Trimming the Air Force Special Operations Command Redeployment Process

Graduate Research Paper

Frank R. Marquette, Captain, USAF

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Abstract

The purpose of this research is to explore options to bring Air Force Special Operations Command redeployers back to their home stations quicker than the current process and improve deploy-to-dwell ratios. Specifically, this paper explores organizing the redeployment process based off the turnover requirement of the redeployer first. Airlift can be optimized based off the redeployers requirements. The research explores blending aggregated airlift with commercial tickets to return deployers on separate timelines. By doing so, 280 days of dwell time can be recovered for a group of a 100 deployers. This model gives commanders flexible transportation solutions to manage the deploy-to-dwell ratio of their force.

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I. Introduction

Background

Since the creation of United States Central Command (USCENTCOM) in 1983, the United States has been involved in several major conflicts in the region. These range from Operation Desert Storm in 1991 to Operation Iraqi Freedom (2003-2011), as well as the ongoing war in Afghanistan (Britannica, 2017). Throughout these conflicts, several lessons have been learned regarding the movement of people and equipment in and out of CENTCOM. This movement process differs between services. The Army presents their force capabilities in Corps (JP 3-31, 2019) and deploys entire units together; the Navy uses adaptive force packages (ships with their associated sailors) (JP 3-32, 2018). Unlike these, the Air Force presents forces in Unit Type Codes (UTCs) (AFI 10-403, 2016). UTCs can range from an individual deployer, or piece of equipment, to multiple aircraft, crews, and support personnel. This means that while the Army and Navy typically rotate entire units and their associated equipment for every deployment, Air Force units leave aircraft and equipment in place and redeploy the airmen on a different cycle. This allows one unit to provide the personnel and a second unit to provide either the equipment or aircraft.

Conventional units in the Air Force are organized in six-month deployment cycles (AFI 10-401, 2006). This provides airmen with a level of predictability regarding deployment dates. Unlike conventional units, Air Force Special Operations Command (AFSOC) Airmen are organized as enablers. Enablers are deployable forces that are not restricted by a six-month deployment window and can be available year round. This is due to the small number of airmen who provide unique capabilities; there are not enough of them to be organized into six-month windows and still provide continuous availability. AFSOC deployments typically range from 60 to 120 days. To compensate, AFSOC deployments are shorter in duration but higher in frequency. This results in an airmen with a 1:1 deploy-to-dwell ratio in a conventional Air Force unit going through the deployment process once in a one year period for a six month deployment. This differs from their AFSOC counterparts who would have been through the deployment process six times on 60 day deployments, or three times on 120 day deployments. Based on this information, this causes AFSOC units to be anywhere from three to six times more sensitive to inefficiencies in the deployment process. The increased sensitivity to the deployment process combined with a small pool of AFSOC Airmen to deploy has created a situation where airmen are scheduled for their next deployment before having returned from their current one. From both the supporting perspective of Deployment and Distribution Flight Commander 27th Special Operations Wing, as well the supported perspective of deputy Director of Logistics in the deployment environment, it is evident that there are areas for improvement in the deployment and redeployment process. The goal of this paper is to identify and reduce inefficiencies in the process to give AFSOC Airmen more time at home between deployments.

The research questions are as follows:

1. How many days are there two groups of airmen deployed at once as a result of a redeployment?
2. How does the redeployment process for AFSOC compare to the conventional Air Force?
3. What would the financial cost be to expedite the redeployment process for AFSOC members?

This research will explore and outline the current redeployment process for AFSOC forces, propose an alternative way of planning the redeployment of AFSOC forces, and then compare the two. Additionally, the research will cover current military doctrine and policy related to the redeployment process, as well as what has been written on the topic. The aim of the research is to determine how to bring the majority of AFSOC forces home from deployment quicker than the current process.

II. Literature Review

While there is literature available in several areas related to transportation in the military redeployment process, the three overarching areas are historical context, policy, and operational guidance. By reviewing these three areas, the reader will be provided with the following: (a) how the redeployment process is currently structured, which will highlight strengths and weaknesses of the process; (b) what created the environment in which AFSOC operates today; and (c) the impact of the redeployment process on the deploy-to-dwell ratio for AFSOC forces.

Historical context

One of the first documented needs for scheduled redeployments was in 1942 by Lt Gen George H. Brett. While in Australia, he noticed that fighter pilots and bomber crews were being "burnt out" in combat (USAF Historical Division, 1968). In operations against the Japanese, Lt Gen Brett warned that, "Unless replacements are available in the near future the Air Force will lose valuable personnel through excessive combat duty" (USAF Historical Division, 1968, pg 1). In less than six months after Army Air Forces (AAF) entered combat in World War II, the AAF officer commanding Allied Air Forces called for rotation of combat crews (USAF Historical Division, 1968). To solve this problem, the War Department directed in July of 1942 that crewmen return to the United States after one continuous year of combat duty (USAF Historical Div, 1968).

