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AIR-TO-AIR FORCE'S DOCTRINE AND TRAINING
FOR AN AIR OCCUPATION

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Preface

I wrote this article as a result of my squadron's experiences when deployed to Aviano AB, Italy, to initiate Operation Deny Flight, or the no-fly zone over Bosnia-Herzegovina in 1993. While my unit successfully completed its mission, there were some areas in which additional training could have better prepared us. This paper addresses those issues. I have written this paper with the desire that the authors of air occupation doctrine can use it in the development of joint tactics, training, and procedures. Also, I hope that future units can benefit from some of the training recommendations and better prepare themselves for an air occupation mission.

I wish to thank the members of my squadron for their positive attitude when NATO tasked us to enforce the no-fly zone. The squadron functioned as a team, enabling us to overcome many of our limitations. I have included in this paper many of the problem areas we had to solve. Additionally, I would like to thank my Faculty Research Advisor, Maj Paul Berg, for his guidance in writing this paper.

Abstract

One of Col Warden's controversial ideas is that airpower permits the virtual occupation of enemy territory by aircraft without requiring a potentially entangling and costly ground occupation. In view of declining defense budgets, the US public's low casualty tolerance, and the prevalence of regional wars and conflicts, air occupation is a tempting policy option. To conduct an effective air occupation, the military should understand how to perform air occupations and ensure required equipment and trained personnel are available. Air superiority is fundamental to air occupations. From 1993 to 1996, America attempted an air occupation in Bosnia-Herzegovina. The US and NATO were not prepared for the occupation, but they improvised a successful operation. The air-to-air threat NATO forces faced in Bosnia was impotent, but future air occupation forces may face a more dangerous high technology threat. American and coalition forces can improve their air superiority in the next air occupation through adherence to a joint air occupation doctrine, proper training, and improved equipment. Currently, American armed forces do not have an air occupation doctrine. In the next air occupation, the possession of a joint doctrine will clarify operations and provide a foundation for employment. This portion of air superiority doctrine is for inclusion into an overall air occupation doctrine. America's air superiority forces currently prepare themselves for the worst case scenario, a major regional conflict. American air forces need to prepare for a worst case scenario, but they also need to prepare for scenarios in which they are more

likely to participate: low intensity conflicts. The current training of pilots prepares them to engage large numbers of high technology threat aircraft. The pilots were never confronted with this threat in Bosnia's mission. The short notification of initial forces into Bosnia did not allow them to modify their training for the expected mission. The training of the air occupation pilots should emphasize force protection and the interception and identification of airplanes and helicopters, especially at night. Finally, aircraft equipment upgrades, such as night vision goggles, radar altimeters, and satellite communication antennas, will enable aircrews to better accomplish the missions that commanders assign.

Chapter 1

Introduction

Air superiority in itself is not an aim. Its object is to enable airpower to be used correctly and wisely...Air superiority is a necessary evil.

—Maj Gen Mordechai Hod, former Israeli Air Force Commander

Gen William Mitchell wrote in 1925, “The influence of air power on the ability of one nation to impress its will on another in an armed contest will be decisive.”¹ While one can certainly debate Gen Mitchell’s statement, the growing possibility that airpower can be decisive is certainly a consideration. For example, one of the primary architects of the 1991 Gulf War, Col John Warden, states: “The loss of air superiority put Iraq completely under the power of the coalition; what would be destroyed and what would survive was up to the Coalition, and Iraq could do nothing. It lay as defenseless as if occupied by a million men. For practical purposes, it had become a state occupied—from the air.”² As a result of the 1991 Gulf War, Col Warden stated that America needs to examine the viability of air occupation. Col Warden believes:

Countries conform to the will of their enemies when the penalty for not conforming exceeds the cost of conforming. Cost can be imposed on a state by paralyzing or destroying its strategic and operational base or by actual occupation of enemy territory. In the past, occupation (in the rare instances when it was needed or possible) was accomplished by ground forces—because there was no good substitute. Today, the concept of “air occupation” is a reality and in many cases it will suffice. The Iraqis conformed as much or more with UN demands as the French did with

German demands when occupied by millions of Germans. Ground occupation, however, is indicated when the intent is to colonize or otherwise appropriate the enemy's homeland.³

The author writes this paper on the assumption that air occupation is a viable concept. American and coalition forces have recently undertaken several operations that one could consider air occupations. Two operations, Provide Comfort and Southern Watch, are being conducted in northern and southern Iraq, respectively, to protect the ethnic populations in these territories. A third operation, Deny Flight, imposed a no-fly zone over Bosnia-Herzegovina to protect that population. Coalition and alliance forces constructed each of these operations to impose their will over territory. "An occupation may be needed to provide security during humanitarian efforts, when conducting peace support operations, and after major conflicts to provide the transition from hostilities to the desired end state."⁴ National Command Authorities tasked the respective Unified Command's Commanders in Chief (CINCs) to assemble these three operations as a reaction to crises. Due to time constraints, commanders began these operations on an ad hoc basis. Over their duration, units have evolved procedures to conduct effective operations. The lessons learned from these operations will improve current and future operations.

However, forces have not developed formal doctrine and training requirements from their experiences in air occupations. Furthermore, joint publications fail to define or mention the concept of air occupation. The lessons learned from historical experiences should provide the basis for doctrine development. This developed doctrine will enable forces to evolve a strategy for future operations. The strategy will determine the missions that forces will execute in the next air occupation. US Army Field Manual 100-5 states

that doctrine sets the direction for modernization and the standard for training.⁵ Forces should train for these missions in the peacetime environment because they will not have the time or resources to train during actual operations.

Currently, American air superiority forces continue to train for the worst case scenario, a major regional conflict (MRC). They expect to be able to adjust when authorities task them for one of the more likely scenarios, a lesser regional conflict (LRC). The Chairman of the Joint Chiefs of Staff (CJCS) directs military forces to plan for conflicts through the Joint Strategic Capabilities Plan (JSCP). The most recent JSCP tasked the CINCs to develop 61 plans. Only three of those 61 plans focus on MRCs.⁶ The other 58 plans delineate LRCs. Air superiority employment in a LRC, such as enforcing a no-fly zone over Bosnia, will differ from missions in a MRC, like the Gulf War.

