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A CASE FOR ENLISTED

UNMANNED AERIAL SYSTEM OPERATORS

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BIOGRAPHY

Lt Col Eric J. Roth graduated from the United States Military Academy in 1987 and was commissioned as an engineer officer. His first operational assignment was as a platoon leader in the 65th Engineer Battalion, 25th Infantry Division, Schofield Barracks, Hawaii. He then served as a company executive officer and a civic action team commander with the 84th Engineer Battalion (Combat Heavy), Schofield Barracks, Hawaii. While stationed in Hawaii, he attended various Army schools to include the Airborne, Air Assault, Ranger and Sapper Leader Courses. He resigned his active duty commission in 1991 to attend Law School at the University of Virginia. While in law school, he served in both reserve and National Guard units as an engineer and infantry staff officer and as an infantry company commander. Upon graduation from law school in 1995, Lt Col Roth transferred to the Air Force as a judge advocate with duty at the 16th Special Operations Wing at Hurlburt Field, Florida. From 1997 to 2000, he served as the Staff Judge Advocate for Special Operations Command Central. He then served as the Deputy Staff Judge Advocate for the 347th Rescue Wing at Moody AFB from 2001 to 2003 after attending the Air Command and Staff College in residence. From 2003 to 2005, Lt Col Roth served as an assistant Judge Advocate at European Command where he helped negotiate numerous logistical and basing agreements. He is currently a student at the Air War College after having served as the Staff Judge Advocate 4th Fighter Wing at Seymour Johnson AFB from 2005 to 2008.

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I. INTRODUCTION:

On its face, this paper presents a feasible solution to a very contemporary problem. The Air Force needs more Unmanned Aerial System[1] (UAS) operators and does not have enough experienced officer pilots to serve as these operators. Furthermore, using pilots as UAS operators costs too much money, adversely impacts upon pilot morale and degrades Air Force mission readiness. Thus, I propose that the Air Force use enlisted personnel as UAS operators. This solution may be controversial within the Air Force, but outside of the Air Force, to those who are not shackled by Air Forces cultural norms, this solution at times seems almost intuitively obvious. However, a key institutional dynamic for implementing change is to establish buy-in from within the organization, so this paper is written to persuade the fighter pilots in charge of the Combat Air Forces. It is also my hope that this paper will strike a chord with enlisted personnel and any other Air Force personnel who are interested in this subject. In this paper, I have attempted to consolidate and discredit all of the arguments for not using enlisted personnel as UAS operators and then provide several compelling arguments for using enlisted personnel as UAS operators.

THE INSATIABLE DEMAND FOR UNMANNED AERIAL SYSTEM CAPABILITIES

The primary reason for using enlisted personnel as UAS operators is that the Air Force needs more UASs and UAS manning is one of the main obstacles standing in the way of providing more UASs. The Air Force clearly recognizes the UAS shortage. In a 28 February 2008 memorandum to all Major Command (MAJCOM) Commanders, then Air Force Chief of Staff Gen T. Michael Moseley stated:

> The great work of the Predator/Reaper community has led to a continued and apparent insatiable demand for our UAS capabilities. Three times in the past

> six months, we have been tasked to accelerate the fielding of additional Predator Combat Air Patrols (CAPs). We are now surging beyond our Predator Program of Record...but, while we're at war...that's fine with me.[2]

Apparently this expansion of UAS capabilities was not fast enough. On 21 April 2008, Secretary of Defense Robert M. Gates, in a speech at the Air War College, had some rather pointed words for Air Force leadership with regards to UASs:

> Unmanned systems cost much less and offer greater loiter times than their manned counterparts, making them ideal for many of today's tasks. Today, we now have more than 5,000 UAVs [unmanned aerial vehicle], a 25-fold increase since 2001. But in my view, we can do and we should do more to meet the needs of men and women fighting in the current conflicts while their outcome may still be in doubt. My concern is that our services are still not moving aggressively in wartime to provide resources needed now on the battlefield. I've been wrestling for months to get more intelligence, surveillance and reconnaissance assets into the theater. Because people were stuck in old ways of doing business, it's been like pulling teeth…
>
> All this may require rethinking long-standing service assumptions and priorities about which missions require certified pilots and which do not. For those missions that still require manned missions, we need to think hard about whether we have the right platforms -- whether, for example, low-cost, low-tech alternatives exist to do basic reconnaissance and close air support in an environment where we have total control of the skies -- aircraft that our partners also can afford.[3]

This requirement for the Air Force to do more has been gathering momentum for the last couple of years. On 7 September 2006, while advocating for an additional $65.4 million for the procurement of Predators to be used by Special Operations Forces, Senator Reed noted that "special operations forces depend upon Air Force assets, which are already in high demand, for Predator support" and that "VADM Eric Olson, Deputy Commander of SOCOM [Special Operations Command], testified to the Armed Services Committee that the command did not have sufficient surveillance platforms."[4] On 27 April 2007, Lt Gen David A. Deptula, Deputy Chief of Staff, Intelligence, Surveillance and Reconnaissance (ISR), stated to the House Armed Services Committee Subcommittee on Air and Land Forces that "our fleet of medium-altitude

MQ-1 Predator UAVs [Unmanned Aerial Vehicles] has expanded such that we can now support indefinitely up to 12 simultaneous combat air patrols 24 hours-a-day, 7-days-a-week. We will increase this capacity to 16 CAPs by the end of the next year." Lt Gen Deptula went on to say that the Air Force was working toward an ultimate objective force structure of 170 Predators, covering 21 CAPs by FY10.[5] On 3 October 2007, Senator Bayh expressed concerns that the Department of Defense (DOD) was not fielding enough medium to high altitude UASs. He stated, "I have visited Iraq and Afghanistan, where I was told over and again the importance of these ISR assets. Further, during a recent Armed Services hearing, I was able to question our new Special Operations Commander, Admiral Olson, about medium to high altitude UAV requirements. He told the committee that there is currently a 30 UAV orbit requirement in CENTCOM [Central Command]. However, we only have 12 orbits available today. I find this unacceptable."[6] Congress had been interested in UASs for quite some time. The Fiscal Year 2001 National Defense Authorization Act stated as a goal, "the Armed Forces to achieve the fielding of unmanned, remotely controlled technology such that…by 2010, one-third of the aircraft in the operational deep strike force aircraft fleet are unmanned."[7]

Using surge operations, the Air Force vastly accelerated its UAS support to CENTCOM and as of May 2008 was providing 24 Predator orbits and 1 Reaper orbit.[8] The Air Force now plans to increase that number to 50 UAS CAPs by 2011 up from the original 21 CAP target briefed by Lt Gen Deptula in April 2007.[9] On 16 September 2008, the newly appointed Air Force Chief of Staff, Gen Norton Schwartz, addressed this issue:

> One aspect of our future success is the proper development and integration of unmanned aircraft systems in the Air Force. The combat contributions of unmanned aircraft systems in today's fight have surpassed all expectations and hold even greater promise for the future…It is no surprise that Combatant Commander demand for these systems and their game-changing capabilities has skyrocketed. The Air Force is dedicated to increasing equipment, training and

> operational capacity as quickly as possible to help win the fight…Our long-term goal is to develop an unmanned aircraft systems operator career field with specialized training potentially distinct from current manned pilot training. In the near-term, however, our goal is to increase unmanned aircraft systems operator production to meet our target manning levels and warfighter demand. This manning level target takes us from 300 trained UAS operators today to 1,100 over the next five years…First, starting this month, the Air Force will assign 100 pilots annually from undergraduate pilot training directly into UAS operations. This initiative will continue as long as the need exists, and is a necessary and important step toward increasing UAS capacity for the Joint fight...The Air Force is dedicated to building the UAS force our nation requires while continuing to lead innovation in capabilities and employment…We will do everything we can to ensure our UAS units are properly organized, trained and equipped for today's fight, and prepared for future challenges.[10]

Given a UAS demand that has vastly outstripped any past projections, it is critical that the Air Force develop a UAS strategy that will allow for maximum growth potential. The FY2008 DOD Appropriations Act authorized the Air Force to purchase 33 UASs.[11] For FY2009, that number increased to 52 UASs out of a total of 93 aircraft procured.[12] In just one year the target number for the UAS inventory has increased from 170 to 300.[13] These numbers graphically illustrate that the Air Force must have the ability to create a UAS training pipeline that can adjust to rapidly changing conditions.

