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United States Marine Corps aircraft readiness has failed to meet Commander Naval Operations (CNO) Type/Model/Series (T/M/S) goals for many years. This paper will argue that the Marine Corps is not properly investing in the training required for the Subject Matter Experts (SMEs), in the aviation community. The supposed SMEs in USMC Aviation are the MOS 6004, Aircraft Maintenance Officers. Current USMC training requirements for MOS 6004 does not enhance their ability to properly supervise maintenance personnel or produce aircraft readiness.

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**TITLE: Enhancing the Effectiveness of Professional Development for Aviation Restricted Officers**

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF MILITARY STUDIES

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## Executive Summary

**Title:** Enhancing the Effectiveness of Professional Development for Aviation Restricted Officers

**Author:** Major Shawn Tetreault, United States Marine Corps

**Thesis:** Current United States Marine Corps (USMC) required Professional Military Education (PME) should develop Warrant Officers, specifically Military Occupational Specialty (MOS) 6004, Aircraft Maintenance Officers, in order to enhance their capabilities as Subject Matter Expert (SMEs) in their MOS.

**Discussion:** United States Marine Corps aircraft readiness has failed to meet Commander Naval Operations (CNO) Type/Model/Series (T/M/S) goals for many years. This paper will argue that the Marine Corps is not properly investing in the training required for the Subject Matter Experts (SMEs), in the aviation community. The supposed SMEs in USMC Aviation are the MOS 6004, Aircraft Maintenance Officers. Current USMC training requirements for MOS 6004 does not enhance their ability to properly supervise maintenance personnel or produce aircraft readiness. Current USMC Professional Military Education (PME) requirements for 6004s are in Marine Air Ground Task Force (MAGTF) training in Non-Resident, Expeditionary Warfare School (EWS) and more advanced in Command and Staff College (CSC). Completing the current MOS 6004 PME requirements does not effectively enhance their ability to properly manage maintenance personnel or produce aircraft readiness and this paper will examine alternative training.

**Conclusion:** PME requirements for restricted and unrestricted officers should not be mirror images. Restricted officers should have specific PME requirements that help develop them within their MOS that they are restricted to by law. The Marine Corps invests heavily in the development of its Unrestricted Officer Corps, the same opportunities should be given to the restricted officers to enhance the overall readiness of the Fleet Marine Corps.

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## *Preface*

United States Marine Corps Aviation has been under scrutiny for many years for failing to meet Chief of Naval Operations goals. Often times, the cited reasons for failing to meet these goals are parts and material availability. I think another aspect of this failure is human in nature and the Marine Corps not investing properly to fully develop the aviation subject matter experts to meet aircraft readiness goals. Training and education are a must for any successful business, but the Marine Corps utilizes a cookie cutter model for both its restricted and unrestricted officers, which does not develop restricted officers to be more of a technical expert at their job. The Marine Corps does an excellent job at professional military education and has some of the best educators on its staff, but I do not think the material is relevant to most unrestricted officers.

I have enjoyed researching this topic and combing through Marine Corps Orders to gather information for my argument. The leadership at Center for Naval Aviation Technical Training Detachment Whiting Field was instrumental in providing the foundational training that is required for Aviation Maintenance Officers. I want to thank my Marine Corps University mentors, Dr. Gordon and LtCol Anthony, for assisting with my research and allowing me to choose this topic. To my beautiful wife, Amy, thank you for being so supportive and reviewing my work. To my two boys, Jack and Rylan, thanks for being quiet around the house so I could work at home and write my paper. I hope to lead by an example that my kids will want to follow someday.

## **Background**

The United States Marine Corps spends a great deal of time and money investing in the training and education of its Marines. The current Professional Military Education (PME) requirements for Warrant Officers does not facilitate professional growth within their Military Occupational Specialty (MOS), specifically MOS 6004, Aircraft Maintenance Officers. The 38<sup>th</sup> Commandant of the Marine Corps, General Berger, stated in his Commandant's Planning Guidance (CPG), "PME is not a luxury and certainly not a reward for previous accomplishment or service; but rather, a necessary investment by the service to facilitate readiness across the force". This paper will argue that current PME requirements for MOS 6004, Aircraft Maintenance Officers, should make them better at their appointed requirements as restricted officers.

United States Marine Corps aircraft readiness has failed to meet Commander Naval Operations (CNO) Type/Model/Series (T/M/S) goals for many years. The appointed Subject Matter Experts (SMEs) in United States Marine Corps (USMC) Aviation are the MOS 6004, Aircraft Maintenance Officers. Current USMC training requirements for MOS 6004 does not enhance their ability to properly supervise maintenance personnel or produce aircraft readiness. Current USMC PME requirements for MOS 6004 are in Marine Air Ground Task Force (MAGTF) training in Non-Resident Expeditionary Warfare School (EWS) and more advanced in Command and Staff College (CSC). Completing the current MOS 6004 PME requirements does not effectively enhance their ability to properly manage maintenance personnel or produce aircraft readiness and this paper will examine alternative training.

