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REDUCING AWACS PERSTEMPO:
A CONCEPTUAL APPROACH

by

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Preface

The synergistic value of the E-3 Airborne Warning and Control System (AWACS) platform is well known to military scholars and planners. The E-3 AWACS and her crewmembers have been stalwarts of every major U.S. military operation since 1980. However, this excellence in employment has created a continual demand by the Combatant Commanders in Chief (CINCS) which has led to periods of exorbitantly high rates of personnel tempo (PERSTEMPO). If the United States military is going to keep the E-3 as a viable force multiplier until 2035 as currently planned, we must carefully choose the time and place to employ. We must embrace the Air Expeditionary Force (AEF) construct, while understanding the positives and limitations the AEF brings for Low Density/High Demand (LD/HD) platforms. We must continually engage and educate the Joint Staff on the best use for this asset, and lastly, we must explore long term alternatives to meet CINC demands while maintaining the long term viability and sustainability of the E-3 AWACS. This study is dedicated to the men and women of the 552 Air Control Wing, past and present, who have been constantly deployed since 1980 to Saudi Arabia, Turkey, Iceland, Puerto Rico, and Panama. Their support of Operations DESERT SHIELD/STORM, SOUTHERN WATCH, NORTHERN WATCH, JUST CAUSE, PROVIDE DEMOCRACY, among others, has often been overshadowed. I also would like to thank my wife Brett, who has stood by me and raised my children both with and without me, as I have traveled the globe supporting American interests. Lastly, I would like to express my thanks and gratitude to my

advisor, Lt Col Thomas Nine for providing the mentoring and encouragement necessary to ensure I have covered all of the bases.

Abstract

The study seeks to gain a Combat Air Force (CAF) wide solution to reduce AWACS PERSTEMPO to a level commensurate with the AEF construct. The literature review will focus on the Air Expeditionary Force concept. Initially, we will explore the AEF Program Action Directive (PAD) to discern Low Density/High Demand capabilities as forwarded by the service. We will then investigate the Joint tasking process and seek a congruent tasking level between the service AEF goal of 90 days in 15 months and the Blackhawk shoot down mandate of 120 days. We will then take a historic view of E-3 PERSTEMPO rates in the 1990s and the success or failure of the joint tasking process to meet the 120 day goal. We will also look at excessive PERSTEMPO rates as a contributor to the Blackhawk shoot down, the shoot down findings, and the success or failure of the Chief of Staff of the Air Force (CSAF) mandate to lower AWACS PERSTEMPO. The goal is to determine a proper methodology for tasking the E-3 fleet to meet CINC needs while meeting the service and joint PERSTEMPO goals.

Chapter 1

Introduction

Statement of the Problem and Methodology

The study examines conceptual alternatives to gain a Combat Air Force (CAF) wide solution to reduce AWACS PERSTEMPO to a level commensurate with the AEF construct. This conceptual approach, backed by statistical data, will focus on the Air Expeditionary Force concept. Initially, we will explore the AEF Program Action Directive (PAD) to discern Low Density/High Demand capabilities as forwarded by the service. We will then investigate the Joint tasking process and seek a congruent tasking level that meets the service AEF goal of 90 days in 15 months and the Blackhawk shoot down mandate to lower PERSTEMPO to a 120 day average. The goal is to determine a proper methodology for tasking the E-3 fleet to meet CINC needs while meeting the service and joint PERSTEMPO goals.

Background

On 14 April 1994 two F-15s shot down two Army UH-60 Black Hawk helicopters in a friendly fire incident over northern Iraq. In October 1994, the Air Force found twelve areas of improvement to insure “this tragedy never happens again.”¹ One of the Blackhawk shoot down findings was the requirement to reduce the average annual temporary duty rate for AWACS crewmembers from 162 days per year to 120 days.²

The Blackhawk shoot down report found the 552 Air Control Wing (ACW) had operated at "surge" levels of tasking since initially deploying to Operation Desert Shield in August 1990. The report also found that worldwide tasking has actually increased since the end of Desert Storm. Since then, the force draw down has combined with normal personnel attrition to dilute the experience level of AWACS crewmembers. This combination of tasking and personnel reduction had driven the average crew temporary duty (TDY) rate for E-3 crew members to 162 days per year. Since crew positions are manned at differing levels, some as low as 78% of authorized personnel, the result is that some crew positions are TDY an average of 184 days per year.³

This high TDY rate affects readiness in many ways. Squadron leadership is fragmented due to the requirement to support deployed operating locations with personnel to fill Detco (Detachment Commander), DO (Director of Operations) and DOM (Ops Director, Mission) positions. Additionally, the squadrons must fill the deployed standard overhead staff positions of Supervisor of Flying (SOF), Ground Liaison Officers (GLO), and other staff support officers. In many cases AWACS instructors, who are assigned to the training and standardization/evaluation flights within the squadrons, are deployed to overseas locations as primary crewmembers because the squadrons need them to meet their deployed crew requirements. This makes them unavailable to support training in CONUS, and do not instruct overseas as they deploy as a combat ready crewmember in the seat.