There are three major constraints that could limit the Air Force UAS inventory—fiscal, technological and manning. While fiscal constraints are always important, given that most UASs are relatively inexpensive compared to other major weapon system (MWS) aircraft, this constraint should not significantly impede UAS development. A system of four MQ-1 Predators with associated control mechanisms cost $30.5 million in FY1997 dollars[14] and four MQ-9 Reapers cost $53.5 million in FY2006 dollars.[15] For comparison, a single F-22 Raptor costs $142 million in FY2008 dollars.[16] Technological constraints limit how quickly UASs can be built and the number of UASs that can be remotely controlled at one time. While these

constraints are highly relevant, they are not generally within the Air Force's control and as such are beyond the scope of this paper. However, the final constraint, UAS manning, is clearly within the Air Force's control and will be the primary focus of this paper.

SHOEING DEAD HORSES

So if UAS manning is within the Air Force's control, then why has the Air Force been so slow to fix this problem? In the case at hand, the Air Force is stuck in its ways. In his introduction to Carl Builder's seminal 1994 work, *The Icarus Syndrome*, a study on how air power theory has influenced the development of the Air Force, then Air Force Chief of Staff, Gen Merrill A. McPeak remarked:

> I do not agree with all that Mr. Builder has to say in these pages. But I do believe that he has raised the right questions. Has the Air Force abandoned air power theory over the years? Have the fundamentals of air and space power changed in a world of new technologies and new challenges? Does the Air Force, as an institution, grasp these fundamentals? So I commend *The Icarus Syndrome* to you. These are the issues that are important.[17]

Mr. Builder's answer to one of these "right" questions was quite controversial; he concluded:

> Confronted with a significant challenge to the primacy of the airplane within the logic of their own theory of air power, the aviators running the Air Force did two things they did not really want to do:
>
> 1. They accepted guided missiles and space satellites as alternative means in some of the broad and important ends of air power; and
>
> 2. They revealed—through their decisions more than their words—that their true affection was not for the theory of air power, but for the airplane. [18]

Arguably, much like guided missiles and space satellites, UASs pose an existential threat to the airplane. This could present a significant cultural barrier to the proper manning of UASs because the Air Force, in its pursuit for airpower, has always been led by the operators of the principal means of airpower, i.e. pilots flying bomber aircraft and more recently pilots flying fighter

aircraft. This raises the question: "if UASs replace fighter and bomber aircraft as the principal means of airpower, will UAS operators usurp pilots as the leaders of the Air Force?" If there is a perception among Air Force leadership that this could be the case, then arguably, this could influence UAS manning decisions.

For the time being, this question remains unanswered because current Air Force policy is that only experienced pilots and some experienced navigators (with civilian pilot instrument rating) can operate UASs and after a UAS tour, they typically return to their Major Weapon System (MWS). But given the strain on the current pilot inventory that such a policy creates, it begs the question of whether or not there is an alternate solution and to what extent Air Force cultural norms will influence that solution. Speaking to future military needs in 1944, then Chief of the Army Air Corps, Gen Henry "Hap" Arnold stated:

> We must stop "shoeing dead horses." We have been doing that for too long…There is only one question that should be asked about these things; "Do they fit into the modern war picture?"…The principles of yesterday no longer apply. Air travel, air power, air transportation of troops and supplies have changed the whole picture. We must think in terms of tomorrow. We must bear in mind that air power in itself cannot become obsolete.[19]

General Arnold had grown up in an Army very anchored to tradition – an Army that held on to horses well after the advent of the tank and one that refused to recognize the full value of strategic bombing until well into the 1930s. General Arnold recognized that given advances in technology, the nature of airpower changes very quickly and the Air Force must be prepared to adapt.

Speaking on this very subject on 20 September 2008 at the Air Force Association Air & Space Conference, Secretary of the Air Force, Michael B. Donley, said:

> As we rebalance our force structure to meet existing and emerging mission areas, another trend affecting the Air Force is the ratio of manned and unmanned aircraft procured each year. Right now, about 2 percent of the Air Force total aircraft

> inventory is unmanned, but this figure is trending upward. In fiscal year 2007, for example, over 10 percent of the tails procured by the Air Force were unmanned, and in the coming fiscal years, our procurement of unmanned systems will range anywhere from 25 to 50 percent of new tails.
>
> Given these kinds of numbers in procurement of unmanned aircraft, we need to consider how we will manage the personnel and infrastructure pieces of the entire UAS architecture—including pilots and senior operators, intelligence analysts, communications personnel, and many others—over the long term. We must consider how to institutionalize new operating constructs so we can leverage this tremendous capability in operations beyond Iraq and Afghanistan, to ensure this capability becomes much more than a "one war wonder."[20]

The rapidly changing landscape of warfare dictates new and innovative solutions vice "shoeing dead horses," because the fate of airpower is at stake.

This paper will explore one of the "right questions" asked by General McPeak. Specifically "have the fundamentals of air and space power changed in a world of new technologies and new challenges?" With regards to UAS operator manning, I will argue that the answer is yes. This paper will argue that the Air Force should establish a trial program to test the feasibility of using enlisted personnel as UAS operators. First I will explore why UAS manning needs to be changed. UAS manning needs to be changed because the current method of assigning rated pilots to operate UASs will not be able to provide an adequate number of UAS operators, it will adversely impact pilot morale and it will cause pilot shortages in terms of numbers and experience in other MWSs. Second, I will discuss the historical preference for officer vice enlisted pilots. Enlisted pilots were used quite successfully in the Army Air Corps and the Air Force stopped using enlisted pilots for reasons unrelated to flying or decision making. Yet the current rationale for not using enlisted personnel as UAS operators is based upon a supposed lack of judgment and decision making skills. Finally, I will discuss the potential benefits of using enlisted personnel in addition to officer personnel as UAS operators. These benefits include: increased junior officer leadership opportunities, restoration of the

enlisted flying heritage, significant financial savings to the Air Force, and prevention of the ever-increasing congressional scrutiny of the Air Force UAS program. All of these areas will be explored with a special emphasis on Air Force cultural norms.