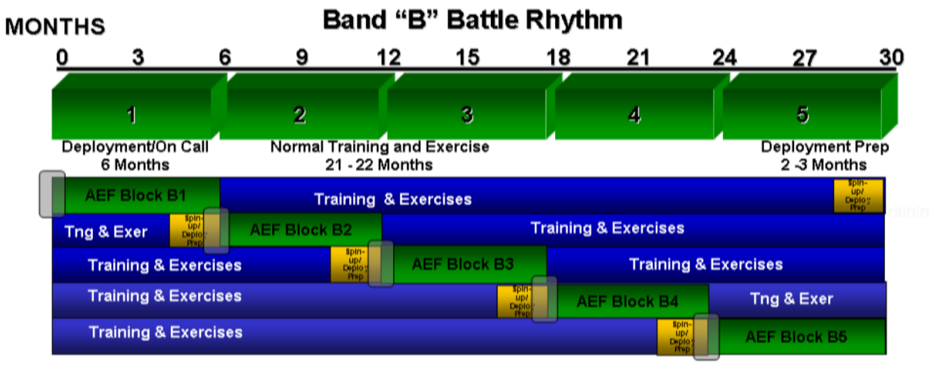
World War II is not the only occasion during which there has been a need to rotate combat forces from the front lines. To circumvent burn out in the Korean War, a plan was developed in 1951 to rotate combat crews based on what type of mission they flew: 100 missions in single-engine fighters and in air control and tactical reconnaissance aircraft; and 50 missions in light and medium bombers, twin-engine fighters, and multi-engine reconnaissance aircraft (USAF Historical Div, 1968). At the time, it was observed that individuals with no promise of return naturally see only one end, namely that of eventually being killed (USAF Historical Div, 1968). Fast forward 78 years and the Department of Defense is still rotating combat forces out of theater to prevent burnout.

Just as the requirement for rotating combat forces is not new to the Department of Defense, neither are the tools used. The first time military airlift was used for redeployment operations was in 1918 when Major Nelson E. Driver and Captain William C. Ocker modified a JN-4 Jenny to transport injured pilots in a semi-reclined position in the rear of a cockpit (MAC Part I, 1991). Although a training environment, this action had an operational impact and was the first example of military air in redeployment due to a medical situation. Although this capability was identified in 1918, it did not gain any traction until the realignment of Army Aviation from the Army Signal Corps to the Army Air Service in 1920. In 1926, the Army started to purchase cargo planes and to consider air transportation as a viable mode of movement for wounded soldiers or high-ranking officers (Headquarters Military Airlift Command, 1991). While the Army was developing an aircraft inventory, it experimented with bombers to move mail and critical supplies through the developing network of airfields across the continental United States. While this does not necessarily meet the criteria for military airlift used in redeployment operations, this is the bedrock on which the capability was placed.

While the Army Air Corps increased its inventory of aircraft for transportation options, the commercial market was evaluated for solutions as well. The civilian component of military airlift is called the CRAF program. The CRAF (Civil Reserve Air Fleet) was created when President Franklin D. Roosevelt granted authority to take possession of any commercial aircraft required by the war effort as a result of the President’s experiences in World War II (Grimer, 2011). In the 54 year history of the CRAF program, it has only been activated on two separate occasions, both as examples of deployment and redeployment operations (Bolkcom, 2006). The first time CRAF was activated was from August 18, 1990 to May 24, 1991 (Bolkcom, 2006). This was necessary to move over 500,000 American service members who deployed in support of Desert Storm (Collins, 2019). The second time was February 8, 2003 to June 18, 2003 to move the 146,000 troops into theater in support of Operation Iraqi Freedom (OIF) (Bolkcom, 2006). Since that time, the number of American forces in the CENTCOM Area of Responsibility (AOR) has fluctuated over the past two decades and is just over 5,000 as of January 2020 (Episkopos, 2020). While the current number of American Service members is roughly three percent of what it was from the major surge in 2003, their redeployment has been spread out over time which has caused the military to turn to other tools besides CRAF for their redeployment.

Operational Guidance

The redeployment process is executed through the guidance provided by AFI 10-401, Air Force Operations Planning and Execution and AFI 10-403, Deployment Planning and Execution. AFI 10-401 is the document that outlines how the Air Force is broken up into AEF bands to provide predictability and to keep the Air Force on a 24-month cycle for most of their forces. A visual example of how the six-month bands overlap to provide the Geographic Combatant Commander (GCC) continuous support is provided in Figure 1, Band "B" Battle Rhythm:



(AFI 10-401, 2006, pg 31)

The alternative to using AEF cycles to band troop deployments is to code them as enablers. Enablers are common user assets, such as global mobility forces, special operations (SOF) and personnel recovery forces, space forces, and other uniquely categorized forces that provide support to authorized organizations within and outside the Department of Defense (DOD). Enabler forces will rotate as operational requirements dictate (AFI-10-401, 2006).

On the surface, it may appear that the only difference between enablers and AEF banded forces are when they are available for deployment, but that is not the case. The two methods of organizing deployers has a significant impact on how they are moved into and out of the deployed environment. When an F-16 squadron is deployed to a location, they remain there for the duration of their deployment and are then relieved by a second F-16 squadron from a different base. A full redeployment is conducted, and the first F-16 squadron is brought back to the states to reset. Due to the small number of airmen who possess a unique capability, AFSOC enablers are relieved by members from their own unit at home. For example, a CV-22 maintainer is relieved by another maintainer from the same home station unit, putting the squadron within AFSOC down two maintainers at once for one deployment. This results in a small pool of airmen being relieved by members of their own unit and any delay in a redeployment only compounds within the unit. When these airmen are not redeployed on time, the timeline for future deployments is immediately impacted.

While the importance of on time and rapid redeployment is clear, how to reach that point is not easy. The process begins with the deploying command communicating their transportation requirements to United States Trasnportation Command (USTRANSCOM) through Joint Operational Planning and Execution System (JOPES). JOPES produces Time Phased Force Deployment Data (TPFDD), which is the tool that comunicates transportation requirements, such as number of personnel, ammount of cargo, locations, and dates. The 618th Air and Space Operations Center within USTRANSCOM, also known as Tanker Airlift Control Center (TACC), uses this information to schedule airlift for deployment and redeployments. When conventional forces do their semi-annual deployment rotations, TACC is able to use the TPFDDs to schedule commercial and military airlift to enable those monthly rotations. To provide an example of how this could look for a conventional unit, such as Travis Air Force Base (AFB), Travis AFB may have 100 airmen deploying a certain month, but the deployers go to several different locations. Depending on when the deployers need to be in place, TACC would schedule a chartered flight from Travis AFB to an intermediate point such as Ramstein Air Base, Germany. From there, the deployers would take military Airlift based off of their Report No Later Than Date (RNLTD) to their final location. If the RNLTDs are spread over too large of a date range, the deployers would fly commercially from their local area to the east coast where they would consolidate with other military passengers on their way to Germany for military airlift to their final destination. While this may seem less efficient than scheduling a single flight all the way to Germany for the 100 deployers, the benefit is that the delay of a small group of these deployers does not delay the entire movement.