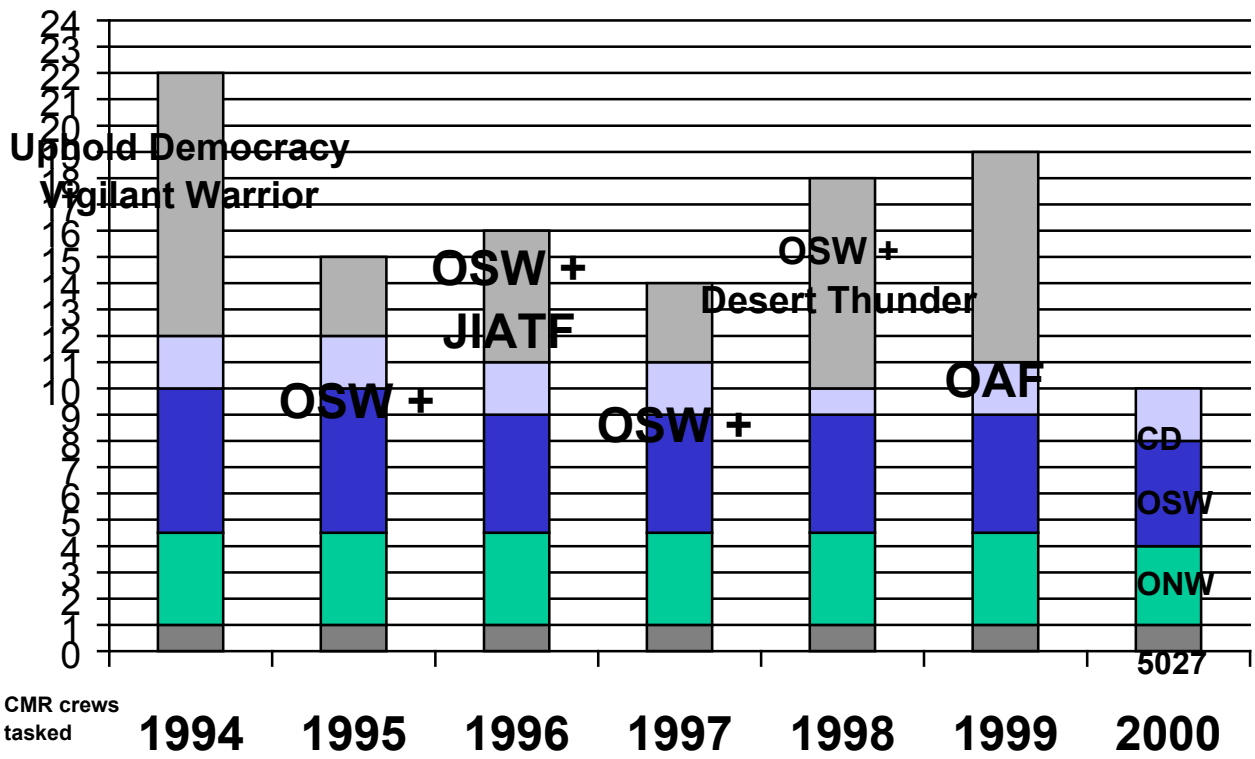


Figure 1 AWACS OPERATIONAL REQUIREMENTS FROM 1994-2000⁴

It appears, however, that no improvement has been made in AWACS PERSTEMPO since the Air Force Chief of Staff October 1994 Blackhawk shoot down mandate to reduce the TDY rate to 120 days. As shown in Figure 1, the E-3 fleet has been placed in surge every year between 1994 and 1999. Steady state tasking to support 5027, ONW, OSW, and Counter Drugs (CD) has varied between 10 and 12 crews during the period. From 1994-1995, steady state tasking included one crew for 5027, three and a half crews for ONW, five and a half crews for OSW, and two crews for Counter Drugs. Between 1996-1997, steady state tasking decreased by one crew as OSW decreased the requirement from five and a half to four and a half crews. In 1998 steady state decreased to ten crews as the CD tasking was lowered from two to one crew. Steady state rose in 1999 to 11 as the second CD crew returned. Finally, 2000 saw steady state reduced to 10 crews with one crew for 5027, three in ONW, four in OSW and two in CD.

Figure 1 also shows surge tasking starting in 1994 when 10 additional CMR crews were tasked to support Operations Uphold Democracy and Vigilant Warrior. In 1995, three CMR crews above steady state were tasked to support an OSW plus up. In 1996, five crews were tasked to support another OSW plus up as well as an increase in Joint Inter-Agency Task Force (JIATF-Counter Drug) tasking. 1997 saw OSW increase tasking by three crews similar to the 1995 surge tasking. In 1998, Operation DESERT THUNDER and another OSW tasking increase required another eight crews, and Operation Allied Force required an additional eight crews in 1999. According to a 30 Jul 99 Air Combat Command Bullet Background paper, PERSTEMPO averaged 149.8 days among the eight critical officer crew positions on the E-3

between 1 July 1998 and 30 June 1999.⁵ Annual TDY rates during this period for Senior Directors was the highest, reaching an average of 177.4 days.⁶

Limitations

The author acknowledges certain limitations to the study. First, and foremost, while we can make conceptual changes to joint and service policy, an uncertain strategic environment may create increased operational requirements to ensure American interests, as published in the National Security Strategy, are maintained. For example, the 552 Air Control Wing was required to increase support to Operation SOUTHERN WATCH (OSW) during Operations DESERT FOX (1998) and DESERT THUNDER (1999).⁷ Occasional increases in tasking are expected in times of national crisis, and no war fighter could ever justify the long term interests of a wing when American vital interests are at stake.

Scope

This paper attempts to draw a logical connection between the service AEF construct and the joint method of operational tasking, Global Military Force Policy. Both short and long range alternatives to maintain sustainable PERSTEMPO rate are explored, which provide the regional commanders in chief (CINCs) the airborne early warning/command and control requirements in their area of responsibilities (AOR).

Notes

¹ HQ ACC Blackhawk Helicopter Shootdown Corrective Actions, October 1994, 101.

² Ibid, 5.

³ Ibid, 5.

⁴ AWACS AEF Alignment Briefing, Maj Opie Wiegand, 552 Operational Support Squadron Commander, June 2000

⁵ Maj Bill Tully, AWACS OPTEMPO, Bullet Background Paper, 30 July 1999.

⁶ Ibid

Notes

⁷ Maj Ronald Wiegand, AWACS AEF Alignment briefing, July 2000, 10.