II. WHY UAS MANNING NEEDS TO BE CHANGED

UAS manning needs to be changed because the current method of assigning rated pilots to operate UASs will not be able to provide an adequate number of UAS operators, it will adversely impact pilot morale and it will cause pilot shortages in terms of numbers and experience in other MWSs. All of these considerations have been ignored because of Air Force cultural barriers that dictate the use of rated pilots as UAS operators. The Air Force currently trains 160 UAS operators per year and in 2009 this number will increase to 240.[21] The ever increasing need for UAS operators over the past several years has changed the demographics of who the Air Force selects to train for UAS duty. Initially the Air Force only allowed experienced rated pilots and a few experienced navigators (with civilian pilot instrument rating) to volunteer for UAS duty. These officers were mostly from the fighter and bomber communities. All of them had been trained to fly a manned aircraft and were then retrained to operate UASs. As the Air Force started to experience a fighter pilot shortage, it began accepting experienced pilots from other airframes. In October 2008, the Air Force started to assign inexperienced pilots straight out of Undergraduate Pilot Training (UPT) to UAS duty.[22] The current Air Force policy is that none of these personnel will have to serve more than three years as a UAS operator. Thus, once the training pipeline is in full swing, up to 240 experienced UAS operators will leave the UAS operator pool every year unless they volunteer to extend or are involuntarily extended. Given the lack of UAS duty volunteers, it is unlikely that this UAS operator shortage will go away anytime soon unless manning policies are changed.

THE PERCIEVED UAS "STIGMA"

Most pilots do not view operating a Predator as career enhancing or the equivalent of manned flight. When the Air Force Times cited UPT students expressing concerns that a "first

assignment flying a Predator could hurt their career and their chances to eventually fly the F-22, A-10 or C-17 of their dreams."[23] Col Chris Chambliss, Commander of the Air Force's only UAS Wing, stated, "I think it's an extremely valid point, but there are a ton of pilots whose first assignment wasn't in their primary aircraft, including myself. I started as an instructor pilot, but I eventually got F-16s and it hasn't hurt my career at all."[24] Brig Gen Lyn D. Sherlock, Director of Air Operations, Directorate of Operations, Deputy Chief of Staff for Operations, Plans and Requirements, Headquarters U.S. Air Force emphasized to the Air Force Times that a first assignment to Creech AFB flying UASs "will not hurt a pilot's career."[25] Even Gen Schwartz weighed in on this subject as he noted "the Air Force culture must promote a strong and healthy UAS community—not a ―leper colony or an agency of expedience."[26]

A similar situation occurred from 1991 to 1993 when the Air Force trained too many pilots and assigned many of these pilots straight out of UPT to non-flying duties. These pilots were known as "banked pilots." Maj John D. Newberry wrote a research paper at the Air Command and Staff College (ACSC) in 1999 titled, "The Effects on Pilot Retention as a Result of the United States Air Force's Banked Pilot Program of 1991 to 1993." He hypothesized and confirmed that retention would be negatively affected by the disillusionment resulting from the program. Just as in the case at hand, the vast majority of the banked pilots were concerned about the effects of being sidelined from flying in the initial stage of their career. So while many senior officers have validated the hypothesis that instructor pilot duty was not deleterious to their careers, the jury is still out on banked pilots. Assigning pilots out of UPT to UASs could have the same effects on retention as with the banked pilots, and the long-term effects of both programs are yet to be determined.

THE SHORTAGE OF MWS PILOTS

Assigning rated pilots to operate UASs for only three years has the long term effect of creating a UAS force with a preponderance of inexperienced UAS operators. Additionally, while these pilots are flying UASs, they are losing proficiency in their MWS. But the most significant impact of assigning rated officers to fly UASs is the reduced number of pilots available for flying duty. Brig Gen Sherlock explained, "We are hitting a point right now that we are getting an imbalance of experienced pilots in our operational units with the young pilots that are coming in."[27] This is not a new phenomenon, as the Air Force has experienced on and off pilot shortages since its inception. During the post-cold war drawdown, the Air Force reduced new pilots accessions from 1,500 in 1991 to 500 in 1995 resulting in a pilot shortage that lasted until 2003.[28] (See Figure 1) That shortage is back again due to the increased demand for pilots in Air Operations Centers (AOC/AFFOR) and as UAS operators. (See Figure 2)

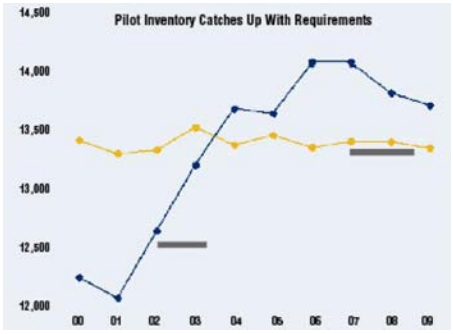

Figure 1

(Adapted from Bruce D. Callander and Adam J. Hebert, "The Pilot Shortage Abruptly Ends," *Air Force Magazine Online* 89, no. 7 (July 2006). Data accurate for 2000-2005.)

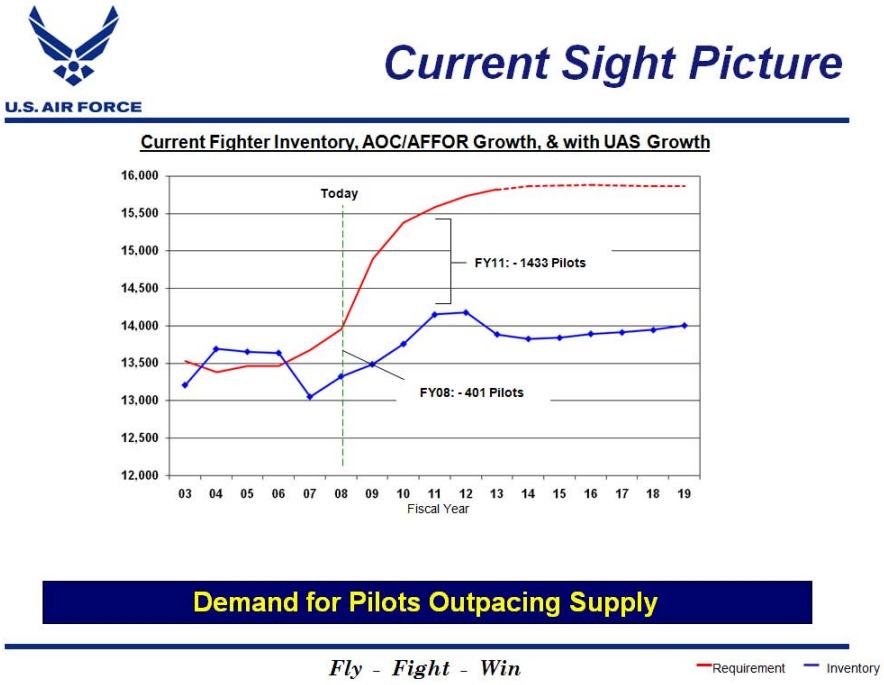

Figure 2

(Adapted from HAF Briefing, "UAS Operator Way Ahead," 6 Aug 2008. Data after 2008 is projected.)

