

Restructuring the VMU
Submitted by Captain J.P. Kaufmann

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Restructuring the VMU				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) United States Marine Corps, Command and Staff College, Marine Corps University, 2076 South Street, Marine Corps Combat Development Command, Quantico, VA, 22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

The military application of the unmanned aerial vehicle (UAV) is anything but a novel concept. In 1863 an inventor named Charles Perley patented an unmanned balloon capable of delivering a payload of explosives released by a timing mechanism. Mr. Perley's invention saw limited use and success on the battlefields of the American Civil War. The first airborne intelligence, surveillance, and reconnaissance (ISR) platform, a large kite rigged with a camera developed by Douglas Archibald, was used during the Spanish-American War to answer the commander's critical information requirements (CCIRs) regarding enemy positions and fortifications.¹ Over the last century, technological and engineering advances have developed these rudimentary systems and concepts into the Unmanned Aerial Systems (UAS) of today.

The utility of the UAS is unquestioned for the current operating environment and tomorrow's battlefield. Presently, the United States Marine Corps operates two unmanned aerial vehicle squadrons, VMU-1 and VMU-2, and will soon designate a third. By 2010, the Marine Corps will also field an organic Tier II capability resident within the VMUs.² The goal of this expansion is to meet the growing demand for unmanned aerial

¹ Lexi Crock. *"Timeline of UAVs, Spies that Fly."* PBS, NOVA Science Programming on Air and Online, <http://www.pbs.org/wgbh/nova/spiesfly/uavs.html>

² United States Marine Corps, *"United States Marine Corps Concepts and Programs 2007"* (Quantico, VA.: 2007), 62-63

systems and operators throughout the Fleet Marine Force (FMF) with VMUs capable of multiple Tier III and Tier II detachments. This plan will fall short of its goal unless the VMU table of organization undergoes a tremendous restructuring of manpower. In order to mitigate the problems resulting from expansion, the Marine Corps must, at a minimum, increase VMU manning of the S-2, S-3, and maintenance departments, as well as designate an officer MOS specific to the UAS community.

An Expanding Problem

The expansion of the Marine Corps' UAS program sounds benign initially; however, the addition of a Tier II system and the designation of a third squadron is only the tip of the iceberg. The future VMU will maintain a squadron (-) in the rear with multiple detachments operating forward.^{3,4} The Tier III and Tier II capability are designed for different echelons of command, the Marine Expeditionary Force (MEF) and the Marine Expeditionary Unit (MEU)/ Regiment, respectively. These detachments, of two different capabilities, will not always be co-located geographically, placing a strain on manpower and training requirements to support multiple forward detachments.

³ Trista Talton. "U.S. Marines' Shadow UAV Sees First Combat." DefenseNews.com, <http://www.defensenews.com/story.php?F=3117663&C=airwar>

⁴ Department of the Navy, Headquarters United States Marine Corps, MCWP3-42.1, *Unmanned Aerial Vehicle Operations* (Quantico, Va.: 2003), 1-5

Traditionally, VMUs have supported Weapons and Tactics Instructor (WTI) Course and Combined Arms Exercises. They have also supported counter narcotics operations along the southern and northern US borders and maintained a remote receiving station in Bosnia. Since February 2003, both squadrons have deployed to Iraq for seven months of each year, and these traditional supporting roles have ebbed significantly.⁵ However, these roles, and others, such as supporting the Marine Expeditionary Units, Desert Talons, and Mohave Vipers of the future, will re-surface with the expansion of the VMUs. Due to the demand for this capability, the future VMU, presumably, will have two to three detachments deployed simultaneously. The capability of these future detachments should mirror the mission essential task list (METL) of the parent command. In order to sustain 24-hour operations and achieve the METLs, each detachment must have, at a minimum, the following:

- (1) Multiple operators to include a mission commander;
- (2) Personnel to man a remote receiving station;
- (3) Two shifts of maintainers to include maintenance control, maintenance administration, avionics, airframes, and quality assurance;
- (4) Requisite analyst expertise to augment the gaining commands intelligence section.