AFSOC follows the same process but typically uses aggregated airlift straight into the theater. The deployers are picked up by the chartered flight from their assigned Air Force bases and are flown straight to their Port of Debarkation (POD). For some deployers, the POD is their destination for the deployment; however, most deployers move forward from the POD. The movement from the POD to the deployers' final destination at a forward location is done via intratheater airlift. The intratheater airlift is accomplished via tactical military airlift such as C-130s, rotary aircraft, and C-17s, because the locations are too dangerous for commercial airlift to fly to directly. The intratheater airlift is coordinated by the Air Mobility Division (AMD) of the Deployment and Distribution Center. They have tactical control of mobility aircraft for the theater. The process that the AMD of Central Command's Deployment and Distribution Center (CDDOC) uses is a three-day movement window for airlift. Starting at 0000 Zulu on the first day of requested travel, the deployer and redeployer are required to be available for movement for 72 consecutive hours. This means to guarantee one day of turnover between the inbound and outbound deployers, a six-day movement window has to be scheduled into the redeployment.

This is visually represented in Figure 2.

Figure 2 – Model of movement and turnover schedule at Forward Deployed Locations

Inbound Deployer				Outbound Deployer		
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Three day movement window			Guaranteed one day Turnover	Three day movement window		

While this might seem insignificant, when viewed over the totality of a six month deployment, there is a disproportionate effect on AFSOC forces when compared to conventional forces. With AFSOC forces being enablers, they fall into shorter deployment cycles, ranging from 60 to 120 days, that do not align with the larger Air Forces deployment rotations. Due to the fact that the duration of their deployments is shorter, the frequency has to increase in order to compensate for the shorter deployment cycles. The higher frequency of deployment when compared to the conventional Air Force means that any inefficiency in the movement process into and out of the theater is more burdensome for AFSOC forces.

Policy

Military doctrine is where historical context meets operational guidance. General Mattis, former Commander of USCENTCOM, summarized military doctrine as, "a written guide, based on historical precedents, of the best fighting practices for commanders and troops to follow. Doctrine lays out principles… based on lessons learned in experiments or at great cost in bloody battle. Every corporation and government agency follows a doctrine, whether written or unwritten" (Mattis, 2019, pg 154). The most applicable military doctrine to the current issue is doctrine regarding military deployments and redeployments. All military doctrine concerning deployment and redeployment operations fall under Joint Publication 3-35, Deployment and Redeployment Operations. Although JP 3-35 definition of redeployment includes redeployment operations for the transfer of personnel, equipment, and materiel from one supported [Geographic Combatant Commander's] AOR to another, this current focus is on redeployment as the return of forces to home station.

A force multiplier highlighted in JP 3-35 is Host Nation Support. This is a concept that is a core function of the current structure of deployment and redeployment operations within the CENTCOM AOR. A long-standing example of this support is the assistance that the Kuwaiti government provides to air mobility. In May of 2019, a ribbon cutting ceremony was conducted for the symbolic opening of "Cargo City", located at Al Mubarak International Airport. The establishment of this facility had been negotiated for over ten years. The opening of "Cargo City" demonstrated that the Kuwaiti Government would continue the Host Nation Support to

American and Allied forces through access to airport infrastructure (Cloys, 2019). Support from partner nations, such as Kuwait, is what allows the DOD to operate in the manner in which it currently does. If partner nations did not provide host nation support, the military airlift system would be further strained as commercial aircraft would not be able to transport military personnel and troops as closely to the front line. This would stretch the already limited military airlift system even further to maintain the current pace of operations.

By providing the framework for deployment and redeployment operations, JP 3-35 identifies some questions that planners should ask before conducting a redeployment. Examples of these questions are: What forces and capabilities are necessary to accomplish the mission? Are the required forces assigned, currently allocated, or readily available on the required timelines? (JP 3-35, 2018). By asking these questions, JP 3-35 teaches planners to minimize the unnecessary movement of equipment in and out of theater. AFSOC uses this technique by leaving aircraft and equipment in place for extended periods of time while only regularly rotating airmen. The smaller redeployment packages allow for a shorter redeployment period than if all equipment and aircraft were rotated with the airmen.

The Air Force has also provided doctrine to help continue shaping the framework of deployment and redeployment operations. Annex 3-17, Air Mobility Operations, provides the doctrine for the use of utilizing military and civilian airlift in support of deployment and redeployment operations. An example of this is the CRAF program in Annex 3-17, which outlines the organization of national and international sections of CRAF (Annex 3-17, 2019). Although CRAF works well for a large force deployment of personnel and equipment to part of the world, AFSOC typically moves in smaller packages. Another tool that Annex 3-17 provides is the Theater Express (THX) Contract. This is a contract that enables regional commanders to enlist commercial air cargo companies to move air cargo in single pallet increments (Annex 3-17, 2019, pg 12). THX provides access of the economies of scale when blending commercial and military air freight. This allows commanders of enabler forces who do not fall in-line with the semi-annual deployment rotations opportunities to move military equipment outside of organic military airlift. This tool is more attractive to AFSOC because it does not require a large amount of cargo to get airlift, which works especially well when used for the redeployment of cargo that does not have a short timeline.