Thus, without making significant increases in the number of pilots trained or decreases to the number of non-flying pilot billets filled, the Air Force will experience an ever-increasing pilot shortage. So while the short-term solution of temporarily assigning pilots out of UPT to fly UASs answers the immediate need for UAS operators, it has no impact upon the overall pilot shortage. This shortage could be significantly reduced by using personnel other than pilots to operate UASs. This is the genesis of the trial program Gen Schwartz unveiled at the same time he redirected 100 UPT students from manned aircraft to UASs. Of this program, General Schwartz said:

> We are launching a trial program for developing a distinct UAS operator training pipeline separate from current Air Force pilot training, and perhaps with some from the retired ranks who possess appropriate skills. The test population, for this phase, will be volunteers from within the active duty Air Force Officer corps. Training will include abbreviated flight training followed by UAS specific

> training and MQ-1 qualification training. The training program will be tailored specifically to teach the skills required for UAS flight operations including principles of forward air control, airspace management and air-ground operations, saving the extra time required to train traditional rated military pilots. The Air Force will ensure that all UAS operators are fully trained to safely operate UAVs in all environments. After successful MQ-1 qualification, these operators will serve in an operational MQ-1 squadron and serve as the initial cadre for any subsequent UAS operator career field.[29]

This idea to use non-rated officers as UAS operators has significant potential in providing long-term relief to the pilot shortage. Given a target of 1,100 UAS operators in the next five years and a predicted shortage of 1,433 pilots in Fiscal Year 2011, this trial program is a step in the right direction, although arguably somewhat untimely since this shortage has existed for several years.

CULTURAL BARRIERS

Given that the current method of assigning rated pilots to operate UASs will not be able to provide an adequate number of UAS operators, that it will adversely impact pilot morale and that it will cause pilot shortages in terms of numbers and experience in other MWSs, why has the Air Force been so slow to react? This issue of timeliness is directly tied into Air Force cultural norms. For at least the past thirteen years, the Air Force has insisted that rated pilots fly UASs. When the Air Force stood up its first UAS squadron in 1995, the 11th Reconnaissance Squadron site activation task force proposed to test the concept of using rated navigators, non-rated officers with civilian pilot licenses and enlisted personnel as operators for the Predator. Gen Joseph W. Ralston, then commander of Air Combat Command (ACC), who had already directed the use of rated pilots as UAS operators, rejected all three proposals, but approved the use of navigators with civilian pilot instrument ratings.[30] In June 1996, the new ACC commander, Gen Richard E. Hawley, reaffirmed the previous decision by Gen Ralston, but directed a study to determine the

training requirements for UAS operators.[31] The Human Effectiveness Directorate at the Air Force Research Laboratory (AFRL) conducted this study by surveying eight experienced and thirteen recently qualified UAS operators. The survey concluded that a UPT-equivalent training program and manned flying experience was necessary to employ the Predator. The survey respondents also believed that enlisted personnel could be trained to operate UASs, but questioned their decision making ability, the degree of responsibility involved and the ability to communicate their decisions up and down the chain of command.[32] It is important to note that in terms of scientific evidence, the quality of this study was very low in that it only relied upon expert opinion without explicit critical appraisal.[33]

This issue was again examined in 1999 by Maj Keith E. Tobin, in his thesis for the School of Advanced Airpower Studies entitled "Piloting the USAF's UAV Fleet: Pilots, Non-rated Officers, Enlisted, or Contractors?" He concluded that enlisted and non-rated officers were not ideal candidates as UAS operators. With regards to enlisted personnel this conclusion was based upon the premise that using enlisted personnel would not provide any fiscal savings because they would require UPT-equivalent training and because they lacked MWS operational experience. This would cause enlisted personnel to fly the Predator as a crew to develop operational experience, thus requiring a two for one replacement ratio over rated pilots with previous operational experience.[34] This same argument was applied to non-rated officers with the added caveat that a non-rated officer UAS career field would not be able to effectively support career development and progression.[35] Maj Tobin ultimately concluded that the Air Force should continue the practice of assigning rated officers with a prior operational experience to fly UASs.[36]

The use of non-rated officers to fly UASs was again brought up in the Spring 2005 issue of Air & Space Power Journal. Maj James C. Hoffman and Charles Tustin Kamps, in their article, "Future "Manning" for Unmanned Aerial Vehicles," called for the creation of a separate, formal career UAS force using non-rated officers. The article claimed that such a program could increase morale within UAS squadrons, increase experience levels and save the Air Force substantial money. The authors claimed that many rated officers "volunteered" for UAS duty to escape the high operations tempo of their MWS, but fully intended to return to their MWS once their UAS tour was complete. Non-rated officers would volunteer for the "right" reasons and would continue to serve within the UAS community. Hoffman and Kamps presented a model that showed for every non-rated officer trained, the Air Force could save $672,051. This amount was the difference between the actual training cost of a B-52 pilot (Specialized UPT and B-52 Initial Qualification Training) and the training cost of a UAS operator using their proposed training plan.[37] The premise that non-rated officers could successfully serve as UAS operators was based upon a 2002 AFRL Human Effectiveness Directorate study that involved significant field testing and concluded that Specialized UPT was not required for flying UASs – 150-200 hours of recent civilian instrument flying experience is sufficient.[38] As opposed to the 1996 AFRL study previously discussed, this study was based upon the highest levels of scientific evidence involving systematic review and prospective cohort studies validated in different populations.[39] However, this 2002 study did not make any recommendations as to whether or not operational experience was required.[40] Hoffman and Kamps did not address Maj Tobin's concerns that a separate UAS career field might not be able to effectively support career development and progression, but the authors did note that the rated community might not embrace such a career field, thus serving as "a major roadblock to fulfilling the requirements of

our future UAV force structure and thus delay the full application of unmanned technology to a multitude of missions."[41] This concern proved valid in that the Air Force did start down the path of a non-rated UAS trial program going as far as selecting several candidates, but that program was suddenly cancelled on 15 November 2006 by then Air Force Chief of Staff, General Moseley.[42]

It was not until General Schwartz, who is neither a fighter nor bomber pilot, became Chief of Staff that this idea resurfaced among senior leadership. By making the decision to send pilots straight from UPT to fill UAS assignments, General Schwartz deleted the prerequisite for prior operational experience, which as a second order effect, opened the door to non-rated UAS operators. He also addressed the career development and progression concerns by stating "the Air Force culture must promote a strong and healthy UAS community—not a ―leper colony or an agency of expedience."[43] General Schwartz further emphasized that "no options are off the table, and we will look at all possible solutions. We will do everything we can to ensure our UAS units are properly organized, trained and equipped for today's fight, and prepared for future challenges."[44] Thus, this paper will look at one possible solution, an option that has been off the table for quite some time--the enlisted UAS operator.

In summary, this chapter has explained the increasing need for UASs and, in-turn, the increasing need for UAS operators. Since Air Force policy from 1995 has been to use only experienced pilots and a few experienced navigators (with civilian pilot instrument rating), the increasing need for UAS operators has resulted in an overall pilot shortage since 2006, adversely impacted pilot morale and significantly decreased operational experience in other MWSs. Yet while this "crisis" developed, the Air Force continued down a path that did not address the problem. Arguably, this cognitive dissonance was the result of a cultural norm that assumed that

only an experienced rated pilot had the requisite ability to operate an UAS. This norm was supported by a low quality AFRL study based upon the opinions of twenty-one rated pilot UAS operators. A later, high quality AFRL study that involved extensive field testing directly refuted this opinion, but had no effect upon the status quo. Before moving on to an argument regarding why the Air Force should consider enlisted personnel as UAS operators, the next chapter will explore the cultural reasons why enlisted personnel do not serve as pilots. While not directly on point, the argument for not using enlisted pilots is the very same argument presented for not using enlisted UAS operators. Thus the strengths and weaknesses of those arguments are very relevant to this debate.