⁵ Command Chronologies, VMU-1 and VMU-2, 1995 to 2006.

The most effected sections of the VMUs will be the S-2, S-3, and maintenance departments. Therefore, the table of organization must be expanded in each of these departments in order to man these detachments with the requisite expertise and continue to train and operate at the parent command.

Restructuring the Table of Organization

Restructuring the table of organization (T/O) does not necessarily mean significant increases in the size of the squadron. According to a conference held by the Marine Corps Center for Lessons Learned (MCCLL), the VMU of today, which operates only a single system, the RQ-7B Shadow, must increase their T/O by an unbelievably low "...5-10 Marines..." in order to provide "...either two units forward deployed or one unit forward deployed and the other conducting training in the rear."⁶ While the addition of a Tier II system operating in a similar fashion would increase the numbers of personnel mentioned above, the majority of the squadron's departments would be unaffected. The addition of more collateral duties and the additional time to train operators, could offset squadron size requirements.

Designating an Officer MOS

The Marine Corps' investment in the capabilities of emerging UAS technologies will be crippled by a lack or failure

⁶ Marine Corps Center for Lessons Learned, *"Air Combat Element Commanders Lessons Learned Conference, 30 November-22 December 2005"* (Quantico, VA.: 2006), 28

of executive level experience and leadership. Officers are currently borrowed from the 7200 and 7500 MOSs to man the VMU squadrons. Three major problems exist with this situation: (1) inefficient training; (2) lack of vision; (3) supply and demand. An officer MOS must be designated.

Training and readiness suffers within the VMUs due to the turnover rates of officers. Federal Aviation Administration (FAA) restrictions on UAS flights within the United States make training evolutions a valuable commodity. Combine this fact with the relentless op-tempo of today, and the result is that a majority of the VMU's operators are trained on deployment. Considering that a typical tour for an officer taken from his primary MOS is approximately twelve months, an inordinate amount of time and effort is dedicated to training a company-grade operator with very little return on investment.⁷

The Marine Corps must also take an active interest in developing executive level leaders within the UAS community who will extend the Marine Corps' vision of this program into the future. Officers taken from their primary MOSs rarely become fully invested in the UAS concepts and programs. This problem is more long-term in nature. Written testimony by the US

⁷ Marine Corps Center for Lessons Learned, *"Air Combat Element Commanders Lessons Learned Conference, 30 November-22 December 2005"* (Quantico, VA.: 2006), 28

General Accounting Office acknowledges the requirement for senior leadership:

The acquisition environment for new UAVs will be characterized by increased funding competition, greater demand for UAV capabilities, and electromagnetic frequency spectrum and airspace limitations. This will require strong leadership at the departmental level, building on the UAV *Roadmap* and efforts of the joint UAV Planning Task Force, to ensure that the most cost-effective solutions are adopted as we have recommended in our previous work.⁸

The Marine Corps must groom senior SNCOs and officers to be the future mouthpieces and technical experts that understand the capabilities, requirements, and shortfalls of the Marine Corps UAS programs. In turn, these subject matter experts will be prepared to take the next step towards the research, development, testing, evaluation, and ultimate acquisitions of future technologies.

As the VMUs expand, the demand for 7500s and 7200s will increase disproportionately to the supply. The unrelenting operational tempo of today is felt throughout the entire Marine Aircraft Wing. Individual augment (IA) requirements that take mid-tour company grade pilots outside of their primary MOS are less than ideal, but manageable at the present level. However, as the UAS program expands, so will the demand for company grade officers to man VMUs, thus one more IA pipeline that Marine

⁸ United States General Accounting Office, "Unmanned Aerial Vehicles, Major Management Issues Facing DOD's Development and Fielding Efforts" (Washington D.C.: 2004), 3.

Aircraft Wings will fill from flying squadrons. The twelve-month IA tours, typically served by mid-tour 7500s, are detrimental to the flying squadrons' and the individual pilots' training continuum. One could argue that an increase in demand for IAs will be mitigated by the designation of additional HMLAs and HMHS; however, this is merely putting a band-aid on a sucking chest wound. The expansion of the HMHS and HMLAs are designed to relieve op-tempo and equipment longevity issues, not to man VMU squadrons with IAs. The Marine Corps must prepare for an increased demand for officer leadership within the VMU in order to meet the expansion of the UAS programs and concepts.