The final portion of Annex 3-17 that has a strong impact on deployment and redeployment operations is the establishment of a Director of Mobility Forces (DIRMOBFOR). The DIRMOBFOR is the coordinating authority between the 618th Air Operations Center and the geographic Air Operations Center Air Mobility Division (AMD) to validate intratheater air mobility requirements (Annex 3-17, 2019). All personnel movements and most cargo movements in support of deployment operations require the coordination of the theaters DIRMOBFOR to get to their final locations in theater. The DIRMOBFOR is the individual ultimately responsible for reviewing all mobility requests and assigning the appropriate tool, whether organic military airlift capability or contracted civilian augmentation, to move personnel and equipment.

Chapter 2 Conclusion

Military redeployment is as old as war itself. While much has been written on the topic, the overall writing does not solve the problem of quickly moving small groups of AFSOC Airmen into and out of the AOR. As military aviation has continued to develop throughout history, it has grown in both capacity and capability, providing not only organic military airlift options for deployment and redeployment operations but civilian augmentation as well. This was done through the development of the CRAF program and THX contracts. All of these programs are designed to provide options to the DIRMOBFOR and commanders in moving their deployers and equipment.

In addition to the historical material written on the topic, there is much to be gained in understanding the current operational guidance in executing deployment and redeployment operations. This can be found in AFI 10-401 and 10-403, which provide the overall framework of how the Air Force, including AFSOC forces, are organized to provide continuous capability to Combatant Commanders. While the overall framework is in place, some of the unique aspects of being assigned as an enabler instead of in an AEF cycle starts to have an impact on the ability to schedule redeployment for AFSOC forces.

Finally, this operational guidance is rooted in military doctrine, at both the Joint Chief of Staff and service levels. Joint Publication 3-35 provides the overarching framework for deployment and redeployment operations in the entire DOD. This document is helpful in framing the questions that need to be answered to operationalize the commander's intent, such as: "What forces and capabilities are necessary to accomplish the mission?" (JP 3-35, 2018, pg III-7). While there is literature on all the above topics, this paper will bring together these pieces to answer the previously stated research questions.

III. Methodology

It took several months for a problem as large as the redeployment process for an entire Major Command to become clear. This problem set was observed both from the home station perspective, as well as the supported side in the deployed environment. Ten cycles of deployment and redeployments were observed and analyzed for effectiveness against the research questions. The outcome of the proposed changes is theoretical due to the gravity of real-world deployments, the international impacts they could have, and the challenge of coordinating with USTRANSCOM to propose and implement change. Additionally, there were several assumptions and generalizations made due to the scope of the problem set and the possible aggregation of classified information.

Rotating Deployed Forces

To answer the first research question, the TPFDDs for the 10 deployment cycles were reviewed for how long a member was away from home station due to both travel and turnover. This information resides within the Installation Deployment Readiness Cells on every Air Force base. The timelines that were executed were fairly close to the TPFDDs and only varied due to unforeseen issues, such as aircraft maintenance delays. In reviewing the TPFDDs, a general timeline appeared that appeared to follow a 13-day movement window, represented in Figure 3.

Figure 3: Current model of deployment schedule

Current Model	1st of Month	2	3	4	5	6	7	8	9	10	11	12	13	14
Deployed to PODs	Depart home station	Arrive at POE	TURN OVER									Depart POD	Arrive Home	
Forward Deployed			AMD movement to Fwd location			TURN OVER			AMD movement to POE					

To further identify the turnover requirements of the deployers downrange, they were grouped into three different categories. Type I deployers were members who needed 24 hours or fewer of turnover with their replacement. This was based on the knowledge that several of the deployers were returning to a location that they had deployed to in the past and their job home station aligned closely to what they were doing in the deployed environment. Type II deployers were those who required three to six days of turnover. These airmen were supporting staff whose duties involved projects started prior to their arrival or were mission commanders who required several days of orientation to acclimate to the operational environment. The final group of deployers were grouped together as High Demand Low Density (HDLD) assets. HDLDs were defined as members who had a significantly low deploy-to-dwell ratio. As a result of their low deploy-to-dwell ratio, commanders considered the need to expedite their redeployment important enough that commercial tickets directly to home stations were purchased and avoided the use of aggregated airlift mission altogether.

Conventional and AFSOC redeployments

In comparing the AFSOC deployment process to those of conventional Air Force Units, the TPFDDs from research question one and AFI 10-403 were used. In reviewing the conventional process, experiences were drawn upon from observing the process at Joint Base Lewis-McChord as well as the small number of AEF taskings that Cannon AFB received to support during a 10-month period. While both conventional and AFSOC deployments follow the same process, the expectation was that AFSOC deployments would have much more flexibility due to their small numbers.

Better, Faster, Cheaper?

In reviewing whether the redeployment process could be shortened and at what financial cost, a comparison was made between a model which kept all deployers on the same return flight to one where the deployers were allowed to return home on different flights. The redeployers who had the shorter turnover requirement flew home on the aggregated airlift mission and the deployers with the longer turnover requirement flew back commercially afterwards. This was done because the process was already as lean as possible given the two constrains. The first constraint was that all deployers must return on the same flight, and the second one was the three day movement window associated with military airlift as the only means for deployers to return to the PODs. While there are no feasible alternatives to military airlift from forward locations back to the PODs, there is nothing that requires all deployers to return on the same flight. In order to explore this idea more, an alternative redeployment schedule was developed to show how moving the majority of redeployers home via aggregated airlift was possible on a shorter timeline if the minority that required the longer turnover went back via channel mission. This model is represented in Figure 4.