III. HISTORICAL BACKGROUND TO THE AIR FORCE PREFERENCE FOR OFFICER VICE ENLISTED PILOTS

Up until a few years ago, the vast majority of the Air Force accepted the fact that it was the almost exclusive role of the officer pilot to provide the teeth to the Air Force combat mission and the role of enlisted personnel to support that mission. The wars in Iraq and Afghanistan have somewhat changed this paradigm because many enlisted personnel are now performing in a variety of non-flying combat ground missions. As it turns out, the formerly disenfranchised enlisted personnel are now performing exceptionally well in these new combat roles. Thus, the question of whether or not they could perform equally well in the traditional Air Force combat mission of flying fighter and bomber aircraft is now ripe. However, this paper will focus on a subset of that question: specifically, whether or not enlisted personnel could and should operate UASs. But how they have performed in flying duties is very relevant to this debate. Conventional wisdom has been that enlisted personnel are not suitable for flying duty. This was reinforced in the 1996 AFRL study, in which Maj Tobin noted that among the rated pilot UAS operators surveyed, most believed that enlisted personnel could be trained to operate UASs, but questioned their decision making ability, the degree of responsibility involved and the ability to communicate their decisions up and down the chain of command. This chapter will discuss the history of enlisted pilots in the Air Force and argue that enlisted pilots have performed exceptionally well in the past and that based upon historical evidence, the argument that enlisted personnel are not suited as pilots has little to no merit.

The debate of enlisted versus officer pilot has existed since the Army first began flying manned aircraft. The first enlisted pilot, Corporal Vernon L. Burge, completed flight training in

the spring of 1912. In response to that training, the Commander, U.S. Army Signal Corps, Brig Gen James Allen admonished Corporal Burge's commanding officer:

> It is not the policy of the War Department to train enlisted men in flying aeroplanes. Their military training is such that very few enlisted men are qualified to observe military operations and render accurate and intelligent reports of what they see from an aeroplane. Another objection is that very few enlisted men have sufficient knowledge of mechanics to appreciate the stresses to which an aeroplane is subjected during certain maneuvers.[45]

Despite this sentiment common among many officers and pilots, the Army continued to train enlisted pilots and by 1939, the Army had 27 enlisted pilots, down from a peak of 117 in 1934. The primary reason for this declining number was that since 1927, the Army had required all flying cadets to have two years of college. Enlisted men were eligible for this program, but once they graduated, they were commissioned. [46]

With the advent of World War II and the increased need for pilots, the Army recognized that it would not be able to find enough candidates with two years of college to train the newly established quota of 50,000 trained pilots per year, up from 4,500.[47] In a response to Under Secretary of War Robert P. Patterson's memorandum dated 27 December 1940, querying whether the time had come to drop the two year college requirement for pilot training, General Arnold stated the reason for the college requirement was that aviation cadets were being commissioned as officers upon graduation. Thus General Arnold implicitly acknowledged that a college degree was a prerequisite to be an officer and not a pilot. On 4 June 1941, President Roosevelt signed into law the "the Aviation Student Act." This act permitted the training of enlisted personnel without two years of college as aviation students. Upon graduation, aviation students would remain enlisted men and aviation cadets would be commissioned as officers.[48]

As the Army started to train enlisted pilots, it quickly realized that the policy of using two years of college to distinguish between enlisted aviators and officer aviators was having some unintended consequences. An Army review of the program noted:

> On the one hand, the aviation cadets, procured originally from civilian volunteers and qualified enlisted men of the regular Army, upon completion of their course, did not always measure up to the personality and leadership standards set for a commissioned officer, although their technical ability qualified them for flying duty. On the other hand, among the enlisted men training as aviation students, personnel fully qualified to assume a commissioned status, or at least status higher than an enlisted grade were frequently found.[49]

The solution to this problem was the "Flight Officer Act" signed into law on 8 July 1942. The Act abolished the two year college requirement and all pilot trainees were designated "cadets." Those who possessed "officer qualities" were commissioned as Second Lieutenants and those who did not became "Flight Officers," a rank in between the enlisted ranks and second lieutenant. This distinction between flight officers and commissioned officers was effectively summarized by Lt Col John C. Flanagan, Chief of the Psychological Division, Office of the Air Surgeon:

> The officer, to command, has to be able to read reports and digest that sort of material and prepare reports; he had to make decisions of greater importance; and finds, in general, more need for superior reasoning, logical judgment, and comprehension, than does the flight officer. The people who can become satisfactory fliers are at a slightly lower level than the ones who can become successful leaders and commissioned officers, from the point of view of being colonels and having command responsibilities.[50]

In his research paper for ACSC, titled "The Enlisted Pilot Program in the USAAF 1941-1942: Was it Successful?," Maj Harry O. Mamaux, III concluded the program was successful in that "it provided additional pilots at a critical point in Army history. It disproved the linkage between educational level and flying ability, and it provided the means to achieve a personal goal for the men involved."[51] Maj Mamaux further noted that fourteen enlisted pilots became Aces in

World War II and many went on to multi-engined jet aircraft with seven retiring as General officers, 69 as Colonels, 114 as Lieutenant Colonels, and 54 as Majors.[52] The most famous enlisted aviator was Brig Gen "Chuck" Yeager.[53] It is important to note that although Maj Mamaux noted several shortcomings of the enlisted pilot program due to pay and fraternization issues, none of these shortcomings had anything to do with enlisted judgment or decision making.[54]

While General Arnold had advocated for an all-officer force of pilots with college degrees, the Air Force did not pursue that path after World War II. In May 1946, the Army Air Force made a policy decision to pursue an all-commissioned pilot force but did not pursue an all-college-graduate officer force until 1960 when it terminated the Aviation Cadet program. It is important to realize that the cancellation of the Aviation Cadet program was not driven by a desire for pilots with college degrees, but rather a desire for officers with college degrees. The Aviation Cadet program was accessing too many non-college graduates into the Air Force officer ranks. By 1977, a college degree had once again become a prerequisite for pilot training in addition to officership. In a memorandum on the use of enlisted aviators, Maj Gen Harry A. Morris, Director of Personnel Plans, Headquarters United States Air Force, stated:

> The Air Force has consistently maintained a policy of an all officer pilot force, with enlisted pilots and flight officers as an emergency exception during the years between 1941 and 1945. The decision as to whether a given crew position is officer or enlisted is based on a combination of factors including educational background required to complete training, and the decision/judgment parameters of the position. The all college graduate officer force concept derives primarily from the requirement that the military system develops its own leaders. The potential flexibility for future utilization and development of a pilot trainee who has a college degree is significantly higher than the potential for one without a degree. Completion of the degree is predicative of the probability of completing training in highly complex systems as well as the ability to cope with the demanding decision/judgment, multi-task environment of a pilot in today's

> weapons systems. Additionally, the college trained officer has higher management potential as a senior officer.[55]

This explanation emphasizes that the primary reason for the all college graduate officer force is "future utilization and development" and "management potential as a senior officer." This policy remains the Air Force status quo and makes sense from a leadership perspective. Few would argue that a college degree is not a necessary building block for intermediate and senior service college or as an educational underpinning for the increasingly complex leadership and managerial tasks expected from Senior Officers. But as previously discussed, history has definitively shown that a college degree is not necessary to complete pilot training nor to be a successful pilot. Thus the only reasonable explanation for why the Air Force insists upon officer pilots is the cultural norm that only commissioned officers should be pilots.

Enlisted personnel have served very successfully as pilots, in and out of combat, and the historical reasons for not allowing them to serve as pilots have not been based upon their ability to fly. Rather it has been focused on the ability of the Air Force to grow leaders from the pilot ranks. Yet "flying abilities" remain front and center in the current debate about whether enlisted personnel should operate UASs. As the next chapter explores the reasons why they should, it will be imperative that the reader put aside the cultural norm of the officer pilot and weigh all the arguments presented on their merits.