Chapter 2

AWACS Facts of Life

The PERSTEMPO Triad

A triad of interrelated factors drives PERSTEMPO. First is the crew authorization level that is associated with the crew to tail ratio. The second factor affecting PERSTEMPO is the unit manning levels. The third factor is the CINC operational requirements. We will discuss the first two factors in the following paragraphs, but it is the third factor, providing long and short-term alternatives for CINC operational requirements, that this paper will focus on methods to control PERSTEMPO.

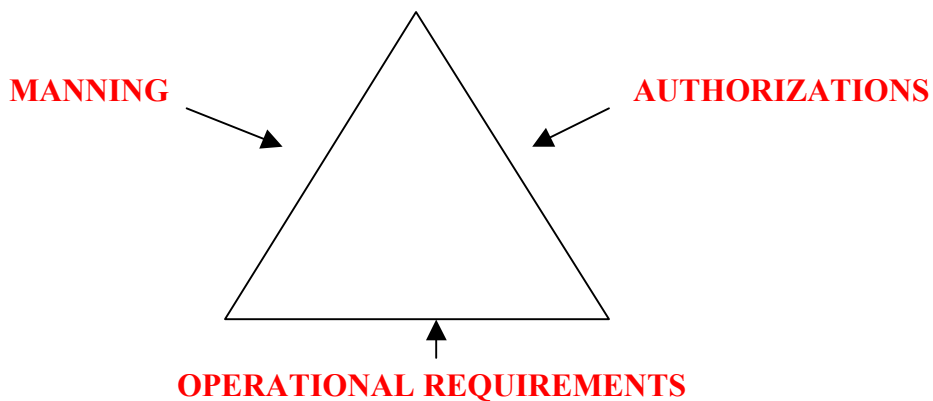


Figure 2 The PERSTEMPO Triad

Authorizations

The first factor affecting PERSTEMPO is crew authorizations. The Air Combat Command (ACC) AWACS operations wing, the 552 ACW, is manned at a crew ratio of 2.0 crews per Primary Mission Aircraft Inventory (PMAI) aircraft. With 20 PMAI aircraft, the wing has manning slots for 40 crews in the three operational squadrons.¹ The 963rd Airborne Air Control Squadron (AACS) and 964th AACS are authorized 13 crews, while the 965th AACS is authorized 14 crews. The Pacific Air Force (PACAF) AWACS units are manned at the same crew ratio. PACAF maintains two E-3s at Elmendorf AFB, Alaska and two E-3s at Kadena AB, Japan. Both the 961st AACS at Kadena and the 963rd AACS at Elmendorf are authorized four crews. As a Combat Air Force (CAF) fleet, there are 48 authorized E-3 crews and 24 PMAI aircraft (Table 2) worldwide.²

CATEGORY	Air Combat Command (ACC)	Pacific Air Forces (PACAF)	Total aircraft
Primary Mission Aircraft Inventory (PMAI)	20	4	24
Primary Training Aircraft Inventory (PTAI)	4	0	4
Basic Aircraft Inventory (BAI)	4	0	4
Total	28	4	32

Table 1 Total E-3 Inventory³

Previous analyses of lowering PERSTEMPO have centered on increasing the crew ratio at the 552 ACW. However, the challenges with increasing crew ratio are twofold. First, the 552 ACW has historically scheduled 95 continuation training (CT) sorties a month, to include the 970th AACS reserve unit. To keep and maintain currency among the presently authorized 40 active duty crews, 64 CT sorties are required for minimum currency requirements. This minimum is derived using a 60% inexperienced/40% experienced crew mix. According to Air Force Instruction (AFI) 11-2/E-3/TC-18, Volume 1, inexperienced crews require a minimum of two sorties monthly, while experienced crew members require a minimum of one sortie a month.⁴ (60% inexperienced of 40 authorized = 24 crews X 2 sorties + 40% experienced of 40 authorized = 16 crews X 1 sortie = 64 sorties) Therefore, the wing uses 67% of all CT sorties to meet active duty minimum proficiency requirements.⁵

Second, the distribution of those 95 CT sorties to maintain 40 crews plus Reserves current is problematic. For example, the 552 ACW will utilize four crews in 30 days to support two RED FLAG periods. The wing changes out two crews after two weeks with two new crews. RED FLAGS require two sorties daily, one per crew, in a ten-day (two-week) training period. Therefore, four crews will fly 40 of the 95 continuation training sorties available per month. The remainder of the 36 Active Duty and 6 Reserve crews must maintain minimum currencies with the remaining 55 sorties.⁶

Any effort to decrease PERSTEMPO using the first leg of the PERSTEMPO Triad, authorizations, would create tremendous difficulty in maintaining minimum CT currencies for the 552 ACW. The sortie distribution challenge would negate any positive result in reducing PERSTEMPO via increasing authorizations.

Manning

While authorizations and crew ratios are a factor in determining PERSTEMPO, the excessive TDY rates seen in the 1990s were caused by a combination of high operational requirements and low manning levels. The second factor affecting PERSTEMPO is unit manning levels. The low manning levels were driven by two primary factors. First, in the early 1990s, the Air Force Chief of Staff, Gen McPeak, decided to transform the weapons controller function on the E-3 from officer to enlisted. This decision produced a two-year closure of the basic weapons controller school for officers in the mid-1990s. The unavailability of training for officer weapons controllers translated directly into a two year gap of officers capable of upgrading to positions of leadership on the E-3 mission crew: Air Surveillance Officer, Electronic Combat Officer, and Senior Director. All three upgrade positions draw from the basic weapons controller cadre.⁷

The second factor causing low manning was the pilot exodus. During a period from 1996-1998, 100% of pilots eligible to separate from the service did so.⁸ The focus of this paper is not to study the manning shortages, since the Programmed Flying Training (PFT) slots have been full for nearly two years to combat the manning and low Combat Mission Ready (CMR) crew rates.