## **History of Warrant Officers**

The rank of Warrant Officer has a long history and dates back at least two centuries prior to Columbus sailing the ocean blue. The British Navy, during its infancy, had Nobles in command of ships in the ranks of Lieutenant and Captain. The Nobles filling these ranks often times had no prior experience aboard ships, let alone the knowledge of how to navigate or steer the vessels. They would have to rely on the more experienced senior sailors with the technical expertise to operate the vessels to which they were assigned. These senior sailors were referred to “Boat Mates” or “Bosun’s Mate” and received the Royal Warrant because their technical expertise was indispensable.

Evidence suggests Napoleon Bonaparte is even thought to have utilized Warrant Officers as communication links between the enlisted soldiers and the commissioned officers. The United States Navy, being based of the British model, has had Warrant Officers in its service since its establishment in 1775. The earliest mention of Warrant Officers in the Continental Army is in 1779, by George Washington in *The General Orders*, a resolution to Congress. The *General Orders* called for Warrant Officers to be placed on the same footing with commissioned officers in respect to punishments, such as arrests and trials. In the United States, Army Warrant Officers can be traced back to 1896, serving as headquarters clerks.<sup>1</sup>

The USMC received its first Warrant Officers in 1917 by congressional action. In 1916, the Commandant of the Marine Corps had recommended to the Secretary of the Navy that the Marine Corps needed the warrant grade of gunner and quartermaster clerk. Congress passed an Act in August 29, 1916, authorizing the increase of the USMC personnel strength to allow for the rank of Warrant Officer. Then in 1917, the USMC appointed 41 quartermaster clerks and 43 Marine gunners, and Henry Lewis Hulbert was the first to pin on the “bursting bomb” of Marine

Gunner. The individuals to be appointed as Warrant Officers would come from the Non-Commissioned Officer (NCO) ranks and possess the technical expertise required of the appointment.<sup>2</sup>

### **Laws and Orders Governing Warrant Officers**

The laws governing Warrant Officers of the U.S. Armed Service resides in Title 10 United States Code § 571. This U.S. Code details Warrant Officer pay grades, appointment, and commissioning authority. The Code also details the selection process and the number of commissioned officers that are required to vote on a convened selection board for Warrant Officer promotions. The Code does allow the Secretary concerned to determine the needs for Warrant Officers for their respective service. The Secretary of the Navy (SECNAV) is the statutory officer for the Navy, but also the Marine Corps as well, since the USMC falls under the Navy.<sup>3</sup>

The SECNAV produced Secretary of the Navy Instruction (SECNAVINST) 1412.9B, which establishes policy and procedures relating to the Marine Corps' administration of restricted officer programs. The definition of a restricted officer is "officer who possesses unusual talent or expertise and is limited, or "restricted" to filling positions which are too specialized in scope to permit the effective development and continued use of broadly trained unrestricted officers."<sup>4</sup> Warrant Officers and Limited Duty Officers are the two types of restricted officers within the USMC. The definition of a Warrant Officer "is a technical officer specialist who performs duties that require extensive knowledge, training, and experience with the employment of particular capabilities which are beyond the duties and responsibilities of senior noncommissioned officers." The definition of a limited duty officer is the same as a

warrant officer except they perform duties and responsibilities that are beyond a warrant officer, but cannot be met by an unrestricted officer.<sup>5</sup>

An unrestricted officer within the USMC is an officer in the grade of Second Lieutenant or above, that is not designated as a Limited Duty Officer. The Marine Corps utilizes unrestricted officers in an extensive span of managerial and career broadening assignments. Unrestricted officers allow the Marine Corps the flexibility to meet a wide-range of requirements.<sup>6</sup> Warrant Officers grades consist of five ranks:

Chief Warrant Officer, W-5, CWO5

Chief Warrant Officer, W-4, CWO4

Chief Warrant Officer, W-3, CWO3

Chief Warrant Officer, W-2, CWO2

Warrant Officer, W-1, WO

The limited duty officer ranks start at Captain, O-3E, the 'E' stands for enlisted member and culminate at Lieutenant Colonel.