IV. POTENTIAL BENEFITS OF USING ENLISTED PERSONNEL IN ADDITION TO OFFICER PERSONNEL AS UNMANNED AERIAL SYSTEM OPERATORS

The change in policy with regards to using enlisted men as pilots in World War II was born of necessity. Until the requirement for two years of college was deleted, the Army Air Forces could not produce enough pilots without turning to the enlisted ranks. This is the exact situation on hand. While the Air Force could turn to non-rated officer personnel to provide additional UAS operators, this chapter will present numerous arguments why enlisted personnel are a better choice. The demographics of the enlisted corps has dramatically changed in the last fifty years and many enlisted personnel now possess the judgment and decision making skills necessary to operate UASs. Furthermore, using enlisted personnel as UAS operators could increase junior officer leadership opportunities, restore the enlisted flying heritage and save the Air Force significant money in this era of shrinking defense budgets. Finally, the use of enlisted UAS operators could potentially preclude the ever-increasing congressional scrutiny of the Air Force UAS program.

While the Air Force has not resorted to enlisted pilots since World War II, it has converted officer positions in other career fields to enlisted positions. In the 1990s, due to the military drawdown and fiscal constraints, the Air Force successfully converted many of its satellite operator and AWACS air battle manager billets from officer to enlisted billets. In both career fields, the largest group of dissension came from the officers in those career fields. The satellite operators believed the tasks were too complex for enlisted personnel to perform and the air battle managers were skeptical of the enlisted personnel's ability to comprehend all of the airspace requirements, process and assimilate large volumes of information, and make sound and accurate decisions. However, in both cases, the programs were successful and resulted in no

degradation of operational capability. Due to the conversion of 290 satellite operator positions, the Air Force realized an annual savings of $36,767 per converted position which translated into an annual savings of $10,662,430 in FY91 dollars over the life of the conversion. Additionally, the 50th Space wing reduced its initial officer to enlisted ratio from 2.63 to 1 down to .65 to 1 creating a more balanced officer to enlisted force structure.[56]

The historical examples of enlisted pilots, satellite operators and air battle managers demonstrate that contrary to contemporary opinion, enlisted personnel have been capable of performing many duties deemed too technically complex for them. Furthermore, the major concerns about using enlisted aviators during World War II did not stem primarily from the belief that enlisted personnel would be inferior pilots, but rather from personnel type issues such as equal pay, officer-enlisted interaction, and the need to grow leaders from an officer pilot force. Past and recent concerns about enlisted personnel's ability to handle complex tasks have not been borne out by any historical evidence. Enlisted pilots were successful in World War II and many went on to fly increasingly more complex jet aircraft. Likewise, enlisted satellite operators and air battle managers have equally proven that they can handle complex tasks.

Many of the administrative objections raised during World War II, while valid at the time, no longer present the same challenges today because of cultural shifts within the Air Force. Officer and enlisted relationships have dramatically changed since World War II. Officers and enlisted personnel perform many similar tasks in a myriad of career fields to include contracting, combat control, air traffic control, satellite control and air battle management. Many airbases have consolidated officer and enlisted clubs and while fraternization is still prohibited by the Uniform Code of Military Justice, the strict separation between officer and enlisted personnel has been significantly relaxed over the past sixty years.

One concern that continues to be expressed is regarding an enlisted person's judgment and ability to make decisions. Every Air Force officer in the rank of Colonel and below is rated on this ability annually on his or her Officer Performance Report (OPR). The OPR lists the following examples under the performance factor entitled "Judgment and Decisions:"

> Makes timely and accurate decisions. Emphasizes logic in decision making. Retains composure in stressful situations. Recognizes opportunities. Adheres to safety and occupational health requirements. Acts to take advantage of opportunities.[57]

While the Air Force does not evaluate judgment and decision making skills of enlisted personnel on their performance reports until they reach the rank of Master Sergeant, typically at about the seventeenth year of service, this in no way indicates a lack of those qualities.[58] While most brand new officers probably have better judgment than brand new enlistees, this is most likely due to the fact that they usually enter the service at an older age and already have a college degree. Additionally, entrance requirements for enlisted personnel are not as stringent as those for officers and officers receive specialized pre-commissioning training that focuses upon judgment and decision making. However, this gap between officers and enlisted personnel quickly diminishes as enlisted personnel move up in rank and experience. Furthermore, many concerns about enlisted judgment and decision making stem from an earlier time when Air Force enlisted recruiting was not as selective as it is today. In describing the enlisted force of World War II, former Chief Master Sergeant of the Air Force Paul W. Airey stated:

> We had college graduates and those who couldn't read or write…You have to keep in mind, too, in those days we had people that were let out of jail to come into the armed forces. We had people who were in military prisons for felonies, including murder, who, when World War II broke out, were paroled in order to come on active duty.[59]

This is a far cry from the all volunteer enlisted force of today. As of 30 September 2007, 72.1% of Air Force enlisted personnel had some college and 23.1% had an associate's degree or

higher.[60] Additionally few in the Air Force could effectively argue against the proposition that there are many sergeants who possess better judgment than some lieutenants. For example, when a cadet graduates from the Air Force Academy or receives a Reserve Officer Training Corps commission, if he is medically qualified, he can compete for pilot training. He or she is assumed to have the requisite judgment by virtue of being commissioned. However, if it turns out that he or she lacks the requisite judgment to fly, he or she can be disenrolled from flight training. Such a presumption of judgment is also given to an enlisted person who has been promoted to the noncommissioned officer (NCO) ranks.

Ironically, even this discussion on enlisted judgment is framed by Air Force cultural norms. The principal norm is that only an officer truly possesses the judgment to fly a multi-million dollar aircraft and make split second life and death decisions. Col Mark Tapper, an experienced F-16 pilot with Operations Group command experience, when interviewed by Robert D. Kaplan for his 2007 book, *Hog Pilots, Blue Water Grunts,* and asked about unmanned planes making Airmen obsolete, replied, "It won't happen, because it's not chivalrous. We're the knights—the officers who take personal risk. That's part of our identity."[61] Mr. Kaplan noted that fighter pilots still see themselves as the cavalry coming to the rescue.[62] But the Air Force version of cavalry does not include enlisted personnel. This cultural norm goes against the very fabric of the American military tradition which has always entrusted state of art equipment and life and death decisions to enlisted personnel. In an article published in *Armor* magazine in 1973, Army LTC Carl M. Putnam argued:

> The noncommissioned officer is the cornerstone of every good Army organization. Why then should Army aviation units be the exception? Only in aviation is the commissioned officer used as the operator of a combat vehicle. With aviation unit employment becoming the rule rather than the exception, it is time for a reevaluation of aviation and a decision to utilize the flying sergeant in

> an organizational structure similar to other combat and combat support organizations. This means a rated commissioned platoon leader, commanding the platoon of noncommissioned aviators and other members of the aircraft's crew. [63]

It is only fitting that this account was published in *Armor* magazine because the M1A1/2 Abrams main battle tank is a very good weapons system to compare to the primary Air Force UAS, the MQ-1 Predator.