American forces classify the scope of military operations from war to military operations other than war (MOOTW).⁷ One can consider air occupations MOOTW because they are small scale operations that focus on deterring war and promoting peace. The majority of air-to-air tasks in a LRC will be in support of MOOTW missions. Current joint doctrine recommends forces obtain proficiency training prior to deployment, if the MOOTW tasks are significantly different from their combat tasks.⁸ Therefore, air superiority forces should adjust their training to better emphasize the missions in LRCs.

Thus, doctrine and strategy will determine the missions that air-to-air forces will have to perform in air occupations. Their training will determine how well they execute their missions. “On the day of battle, soldiers and units will fight as well or as poorly as they are trained. Leaders have the responsibility to train subordinates. This may be their most

solemn responsibility.”⁹ American and coalition forces can improve their air superiority in the next air occupation through adherence to a joint air occupation doctrine, proper training, and enhanced equipment. This paper examines a small portion of the air occupation effort, the air-to-air forces. It proposes doctrine for air-to-air forces during an air occupation, reviews the missions resulting from this doctrine, analyzes training requirements, evaluates equipment limitations, and offers solutions.

Notes

¹ BGen William Mitchell, *Winged Defense*, (New York: Dover, 1988), 214.

² Maj George Kramlinger et al., “CONOPS 2010: Air Occupation,” Research Report no. 95-010c, (Maxwell AFB, Ala.: Air Command and Staff College, 1995), 4.

³ Col John A. Warden III, “Air Theory for the Twenty-first Century,” in *Challenge and Response: Anticipating US Military Security Concerns*, ed. Dr. Karl P. Magyar et al. (Maxwell AFB, Ala.: Air University Press, August 1994), 329.

⁴ Kramlinger et al., v.

⁵ US Army Field Manual 100-5, *FM 100-5 Operations*, June 1993, 1-1.

⁶ Joint Planning Orientation Course, Armed Forces Staff College, September 1995, slide 5D#31.

⁷ Joint Publication 3-0, *Doctrine for Joint Operations*, February 1995, vii.

⁸ Joint Publication 3-07, *Joint Doctrine for Military Operations Other Than War*, June 1995, IV-12-13.

⁹ US Army Field Manual 100-5, 1-5.

Chapter 2

Air-to-Air Doctrine

How, then, does an air force achieve air superiority? The answer in a nutshell is brainpower—the ability of decision-makers to use doctrine creatively, to make wise use of aviation history, to remain open to innovation, yet searching in criticism and brutally objective in evaluation.

—I.B. Holley, Jr. in *Air Superiority*

Considerations

Joint Publication 3-0 states:

When friendly forces can freely impose their will on the enemy, the opponent may have to accept defeat, terminate active hostilities, or revert to other types of conflict such as geopolitical actions or guerrilla warfare. JFCs [Joint Force Commanders] and subordinate commanders consider the nature and type of conflict, the objective of military force, the plans and operations that will most affect the enemy's judgment of cost and risk and the impact on alliance and coalition warfare. If the conditions have been properly set and met for ending the conflict, the necessary leverage should exist to prevent the enemy from renewing hostilities. Moreover, the strategic aims for which the United States fought should be secured by the leverage that US and multinational forces gained and can maintain. Wars are fought for political aims.¹

In developing doctrine for air occupation, one must consider the political environment. In an air occupation, the military force is trying to coerce or enforce the occupied state to do its will. Commanders must maintain an awareness of the political situation in which a force is conducting the air occupation. If a force is conducting an air occupation at the end of hostilities, commanders must protect their own forces as well as

ethnic groups within the country. For example, coalition forces are conducting an Operation Provide Comfort air occupation mission after the 1991 Gulf War. Coalition forces can not allow Iraqi helicopters to strafe Kurdish villages. If an incident such as this occurred, it would hinder the legitimacy of coalition end state objectives because portions of the Kurdish population would mistrust the coalition. If forces are conducting an air occupation in areas where incidents such as this could occur, commanders must maintain adequate air supremacy forces to deter and prevent actions like this from occurring.

Since current doctrine does not mention air occupations, one can look at joint publications for potential similar doctrine. In comparing Col Warden's air occupation vision and published joint doctrine, missions in an air occupation will be most similar to air operations in peacekeeping missions. Joint Publication 3.07.3 discusses air operations in peacekeeping missions:

An air component can make a significant contribution to all peacekeeping forces and observers. Air operations are particularly useful in patrolling difficult and undeveloped terrain, areas heavily mined or containing unexploded ordnance, or monitoring no-fly exclusion zones, e.g., Bosnia or Iraq. The air component's ability and flexibility in covering large areas in a short amount of time is an asset for both ground and maritime operations. Additionally, the air component's contributions to peacekeeping can be in the nature of airlift; logistics; surveillance; reconnaissance; command, control, and communications (C3); intelligence; aerial refueling; search and rescue; and medical evacuation.²

Additionally, the air occupation forces will be responsible for enforcing the rules to help achieve the desired end state. When enforcing rules, the forces must abide by the Rules of Engagement (ROE) that commanders establish. While one does not consider the ROE as doctrine, it is a prime consideration and can determine the effectiveness of air-to-air forces. The political situation will heavily influence the ROE. Commanders must

avoid an excessively restrictive ROE that can discredit forces in an air occupation. An occupied country's forces will probably conduct a test to determine if an occupying force has the political will to employ ordnance. Iraq's Saddam Hussein has continually tested the coalitions' resolve in Operations Provide Comfort and Southern Watch. If an occupied country senses that the occupying forces are too constrained, then occupying armed forces will have little credibility while in theater. Hence, one of the first considerations for a JFC is the ROE. The author has modeled the format of this chapter after joint publications and used bold text to emphasize considerations and proposed doctrine. Appendix B contains a summary of the bold text considerations and doctrine.

Rules of Engagement

"JFCs should give early attention to developing ROE that are appropriate to the situation and can be employed by all member forces. This task is often difficult, requiring the participation of senior political and military representatives from member nations. Complete consensus or standardization of ROE may not be achievable because of individual national values and operational concepts. However, JFCs should strive to develop and implement simple ROE that can be tailored by member forces to their particular mission."³

The ROE allows forces to decide when they can employ ordnance against the enemy. For air-to-air forces, ROE mostly consists of identification criteria, and descriptions of another aircraft's actions that forces can consider hostile. Identification criteria can range from visual identification by the pilot to another source's determination that an airborne object is a threat aircraft. One could describe a hostile act as flying across a certain line, or flying above a certain airspeed or altitude. The ROE is important to pilots because it

can permit aircrews to fulfill their requirements to employ ordnance before they enter an area where the adversary can employ ordnance against them. *Thus, the ROE needs to be complete to prevent fratricide, but not unnecessarily conservative that it gives the enemy an advantage.* An example of an exceedingly restrictive ROE is an F-15 having to execute a visual identification (VID) intercept against a fighter, but the ROE allows the F-15 to employ ordnance only if the intercepted fighter shoots first. A more effective ROE might require the F-15 to conduct a VID intercept, but it specifies hostile act criteria in which the F-15 pilot can shoot first. A comprehensive, but not too conservative, ROE will help prevent loss of friendly aircraft.