Figure 4: Proposed model of redeployment schedule

Proposed Model	1st of Month	2	3	4	5	6	7	8	9	10	11	12	13	14
Deployed to PODs (All Types)	Depart home station	Arrive at POE	TURN OVER						Depart POD	Arrive Home	Time Recovered			
Forward Deployed (Type I)			AMD movement to Fwd location			AMD movement to POE								
Forward Deployed (All Type II)						TURN OVER			AMD movement to POE			Commerial Flights to Conus		Arrive Home

The current model was compared with the proposed redeployment schedule in terms of cost, leading to several follow-up questions, such as the per seat cost of the aggregated airlift and the additional cost of commercial tickets from the east cost to the deployer's home station. To determine the answer of the cost per seat for aggregated airlift, the answer was found in the proposed fiscal year 2020 uniform rates and rules document from USTRANSCOM. This document has the rate per mile per seat according to aircraft type. From there, a typical route is created; for the purposes of this paper, the route is set as Al Udeid Air Base, Qatar (OTBH), to

Kuwait International Airport (OKBK), to Keflavík International Airport (BIKF), to Hurlburt Field (KHRT), to Cannon AFB, NM (KCVS). This formula is illustrated in Figure 5. The full list of cost per seat mile out of Proposed FY20 Uniform Rates and Rules is listed in Appendix 1. From there, five tickets will be pulled from the Defense Travel System for government rate commercial tickets from Qatar International Airport to Lubbock, TX, which is the servicing airport for Cannon AFB.

Figure 5: Formula to Calculate Cost of Aggregated Airlift Missions

Estimated Round Trip Cost = Rate * Number of Seats * Number of Miles Round Trip

Estimated Round Trip Cost = .15257 * B757-200/200ER (~190 Seats) * 17,550

Estimated Round Trip Cost = $508,744.67

Estimated Per Seat Cost = Rate * Miles Round Trip

$2,677.60 = 0.15257 * 17,550

A few assumptions were made in order for the proposed model to work. First, it was assumed that there is always a group large enough to qualify for aggregated airlift. If the number of deployers or redeployers is too small, USTRANSCOM will not contract out a mission just to pick them up. The redeployers would be forced to take a channel mission to the east coast and then fly commercially home from there. Second, it was assumed the ratio between redeployers requiring additional time of turn over with their replacements would not drastically change over time. A drastic increase in the amount of deployers who need additional turnover would drive up the financial cost of sending deployers home commercially, as well as lessen the benefit gained in getting the aggregated airlift home sooner. Finally, it was assumed that the demand for AFSOC forces will remain as high as it has historically been. If the number of taskings were reduced, the amount of time AFSOC members could spend at home station would increase and the deploy-to-dwell ratio would improve. This improvement would create a diminishing return on bringing members home sooner for deploy-to-dwell reasons, leaving the proposed model to only cost additional money with little to no gain at that point.

A few assumptions were made in order for the proposed model to work. The first one is that there is always a group large enough to qualify for aggregated airlift. If the number of deployers or redeployers is too small, USTRANSCOM will not contract out a mission just to pick them up and the redeployers would be forced to take a channel mission to the east coast and then fly commercially home from there. The second assumption is the ratio between redeployers who need additional time of turn over with their replacements does not drastically change over time. A drastic increase in the amount of deployers who need additional turnover would drive up the financial cost of sending deployers home commercially as well as lessen the benefit gained in getting the aggregated airlift home sooner. The final assumption that the demand for AFSOC forces will remain as high as it historically has been. If the number of taskings were to be reduced, then the amount of time AFSOC members can spend at home station would increase and the deploy-to-dwell ratio would improve. This improvement would create a diminishing return on getting members home sooner for deploy-to-dwell reasons, leaving the proposed model to only cost additional money with little to no gain at that point.

IV. Results

Summary of Results

When compared to the current model, the proposed model was able to bring 95% of the redeployers back to home station 23% faster. These results were from a group of 100 redeployers with 5% meeting the requirement for additional turnover. Providing additional airlift to the 5% that remained for a longer turnover period cost the DOD $22,486. The $22,486 was for five empty seats on the aggregated airlift mission home at a cost of $13,338, as well as an additional $9,098 for five commercial tickets from Qatar to Lubbock, Texas. When analyzing the deploy-to-dwell rate of the entire group of redeployers, spending $22,486 on separating five redeployers from the main movement recovered 280 days of dwell across the entire group. The bottom line was that after spending a considerable amount of money to recruit, train, and equip these AFSOC Airmen, spending $22,436 would buy back 280 days of their time across the entire group.

Figure 6: Summary of Results

	Current Model	Proposed Model
Number of Pax on Aggregated Airlift	100	95
Number of Pax using Commercial Airlift	0	5
Opportunity cost of empty seats on Aggregated Airlift	$ -	$ 13,338
Cost of Commercial Tickets	$ -	$ 9,098
Total Additional Cost	$ -	$ 22,436
Total Time Recovered	0	280 days

Research Question 1

The first research question asked how many days two groups of airmen are deployed at once. The results were 13 days on average under the current model. If the proposed model were implemented, the number of days would fall from 13 to 10 for a majority of redeployers. While this may not seem like much, over the course of two years, saving three days per deployment can add up. Figure 7 shows the impact of those days over a two-year period of time using a different variety of deployment lengths for a deployer with a 1:1 deploy-to-dwell ratio.