Additionally, to be eligible to submit for the Warrant Officer program you must be a Sergeant or above in rank at time of submission. The Marine also has to have served for at least eight years, but not more than 16 years of active service. Marines that submit for Warrant Officer are accessed, appointed, trained, assigned, and promoted to meet very specific technically oriented billets within the Warrant Officer MOS. Going back to the definition of a restricted officer, that unusual talent or expertise is only developed over time and through on-the-job training (OJT) and specific MOS training.<sup>7</sup>

Per Marine Corps Order (MCO) 1200.17E, MOS 6004 is designated as Aircraft Maintenance Engineer Officers (AMEOs), they are responsible for aeronautical repair matters

and technical aircraft maintenance. They must have a comprehensive understanding of Navy sponsored aviation maintenance programs to be effective. To successfully manage tasks within aviation maintenance they are required to have a high degree of technical expertise.

Additionally, the MOS 6004 will remain focused on procedural, technical, planning and managerial details regarding organizational and intermediate level maintenance. AMEOs are placed throughout Marine Corps Aviation to complement the talents of their unrestricted counterparts, the MOS 6002, Aircraft Maintenance Officer.<sup>8</sup>

To apply to be an AMEO, enlisted Marines must have a feeder MOS of 60XX, 61XX, 62XX, 63XX, 64XX, or 65XX and have demonstrated aviation maintenance technical qualifications through the superior performance of duties within their MOS. MCO 1200.17E also states that MOS 6002 career path and school could lead to command or possible designation as an Acquisition Professional; whereas the MOS 6004 is to remain focused on the technical aspects of Marine Aviation.<sup>9</sup> The issue is, both MOS 6002 and 6004, are required to complete the same PME requirements and MOS schools. While the PME requirements do prepare and groom the MOS 6002 for command or to fill MOS 8006, any officer billets, they do little to enhance warrant officers or limited duty officer abilities to achieve their duties according to MCO 1200.17E.

### **Military Occupational Specialty Training**

The MOS school for both, MOS 6002 and 6004, is located at the Center for Naval Aviation Technical Training (CNATT) Detachment Whiting Field, in Milton, Florida. The MOS 6002 attend a 42-day course, whereas the MOS 6004 attend a 17-day course. The 6004 Warrant Officers attend a shorter course because they have significant aviation maintenance background, two years or more experience according to CNATT. The entire spectrum of Naval and Marine

Corps Aviation Maintenance is covered in those 17 training days. During those 17 days, detailed information is covered regarding the organizational level maintenance, i.e. flying squadrons and intermediate level maintenance, i.e. Marine Aviation Logistics Squadrons (MALS).<sup>10</sup>

Referring back to the feeder MOS's that make up the 6004 community, some of those MOS's are specific to intermediate level maintenance or organizational level maintenance. There are so many enlisted Marines selected to fill the ranks of 6004s, but they may have little to no experience in either a flying squadron or MALS. These new 6004s are now, by rank, looked at as possessing the technical expertise to be considered a subject matter expert. While the selection of 6004 Warrant Officers is not the issue at hand, it does provide context to the level of training and experience newly appointed warrant officers may possess. It could also be stated that the 17-day CNATT course that provides a broad range of information in a consolidated amount of time might not be able to fill the deficit of knowledge for Marines who have never been exposed to a flying squadron or MALS, but are now expected to perform there.

CNATT detachments stationed throughout the globe do have Mobile Training Teams (MTT) that provide training. These trainings are focused on specific billets that individuals may be assigned in the aviation community, such as Production Control Officer (PCO) and Quality Assurance Officer (QAO).<sup>11</sup> Those two specific billets are held by unrestricted officers and the course is only a week long, but is not a PME requirement established by the Marine Corps. This point is only mentioned to say that the MOS 6004 do have the opportunity to receive some additional billet specific training as they progress through their careers. Additional MOS training is documented in the individuals service record book, but is not a determining factor in promotion retention considerations.

## **Professional Military Education Requirements**

The issue at hand is whether the current required PME for MOS 6004 enhance the individual's ability to produce readiness. A United States Government Accountability Office (GAO) testimony to the United States Senate found that aircraft availability rates have generally declined since 2011. Navy and Marine Corps aircraft readiness information is considered sensitive information, but from the GAO study conducted from 2011 through 2018 on seven aircraft platforms, none of the seven aircraft platforms met aircraft readiness goals.<sup>12</sup> So, currently the Marine Corps is failing to meet aircraft readiness goals, but has done little to address the inexperience or technical expertise of its aircraft maintenance personnel. The 2018 National Defense Strategy emphasizes that aviation platforms are key to carrying out the strategy, but until the Navy and Marine Corps address maintenance challenges it will continue to be difficult to meet those goals.