As Joint Publication 3-0 states, the ROE should be simple. *One important addition to the Joint Publication, in order to take advantage of different aircraft's capabilities, is that some aircraft may be able to operate under a modified ROE.* Each military aircraft type possesses capabilities unique to that model. For example, one capability the F-15 has is the ability to determine aircraft Identification Friend or Foe (IFF) codes. The F-15 can determine whether or not an aircraft is emitting an IFF code while the F-16 and F-18 cannot. JFCs task aircraft within the area of operations to emit IFF codes specified in the Air Tasking Order (ATO). If the reliability of the F-15 IFF interrogation equipment in test and training is without question, then the JFC should consider allowing the F-15 pilot to fire weapons based on his aircraft's ability to determine IFF codes. The JFC should make the ROE simple, but not restrict the ROE to the least capable aircraft and hinder more capable aircraft.

Proposed Doctrine

The first priority of air-to-air forces in an air occupation is to maintain air supremacy. This will enable other air occupation missions to operate without interference. American forces have operated with air superiority in every conflict since World War II. Air superiority operations in an air occupation will consist of a large amount of non-traditional intercepts. The classic fighter versus fighter confrontation will be rare. If the air occupation occurs at the end of hostilities, the occupied force should have a limited fighter threat. However, most countries possess significant numbers of other aircraft, such as helicopters and civilian airplanes. The majority of intercepts in an air occupation will be against these aircraft. These intercepts could occur during the day or at night, and aircrews must be prepared to accomplish them in any environmental conditions.

In an air occupation, an occupying force must maintain sufficient assets in the area to cover all air operations. Initially, fighter aircraft must sanitize the occupied airspace prior to other aircraft conducting air operations. In determining the quantity of air supremacy forces, the commander must consider the airspace size, the number of air operations, and the amount and type of other assets available to assist the air-to-air forces.

Prior to entering an area to conduct air operations, *commanders must conduct fighter sweeps through the area of operations prior to commencing other air occupation missions.* The purpose of this sweep will be to sanitize the airspace for any ambushes by an opposing force. All air occupation assets except for suppression of enemy air defense (SEAD) assets should remain well outside the airspace, until the fighters have cleared the occupation airspace. The SEAD assets should enter the area along with the fighters to provide protection against surface-to-air missile systems. Furthermore, commanders

should conduct a fighter sweep through the airspace prior to commencing air operations after a withdrawal. For example, if a thunderstorm prohibits operations in a portion of the airspace for an afternoon, commanders should send fighters in to sweep the airspace prior to allowing other air occupation aircraft back into the area vacated for weather.

Terrain and aircraft technical capabilities also affect air-to-air mission conduct. A given amount of forces can only effectively patrol a certain amount of airspace. In addition, the geography of the land under the airspace will influence the number of air-to-air assets. Mountainous terrain will increase the amount of air-to-air assets needed compared to operations over flat desert terrain. The mountains and valleys create hiding places that aerial sensors cannot see through because the sensors need line of sight. The amount of fighters will not only vary with the airspace size and geographic features, but also with the types of fighters. In a coalition, each country's aircraft will have different capabilities. Depending on the types of aircraft deployed, commanders must determine the amount of aircraft they require based on each aircraft type. For example, in Operation Deny Flight, aircraft from several countries were flying the same missions. Some aircraft were more capable than others because they had look-down shootdown capability. If an aircraft does not have look-down shootdown capability, a commander will need more aircraft to conduct effective operations. Lesser radar capable aircraft require an increase in numbers because the pilots must overcome their aircraft's radar deficiencies with visual lookout. The ATO in Operation DENY FLIGHT never provided for an increase in aircraft based upon a given aircraft's effectiveness in the Bosnian environment. Thus, *the airspace size, topography, and aircraft capabilities will determine the amount of air-to-air forces that commanders will need.*

One primary mission during an air occupation operation will be humanitarian assistance. Humanitarian assistance is one of the main objectives in air occupation missions, because if the people that a force is protecting or supporting fail, then the mission fails. Most humanitarian operations will occur with surface transportation because of reduced costs. However, there are situations when air occupation forces will have to conduct humanitarian efforts from the air. Some examples of these situations are when surface travel to the area in need is not possible due to mine fields, or the threat exists that humanitarian workers will become hostages. Thus, humanitarian efforts will be a major factor in the amount of air operations in the air occupation zone.

If the only air operation on a particular day is an aeromedical evacuation, then the amount of fighters needed for force protection is less than when accomplishing multiple airdrops of food to the population. For example, in Bosnia, C-130s were intermittently air dropping meals-ready-to-eat (MREs) to the civilian population. When the C-130s air dropped, they maintained intervals of one aircraft approximately every one-half hour into their drop zones. This spaced the C-130s to approximately 200 miles between aircraft. It is extremely difficult to protect the front C-130 and rear C-130s simultaneously from aerial attack with a two-ship of fighter aircraft. If the fighters placed themselves equidistant between the C-130s, it would take approximately five minutes for the fighters to engage a threat to either C-130. During Operation DENY FLIGHT, the amount of air superiority fighters did not change based on the number of air operations. There were always four fighters patrolling over Bosnia whether there were eight C-130s or one C-130 conducting airdrops. Clearly, at times there were more air operations ongoing in theater than there were forces to protect them.

Additionally, each aircraft operating in the area has some self-protection capabilities. Commanders should consider these defensive capabilities when determining the amount of air-to-air forces. *Thus, the number, type, and spacing of air operations will influence the amount of air-to-air assets needed.*

Another factor that can affect air superiority forces is the number of High Value Airborne Asset (HVAA) operating within theater. The number of HVAA aircraft in the region will have a significant effect on the size of the occupying air-to-air force because the fighters must protect the HVAA aircraft. One can consider Airborne Warning and Control Systems (AWACS) aircraft, air refueling, reconnaissance, and dignitary flights as HVAA. Each of these aircraft has limited self-defense capability. In order for these assets to accomplish their mission, they must remain reasonably close to the aircraft they are supporting or operate within the occupied area.