Operational Requirements

The third leg of the PERSTEMPO triad is the CINC operational requirement levied on the Combat Air Force (CAF) E-3 fleet. Currently, E-3 crewmembers support four CINCs directly and are routinely tasked by a fifth CINC (NORAD) to provide surveillance capabilities.⁹ The four CINCS are: 1) CENTCOM, supporting Operation SOUTHERN WATCH; 2) EUCOM,

supporting Operation NORTHERN WATCH (ONW); 3) SOUTHCOM, supporting the Counter Drug effort; and 4) PACOM, via the garrison forces in PACAF.

As a direct result of the pilot exodus and two-year closure of the weapons controller school, during the period from 1996-1999, the 552 ACW averaged between 20-25 CMR crews at any one time.¹⁰ The operational requirements from supporting numerous CINCs drove PERSTEMPO rates as high as 212 days during contingency spikes. During Operation ALLIED FORCE (OAF), the 552 ACW had 14 out of 24 CMR crews deployed to support Operations ALLIED FORCE, SOUTHERN WATCH, and NORTHERN WATCH. This deployment rate resulted in an annualized PERSTEMPO rate of 212 days (14 crews deployed / 24 CMR crews X 365 days = 212 days TDY).¹¹ This equates to a 58% average deployed CMR rate. By comparison, if wing manning allowed a 90% CMR to authorized ratio of 36 CMR crews (40 authorized crews / 90% = 36 CMR crews), the PERSTEMPO rate during OAF would have been 141.9 days (14 crews deployed / 36 CMR crews X 365 days = 141.9 days TDY).

During the same period, one of PACAF's six CMR E-3 crews supported SOUTHCOM's effort in the Counter Drug war. Therefore, for the CAF E-3 fleet, a total of 15 of 30 CMR crews were deployed world-wide for the entirety of Operation ALLIED FORCE.

Notes

¹ Maj Carson Elmore, 552 ACW, Tinker AFB, OK, Talking Paper for SECAF trip to Tinker, October 1999.

² Ibid.

³ 552 ACW, Tinker AFB, OK, Talking Paper for SECAF trip to Tinker, Maj Carson Elmore, 30 Oct 1999

⁴ Air Force Instruction 11-2/E-3/TC-18, Volume 1, 36.

⁵ Elmore, 552 ACW, Tinker AFB, OK, Talking Paper for SECAF trip to Tinker, October 1999.

⁶ Maj Steve Robinson, Allied AWACS Participation in the Red Flag/Green Flag Schedule, Bullet Background Paper, December 1999.

⁷ Maj Ronald Wiegand, Building ABM Mission Commanders for the TACS, Staff Briefing, September 1998.

Notes

⁸ Maj Bill Tully, AWACS CMR Crews in FY 01, Bullet Background Paper, September 1999.

⁹ Maj Steve Robinson, AWACS OPTEMPO, Bullet Background Paper, June 1999.

¹⁰ Tully, AWACS CMR Crews in FY 01, Bullet Background Paper, September 1999.

¹¹ Robinson, AWACS OPTEMPO, Bullet Background Paper, June 1999.

Chapter 3

SERVICE AND JOINT PERSTEMPO GUIDELINES

To gain a better understanding of service and joint guidelines concerning PERSTEMPO, we must take a closer look at the United States Air Force's Air Expeditionary Force (AEF) concept and the joint communities Global Military Force Policy (GMFP).

The Service Solution for Excessive PERSTEMPO: The AEF

An analysis of national commitments since the end of Operation DESERT STORM, and the likelihood of similar tasking into the 21st century, fueled the AEF concept. The EAF represents the 21st Century U.S. Air Force – a force that is organized, trained, and equipped to sustain aerospace operations which meet the nation's mandate to *shape* the international environment, *respond* to a full spectrum of crises, and *prepare now* for the demands of the modern security environment.¹ The resulting vision had two fundamental principles. First, to provide trained and ready aerospace forces for national defense and for the Joint unified commanders. Second, to provide a structured and predictable approach to meet national commitments with a sustainable ready force within current force structure and budget constraints.²

The AEF acknowledges a substantial change in the national security strategy. A change from containment of a single threat, where the Air Force fought from a garrison location or a deployed location with a well-developed infrastructure, to a strategy based on global

engagement. This global engagement must be executed with fewer forces and fewer, less developed forward operating locations.

The AEF construct attempts to provide PERSTEMPO stability by providing a scheduled rotation of AEFs to meet worldwide CINC requirements. ACC will use the Scheduling IPT processes to provide scheduling stability while ensuring CINC requirement are satisfied and meet Global Military Force Policy (GMFP) operational tasking guidance. The 15-month AEF rotation cycle includes a 10-month normal training period, a 2-month deployment preparation period, and a 90-day deployment/ vulnerability period.³ A short pause period of relaxed operations (as determined by parent MAJCOM) at home station follows the 90-day vulnerability period for personnel who completed an actual 90-day deployment.

The initial AEF Program Action Directive (PAD) (1 May 1999), assumes that in peacetime, the Chairman of the Joint Chiefs (CJCS) policies govern low density/high demand (LD/HD) assets under GMFP. Therefore, the joint process determines tasking levels, not a nominal, effects based AEF. The PAD also requires AWACS units, organized into the three ACC squadrons and two smaller PACAF squadrons, to be rotated through AEF pairings to meet theater Command and Control (C2) requirements. Alignment with the AEF requires the AEF scheduling agency to treat the US E-3 fleet as a single CAF asset.⁴ Therefore, no single E-3 ACC or PACAF squadron will be tied to a particular theater commander.