Figure 7: Impact of Shorter Redeployment process a two-year period

Days recovered over 2 years per Deployer			
Length of deployment	Days in transit (Current)	Days in transit (Proposed)	Days Recovered
120 days	79 days	61 days	18 days
90 days	105 days	81 days	24 days
60 days	158 days	122 days	36 days

Research Question 2

Research question two asked how the redeployment process for AFSOC forces compares to the conventional Air Force. The largest difference is that a majority of members in the conventional Air Force deploy in the AEF cycles, making the deployment and redeployment process more predictable. To compensate for these semiannual surges, USTRANSCOM adds additional airlift into the system for forces going into and out of the AOR. AFSOC redeployments typically do not align with these windows and the additional airlift is not available to AFSOC forces. The second major difference is in the length of deployments: conventional Air Force units are aligned with the AEF cycles, making their deployment lengths around 180 days, whereas AFSOC units deploy in different lengths, ranging from 60 days to 120 days. The significance of this difference is that the shorter duration of their deployments drives a higher frequency of the deployment; thus, any time lost in transit to and from the deployed environment creates a larger burden for AFSOC forces when compared to their conventional counter parts (see Figure 7).

Research Question 3

The third research question asked what the required financial cost is to expedite the redeployment process for AFSOC members. The results suggest that it is minor. By purchasing commercial tickets for a few members, the majority of the force returns three days earlier.

The financial cost in expediting the redeployment process can be broken into two parts. The first part is calculating the opportunity cost of taking a redeployer who already has a seat provided on an “AK” or aggregated airlift mission and that seat possibly going empty. To find that cost, the total cost of the aggregated mission is determined. This was accomplished using the proposed Fiscal Year 20 Uniform Rates and Rules for air transportation published by United States Transportation Command. For the current purposes, the B757-200ER, with 190 seats, was selected as the aircraft. The full list of types of aircraft and the correlating rates is available in appendix 1. The route used for calculating the cost was the previously specified route (from Al Udeid Air Base, Qatar (OTBH), through Kuwait International Airport (OKBK), Keflavík International Airport (BIKF), Hurlburt Field (KHRT), to Cannon AFB, NM (KCVS)). This trip totaled 17,550 miles, bringing the total cost of the aggregated airlift to roughly $508,744.67, or $2,677 per seat.

This cost created the base line to understand the opportunity cost involved with allowing a seat to remain empty on aggregated airlift since the entire plane is paid for by the DOD. The second piece to be calculated was the cost of transporting the redeployer via commercial tickets. This model used commercial tickets instead of a channel mission to a POE and then commercially the rest of the trip in order to account for the large variations present in executing this in the real world (e.g., availability and schedules of channel missions). Quotes were obtained from the commercial travel office for estimated prices for one-way tickets from Doha International to Lubbock, TX (refer to Figure 8).

Figure 8: Average cost of commercial tickets from Doha Internal to Lubbock, Texas

Cost of Commerial Tickets per Season	
Season	**Price**
Spring	$ 1,907
Summer	$ 1,795
Fall	$ 1,756
Average	$ 1,820

To expedite the return of 95 redeploys by three days costs $24,486. Roughly 5% of the redeployers would be in key positions that require longer turnovers than the rest of the redeployers. Those 5% would return home via commercial airlines at an opportunity cost of $13,338 for the empty seat on the aggregated airlift mission and $9,098 for the commercial tickets per deployer. This totaled $22,486 for the members returning home by commercial airlines. By sending the 5% back via commercial tickets, the remaining 95 redeployers returned on day 10 instead of day 13. Three days across 95 redeployers is 285 days of dwell recovered. Five days were subtracted for the five members returning commercially, because they returned on day 14 in the proposed model, instead of day 13 on the current model. Over a two year period, the proposed model would save 6,720 days of dwell across 2,400 redeployers if the groups were, on average, teams of 100 members deployed on 90-day rotations. To save these 6,720 days of dwell, AFSOC would need to budget an additional $539,668 over two years for the additional cost in empty seats and additional commercial tickets.

V. Conclusion and Recommendations

Summary

This analysis concludes that slightly increasing costs with commercial airline tickets means that roughly 95% of redeployers get home three days sooner than the current model allows. While there are challenges and limitations with this approach, they can be mitigated with planning. Additionally, directions for future research are identified.

Recommendations

There is one short- and two long-term recommendations for moving forward with the AFSOC redeployment process. The short-term recommendation starts with implementing the proposed model, which would provide immediate relief on some career fields' low deploy-to-dwell ratio, but would not solve them completely. When implementing the proposed model, home station and down range commanders would need to work together to set a definition for who is considered a HDLD asset. The strongest recommendation for this concern is to make the decision based from a deploy-to-dwell ratio instead of career field. By doing this, it will be clear to the planners who requires commercial tickets immediately booked for return instead of waiting on the aggregated airlift. Additionally, by making it a universal standard, it will prevent the constraint from being moved from one area to another. For example, if all pilots are flown back commercially but airmen who maintain those aircraft (with the same deploy-to-dwell ratios) are not also expedited back, then there are pilots who can fly, but no maintainers to repair the planes.

Regarding long-term recommendations, AFSOC should conduct an academic study of how turnover is conducted in the deployed environment and determine if there are any areas for improvement. The benefit is that the manner in which turnover is conducted could possibly be improved, which would either shorten the turnover period or eliminate it altogether. While this paper has not analyzed this, a possible solution could be to hold pre-deployment video conferences to conduct some turnover with the deployers replacement prior to them leaving. The second recommendation is to look into the appropriate length of deployment for AFSOC forces. As stated earlier, the proposed model is an attempt to use a transportation solution to solve a deployment to dwell issue. Figure 7 shows the number of days lost in transit to and from the deployed environment. Under the current model, a deployer with a 1:1 deploy-to-dwell cycle on a 60-day tasking spends 79 days a year traveling to and from the deployed environment. If the deployer was put onto a 120-day cycle instead of a 60-day cycle, they would recover 40 days in a calendar year because they did not have to return to the deployed environment as frequently, without even changing the model. This is another way to recover days in the deployment process, which could be coupled with the proposed model.