Elements within the occupied state may attempt some resistance. If an occupied country wanted to create an incident, downing a HVAA would certainly draw media attention and could provide a moral victory for a resisting force. Areas of resistance may include threats to the occupying force's aircraft. These threats can come from the surface or the air. One example would be if during the North Atlantic Treaty Organization's (NATO) occupation of Bosnia-Herzegovina, the Serbians were able to shoot down an American AWACS. The Serbs could have hijacked a fighter aircraft and ingressed from a neighboring country. Several countries around Bosnia provided strategic locations where NATO fighter aircraft could not have reacted in time to protect the AWACS if this event had occurred. AWACS established a daily orbit over Hungary, while NATO forces remained in Bosnia. This possible AWACS shootdown would certainly create some

additional questions within the American people of US vital interests in the region. The loss of a valuable aircraft along with the approximately twenty airmen onboard would stir debate over the American presence in Bosnia, which at the time had limited support. The loss of this aircraft could conceivably result in US forces withdrawing from the Bosnian mission. The former British Prime Minister, Margaret Thatcher, said that without the Americans, the Bosnian mission would not exist.⁴ Thus, with this one hypothetical event, NATO forces would withdraw from the region, and the Serbians could continue their nationalistic expansion.

Commanders must provide adequate forces to protect a HVAA. Air superiority forces protecting a HVAA will probably not have a second chance to engage threat aircraft. Threats that survive an initial aerial engagement could egress towards the HVAA. It is likely that escaping threat aircraft will attack the HVAA prior to air superiority forces being able to re-engage. Thus, *a special interest item in the air operations is the number of High Value Airborne Asset (HVAA) operating within theater.*

Another consideration in the number of air-to-air assets required is the amount and type of other assets available to assist the air-to-air forces. This includes airborne and space assets. For example, if the air occupation can position an AWACS aircraft within effective range of its radar, the AWACS can aid in airspace surveillance and monitor air operations within the air occupation. With AWACS' radar coverage, a force can possibly reduce the number of fighters in the occupation. However, an occupying force must have a contingency plan to scramble additional fighters when the AWACS' radar fails.

Future operations have the potential to take advantage of space based sensor to shooter options. Joint Publication 3-07 states:

Manned and unmanned aerial intelligence sensors, to include space-based, can provide valuable information where other intelligence infrastructure is not in place. Remote sensing systems can provide information on terrain, weather and other environmental factors essential to MOOTW. Data from space systems can be used to update antiquated maps and provide up-to-date locations of facilities and obstacles. Sensors on space and aerial platforms can also monitor terrestrial force movement and assist in treaty verification. In addition, communications systems using space-based resources can provide secure, reliable dissemination of intelligence and other information where there is little or no existing communications infrastructure.⁵

Space based assets could provide real time information to airborne pilots. Furthermore, many opportunities to correct air occupation violations will require rapid communication with the Joint Force Air Component Commander (JFACC). For example, a helicopter strafing a building could quickly land once the helicopter's pilot is aware of his detection. Fleeting opportunities to deal with rule violations can be dealt with if the fighters have the right equipment.

In summary, historical events provide references for warfighters to draft doctrine. Air-to-air doctrine will provide a basis from which forces can develop strategy. The strategy defines the way forces execute their taskings. The taskings that air superiority fighters will have to perform in air occupations are offensive and defensive counter air (OCA and DCA) missions. The OCA sweep and DCA missions will allow unimpeded air operations in a given area for a specified time. In OCA force protection missions, air-to-air forces will have to protect specified airborne objects from aerial attack. The author has provided a more detailed explanation of these missions in Appendix A. In order to properly execute these missions in an air occupation, commanders must effectively train their air-to-air forces.

Notes

¹ Joint Publication 3-0, III-23.

² Joint Publication 3-07.3, *Joint Tactics, Techniques, and Procedures for Peacekeeping Operations*, April 1994, I-6.

³ Joint Publication 3-0, VI-5.

⁴ Margaret Thatcher, *Yugoslavia: Death of a Nation*, PBS-Frontline, 360 min., 1994, videocassette.

⁵ Joint Publication 3-07, IV-2.

Chapter 3

Air-to-Air Training

The contest for air superiority is the most important contest of all, for no other operations can be sustained if this battle is lost. To win it, we must have the best equipment, the best tactics, the freedom to use them, and the best pilots.

—Gen Momyer, former Commander of USAF's Tactical Air Command

This chapter will analyze the annual training requirements of an F-15C fighter squadron and identify some equipment limitations. The author chose an F-15C unit because it is the most likely organization that a JFC will task to conduct air-to-air missions during an air occupation. The F-15C is the last single role fighter in the USAF because the pilots fly only air-to-air missions. Other USAF airplanes are multirole such as the F-16 and F-18. Most other nations have only multirole aircraft. Multirole aircraft will be less proficient at air-to-air tasks because their pilots have to divide their training between air-to-air and air-to-ground tasks. A multirole unit will probably require a greater amount of air-to-air training prior to deployment in order to be proficient in the missions of an air occupation.

Current Training Requirements

Most operational F-15C squadrons have 18 primary assigned aircraft and approximately 35 pilots. An average fighter squadron will typically fly approximately 5000 sorties annually with its 18 aircraft. This equates to about 140 sorties or missions annually for each pilot. During a mission, the fighter pilot must accomplish specific tracked events. An example of an event is a point defense mission or an area defense mission. Major Commands (MAJCOMs) task squadrons to record other events during missions such as the number of day intercepts accomplished during the point defense mission.

MAJCOMs define the type and number of specific annual events a pilot must complete during its annual realistic training review board (RTRB). The Air Combat Command (ACC) staff hosts the RTRB, which consists of aircraft specific representatives from continental US forces. The ACC staff forwards the RTRB results to US Air Forces in Europe's staff and Pacific Air Force's staff who typically modify their forces' annual requirements to mirror ACC. Requirements in the RTRB's guidance provide the baseline GCC training requirements for units to use to develop a realistic training program tailored to unit specific requirements.¹ Therefore, for each fighter aircraft type, the MAJCOMs train their fighter forces in approximately the same manner.