The AEFs Joint Counterpart: Global Military Force Policy

The CAF E-3 fleet tasking level is governed by steady state and surge capabilities defined in the Global Military Force Policy (GMFP). Steady state is defined in the GMFP as the maximum level of peacetime operations that can reasonably be sustained indefinitely without adversely affecting normal training, exercise support, or scheduled maintenance cycles, and to allow for

crew force recovery.⁵ Each service is required to develop a matrix to determine what that maximum level of operations should be. The limiting determinant factor could be operational aircraft or personnel. Surge is an additional level of operations during crises or contingency response that can be sustained up to (a nominal) 60 days with some decline in readiness and possibly exceeding service PERSTEMPO goals. Surge operations are not normal periods of tasking. Any tasking that would place a Mission Design Series (MDS) in surge requires Secretary of Defense (SECDEF) approval.⁶

After receiving the service matrix for steady state tasking and CINC operational requirements, the Joint Staff, J-3, will develop GMFP levels to define the CAF E-3 steady state capability available to each AEF vulnerability period. The Chairman, JCS then apportions these assets to meet theater CINC requirements based on GMFP policy. The AEF goal of deployment stability is best achieved by keeping JCS tasking levels within GMFP steady state/surge limits. When the JCS operational requirements place units in surge operations, AEF alignment will not be possible. Within the LD/HD AEF construct, the proper response to surge tasking is to limit future AEF rotation commitment as specified in GMFP.

CINC operational requirements, JCS tasking prioritization, and scheduling realities (Air National Guard/Air Force Reserve Command availability) will affect to what extent the LD/HD assets can participate with particular AEFs in exercises and real-world deployments. Assets will optimize their unit rotation duration, based on: CMR crews available, theater mission tasking, and currency requirements.⁷

In GMFP, service chiefs designate certain assets as LD/HD and develop metrics to determine the availability under routine (steady state) and contingency (surge) operations. The primary goal of GMFP is to preserve the near to mid-term readiness and crisis response

capability of LD/HD assets while providing the CINCs sufficient warfighting capabilities.⁸ GMFP allocation decisions must meet worldwide national security objectives and balance CINCs competing resources against the need to preserve longer term crisis response capability.

The E-3 is defined as a LD/HD platform. LD/HD assets, by GMFP definition, are assets possessing specialized attributes or capabilities, which have historically been called upon by the CINCs to execute world wide joint operations at a rate that degrades their near to mid-term readiness.⁹ The primary differentiating characteristic of a LD/HD asset is their unique joint mission capability and the unusual high demand by CINCs relative to their availability in the force. The E-3, by virtue of having only 24 PMAI aircraft to deploy among the CINCs, qualifies as a LD/HD platform.

In cases where CINC and national level concerns require an E-3 more than the maximum steady state, priority for asset allocation will be based on Secretary of Defense (SECDEF) determination. Only SECDEF can authorize surge tasking. The unclassified GMFP priority matrix follows:

- 1) Support for US forces executing operational missions in direct or imminent contact with hostile forces. Mission priority and risk outweigh the adverse impact of exceeding maximum steady state LD/HD tempo.
- 2) Support for US forces executing operational missions with potential for contact with hostile forces (for example, enforcement of UN sanctions and no-fly zones, peacekeeping and deterrence)
- 3) Operational requirements other than those involving hostilities (for example, routine counter drug missions)¹⁰

The bottom line AEF PAD statements on E-3 inclusion into each AEF was that additional investments would be required to reach the EAF goal of no more than 90 days of contingency deployment every 15 months. The low-density nature of these theater enablers prevents pure AEF alignment (each crew aligned against a single AEF).

However, the Chairman challenged the initial PAD (1 May 99) when in December 1999, he ordered the CAF E-3 fleet to be fully aligned into the AEFs by September 2001 using current assets.¹¹ The Chief assumes that if the AWACS community can align with the AEF construct goal of 90 days of PERSTEMPO every 15 months, the 120-day per year Balckhawk shoot down mandate would be met as well. In order to meet the Chairman's direction and align with each AEF, we must look at near and long range alternatives.

Notes

¹ Headquarters USAF, AEF Program Action Directive, May 1999, ii.

² Ibid, A-1.

³ Ibid, A-3.

⁴ Ibid, A-1-2.5.3.

⁵ CJCS message 112257Z Sept 00, Global Military Force Policy, 5.D.1..

⁶ Ibid, 11.B.4.

⁷ Headquarters USAF, AEF PAD, May 1999, A-1-1.4.1.

⁸ CJCS message 112257Z Sept 00, Global Military Force Policy, 4.A.

⁹ Ibid, 5.B.

¹⁰ Ibid, 6.B.1-3.

¹¹ Lt Col James Lester, Front End Assessment on Reducing AWACS PERSTEMPO, Staff Briefing, 5.

Chapter 4

A SHORT TERM ALTERNATIVE TO LOWER PERSTEMPO

To meet the Dec 1999 Air Force Chief of Staff mandate to fully align into the AEF construct with little to no force structure change, we must first realize what the CAF E-3 fleet is tasked to provide. Currently, AWACS must fully support both deployed AEFs in three theaters (CENTCOM, EUCOM, and SOUTHCOM) simultaneously. Additionally, the E-3 fleet must be able to meet the two Major Theater of War (MTW) scenario.¹

The Chief of Staff realizes full AEF alignment would solve, by default, the PERSTEMPO challenge by limiting PERSTEMPO to the AEF goal of 90 days every 15 months. The 90 day/15 month goal would represent a PERSTEMPO level well under the Blackhawk shoot down mandate of a 120 days annual average. According to the AEF PAD (1 May 99), without full AEF alignment, the E-3 fleet is categorized as a theater enabler. A theater enabler is an asset continually deployed to support CINCs requirements, but does not have the force structure to fully align into the AEF. To transition from theater enabler to full AEF member, the CAF E-3 fleet must be managed with GMFP discipline (limited surge tasking), re-organization of forces, and a small authorization increase.