Feasibility

While the proposed model is feasible, there are a few areas that will need attention to ensure the success of the model. The most challenging piece of the proposed model is the relationship with the host nation for the deployed location. There are some host nations that are not comfortable with United States service members utilizing their commercial airports to and from a deployed location because they are active combatants. There are many reasons why this can be an issue for some host nations, but the most significant problem is the implied support of American service members by allowing them to utilize commercial airports. Regardless of the official stance of the host nation, it leads their citizens and other nation states to believe that the host nation is actively supporting the military operations conducted by the hosted forces. In order to mitigate this, the DOD would need to work with the Department of State to ensure that the host nation was prepared to deal with any perceptions created by American forces utilizing their commercial airports to a larger extent.

The proposed model may also create leadership challenges with regard to how individuals will redeploy. Despite the vast amount of resources expended to train and educate military members to develop a steadfast discipline and dedication to service, there is always a human component of redeployment: a member wants to return home in the quickest way possible. However, this is not always the correct or most efficient method. This can lead to service members trying to manipulate the system to expedite their trip home, which creates a leadership challenge that must be actively managed. Selecting the method of redeployment must be based on the turnover requirement and not one's desire to return home quickly.

The final aspect of feasibility for the proposed model is the additional risk members are exposed to when traveling back via commercial means. While commercial travel is typically safe, there are inherent risks when utilizing it in the same environment that active operations are conducted. This would be a consolidation point that would allow an opposing force to target US forces on a consistent basis and could increase the risk for all involved, including active military and civilians. Mitigation techniques would need to be implemented to minimize overt military signature, but whether due to appearance, language, or behavioral norms, it will be difficult to blend all US military personnel into commercial airports.

Limitations

There are two limitations that need to be acknowledged in the proposed plan. The first limitation is the availability of commercial aircraft. One of the fundamental assumptions of the proposed model is that any deployer who requires more than a few days of turnover will be sent back via a commercially available flight. These commercial tickets are dependent on the availability of commercial carriers. If there are not commercial airlines servicing that area, or if their services are not at an acceptable frequency or standard, then the alternatives are as follows: (a) use the current model and delay 95% of the redeployers return for the last bit of turnover or (b) send the last 5% back via a channel mission. While the channel mission option is absolutely doable, it could take a considerably longer amount of time to bring the last 5% back. This delay could be as long as two weeks, which may be unacceptable to leadership if the 5% are key personnel.

The second limitation is the consistency in the deployment taskings. The genesis of the proposed model is to solve a deployment dwell problem with an expedited transportation solution. If the number of deployment taskings drop, then members would have longer between deployments and will have a better deploy-to-dwell rate. If the deploy-to-dwell ratio improves, the root cause will be solved and there will no longer be a need to expedite the redeployers trip home and using the current model will become the best course of action moving forward.

Future research

Future research could amplify the current findings, as well as provide value to AFSOC. One of the major constraints in this model is the reliance of the AMD to move forces from the POD to their final destination. This situation is generated from the fact that some of the final destinations are in areas that either commercial airlines are not willing to fly or are in areas that have a higher risk associated with them than military leadership is willing to accept. Further research could produce options for new operating locations that would allow commercial aircraft to their final location. This would eliminate the reliance on the AMD to transport them last mile. This would be challenging as the benefit to being near the front line is what causes the increased risk that prohibits commercial airlines from flying there.

The final area that calls for future research is in managing the overall deploy-to-dwell ratio of AFSOC forces. The dwell issue ultimately becomes a supply and demand problem on certain capabilities. To truly solve this problem, one of two things must happen: either supply has to increase or demand has to decrease. If the supply of airmen who can provide the capabilities is increased, then the number of deployments could be more evenly spread out and the airmen would have more time at home. If the demand for these capabilities could be decreased by supplying either similar capabilities or consolidating the requirement, AFSOC Airmen would spend more time at home. Either of these solutions result in the same desired end state. It is imperative that AFSOC Airmen have a balance between the amount of time they spend deployed as compared to the amount of time they have at home state. Over deployment will cause burnout and will weaken the entire force.

Appendix 1

KCVS-KHRT-BIKF-OKBK-OTBH

Round trip milage 17,550

Cost of individual round trip ticket 3240

Medium Aircraft	# of Seats	Rate seat/mile	Aggergated Airlift "AK" Cost Per Msn	Aggergated Airlift "AK" Cost Per Seat	Individual Commerical Tickets Cost for total number of tickets
B757-200/200ER	190		$ 508,744.67	$ 2,677.60	$ 307,800.00
B757-300	200		$ 535,520.70	$ 2,677.60	$ 324,000.00
B767-200/200ER	200		$ 535,520.70	$ 2,677.60	$ 324,000.00
A310	200		$ 535,520.70	$ 2,677.60	$ 324,000.00
B767-200 Charter Config	207	0.15257	$ 554,263.92	$ 2,677.60	$ 335,340.00
A300	210		$ 562,296.74	$ 2,677.60	$ 340,200.00
B767-300/300ER	240		$ 642,624.84	$ 2,677.60	$ 388,800.00
B767-400ER	260		$ 696,176.91	$ 2,677.60	$ 421,200.00
A330-200	280		$ 749,728.98	$ 2,677.60	$ 453,600.00

Large Aircraft	# of Seats	Rate seat/mile	Aggergated Airlift "AK" Cost Per Msn	Aggergated Airlift "AK" Cost Per Seat	Individual Commerical Tickets Cost for total number of tickets
A330-300	300		$ 686,187.45	$ 2,287.29	$ 1,500,000.00
B777-200ER	300		$ 686,187.45	$ 2,287.29	$ 1,500,000.00
A340	345		$ 789,115.57	$ 2,287.29	$ 1,725,000.00
MD11/MD11ER	360	0.13033	$ 823,424.94	$ 2,287.29	$ 1,800,000.00
B777 Charter Config.	380		$ 869,170.77	$ 2,287.29	$ 1,900,000.00
B747	400		$ 914,916.60	$ 2,287.29	$ 2,000,000.00
B747 Charter Config.	435		$ 994,971.80	$ 2,287.29	$ 2,175,000.00