MAJCOMs define three levels of graduated combat capability (GCC) training: A, B, and C, that squadrons monitor for each aircrew member to maintain mission ready (MR) status. If an aircrew does not maintain GCC level A status, the person can not fulfill unit tasking and must accomplish additional training to return to MR status. ACC defines the F-15 GCC level A as aircrews that are able to employ as two or four ship formations,

perform intercept, OCA and DCA events, and employ air-to-air weapons. Level B aircrew fulfill the A level requirements and maintain the capability to support the specific unit tasking. GCC level C aircrews are qualified and proficient in all air-to-air combat scenarios. Aircrew rarely achieve GCC level C status. The ACC goal is to train 70 percent of the F-15 aircrews to level B.² Table 1 lists ACC's annual events and requirements for specific GCC levels. Unit commanders determine the requirements for non-specified levels.

Table 1. Typical Unit GCC Levels³

	Level A	Level B	Level C
Sorties (Inexperienced/ Experienced Aircrew):			
Air-to-Air (Day)	82/70		
Air-to-Air (Night)	8/8		
Basic Fighter Maneuvers	5/5		
Air Combat Maneuvers	5/5		
Total GCC	100/88	128/110	166/140
Total (GCC and Collateral)	122/109	152/133	194/166
Events:			
Aerial Gunnery	2		
Alert Scramble	6		
Slow Shadow Day	4		
Low Altitude Day	20		
VID Day	4		
VID Night	4		
Low Altitude Tactical Navigation	--	4	
Four Ship Employment	12	18	
Composite Force Training	--	2	
Intercepts Day	24		
Joint Maritime Operations (Air)	--	4	
Intercepts Night	16		
Defensive Counter Air Events (Only one event/sortie):			
Point Defense	24		
Area Defense	24		
HVAA Defense	4		
Offensive Counter Air Events (Only one event/sortie):			
Force Protection	4	8	
Sweep	24		
Weapons Qualification:			
AIM-7 Sparrow	Qual	Qual	Qual
AIM-9 Sidewinder	Qual	Qual	Qual
AIM-120 AMRAAM	Qual	Qual	Qual
Gun	Qual	Qual	Qual

Training Hindrances and Recommendations

In comparing the air occupation air-to-air missions to the training requirements, most of the training requirements will enable a unit to conduct the air occupation mission. However, there are some areas that hinder the air superiority force's training. These restraints are: an excessive prioritization on sweep, muddling of force protection missions, an inordinate emphasis on point defense, lack of helicopter intercepts, insufficient aircrew ground training, unrealistic ROE practice, and lack of a full-scale exercise.

The first impediment is an overemphasis on sweep. Fighters typically conduct sweeps when an airspace has been vacant, and prior to a force conducting operations within that airspace. When a force maintains continual presence in an area, sweeps are not necessary as long as the force can adequately cover the airspace with available assets. During Operation Deny Flight, fighters conducted dedicated sweeps in Bosnia during initial airspace entry for Operation Deny Flight. Once the operation began, air-to-air fighters attempted to maintain 24 hour coverage of the country. NATO forces conducted very few additional sweep missions. During Operation Provide Comfort, air superiority forces conduct a sweep every day because coalition aircraft occupy the airspace only during daylight hours. However, the proportion of sweep is minimal when compared to other daily air superiority missions.

The current stress on sweep causes the force protection mission to receive inadequate emphasis. The force protection mission, along with area defense, were the prime missions of units in Bosnia. Another reason for the low force protection training requirements is the supposed lack of available assets for units to protect during training. In reality, every

Combat Air Force (CAF) F-15 unit has an air-to-ground fighter unit stationed within 200 miles of it. Wing Commander or Numbered Air Force involvement could ensure scheduling of assets and missions receive the appropriate priority.

In examining the historical missions of air occupation forces and realizing the assets for force protection missions are available, one must reevaluate the allocation of OCA missions. In today's military budget downsizing, increasing the number of sorties a pilot receives is unrealistic. Therefore, the force protection number requirements should increase, and the sweep requirements should decrease. The author recommends the following change to the GCC level A annual requirements: 12 force protection missions and 16 sweep missions. The unit commander should determine GCC B levels.

Increasing the force protection missions from four to twelve would allow each pilot to receive an average of one force protection mission a month. While current training requirements require four missions annually, the unit typically accomplishes its annual events in one two-week training period, like a Red Flag exercise. The unit usually does not readdress force protection missions until the next annual cycle. Increasing the requirement from four to twelve would require the unit to accomplish its annual force protection mission events in more than a single two-week training period. Additionally, aircrews beginning their first tour in fighters have normally never participated in a force protection mission. These inexperienced aircrew typically make up fifty percent of a fighter squadron. The current requirement of four force protection missions per year is too low for these young pilots to gain or maintain any proficiency in the mission. Decreasing the amount of sweep missions from 24 to 16 will still enable each pilot to average over one sweep mission each month. Changing the amount of sweep events will

not appreciably reduce overall proficiency in the sweep mission due to the similarities between sweep and DCA area defense missions.

A second training limitation is the lack of specificity on the type of force protection mission. As described in Appendix A, there are three force protection categories: close, detached, and slow mover. In current training requirements, a pilot could fulfill his force protection requirements without having to accomplish a slow mover protection mission. Force protecting a group of fighters is completely different from protecting C-130s. The speeds, altitudes, routes and self protection will differ significantly. The slow shadow event consists of following an airborne object to report his status, such as a drug runner. This shadow mission does not include protecting the aircraft from threats. Unless a pilot is able to train and reinforce the lessons learned from tactics manuals, units will have limited force protection mission capabilities. The author recommends that the RTRB further delineate its annual force protection mission requirements into three sub-categories: close, detached, and slow mover, with each category requiring four events.

A third training hindrance is the overemphasis of point defense. The point defense mission is a hold over from the Cold War in which air superiority forces defend a specific point, such as an airbase, from attack. There are situations in LRCs when forces would have to conduct point defense missions, such as over a combat search and rescue operation. The likelihood of air superiority forces executing a point defense mission is extremely rare. If one could combine all the air-to-air missions in Operations Provide Comfort, Southern Watch, and Deny Flight, there was one point defense mission. However, the probability of commanders tasking air-to-air forces to conduct a HVAA protection mission is extremely high. Therefore, the author recommends the RTRB

change its DCA requirements. The annual point defense events should change from 24 to 16, and the HVAA events from 4 to 12.