The M1A1/2 Abrams main battle tank is commanded by an Army squad leader, usually an E-6 Staff Sergeant. He is in charge of a crew of three soldiers and the $4.3 million tank. The tank has a 120mm smoothbore cannon, one .50 cal and two 7.62 mm machine guns. It carries 40 cannon rounds and over 10,000 machine gun rounds.[64] This Army Staff Sergeant is expected to lead his crew in combat and make life and death decisions while under fire and while living day in and day out in extremely arduous field conditions. Compare this to a rated pilot operating a similarly priced Predator from a comfortable climate controlled control station in the United States. The Predator only carries two hellfire missiles and the pilot only supervises one other crewmember. Unlike the tank crew, the Predator crew does not face the day to day risk of catastrophic death or injury, and at the end of its shift, the crew goes home. Furthermore, the norm for the tank commander is to make split second decisions on who to engage with little to no guidance, while the norm for the Predator operator is to receive some guidance from the Combined Air Operations Center for Air Tasking Order targets or the Joint Tactical Air Controller in the case of close air support targets. Given that the Army has less than 5,000 Abrams tanks in its inventory, it could also adopt a policy that only commissioned officers can command tanks, but such a policy would not properly utilize the talents of its NCO corps. But the better solution is that the Air Force follow the Army's example and allow NCOs to operate UASs because the judgment argument does not hold up to critical analysis.

A more traditional enlisted-to-officer ratio would also provide early career leadership opportunities for officer UAS operators creating a new class of warriors who grow up leading both enlisted and officer personnel while executing air power. Officers could fill the key squadron leadership billets, such as flight commander, operations officer, and commander, and enlisted personnel could fill the remaining billets. Maj Howard D. Belote, a fighter pilot, in his 1998 research paper for ACSC, titled "Leadership in the Fighter Squadrons: Does the USAF Properly Prepare Commanders?," concluded that the Air Force did not properly prepare fighter pilots to command because in most cases fighter pilots supervised very few enlisted personnel in their first twelve to fifteen years of service.[65] It is important to note that Maj Belote focused on the unique aspect of leading enlisted personnel. This skill is distinctly different than the leadership skills that most fighter pilots have in abundance--the ability to digest tremendous amounts of data and make life and death decisions in short periods of time. However, as General McPeak noted, this is not the same skill as leading enlisted personnel:

> A squadron commander, a flight-line operational squadron commander, no longer has 65 college-graduate volunteers under his command. He has got 300 guys, most of whom are not college graduates, trying to do something ugly out there with airplanes. The lieutenant colonel now has a completely different problem, and he is better prepared to handle the kind of intellectual challenge that high command involves. So we are trying to make people flexible, by which I mean break the mold on static thinking.[66]

And just as there is no substitute for developing fighter pilot leadership skills early in one's career, there is no substitute for developing enlisted leadership skills early in one's career. A second lieutenant "butter bar" has no real rank to fall back upon when he or she supervises enlisted personnel – the lessons he or she learns are invaluable and the mistakes he or she makes are usually forgiven. When a more senior officer makes these same mistakes, enlisted personnel are less likely to understand or forgive them. This lack of leadership training is a result of the

pilot shortage that keeps pilots in the cockpit and of an Air Force cultural norm that equates "leadership learned in the cockpit" to leadership learned by supervising enlisted personnel. This "cockpit leadership" is assumed to flow naturally from "airmindeness."

General Arnold originally used the term "airmindedness" to mean the Airman's "particular expertise and a distinctive point of view."[67] However, this term has morphed over the years to become synonymous with leadership skills. In a 1947 Air University study entitled "Qualifications Desirable in an AAF Officer," Capt Robert O'Brien, in an undated memorandum addressed to Maj Gen David M. Schlatter, then acting Commandant for the Army Air Forces School (precursor to Air University), wrote that all military instruction must be centered around airmindedness. Specifically "with flying as a nucleus, other related subjects would fall naturally into the course and acquire greater meanings: the necessity of military organization becomes more apparent; the development of planes and the principles of flight take on a useful significance; the knowledge of aerial equipment, tactics, and strategy may be insinuated and developed from the experience of flight."[68] This emphasis on airmindedness has led to a focus on flying to the detriment of actual command experience among senior Air Force officers. A review of the biographies of the last five Air Force Chiefs of Staff shows that only two served in a non-flying position during the first ten years of their careers and neither of these positions involved supervising personnel. General Ronald R. Fogleman taught history at the Air Force Academy and General Schwartz was in the Air Force Intern program.[69] In contrast, all of the biographies of the senior aviators from the other services show non-flying assignments such as platoon leader, company commander, motor officer, landing signal officer and aircraft maintenance officer within the first ten years of those officer's careers.[70]

Thus airmindedness serves the purpose of keeping pilots in the cockpit while rationalizing why those pilots receive little to no traditional military leadership training early in their careers. Later on, when those pilots do receive leadership training by serving as squadron, group and wing commanders, airmindedness then becomes the almost exclusive criterion for leading larger Air Force units. While airminded pilots accept this criterion as a universal maxim, those outside of the Air Force have not been so accepting. This debate usually arises in the context of congressional funding for the various incentive pays that Air Force pilots receive. When questioned by congress in 1957 on why general officers should keep flying and receive flight pay, Gen Nathan F. Twining responded:

> However, there is also a tendency that creeps in, to take people off flying status to save money; for example, to stop a pilot from flying just because he has 25 years service. Nothing could be more disastrous. If this were done, you would eventually have people at the head of the Air Force that had not seen an airplane in a long time—that is, had not kept up. Leadership would slip backwards.[71]

A counter point to this argument is questioning whether or not leadership would take a step forward if the Air Force were led by Generals who had not seen an airplane in a long time because they then might be more focused on airpower vice the airplane. However, this focus on manned aircraft continues well beyond realistic operational requirements for flying. All of the rated MAJCOM commanders, in addition to many other rated general officers continue to fly. Air Force Instruction (AFI) 11-401, *Aviation Management,* lists over eighty general officer assignments as qualifying for operational or indoctrination flying. This even includes Space Command whose primary mission does not include flying manned aircraft.[72] Without invoking the concept of airmindedness, it is hard to imagine a true operational reason to justify why a four-star general needs to fly. This begs the question of whether or not an Army infantry four-star general is remiss in not practicing small unit tactics on a monthly basis to ensure that he still

has a firm understanding of how to employ large Army units such as divisions and corps. Ironically airmindedness has created a cadre of Air Force senior leaders who identify more with their ability to fly than with their ability to lead Airmen. Allowing enlisted personnel to operate UASs in addition to officers will create early command and leadership opportunities for UAS officers and better prepare them for future command because they will have learned early in their career how to balance the responsibilities of command with the responsibilities of providing airpower.

Not only would officers gain valuable leadership experience by leading enlisted UAS operators, but those enlisted UAS operators could reclaim an important part of their enlisted heritage. In World War II, up to 300,000 enlisted men served as aerial gunners in addition to those who served as pilots and other aircrew.[73] Enlisted aircrew comprised at least 10% of the total enlisted force, yet as of 30 September 2007, only 3.68% (9,578) of 259,651 total enlisted personnel were assigned to flying duties (aircrew operations career field). This compares to 23.69% (15,385) of 64,949 of the total officer force assigned to flying duties as pilots or navigators. Since flying still remains the Air Force's primary mission, this disenfranchising trend, although driven by mission requirements, is, arguably, counterproductive to creating a cohesive organization. Thus allowing enlisted personnel to operate UASs could reverse this trend and help create a more inclusive Air Force.