The current PME requirements for Warrant Officers and Limited Duty Officers varies by rank and can be seen in Figure 1 through 3. Warrant Officers 1 and 2 do not have formal PME assigned except for the Marine Corps Professional Reading Program and are expected to focus on becoming MOS proficient practitioners.<sup>13</sup> To be PME complete in grade for Chief Warrant Officer 3 and Limited Duty Officer Captain, the individual needs to complete Expeditionary Warfare School Distance Education Program (EWSDEP).<sup>14</sup> Chief Warrant Officer 4 and Limited Duty Officer Major need to complete Command and Staff College Distance Education Program (CSCDEP).<sup>15</sup> Chief Warrant Officer 5 and Limited Duty Officer Lieutenant Colonel do not have any formal PME responsibilities besides professional self-study.<sup>16</sup>

## **Regional Cultural & Language Familiarization**

An additional PME requirement was established in October 2012, in the implementation of the Regional, Culture, and Language Familiarization (RCLF) Program. The RCLF program is designed to help Marines be prepared to operate globally and successfully navigate and influence the cultural complexities of the 21<sup>st</sup> century. The program is not designed to produce Language, Regional, and Cultural (LRC) experts or replace Foreign Area Officers (FAO) or Regional Area Officers (RAO). The idea is that building a General Purpose Force that has LRC knowledge and attitudes will assist in operational planning and execution to meet USMC mission objectives. Ultimately, the Marine Corps is trying to produce a force that is more effective at operating in a culturally complex environment.<sup>17</sup>

The requirements for the RCFL program span a Marine Corps Officers' career from the The Basic School (TBS) through Lieutenant Colonel. The program applies to both restricted and unrestricted officers and is an example of the Marine Corps making a generic PME requirement applicable to both classes of officers. The RCFL program is completely computer-based training through marinenet.mil, with no classroom time. The training models attempt to impart language, regional, and cultural concepts and skills that are applicable to the Marines' responsibility and rank level. There are 17 regions in the RCFL program and officers are assigned one of those regions while attending TBS.

Each officer rank through Lieutenant Colonel is responsible for completing an Officer "Block" of training to be considered PME complete in grade. The "Block" training requirements' time varies depending on region assigned and the program curriculum has been revised since its implementation. In the initial Marine Admin (MARADMIN) number 619/12, it had 80 hours of study along with passing an exam with an 80 percent to be considered PME

complete for Chief Warrant Officer 2. The breakdown of RCLF program PME requirements for each grade can be found in Figure 4. The RCLF program is managed by a department within Marine Corps University (MCU) called Center for Advanced Operational Cultural Learning (CAOCL).<sup>18</sup>

To put this into perspective, 6004 Warrant Officers only receive 17 days of specific MOS training roughly 136 hours, if they are in class for eight hours a day. The Marine Corps requires them to complete well over that 136 hours in RCLF program training throughout their career to be considered PME complete. The RCLF program may make the individual culturally knowledgeable on a specific region, but does nothing to enhance MOS credibility, which is the basis for the whole Warrant Officer Program. Additionally, warrant officers or LDOs will not typically deploy to a region without an unrestricted officer in charge, since restricted officer are prohibited from holding command. The RCLF program is an example of making required PME applicable to both restricted and unrestricted officers, when both serve to very different requirements.

Another issue with the RCLF program, aside from not providing any MOS creditability, is that Marine officers are not assigned orders to match their RCLF region assigned. Marine Corps Order 1300.8 is the Marine Corps personnel assignment policy and it makes no mention of utilizing RCLF assignments to determine permanent assignment of Marines.<sup>19</sup> A Marine could be assigned a region and complete all the required PME throughout their career and never step foot in that region. This program would be better left to the unrestricted officer community, if they were actually assigned a RCLF region and then were stationed in it. Warrant officers and LDO professional technical expertise should be the focus of their PME study, not lumping them into training that should be applicable only to unrestricted officers.

## **Expeditionary Warfare School**

In 1921, the Company Grade Officers course was established in Quantico, Virginia. It was later renamed the Amphibious Warfare School Junior Course in the 1930s. The school's name was changed yet again in 1964 to Amphibious Warfare School. In 2003, the school underwent a major reorganization and merged Amphibious Warfare School and Command and Control Systems Course and the school was re-designated as Expeditionary Warfare School (EWS). The school has continued to evolve to meet global challenges and create Marine Air Ground Task Force (MAGTF) officers.<sup>20</sup>

The EWS resident program is a yearlong course in Quantico, Virginia, and only unrestricted company grade officers are allowed to attend in the Marine Corps. Restricted officers at Warrant Officers 3 and LDO Captains must complete the Expeditionary Warfare School Distance Education Program (EWSDEP) to be PME complete in grade. The EWSDEP has four types of seminar schedules, which are weekday, weekend, online, and the blended seminar program. The College of Distance Education and Training (CDET) regional officers work with individuals to find the best seminar schedule that fits their needs. The weekday, weekend, and online schedules are all designed to deliver the entire academic curriculum in two years.<sup>21</sup>