Conclusion

The VMU squadrons of the future will provide an amphibious and expeditionary force in readiness, capable of deploying multiple detachments in support of various operations within the U.S. and abroad. Will the Marine Corps man these squadron's sufficiently to exploit the proven tactical advantages these systems provide to the warfighters on the battlefield? Will the Marine Corps develop men and women of vision and expertise that will take the UAS program into the future? Wordcount: 1345

Bibliography

Command Chronologies, VMU-1 and VMU-2, 1995-2006.

Department of the Navy, Headquarters United States Marine Corps. *MCWP3-42.1, Unmanned Aerial Vehicle Operations*. Quantico, Va.: 2003.

Krock, Lexi. "Timeline of UAVs, Spies that Fly." PBS, NOVA Science Programming on Air and Online, <http://www.pbs.org/wgbh/nova/spiesfly/uavs.html>

Marine Corps Center for Lessons Learned. *Air Combat Element Commanders Lessons Learned Conference, 30 November-22 December 2005*. Quantico, VA.: 2006.

Office of the Secretary of Defense. *Unmanned Aircraft Systems Roadmap, 2005-2030*. Washington D.C.: 2005.

Talton, Trista. "U.S. Marines' Shadow UAV Sees First Combat." DefenseNews.com, <http://www.defensenews.com/story.php?F=3117663&C=airwar>

UAV News. "Boeing Awarded US Marine Corps Contract To Extend Scaneagle Services." <http://www.spacewar.com/reports/>

United States General Accounting Office. *FORCE STRUCTURE, Improved Strategic Planning Can Enhance DOD's Unmanned Aerial Vehicles Efforts*. Washington D.C.: 2004.

United States General Accounting Office. *UNMANNED AERIAL VEHICLES, Major Management Issues Facing DOD's Development and Fielding Efforts*. Washington D.C.: 2004.

United States Marine Corps. *Table of Manpower Requirements, Table of Organization, Unmanned Aerial Vehicle Squadron (VMU)* Quantico, VA.: 1996.

United States Marine Corps. *United States Marine Corps Concepts and Programs 2007*. Quantico, VA.: 2007.

Bibliography

- Department of the Navy, Headquarters United States Marine Corps. *MCWP3-42.1, Unmanned Aerial Vehicle Operations*. Quantico, Va.: 2003.
- Krock, Lexi. "Timeline of UAVs, Spies that Fly." PBS, NOVA Science Programming on Air and Online, <http://www.pbs.org/wgbh/nova/spiesfly/uavs.html>
- Marine Corps Center for Lessons Learned. *Air Combat Element Commanders Lessons Learned Conference, 30 November-22 December 2005*. Quantico, VA.: 2006
- Office of the Secretary of Defense. *Unmanned Aircraft Systems Roadmap, 2005-2030*. Washington D.C.: 2005.
- Talton, Trista. "U.S. Marines' Shadow UAV Sees First Combat." DefenseNews.com, <http://www.defensenews.com/story.php?F=3117663&C=airwar>
- UAV News. "Boeing Awarded US Marine Corps Contract To Extend Scaneagle Services." <http://www.spacewar.com/reports/>
- United States General Accounting Office. *FORCE STRUCTURE, Improved Strategic Planning Can Enhance DOD's Unmanned Aerial Vehicles Efforts*. Washington D.C.: 2004.
- United States General Accounting Office. *UNMANNED AERIAL VEHICLES, Major Management Issues Facing DOD's Development and Fielding Efforts*. Washington D.C.: 2004.
- United States Marine Corps. *Table of Manpower Requirements, Table of Organization, Unmanned Aerial Vehicle Squadron (VMU)* Quantico, VA.: 1996.
- United States Marine Corps. *United States Marine Corps Concepts and Programs 2007*. Quantico, VA.: 2007