;

c. Greater course scheduling flexibility given current 404 Sqn block leave periods would no longer apply; and

d. Faster course renewal and change implementation.

17. Regardless of whether any of the other initiatives in this paper are considered, the combined training centre should be implemented to free up RCAF technicians for more critical roles. There should be no disadvantages to the RCAF in implementing this initiative.

Additional RCAF Reserve Positions

18. As commented on above, placing regular force RCAF personnel in the depot at TLIR will remove them from current establishment at first and second line units. In order to offset this

workforce shift and to accommodate proposals being put forth by Military Personnel Command (MPC) in career and personnel management reform (known as The Journey), additional reserve positions would be required. This establishment change would yield the following benefits:

a. No net reduction in military establishment at first and second line units as a result of shifting positions to work at TLIR (i.e. these units would see a resultant gain in their available workforce with the arrival of TSTs); and

b. Accommodates anticipated CAF personnel management changes expected to be introduced by VCDS as part of The Journey by allowing restricted and limited employment options as part of the same unit (thus retains technician skill sets).

19. Although SSE grows the number of positions in the CAF (both reserve and regular forces), it is assumed that all of these positions have already been accounted for and therefore this proposal would require additional growth in the reserve force. While not insurmountable, it has often proven difficult in the past to be successful at staffing establishment changes that do not have offsets and therefore offsets may have to be found within the RCAF.

CONCLUSION

20. RCAF aircraft maintenance is suffering from personnel shortages and the traditional model of using almost exclusively military personnel in first and second line units is no longer sufficient. Specific to the CP140 fleet, rebalancing, outsourcing and numerous shift-schedules

have been tried with only limited success in slowing a downward performance trend. Concurrently, the WSM is facing challenges at achieving OWSM contract maturity and TLIR schedule adherence. The stressors faced by the fleet do not show any sign of slackening and therefore a new maintenance model is proposed with the following expected improvements:

a. Integrating RCAF technicians into the contractor's workforce at TLIR to improve workforce synergy, eliminate mistrust, improve efficiency, and grow technician skills;

b. Integrating IMP contractor TSTs into first and second line RCAF units to improve workforce synergy, augment first and second line technician numbers with improved wrench-turning time, allow technicians releasing opportunities to remain with the fleet in a complementary role;

c. Creating a combined military-contractor technician training centre to improve technician training output numbers, allow faster course change/improvement cycles, and enable resource efficiencies; and

d. Augmenting the number of reserve force members at RCAF units to prepare for expected requirements of The Journey and ensure no reduction in number of uniformed technicians available to the RCAF.

21. Use of the proposed workforce integration model has been successfully enacted with the RN in depot maintenance of the Sea King and Merlin, and within the RCAF for the CF188 fleet.

This provides a basis for implementation and confidence that there are benefits to be realized for the CP140 fleet in combining both models.

RECOMMENDATION

22. The following are recommended for action:

a. DGAEPM be consulted to determine the feasibility of the proposals that would affect the OWSM and TLIR contractor, IMP;

b. 1 CAD be consulted to determine the feasibility of this concept as it concerns their plans for workforce reform and the introduction of public service positions;

c. If both DGAEPM and 1 CAD are open to the ideas presented, then a joint team of DGAEPM, 1 CAD and IMP be created to produce a framework and roadmap to implementation.

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