The purpose of EWSDEP is to provide career-level professional military education and training in the following: combined arms operation, warfighting skills, tactical decision-making, naval operations, command and control, and MAGTF expeditionary operations. This curriculum is to enable Marine officers to command or to serve as a primary staff officer in their MOS.<sup>22</sup> Warrant officers and LDO captains cannot hold command because their sole purpose in the Marine Corps is to provide their technical expertise to commanders. The EWSDEP program

arguably only makes them better staff officers. There is also a disparity in the time in service between unrestricted officers and restricted officers attending EWSDEP. Unrestricted company grade captains will generally attend resident EWS or EWSDEP between four to eight years of service, whereas restricted officers will be at a minimum of 13 years of service.

Ultimately, EWS curriculum and timing of the career level PME is focused for the unrestricted officer community. The schooling is very valuable for the unrestricted officer community and accomplishes its mission of preparing them mentally, morally, and physically for billets of increased leadership responsibility across the Marine Corps and the Joint Force. The course does nothing to make restricted officers better at their MOS to which they are restricted. The Commander Naval Air Forces Instruction (COMNAVAIRFORINST) 4790.2 clearly outlines the duties and responsibilities of the assigned maintenance officer billets. As junior restricted officers (WO-CWO3) in the 6004 MOS, they are assigned as the Maintenance Material Control Officer (MMCO) at a flying squadron.<sup>23</sup>

The MMCO duties at a squadron are responsible for the overall productive effort and material support of the maintenance department. They are also responsible for the coordination of multiple work centers' workloads to ensure squadron efficiency and priority maintenance is being accomplished to meet flight schedules. Additionally, they must screen Planned Maintenance System publications and local Maintenance Requirements Cards to ensure the squadron is in compliance.<sup>24</sup> They must plan the material requirements needed to support the maintenance departments' workloads, which requires coordination with the MALS, specifically the supply department. MMCO are responsible for a plethora of other administrative duties for reporting aircraft readiness and coordination of maintenance activities.

EWSDEP curriculum is excellent for unrestricted officer who will be in command and manage hundreds of Marines and have to synergize efforts across the war fighting functions. The course does little to meet the duties and responsibilities of a MOS 6004 as laid out in the COMNAVAIRFORINST 4790.2. The two years that warrant officers and LDOs spend attending EWSDEP could be better spent on completing training specific to their MOS. They need specific managerial training, management of work flows, and project management related activities. Some possible options will be laid out in further detail that could supplant the two-year requirement for EWSDEP.

### **Command and Staff College**

In 1920, the United States Marine Corps established the Field Officer's Course in Quantico, Virginia. This course was designed to mirror the United States Army's Staff College at Fort Leavenworth. The Marine Corps refined the course through the next several years to address the Marine Corps' missions related to naval service, but was put on hold in 1933 to have the students work on amphibious doctrine. In 1934, the course resumed, but put on hold again in 1941, to meet the demands of World War II. Students that were at the school during World War II were reassigned to train lieutenants since they were in high demand.<sup>25</sup>

During World War II, a three-month Command and Staff course was created to teach Marine Corps and sister service field grade officers the art of amphibious warfare. After World War II, the Command and Staff Course was lengthened to a one-year comprehensive program based on the prewar construct. The school's name would change again in 1968, to its current title of Command and Staff College (CSC). Today, CSC's mission is to, "provide officers with graduate level education and training in order to develop critical thinkers, innovative problem solvers, and ethical leaders who will serve as commanders and staff officers with MAGTFs and

with service, joint, interagency, intergovernmental and multinational organizations confronting complex and uncertain security environments.”<sup>26</sup>

The CSC school is excellent at meeting its mission and does prepare individuals for command and to perform the duties as MAGTF staff officers. It does not benefit restricted officers because they can never hold command and do not get put on higher headquarter staffs until CWO5 and LtCol. MOS 6004 CWO4 only get assigned to Marine Aviation Logistics Squadrons (MALS) as Quality Assurance Officers. The 6004 LDO captains only get assigned to Production Control Officer billets at MALS and 6004 Major’s will only be assigned to MALS Aircraft Maintenance Officer billets. MALS are only O-5 commands and are no way considered a higher headquarters command with a robust staff providing input.

Having MOS 6004 complete four years of nonresident PME just to prepare them to be a CWO5 or LDO LtCol staff officers is missing the big picture. There are only five MOS 6004 LtCol’s and five CWO5’s in the United States Marine Corps. They serve at Marine Aircraft Wings and Headquarters Marine Corps, providing aviation specific technical expertise to commanders. They are restricted to their specific MOS field and not assigned to 8006 (any officer) billets that unrestricted officers are assigned too. So, for the Marine Corps to assign PME requirements that aim to develop well-rounded MAGTF officers and ethical commanders is wasted on officers that will never be put in those billets.