Changing HVAA protection from 4 to 12 would allow pilots to practice it on average once a month. For training, one would desire an actual HVAA, but it is not required, since any aircraft could simulate the HVAA in training. The increase in HVAA protection events will increase pilots' proficiency for HVAA protection, a scenario they will have to accomplish in both a MRC and a LRC. This will reduce their proficiency in point defense, but there remains a good capability for the aircrews to accomplish the mission. The reduction in point defense events would still enable pilots to train for it more than once a month, and there are some areas of overlap between point and area defense missions.

A fourth training limitation is the lack of helicopter intercepts. The first time many of the pilots executed an intercept on a helicopter in Operation Deny Flight was during actual operations in Bosnia. Helicopters provide some unique intercept problems to fighters because they travel at equivalent speeds with cars and they do not need an airfield to land. Thus a helicopter flying low over a highway may be difficult to detect. Also, if the helicopter pilot knows of his detection, the pilot can usually land immediately. Annual GCC training requirements include VID intercepts, but the category needs to be more specific to include helicopter intercepts. Of the four day and four night VID intercept events, the author recommends the annual requirements include two helicopter intercepts each for day and night.

The fifth training hindrance does not concern flying training, but rather aircrew ground training. MAJCOM intelligence units distribute to fighter squadron intelligence officers the pictures of aircraft in 35mm slide format. Squadron intelligence officers

display the photos to pilots. These pictures display aircraft from varying angles and at various distances. Mission ready aircrew semi-annually take a test in which they must identify the aircraft. Aircrew failure of this test removes the aircrew from mission ready status until the aircrew passes the retest. The slides for this presentation typically represent the worst case tasking of the unit. For example, if the CJCS apportions a unit to US Central Command (CENTCOM), then the unit reviews photos of aircraft that operate in the CENTCOM area of responsibility. The majority of the photos are of the opposing forces military aircraft capable of employing ordnance. The photos usually do not include civilian aircraft and have limited views of military transport aircraft. For example, the pilots who initially flew into Bosnia for Operation DENY FLIGHT used black and white photocopies of pictures from *Jane's All the World's Aircraft*. They used these pictures to train themselves for identification of older helicopter systems such as the NATO code-named Soviet Haze or Hormone. Both of these helicopters operate in the former Yugoslavian area of responsibility (AOR). Once the squadron deployed to enforce the no-fly zone, the MAJCOM was responsive to the units' need for photos of "lesser threat aircraft" and early model Soviet helicopters. However, it took months to fill the unit's request. MAJCOM or combatant command intelligence units should maintain an adequate supply of slides of all the aircraft within that MAJCOM's AOR. This will provide unit intelligence officers with an ample amount of slides with which they can increase the VID capacity of the aircrews. The MAJCOMs and combatant command's intelligence divisions should maintain the slides because they have the funding, and it would reduce the costs of maintaining slides for each unit. The MAJCOMs or combatant commands can distribute the slides to units as needed.

A sixth area of training where a combatant commander could help forces train is drafting ROE that the CINC would most likely expect them to use within the theater. Most fighter squadrons train with ROE that the squadron weapons and tactics officer recommends. This ROE is typically based on a current ongoing operation or one from the past. The combatant commanders have plans for the areas in their AOR where they might have to use military power. The CJCS apportions forces to the CINCs, and each fighter squadron knows which area of the world it could respond to if tasked. A way to improve training, as well as refine the ROE, is for the CINC's planning staff to draft a most probable ROE for a situation and allow the units to train with that ROE. The units can then provide feedback to the CINC on areas where the ROE is too restrictive and areas where the ROE might need to be more specific. Additionally, the units will become more familiar with expected ROE and can adjust their training appropriately. The drafting of notional ROE and allowing the units to practice it in their training would be beneficial to the CINC and the unit.

ROE is not a training event that fighter squadrons record because it is not measurable. However what a unit can measure is the number of missions a pilot flies practicing one set of ROE over another set of ROE. Therefore, the author recommends that units modify their training matrixes to include ROE. The number of ROEs that a unit operates under will vary by unit because the CJCS gives some units multiple taskings.

The last area of training that would test and validate operations in the air occupation mission is a joint exercise scenario. Joint Publication 3-07 states: "If there is sufficient time prior to actual deployment for an operation, units should culminate their predeployment training in a joint training exercise based on the anticipated operation."⁴

The military could conduct an air occupation exercise scenario in the Nellis AFB, NV ranges, or in the Utah Test and Training range, or in both. Both ranges are located near Fallon Naval Air Station, Nevada, which would provide a convenient location for naval aviation forces to operate. Within each of the ranges are airstrips where bandit aircraft could operate. In addition, coalition forces could practice integration for a multinational scenario. The forces required to operate this scenario would be no more than a typical Red Flag Exercise which ACC conducts approximately six times per year. Additional manning would be necessary to have a ground presence to simulate an occupied population. Red Horse Civil Engineering units could construct temporary buildings on the range for persons on the ground to occupy. The exercise evaluation personnel could occupy these facilities to better determine the effectiveness of the occupying force. Funding for this operation would come from the Joint Chiefs Of Staff (JCS) exercise funds. Forces should conduct the exercise annually to learn and reinforce lessons learned. The duration of the exercise should be two weeks to account for inclement weather days or range restrictions from higher priority missions.

Equipment Upgrades

In addition to modifying training requirements, a force can increase its air-to-air capability through equipment upgrades. One of the equipment upgrades would be the addition of a radar altimeter into all aircraft. The radar altimeter would provide the pilots more information on their altitude above the ground and improve their intercept capability in most terrain. For example, a coalition force is conducting an air occupation in a country with mountainous terrain. Fighters are patrolling the skies above an overcast

cloud deck. In this scenario, the AWACS controller tasks a fighter to visually identify a low altitude radar contact. The fighters execute an intercept on AWACS' radar contact, but the fighters enter instrument meteorological conditions (IMC) as they enter the overcast clouds. In IMC and without a radar altimeter, the fighters will descend no lower than their minimum safe altitude (MSA). Flying regulations define MSA as 1000' (2000' in mountainous terrain) above the highest terrain in the area. Therefore, if AWACS' radar contact is operating in the clear below the cloud deck and below the fighters MSA, the contact will remain unidentifiable. Fighters without radar altimeters will use the same minimum altitudes at night as they do in IMC conditions.