Appendix 2

K	SERVICE OR USING ORGANIZATION CODES (Also 1st position of CIN/PIN)
* 1	USCENTCOM
* 2	USJFCOM
* 3	NORAD
* 4	USEUCOM
* 5	USPACOM
* 6	USSOUTHCOM
* 7	USJFCOM ARMY COMPONENT
* 8	USSTRATCOM
* 9	USSOCOM
A	US ARMY
* B	NAVY COMPONENT Commander
* C	AF COMPONENT Commander
F	US AIR FORCE
* G	USTRANSCOM
H	Contractor
J	JOINT
K	DOD Civilian
L	Other Civilian
M	US MARINE CORPS
N	US NAVY
P	US COAST GUARD
** Q	ALLIED AIR FORCE
** R	ALLIED MARINE CORPS
* S	USNORTHCOM
** T	ALLIED NAVY
** U	ALLIED ORGANIZATION
** V	ALLIED ARMY
* W	ARMY COMPONENT Commander
* Y	FLEET MARINE FORCE
* Z	DEPT OF HEALTH & HUMAN SVC

* Use only with nonunit personnel
** Use only with nonunit cargo and personnel

L	FORCE PROVIDING ORGANIZATION CODES
0	NON DOD Agency
1	USCENTCOM
2	USJFCOM
3	NORAD
4	USEUCOM
5	USPACOM
6	USSOUTHCOM
7	USJFCOM ARMY COMPONENT
8	USSTRATCOM
9	USSOCOM
A	HQ US ARMY
B	NAVY Component of the Supported Command
C	AF Component of the Supported Command
D	HOST NATION
E	MARINE Component of the Supported Command
F	HQ US AIR FORCE
G	USTRANSCOM
H	HOST NATION Support Candidate
J	JOINT CHIEFS OF STAFF
K	DoD AGENCY
L	Submitted to Host Nation for Negotiation
M	HQ US MARINE CORPS
N	HQ US NAVY
P	HQ US COAST GUARD
Q	ALLIED AIR FORCE
R	ALLIED MARINE CORPS
S	USNORTHCOM
T	ALLIED NAVY
U	ALLIED ORGANIZATION
V	ALLIED ARMY
W	ARMY Component of the Supported CINC
X	SHORTFALL
Y	(Reserved for Future Use)
Z	EUSA

M — TRANSPORTATION MODE AND SOURCE CODES

MODE CODE	SOURCE CODE	EXPLANATION
A	C	Air via supporting commander channel (AMC or Service) aircraft
A	D	Air via theater (combatant commander) aircraft
A	H	Air via Unit's organic aircraft (own aircraft)
A	K	Air via strategic (AMC, AMC-contract) aircraft
A	L	Air via AMC GO-PAX/commercial ticket program (CTP) (exercise only)
A	M	Air via unit (Service) funded commercial tickets
A	N	Air via Host-nation/allied controlled aircraft
A	O	Air via Operational Support Aircraft (OSA)
A	Q	Air via AMC aircraft, Special Operations (SOF) "special handling" required
A	S	Air via Special Assignment Airlift Mission (SAAM)
L	C	Land via supporting commander transport to other than a CONUS APOE/SPOE
L	D	Land via combatant commander transport to other than a CONUS APOE/SPOE
L	G	Land via MTMC arranged transport (CONUS commercial air, rail, and surface)
L	H	Land via organic (unit) vehicles
L	M	Land via Service transport not under the control of a combatant commander or arranged by MTMC
L	N	Land via Host-nation controlled transport
L	P	Land via Service arranged transport not under the control of a Combatant Commander nor arranged by MTMC, to include POL via pipeline
L	R	Land via theater (supported commander) rail
P	A	Mode and source are optional. USTC will recommend appropriate mode/source
P	C	Mode optional; source is via supporting commander (to other than a CONUS SPOE)
P	D	Mode optional; via supported commander (to other than a CONUS SPOE)
P	G	Mode optional; source is MTMC (CONUS use only)
P	N	Mode optional; source is Host Nation (OCONUS use only)
S	C	Sea via USN or USCG ship; not MSC (channel)
S	D	Sea via USN or USCG ship (MPS/AWR); not MSC
S	E	Sea via MSC ship (common user strategic sealift)
S	H	Sea via organic (unit) vessel
S	N	Sea via host nation or allied provided sealift
S	P	Waterway movement (canal/barge/ferry) not MSC, to include POL via pipeline
S	W	Sea via MSC assault follow-on echelon (AFOE) to support USMC assault
X	G	Origin and POE (CONUS APOE/SPOE) same or POD (CONUS APOD/SPOD) and destination same
X	X	Origin and POE (not CONUS APOE/SPOE) same or POD (not CONUS APOD/SPOD) and destination same

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14. ABSTRACT
The purpose of this research is to explore options to get Air Force Special Operations Command redeployers back to their home stations quicker than the current process and improve deploy-to-dwell ratios. Specifically, this paper explores organizing the redeployment process based off the turnover requirement of the redeployer first. Airlift can be optimized based off the redeployers requirements. The research explores blending aggregated airlift with commercial tickets to return deployers on separate timelines. By doing such, 280 day of dwell time can be recovered for a group of a 100 deployers. This model gives commanders flexible transportation solutions to manage the deploy-to-dwell ratio of their force.

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