### **Tailored Learning**

The Marine Corps cannot continue to apply a one-size-fits all PME requirement for restricted and unrestricted officers. While applying the same PME requirements to both classes of officers seems simple and is the cheapest solution, it is not benefiting the Marine Corps in the long run, as exemplified by failed aircraft readiness across the fleet. With advances in today’s

technology and aircraft systems, the shelf-life of skills and knowledge in those sectors deplete exponentially.<sup>27</sup> That is why training and professional growth in their assigned field is important to meet developments within the aviation community.

A study conducted by Gartner, a global research and advisory firm, found that 70 percent of employees do not have the mastery of skills they need to perform their duties.<sup>28</sup> In fact, more than half of those employees stated they need better upskilling.<sup>29</sup> The Marine Corps needs to adopt a personalized training process for its restricted officers, specifically MOS 6004 Warrant Officers.<sup>30</sup> The current standard is teaching PME, where both restricted and unrestricted officers take the same path and are expected to achieve the same outcome. This method may have worked in the past, but current studies on aviation readiness show something needs to change.

The Marine Corps, like civilian businesses, are concerned on how to adapt and integrate the advent of robotic process automation and artificial intelligence.<sup>31</sup> These two new technologies are just a few of the many technologies that are radically changing the business world and how future conflicts will be fought. The Marine Corps needs to break away from its old classroom paradigm and focus more on each individual Marine, specifically highly specialized technical experts in a given field, such as aviation maintenance. The classroom frame does have some advantages, such as collaboration and joint work; however, the shortcoming is it neglects the Marines' individual needs and it focuses on material that may not be applicable to their MOS.<sup>32</sup>

## **Civilian Equivalent Jobs and Requirements**

### **United Airlines**

At United Airlines, a Shift Manager of Aircraft Maintenance, is similar to MOS 6004 in the Marine Corps. Like the 6004 Warrant Officers, the United Airlines position requires

technical expertise and extensive knowledge of aircraft maintenance and applicable regulations. The Aircraft Maintenance Shift Manager technical operations include the maintenance, repair and overhaul of aircraft. The primary job responsibilities are supervision and coordination of all maintenance functions in accordance with schedule requirements and in compliance of established company, regulatory, and manufacturers procedures.

United Airlines requirements for an Aircraft Maintenance Shift Manager is a high school diploma, GED or education equivalent. Some college level aviation or business-related classes/training or comparable work experience is required. A Bachelor's Degree in Aviation Management, Business, Engineering, or related field, or comparable experience is preferred. Federal Aviation Administration (FAA) Airframe and/or Powerplant (A&P) certificate is required. Five years of working experience in the aircraft maintenance industry with a minimum of two years in a management role is required. A proven successful track record is preferred.<sup>33</sup>

### **Lockheed Martin Corporation**

At Lockheed Martin, an Aircraft Maintenance Supervisor for the F-35 combat aircraft, is similar to the MOS 6004 in the Marine Corps. Lockheed Martin is an American global security and aerospace company, which specializes in the research, design, manufacturing, and integration of advanced technology systems, products, and services worldwide. The majority of Lockheed Martin's business is from the United States Department of Defense and United States federal agencies. The F-35 Aircraft Maintenance Supervisor technical duties include the management of general services, repairs, and overhauls of fighter aircraft and aircraft engines to ensure that aircraft are in good mechanical condition and safe for flight. The F-35 Maintenance Supervisor is responsible for overseeing the daily duties, performance and training of subordinates and to provide technical assistance as required.

Lockheed Martin basic qualifications for a F-35 Aircraft Maintenance Supervisor is at least 7 years of Fighter Aircraft experience. The applicant must have been previously awarded an Air Force, Marine, or Navy 7 to 9 level discipline skill level rating or credentials, such as a licensed FAA A&P certificate or Inspection Airframe license. An FAA aircraft and engine mechanic A&P license is preferred. The applicant must be multi-skilled in aircraft training and certified with the ability to possess equivalent civilian experience with associated work. The applicant must be an experienced user of Microsoft Office software.<sup>34</sup>

Job requirements outside of the military can vary widely and depend on many important factors, such as education, certifications, skills, and experience. Both military occupation 6004 and civilian equivalent aircraft maintenance supervisors are considered subject-matter experts in their field. Being sought out for their technical expertise and knowledge, the military should invest in training that is equivalent and beneficial to 6004s, both in and out of the military. Most civilian positions require a specific amount of time working on a specific aircraft. Most civilian positions also require an A&P license to be able to inspect aircraft, as well as a Bachelor's degree.