Another technological improvement to air-to-air forces would be to equip all fighters with night vision goggles (NVG). If fighter pilots had night vision goggles, they could better identify airborne objects flying at night. Current night VID capabilities of non-NVG equipped aircraft are poor. To obtain illumination for a VID, pilots have to rely on their own aircraft's lighting systems to reflect off the unidentified airborne object. This is not an optimum method of identification since it alerts the unidentified aircraft to the fighter's presence. If the USAF equipped all fighters with NVGs, the RTRB would have to modify the training requirements. In changing the training requirements, the author would not add any additional night sorties, but he would add the requirement that aircrews accomplish their current night taskings with NVGs. For example, the F-15s would accomplish their annual requirement of 16 night intercepts and 4 night VIDs with NVGs.

The last technological improvement air-to-air forces need is an antenna to communicate through satellites also known as a SATCOM antenna. Engineers could install this antenna in the fuselage of an aircraft. This antenna would enable aircrews to

communicate directly with higher headquarters and eliminate relays by other aircraft. Current capability of most fighters is Ultra High Frequency (UHF) radio communications that generally have a maximum range of approximately 100 miles and require line-of-sight between the transmitter and the shooter. ROE in some areas requires JFC approval to shootdown an aircraft. For example, during an intercept the fighter pilot fulfills his ROE requirements and confirms with his controller the aircraft is hostile. Then, the fighter pilot must await clearance to fire. The fighter pilot has to query the controller on board AWACS to obtain clearance. The controller then requests clearance to fire via intercom to the AWACS' mission commander. The mission commander calls the JFACC or JFC and obtains clearance to shoot. The mission commander relays clearance from the JFACC or JFC back to the controller, who relays clearance to the fighter pilot. With a SATCOM antenna, the fighter's aircrew could communicate directly with the JFACC and significantly reduce the amount of time required to obtain clearance to fire.

Therefore, modifying the pilots' training and equipping them with more tools will enhance their mission effectiveness in air occupations. Current training requirements focus on missions that air-to-air forces are less likely to encounter during air occupations. Training programs should better emphasize the force protection and HVAA missions. Also, the training programs should better prepare aircrews for helicopter intercepts, VID training, and provide a joint force exercise practicing the air occupation mission. Additionally, commanders should upgrade aircraft equipment that will increase mission effectiveness in more probable air-to-air missions.

Notes

¹ Message, 201530Z DEC 95, HQ ACC. To various agencies, 20 December 1995.

Notes

² Message, 201530Z DEC 95, HQ ACC.

³ Message, 201530Z DEC 95, HQ ACC.

⁴ Joint Publication 3-07, IV-14.

Chapter 4

Conclusion

Without air superiority, you are not going to function...

—Gen Ron Fogleman, USAF Chief of Staff

In conclusion, National Command Authorities will task American forces to conduct another air occupation. The lessons of forces in previous air occupations will provide the data to develop air occupation doctrine. An established doctrine, on which forces can base their strategy, will better prepare the forces to successfully execute operations. This doctrine will also provide the basis to adjust training requirements and equipment to become more effective forces. Drafting a notional ROE will allow units to evaluate and refine proposed ROE. Also, it will allow pilots of different aircraft types to validate the ROE with their aircraft unique systems. Effective ROE will help maintain the occupying force's credibility. Additionally, air-to-air forces will be better able to maintain air supremacy with a proper training emphasis on force protection, sweep, and DCA. Helicopter and improved ground training will further aid air forces. Training and a joint exercise will enable forces to resolve the area size they can effectively cover in an air occupation. Also, training and exercises will help determine the numbers of fighters that commanders need to allocate during dense or sparse air operations and HVAA protection. Furthermore, training and exercises will determine the amount of air superiority forces

based upon the availability of other surveillance assets. Finally, equipment improvements like radar altimeters, NVGs, and SATCOM antennas will give the aircrews more capability to provide air supremacy.

The current operations tempo and monetary constraints limit the amount of training a force can accomplish. American forces will have to conduct the majority of their training from home station. Commanders need to prepare their forces for the worst case scenario. While there is some overlap in operations between worst case and most likely case scenarios, a force will not be able to effectively accomplish the most likely scenario if it trains exclusively for the worst case scenario. “Readying forces for MOOTW requires building on the primary purpose of the Armed Forces—to fight and win the nation’s wars. For most types of MOOTW, military personnel adapt their warfighting skills to the situation. However, for some MOOTW (for example, humanitarian assistance and peacekeeping operations) warfighting skills are not always appropriate. Therefore, to be effective in these types of MOOTW, a mind set other than warfighting is required.”¹ One of the lessons learned and re-learned during military operations is that forces will have to train the way they will fight. Commanders need to adjust the training requirements to enable forces to train for the more likely scenario. The doctrine should be the basis for this training adjustment. LTG T. Montgomery, USA SR MILREP to NATO said, “A well-trained and disciplined military unit is the best foundation upon which to build a peacekeeping force.”²

Air-to-air forces have been fortunate to have been involved in air occupations where forces have severely destroyed the threat, or the threat possessed limited air-to-air capability. Iraq’s Air Force was almost non-existent at the end of the Gulf War. The

former Yugoslavian Air Forces possessed mostly antiquated airplanes such as the Galeb-Jastreb. Serbia possessed a few Fulcrums, but because of monetary and training limitations, they had limited operational capability. This limited threat gave air-to-air forces the time to adjust and modify their mindset and capabilities to the air occupation mission. When commanders task units for future operations, air superiority forces may not be so fortunate. Therefore, they must be ready to conduct air superiority missions at the outset of an air occupation.

Notes

¹ Joint Publication 3-07, IV-13.

² Joint Publication 3-07, IV-13.

Appendix A

Air-to-Air Missions

This appendix defines and gives examples of air-to-air missions used in this research paper.