The current reality of theater enabler scheduling to meet AEF and GMFP tasking is that the squadrons rotate through the various theaters, but do not align within the AEF (Table 3). AEFs are tasked and deployed as AEF pairs, therefore two AEFs are deployed simultaneously. As is evidenced in Table 3, the current CAF authorization and force organization does not allow for

easy alignment into 10 AEFs. For example, the 963rd AACCS is scheduled to be a theater enabler, deployed with AEFs 7, 8, 10, 1, 4, 7, and 10.² This rotation hardly meet the Chiefs vision of providing rotational stability when the some members of the unit would be deployed for six of the seven three month cycles depicted in the table.

AEF 7 (June 00)	AEF 9	AEF 1	AEF 3	AEF 5 (June 01)	AEF 7	AEF 9
964/963	965/964/ 961	963	965/961	964	963/961	965
AEF 8	AEF 10	AEF 2	AEF 4	AEF 6	AEF 8	AEF 10
963/965/ 970	964/963	965/964/ 962	963	965/962/ 970	964	963/962

Table 2 AEF scheduling rotation without AEF inclusion³

Any plan to align the CAF E-3 fleet into the AEFs must include six factors: 1) the plan must expand and/or contract to the two MTW OPLAN criteria; 2) in accordance with the AEF PAD, the plan must be a CAF solution, not just a 552 ACW solution; 3) the plan must support CINC steady state requirements, past, present, and future; 4) it must support the CINC requirement for limited continuous coverage, without derailing the next AEF rotation; 5) it must be Ready Aircrew Program (RAP) executable; and 6) it must to divisible by five to align with the ten paired AEF deployment schedule.⁴

The best alternative to align with the AEF and meet the aforementioned criteria would require five AWACS squadron or squadron equivalents of ten crews each. This would equate to an authorization requirement of 50 crews world wide. With 50 CAF crews, five crews would support one AEF. Each AWACS squadron would align with two AEFs.⁵ For example, the 963rd

AACS would align with AEFs 2 and 7 forever (Table 4), instead of rotating through numerous AEFs in the Table 3 example.

AEF 7 (Sept 01)	AEF 9	AEF 1	AEF 3 (Sept 02)	AEF 5	AEF 7	AEF 9
963	965	961/962	964	960	963	965
AEF 8	AEF 10	AEF 2	AEF 4	AEF 6	AEF 8	AEF 10
964	960	963	965	961/962	964	960

Table 3 AWACS AEF alignment with 50 authorized crews⁶

Using this alignment alternative, the requirement is for ten crews to be aligned with the two simultaneously deployed AEFs. Previous PERSTEMPO, as evidenced in Table 1, required an average of 12 + crews deployed continuously.⁷ Twelve crews deployed equates to 60 crews authorized to align with the AEFs (12 crews X 5 paired AEFs = 60 authorized crews). The 50 authorized crews required by this alternative exceeds the two MTW requirement of 48 authorized crews. The number of authorized crews required is dependent on the number of crews required to meet CINC and AEF operational requirements (as specified in Table 5).

The need for 50 authorized crews divided into ten AEFs creates two organizational changes. First, the two PACAF E-3 squadrons, currently with four authorized crews, need to increase their authorization by one crew each squadron. This increase in PACAF only crew ratio from 2.0 to 2.5 would give the PACAF AWACS forces ten authorized crews, while maintaining the status quo of four jets. The two PACAF units with five authorized crews each would represent one ACC operational squadron equivalent in the AEF rotation.⁸

The second organizational change would create a fourth operational squadron in the 552 ACW. This squadron reorganization would not require a crew build, since there are 40

authorized crews in the 552 ACW already. Instead of three squadrons of 13, 13, and 14 authorized crews, there would be four operational squadrons of ten authorized crews. A program to gain manning strength has been in place since 1998 to increase the CMR to authorized crew ratio to provide PERSTEMPO lowering synergy with the AEF alignment CAF reorganization.

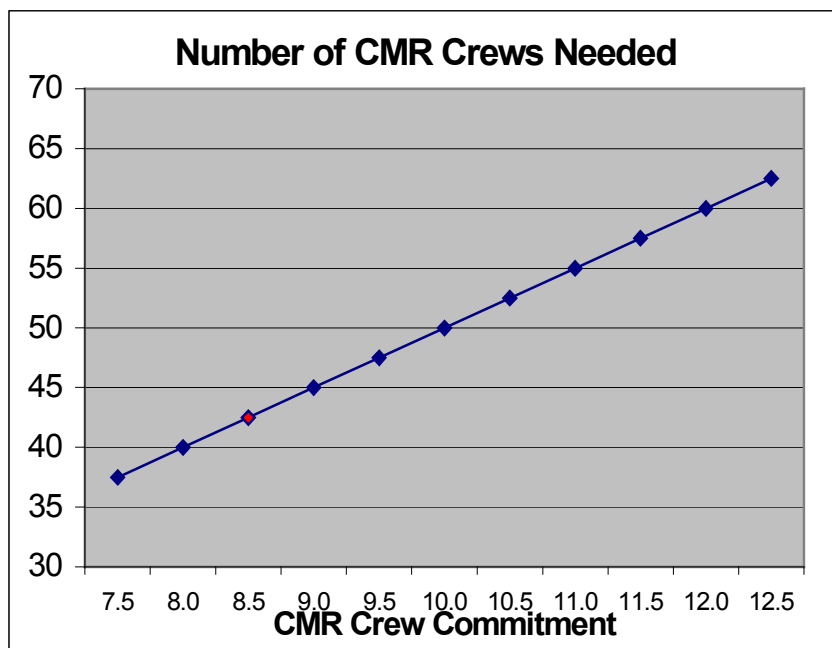
A notional AEF alignment schedule with the two organizational changes and authorized crew increase from 48 to 50 is shown in Table 4. The resulting five CAF AWACS squadrons, or squadron equivalents in PACAFs case, will cover the five AEF pairs.⁹ With five crews supporting each AEF, half of each squadron will be deployed for one 90 day period, then five AEFs later, the other half would deploy for 90 days.