### **Airframe and Powerplant License**

A person can work in the armed forces as an aircraft mechanic without an A&P license, but once they leave the service, they will need to obtain an A&P License, unless working under the direct supervision of someone that is licensed. An A&P license is a certification that mechanics need to be able to legally maintain aircraft in the United States. This is why it is important for service members to receive this certification while in the military. Attending an aviation maintenance school is the fastest way to get the A&P license. Generally, this is 1900 hours and two years depending on the school, to be able to take the A&P test.

The FAA does allow other means of meeting the experience requirements. For example, a mechanic who has 30 months of well-documented experience may be interviewed and granted approval to take the A&P test. There is also an 18-month experience rule for single licensure, either Airframe or Powerplant certification; however, most positions require both certifications. This would be the case for active military with a minimum of 18 months or 30 months of aviation maintenance experience. The benefit of attending a formal Aviation Maintenance Technical School, is to be better prepared for the A&P test, which every applicant is required to pass to obtain A&P licensure.<sup>35</sup>

### **Additional Civilian Job Requirements**

In addition to licensure and certification in aviation, civilian managerial jobs also require a minimum of some college level aviation or business-related classes or training or a Bachelor's degree in Aviation, Management, Business, Engineering, or related field.<sup>36</sup> Bachelor's in aviation degree programs usually require students to complete 120 credits. Full-time students can typically earn their degree in 4 years or less. A degree in aviation management provides individuals with the education necessary to oversee departments in the aviation industry. It is designed for aviation professionals to advance from technical position to a management or leadership role.<sup>37</sup>

The Marine Corps Warrant Officers program is designed to provide the Marine Corps with technical specialists with an extensive knowledge and credibility of a particular MOS. While the military does provide 6004 Warrant Officers with job specific training, it does not meet minimum civilian equivalent job and education requirements. In addition to work experience in an aircraft maintenance environment and supervisory experience, most civilian employers prefer candidates with a bachelor's degree. Individuals with both an aircraft

inspector's certification and a bachelor's degree have the best career advancement opportunities.<sup>38</sup> In the Marine Corps, 6004 Warrant Officers that possess these qualifications make them more competitive for selection, however the qualifications are not required and are not a key factor for selection.<sup>39</sup>

## **Recommendations**

As stated above, the United States Marine Corps aviation readiness has been under scrutiny for many years for failing to meet Chief of Naval Operations goals. Often times, the cited reasons for failing to meet these goals are parts and material availability. This paper has analyzed this failure as human in nature and the Marine Corps not investing properly to fully develop the aviation subject matter experts to meet aircraft readiness goals. Training and education are a must for any successful business, but the Marine Corps utilizes a cookie cutter model for both its restricted and unrestricted officers, which does not develop restricted officers to be more of a technical expert at their job. In the CPG, the Commandant has required training and education to move away from the industrial age model to the information age model, training should be specific and applicable to the individual. The Marine Corps does an excellent job at professional military education and has some of the best educators on its staff, but the PME training material is only relevant to unrestricted officers and not restricted officers, specifically MOS 6004, Aircraft Maintenance Officers.

The Marine Corps should learn from the lessons learned by the Navy and reaching out to commercial airlines for help. The Marine Corps should not stop there though; they should push it further and adopt their educational and training requirements. The Marine Corps could do this by divesting its MOS 6004 from attending required PME that does not facilitate them being better at their MOS, such as EWS, CSC, and RCLF. Instead, the Marine Corps could fund and

make it a requirement to attend and work towards any one of the civilian requirement bachelor's degrees or A&P license. The Marine Corps should make Warrant Officers start working towards those goals when they are appointed as a WO, not when they are a CWO3.

The Marine Corps currently has WO and CWO2 working on developing themselves as proficient practitioners within their occupational specialty and no assigned PME. This does not make sense since they were selected on a board and found to be the most MOS proficient individuals in the Marine Corps. The verbiage for lieutenants O-1 and O-2 concerning PME is exactly the same as WO and CWO2, which highlights that the Marine Corps blindly lumps the two separate classes of officers into a one size fits all type of PME requirement. The Marine Corps needs to adjust how it views and educates its restricted officers to capitalize and build on their existing technical expertise. Having restricted officer attend PME that was tailored and designed to educate unrestricted officers is not doing them much benefit.