Another advantage of using enlisted personnel as UAS operators is the ability of the enlisted force structure to rapidly adjust to service needs. The Air Force currently plans on training 240 UAS operators per year. As previously discussed, filling these positions with rated pilots will further exacerbate the pilot shortage. Using non-rated officers is a fix, but the officer career fields are not as flexible as the enlisted career fields when it comes to rapidly changing

personnel requirements. The enlisted career fields are designed around this very requirement. Enlisted career field managers can increase/decrease accessions and retrain personnel from other career fields with relative ease. On the other hand, officer career fields are much more difficult to manage and imbalances often result in force shaping programs that are expensive and often adversely impact officer morale. The Fiscal Year 2008 Force-Shaping Program offered voluntary separation pay at three times the normal involuntary separation pay rate to officers with 12 to 15 years time in service and also planned on convening a force shaping board for officers in overage career fields in the 2005 year group. [74] This force shaping board was subsequently cancelled, but it is a graphic example of the difference in enlisted and officer force shaping options in that no special measures were necessary to reduce the enlisted force.[75]

Perhaps one of the most significant reasons to use enlisted personnel is the substantial financial savings the Air Force could realize. These savings could be realized both directly and indirectly. A married captain with five years time in service receives $5731.46 monthly in base pay, housing and subsistence allowance. If the captain is a rated officer, he or she receives an additional $206 per month. A married staff sergeant with five years time in service receives $3,265.23.[76] So using a married staff sergeant instead of a married captain saves the Air Force $32,066.76 per year. Additionally, as previously discussed, training a non-rated person to fly UASs instead of a rated pilot saves $672,051 per person.[77] Just converting 100 rated officer UAS billets to enlisted Staff Sergeants billets could save the Air Force $67.4 million in the first year and $3.2 million each subsequent year.[78] A counterpoint is often raised that when it comes to training the appropriate personnel as UAS operators, the Air Force should not take financial short-cuts. This argument is self-defeating in that is pre-supposes that pilots are clearly the best choice to operate UASs. But that decision must be made independent of fiscal constraints. In a

period of drawdown where Air Force leaders have made the decision to voluntarily separate personnel to save money for the acquisition of new manned aircraft weapon systems, to turn the blind eye here would be hypocritical and potentially bad for overall Air Force morale.

The final reason to use enlisted operators to fly UASs is the fact that the Army, Navy and Marine Corps all use enlisted UAS operators. The Army is embarking upon an aggressive UAS expansion program in which it plans on equipping eleven of its medium and heavy Combat Aviation Brigades with a Sky Warrior Extended Range/Multi-Purpose UAS system by Fiscal Year 2011.[79] Each system will have 12 MQ-1C Sky Warriors operated by enlisted personnel.[80] Since the Army has been using enlisted UAS operators for quite some time, there is little reason to doubt the success of this program. Once this program is fully implemented, the Air Force could potentially open itself up to significant congressional scrutiny on both the pilot and UAS manning shortage. For example, in a 1957 Defense Appropriations hearing, Congressman Scrivner noted: "a lot of places you have majors and colonels with flying pay doing jobs that a good three-striper ought to be able to carry."[81] Such a question could prove difficult for the Air Force in the UAS context and might even cause Congress to more closely scrutinize the pilot shortage and economic incentives such as Aviaiton Continuation Pay designed to encourage pilots to stay in the Air Force. When three services are marching in step and one is not, that service is easily noticed--especially if that service could be perceived to be "elitist" when compared to the other services.

This chapter has explored the potential benefits of using enlisted UAS operators in addition to officers. The demographics of the enlisted corps has dramatically changed in the last fifty years--enlisted personnel are now older, more educated and excelling in many former all-officer career fields. A significant portion of the enlisted force now does possess the judgment

and decision making skills necessary to operate UASs. Furthermore, using enlisted personnel as UAS operators could increase junior officer leadership opportunities, restore the enlisted flying heritage and save the Air Force significant money in this era of shrinking defense budgets. Finally, the use of enlisted UAS operators could potentially preclude the ever-increasing congressional scrutiny of the Air Force UAS program.

V. RECOMMENDATION

The need for UASs is going to increase in the future. The only question is how much. The Air Force needs a flexible solution to train UAS operators. Enlisted personnel could potentially provide this solution. However, this solution is an untested concept and must be explored further to determine if it is viable. The following parameters are recommended for a trial program that would train enlisted personnel as UAS operators. With the exception of rank, these parameters should closely mirror the non-rated officer trial program announced by General Schwartz and detailed in a message dated 7 October 2008, subject: Soliciting Volunteers for Unmanned Aircraft Systems (UAS) Beta Test Program.[82]

1. Use a test size of ten enlisted personnel – this is the same group size as the non-rated officer UAS trial program. These personnel would receive the exact same training curriculum.
2. Primarily select these personnel from a group of volunteers from career fields that are most closely related to UAS operations. This should include the aircrew operations and battlefield airmen career fields. These personnel would have experience in aircrew operations which would facilitate some of the training.
3. Use the Air Force Officer Qualification Test (AFOQT)[83] as a selection criterion for admission into this program: minimum scores of pilot >25, combined pilot/navigator composite >50. This would ensure the applicant would have the required aptitude to learn how to fly the UAS.
4. Only select Staff Sergeants and higher with exceptional enlisted evaluation reports who are under the age of thirty and are willing to reenlist so that they can serve at least six

years as a UAS operator. This will ensure that the applicants possess the requisite maturity and judgment and will have significant retainability once trained.

This program would allow the Air Force to scientifically evaluate whether or not enlisted personnel could serve as UAS operators based upon actual performance vice the conjecture of mid-grade officer UAS operators and General officers.

VI. CONCLUSION

General Schwartz has said that "no options are off the table, and we will look at all possible solutions."[84] However, sometimes cultural norms preclude certain options from even being placed on the table. Such is the case with enlisted UAS operators. This paper advocates that the Air Force look past its legacy of the officer-pilot and create a trial program to determine whether or not enlisted personnel can be trained to fill UAS operator billets currently filled by rated pilots.

The first chapter of this research paper discusses the pilot and UAS operator shortage and why the Air Force needs to look beyond rated pilots for its pool of UAS operators. The second chapter informs the reader on the successful history of enlisted pilots and explains why the Air Force ceased using enlisted pilots. It places special emphasis on the fact that the Air Force gravitated to an all-officer pilot force because of a perceived need to grow pilot leaders and not because of any disparity in enlisted and officer flying ability. Air Force history has conclusively proven that a college degree is not a necessary prerequisite to becoming a successful pilot. On the other hand, a college degree is absolutely necessary for future utilization and development as a senior officer. Thus officer pilots require college degrees not to fly aircraft but rather to be successful officers. The final chapter discusses the potential benefits that the Air Force could accrue by using enlisted personnel as UAS operators in addition to officers. These benefits include increased junior officer leadership opportunities, restoration of the enlisted flying heritage, significant financial savings and a reduction in congressional scrutiny of Air Force UAS programs.

The enlisted UAS operator is an option and it must be seriously examined. Rather than debate the viability of this option in academic and policy circles, the Air Force should implement

a trial program to determine its feasibility. The Air Force spent significant periods of time in its infancy to overcome Army cultural barriers and ground-centric thinking in order to realize the full potential of the airplane and therefore airpower; it would now be an ironic twist of fate if Air Force cultural barriers and airmindedness prevented the Air Force from realizing the full potential of the unmanned flight and therefore air power.

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ENDNOTES

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