The current steady state requirement to meet CINC operational requirement is eight E-3 crews. Three and a half crews support Operation SOUTHERN WATCH, two and a half crews support Operation NORTHERN WATCH, one crew supports Counter Drug operations and one crew supports 5027. To calculate the number of CMR crews required to meet CINC crew requirement and maintain the 90 day/15 month AEF PERSTEMPO goal, one must divide the 15 months (455 days) into the 90 day TDY rotations. A unit must have five CMR crews for each CINC crew requirement to maintain the 120 day goal ($455 \text{ days} / 90 \text{ day TDYs} = 5.0 \text{ crews}$). Therefore, as Table 4 indicates, a unit needs 40 CMR crews to meet an eight crew steady state TDY commitment and meet the AEF PERSTEMPO goal ($8 \text{ crew CINC requirement} \times 5 \text{ crews required to meet PERSTEMPO goal} = 40 \text{ CMR crews}$).

The key to AEF alignment curtailing PERSTEMPO will be the maintenance of a high CMR crew rate throughout the CAF. As of 1 July 00, the CAF E-3 fleet had 30 CMR crews, with ACC supplying 24 and PACAF supplying six. Thirty CMR crews will equate to a 15-month TDY total of 121 days with a 8.0 crew CINC tasking. With the previously mentioned full PFT,

the 552 ACW anticipates 35 CMR crews by September 2001.¹⁰ When combined with PACAF's 6 CMR crew forecast, the 41 CMR crews meet

CMR Crews Needed to Sustain 90 Day Tdy Rate	
CMR Crew Commitment	Number of CMR Crews Needed
7.5	37.5
8.0	40.0
8.5	42.5
9.0	45.0
9.5	47.5
10.0	50.0
10.5	52.5
11.0	55.0
11.5	57.5
12.0	60.0
12.5	62.5



Notes - Number of crews needed is calculated as follows:

Note - Crews needed for 1 commitment is: $455(\text{Days or 15months}) / 90\text{Day TDYs} = 5.0(\text{crews})$

By taking the crew commitment(8.0) x 5.0(crews) = 40.0

Table 4 Operationally Required Crew Commitment vs Number of Authorized Crews Required.¹¹

the 90-day in 15-month goal. Forty-one CMR crews of 50 authorized crews is a sustainable goal for the CAF E-3 fleet. As Table 4 also indicates, a one crew increase in CINC requirements to nine crews, would require 45 CMR crews to maintain the 90 day/15 month PERSTEMPO goal. With extended Duty Not to Include Flying (DNIF), Professional Military Education (PME), and leave requirements, it is not viewed as realistic to sustain 50 CMR crews out of 50 authorized crews.

Chapter 5

Long Term Alternatives to Lower PERSTEMPO

Ground Based Radars

To further reduce the possibility of the continual “surge” state the E-3 community faced during the decade of the 1990s, we must investigate other long-range possibilities to execute the E-3s command and control function. One such long-range alternative is to strategically place Ground Based Radars (GBR) in the AOR as a force multiplier to the E-3. By placing GBRs in theater, it is assumed that redundant E-3s will not be required during steady state operations. The GBR could cover surveillance during night or during periods of non-mission capable (NMC) status of the E-3.¹²

The goal for a GBR in theater would be to emulate the E-3 radar and communications ability. The GBR would have 24 hour seven day a week capability.¹³ In certain theaters, for instance, SOUTHCOMs AOR, the island of Curacao is placing a civilian International Civil Aviation Organization (ICAO) radar to cover the central Caribbean Flight Information Region (FIR). A civil/military agreement could allow SOUTHCOM to receive a feed from the radar. This Caribbean civil capability is an example of a civil/military cooperation to reduce the drug traffic as well as potentially reduce E-3 requirements.

There are negatives to the GBR option. First, if a military Ground Theater Air Control System (GTACS) is chosen, the associated PERSTEMPO increase in those limited systems

would be exorbitant. A civilian contracted GBR is currently being studied in the European AOR to reduce an Operation NORTHERN WATCH E-3 tasking. The problem with placing civilian GBRs in the mountainous terrain of eastern Turkey is that the GBR would illuminate no low altitude targets. The range would be limited, providing no surveillance below the 36-degree north parallel. Force security would be a concern in this remote area, as well as Turkish political concerns to deepen the American military infrastructure in the region.¹⁴

Alternative Platforms

Another long-term alternative is to search for alternative platforms to conduct the E-3 mission. Currently, Electronic Systems Command (ESC) is conducting a study with just that purpose. Their options include the 767 AWACS similar to the aircraft Japan recently purchased from Boeing, or the 737 Wedgetail variant that Australia purchased.¹⁵

While this study is underway, the window of opportunity is now open to purchase a replacement aircraft before significant money is sunk into the E-3 for aging aircraft. The E-3 program schedule shows the completion of the Radar System Improvement Program (RSIP) upgrade, and beginning in FY08, the Air Force will have to commit priority resources to airframe life extension to sustain the E-3.¹⁶ Aging aircraft issues may begin to overshadow these modernization efforts and other priority training and personnel issues as early as FY08. The system already performs below the Air Force Mission Capable Rate standard and aircrew / battle manager training is an increasing problem. Decision-makers may have to prioritize scarce funding resources in favor of arresting the aging aircraft problems unless an analysis of alternatives identifies a different path.