The Commandant of the Marine Corps has directed in his CPG that the Marine Corps needs to facilitate the development of the individual Marine to get the force the Marine Corps needs. The rate at which technology is advancing the Marine Corps needs its restricted officers, especially MOS 6004, in tune with what civilian counterparts are currently implementing to meet readiness goals. This means having them educated and professionally developed according to required civilian equivalent aviation standards. The civilian airlines focus on readiness and aviation maintenance professionals to stay ahead of competition or they disappear. The Marine Corps should see the writing on the wall with recent GAO studies and Secretary of Defense readiness targets and the Marine Corps not meeting readiness goals, something needs to change.

## **Conclusion**

The Marine Corps already invests heavily in time and dollars training and educating its Marines; however, in order to reap the benefits, the professional development needs to be specific to Marine's MOS, especially restricted officers. The Marine Corps needs to assess and decide if it truly wants to have all of its officers, both restricted and unrestricted, educated the same even though they serve fundamentally different roles. The benefits of divesting of current PME requirements for MOS 6004 and assigning more MOS related requirements to professionally develop them would pay dividends in aircraft readiness. The Marine Corps needs to remember why they appointed their restricted officers and educate them to build on their expertise and knowledge. The civilian businesses are constantly adapting and evolving to stay marketable and ahead of competitors, the Marine Corps should do the same.



**Second Lieutenant (O-1)**  
**First Lieutenant (O-2)**  
**Warrant Officer (WO1)**  
**Chief Warrant Officer (CWO2)**



Marines in the grades of O-1, O-2, WO1, and CWO2 do not have formal PME responsibilities aside from the professional self-study outlined in the Marine Corps Professional Reading Program. Marines in these grades are expected to focus on developing into proficient practitioners within their occupational fields.

First Lieutenants and Chief Warrant Officers 2 are eligible to enroll in the career level PME Expeditionary Warfare School Distance Education Program (EWSDEP).

Figure 1

**LDO Captain**  
**Chief Warrant Officer 3 (CWO3)**



To be **PME Complete** for the grade of LDO Captain and Chief Warrant Officer 3, Marines must:

- (1) Complete the EWSDEP.
- (2) Certain ACCCs have opportunities for CWO3s; Marines should contact their monitors for details.

Figure 2



**LDO Major  
Chief Warrant Officer 4 (CWO4)**



To be **PME Complete** for the grade of LDO Major and Chief Warrant Officer 4, Marines must:

- (1) Complete the Command and Staff College Distance Education Program (CSCDEP-MCI Program 8800), or the Army, Navy, or Air Force Command and Staff College distance education program **OR**
- (2) Complete the Command and Staff College Distance Education Program (CSCDEP).

Figure 3

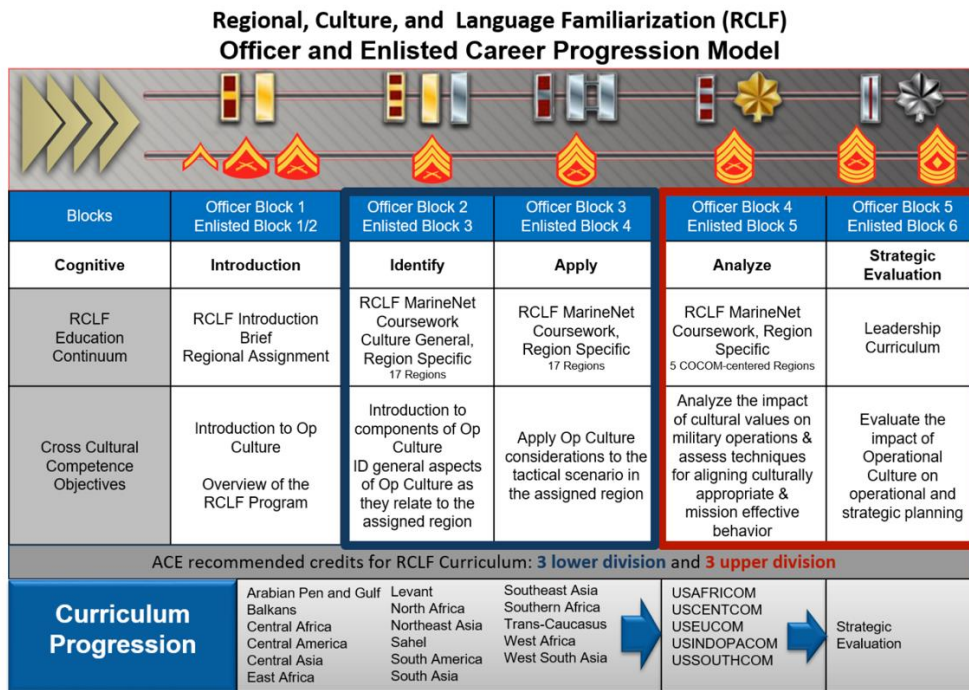


Figure 4

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