Offensive Counter Air

Force Protection

In the force protection role, fighters will protect an airborne object from aerial attack. Aerial tactics manuals define three categories of force protection missions: close, detached, and slow mover. The close force protection mission refers to the fighters remaining within visual contact of the object they are trying to protect. An example of a close force protection mission would be a fourship of F-15Cs flying one mile in front of six F-18s during the Hornets' ingress to the target area. The detached escort is when a force of fighters remains in the same area as the protected asset, but the fighters are beyond visual range of the asset. The force protecting fighters position themselves between the threat and the protected asset. Pre-mission planning provides routes and timing. An example of a detached escort is a fourship of F-15Cs flying a 10 mile screen for eight F-18s. The final area of force protection is slow mover escort. This area requires special emphasis because the fighter aircraft can not tactically employ their

aircraft at the speeds their asset travels. This causes the fighters to fly some sort of spacing maneuvers to maintain visual or area presence with the asset. Pilots consider a slow mover an aircraft that can not travel faster than 420 knots groundspeed below 10,000' MSL or 0.7 MACH above 10,000' MSL. An example of a slow mover would be a C-130.

The advantage of the close force protection role is the fighters always know the location of the object they are protecting, and it is easy to communicate with that aircraft's crew. Additionally, it is easy to adjust to modifications in timing, route, or speed because the package is together. Also, if a threat approaches the asset the fighters can rapidly respond to the threat. The disadvantages of close protection are it concentrates and highlights your assets for a threat. Also, it limits threat response flexibility and restricts the engagement ranges of air-to-air forces because the fighters are visually tied to the objects they are protecting.

Detached force protection provides the fighters more flexibility when reacting to threats, and it does not require the aircraft to remain in one group. However, aircrews need to communicate changes in timing, route, and speed. This communication can be difficult in the low altitude environment because of line-of-sight requirements. Additionally, if a threat is able to attack the protected aircraft, the fighters will not be able to immediately attack the threat due to their distance.

A combination of close and detached force protection is the preferred method air superiority fighters use to force protect. However, this combination method requires more aircraft than using one force protection method. In determining the amount of air

superiority aircraft a joint force possesses, the JFC will probably not have enough aircraft for both a combination force protection mission and other air supremacy taskings.

The slow mover protection presents problems to air-to-air forces because the fighters will typically fly a race track pattern above the slow mover. This causes fighters to turn their back to the threat during the cold leg of the racetrack. One can maintain a thorough radar sanitization in the slow mover's direction of travel by increasing the amount of fighters to always maintain a fighter flying the same direction as the slow mover. Again, this will increase the amount of fighter aircraft required to conduct the mission, which an occupying force may not have due to other requirements.

Sweep

Another mission air-to-air forces will have to execute is an offensive counter air (OCA) sweep mission. This is when air-to-air forces enter a defended area ahead of a strike package to clear the area of enemy air-to-air threats. An example of a sweep mission is a fourship of F-15Cs flying five minutes ahead of a strike package. The timing of a sweep is critical to destroy current airborne threats, and the strike package must employ its ordnance before the enemy has time to launch its reserves. The difference between sweep and detached escort is the air-to-air forces executing a sweep are not tied to protecting a specified group of strikers.

Defensive Counter Air

The defensive counter air (DCA) mission consists of protecting a piece of airspace or an airborne object over your homeland. DCA generally consists of two different missions: area defense and HVAA protection. The area defense mission is designed to prevent a

threat from flying through an airspace and employing ordnance. An example of an area defense mission is four F-15Cs executing a combat air patrol (CAP) defending a 40 square mile area around their base. The other DCA mission, HVAA protection, consists of protecting an expensive airborne object from aerial attack. An example of a HVAA protection mission would be four F-15s protecting an RC-135 aircraft during its mission.

Specialized Tasks

Air-to-air forces will have to accomplish some specific specialized missions. The first mission is a VID intercept. The purpose of a VID intercept is to identify what type of aircraft and force is flying at that location. An example of a VID intercept is an F-15 having to identify a radio inoperative aircraft that returns to base. Base authorities would not know the identity or intentions of the approaching aircraft, and they would need to identify whether the aircraft they are monitoring has hostile or friendly intentions.

An additional specialized mission air-to-air forces will have to execute in an air occupation are night or adverse weather operations. This environment is particularly difficult because of the requirement to rely on instruments for orientation. The overall effectiveness of aerial forces in night or adverse weather will decrease because of the task saturation. A pilot will prioritize flying the aircraft over mission execution. An example of some of the adjustments in this environment would be an F-15 having to execute a VID intercept at night against a non-illuminated airplane. Additionally, night or adverse weather will limit how low fighters will descend because they can not see the ground. The technology exists to enable fighters to descend to low altitude in these conditions.

Appendix B

Summation of ROE Considerations and Proposed Doctrine

The ROE needs to be complete to prevent fratricide, but not unnecessarily conservative that it gives the enemy an advantage.

One important addition to the Joint Publication, in order to take advantage of different aircraft's capabilities, is that some aircraft may be able to operate under a modified ROE.

The first priority of air-to-air forces in an air occupation is to maintain air supremacy.

Commanders must conduct fighter sweeps through the area of operations prior to commencing other air occupation missions.

The airspace size, topography, and aircraft capabilities will determine the amount of air-to-air forces that commanders will need.

The number, type, and spacing of air operations will influence the amount of air-to-air assets needed.

A special interest item in the air operations is the number of High Value Airborne Asset (HVAA) operating within theater.

Another consideration in the number of air-to-air assets required is the amount and type of other assets available to assist the air-to-air forces.

Glossary

ACC	Air Combat Command
AMRAAM	Advanced Medium Range Air-to-Air Missile
AOR	Area of Responsibility
ATO	Air Tasking Order
AWACS	Airborne Warning and Control System
CAF	Combat Air Forces
CAP	Combat Air Patrol
CENTCOM	US Central Command
C3	Command, Control, and Communications
CINC	Commander in Chief
CJCS	Chairman of the Joint Chiefs of Staff
DOD	Department of Defense
HVAA	High Value Airborne Asset
IFF	Identification of Friend or Foe
IMC	Instrument Meteorological Conditions
GCC	Graduated Combat Capability
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JCS	Joint Chiefs of Staff
JSCP	Joint Strategic Capabilities Plan
LRC	Lesser Regional Conflict
MAJCOM	Major Command
MOOTW	Military Operations Other Than War
MR	Mission Ready
MRC	Major Regional Conflict
MRE	Meals-Ready-to-Eat
MSA	Minimum Safe Altitude
NVG	Night Vision Goggles

NATO	North Atlantic Treaty Organization
ROE	Rules of Engagement
RTRB	Realistic Training Review Board
SATCOM	Satellite Communication
SEAD	Suppression of Enemy Air Defense
UHF	Ultra High Frequency
VID	Visual Identification

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