The window of opportunity to explore and implement alternative platforms is the Fiscal Year (FY) 2001-2003 period, before committing aging aircraft funds for the E-3.¹⁷ The ESC

study should be able to foster the detailed analysis required to understand cost effectiveness and military worth of another platform. However, any course of action must maintain and improve our near-to-mid term war fighting capabilities. This poses a challenge to minimize adverse impacts on current essential programmed modernization actions.

Finally, the deep look, indications and warning capabilities envisioned with a next generation Air Moving Target Indicator (AMTI) Surveillance mode on a space based radar must be considered in any long range alternative force mix plan to address current deficiencies. Air Force guidance has directed the integration of space-based systems into the Intelligence, Surveillance, and Reconnaissance (ISR) Force Mix.¹⁸ The Space Based Radar (SBR) concept has a great deal of potential, as well as technical and fiscal uncertainty. As SBR technology is demonstrated operationally, decisions can then be made on long term changes to the AMTI sensor force mix.

Notes

¹ Ibid, 8.

² Maj Ronald Wiegand, AWACS AEF Alignment, Staff Briefing, 6.

³ Major Ronald Wiegand, AWACS AEF Alignment, Staff Brief, July 2000.

⁴ Ibid, 12.

⁵ Ibid, 14.

⁶ Major Ronald Wiegand, AWACS AEF Alignment, Staff Brief, July 2000.

⁷ Ibid, 11.

⁸ Ibid, 14.

⁹ Lester, Front End Assessment on Reducing AWACS PERSTEMPO, Staff Briefing, 13.

¹⁰ Tully, CMR Crews in FY 01, Bullet Background Paper, September 1999.

¹¹ Lt Col James Lester, Front End Assessment on Reducing AWACS PERSTEMPO, Staff Briefing, July 2000.

¹² Lester, Front End Assessment on Reducing AWACS PERSTEMPO, Staff Briefing, 17.

¹³ Ibid, 17.

¹⁴ Ibid, 17.

¹⁵ Ibid, 18.

¹⁶ Lt Col Whitaker, Intelligence, Surveillance, and Reconnaissance Force Mix, White Paper, 15.

¹⁷ Ibid, 16.

Notes

¹⁸ Ibid, 17.

Conclusion

This study's intent was to conceptually provide a realistic avenue to control the decade long PERSTEMPO challenges for the E-3 fleet. History has shown that GMFP discipline alone is not the answer to lower PERSTEMPO. Following the 1994 Blackhawk shootdown, the Air Force Chief of Staff mandated that PERSTEMPO be lowered to an average of 120 days annually. As Table 1 clearly shows, this mandate was ignored. The service solution to lower PERSTEMPO, the AEF construct, is potentially the best option to lowering PERSTEMPO. A small reorganization of ACC forces and a small authorization plus-up in PACAF would allow full E-3 alignment into the AEFs. Full up AEF alignment would result in the 90 day in 15 month PERSTEMPO goal and stabilize long term contingency planning for crew members. Five squadron equivalents of ten crews each between ACC and PACAF would support each AEF. Each squadron would then support two AEFs. Half of a squadron, or up to five crews, would be TDY for one AEF, then 90 days later, the other half would support an AEF rotation.

Any long term alternative platform decision needs to be made prior to FY 2003. After 2003, monies would be obligated in the Future Year Defense Plan (FYDP) against E-3 aging fleet issues. The worldwide demand for E-3s has opened other production lines now that the Boeing 707 production line has closed. The Turks and Australians have recently ordered Boeing 737 Wedgetail command and control platforms. The Japanese have ordered Boeing 767 E-3s. However, any purchase of additional command and control platforms must be weighed against placing money in the arena of space as the next generation command and control platform may well be a space based asset.

Regardless of the long-term solution, the men and women of the 552 ACW and PACAFs E-3 forces will continue to deploy world wide in support of CINC operational demands. The AEF construct will lend stability to an otherwise chaotic deployment schedule and finally meet the Chief's mandate to lower PERSTEMPO. A PERSTEMPO high enough to be a major factor in the 1994 friendly fire incident over northern Iraq.

Glossary

AACS	Airborne Air Control Squadron
ACC	Air Combat Command
ACW	Air Control Wing
AEF	Air Expeditionary Force
AFI	Air Force Instruction
AMTI	Air Moving Target Indicator
AOR	Area of Responsibilities
AWACS	Airborne Warning And Control System
C2	Command and Control
CAF	Combat Air Force
CINC	Combatant Commanders in Chief
CMR	Combat Mission Ready
CSAF	Chief of Staff of the Air Force
CT	Continuation Training
DETCO	Detachment Commander
DNIF	Duty Not to Include Flying
DO	Director of Operations
DOM	Director of Operations, Mission
ESC	Electronic Systems Command
FIR	Flight Information Region
FY	Fiscal Year
FYDP	Future Year Defense Plan
GBR	Ground Based Radars
GLO	Ground Liason Officers
GMFP	Global Military Force Policy
GTACS	Ground Theater Air Control System
ICAO	International Civil Aviation Organization
ISR	Intelligence, Surveillance, and Reconnaissance
LD/HD	Low Density/High Demand
MDS	Mission Design Series

MTW	Major Theater of War
NMC	Non-Mission Capable
OAF	Operation ALLIED FORCE
ONW	Operation NORTHERN WATCH
OSW	Operation SOUTHERN WATCH
PACAF	Pacific Air Force
PAD	Program Action Directive
PERSTEMPO	Personnel Tempo
PFT	Programmed Flying Training
PMAI	Primary Mission Aircraft Inventory
PME	Professional Military Education
RAP	Ready Aircrew Program
RSIP	Radar System Improvement Program
SBR	Space Based Radar
SECDEF	Secretary of Defense
SOF	Supervisor of Flying
TDY	Temporary Duty

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