

**FM 1-120**

**ARMY AIR TRAFFIC SERVICES  
CONTINGENCY AND COMBAT ZONE OPERATIONS**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

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## REFERENCES

### SOURCES USED

This source was quoted or paraphrased in this publication.

#### ***Federal Aviation Administration Order***

FAA Order 8240.46A. The Division of Responsibility Between the Department of Defense and the Federal Aviation Administration for Flight Inspections. 11 August 1986.

This publication is available from the Director, US Army Aeronautical Services Agency, ATTN: MOAS-AI, Cameron Station, Alexandria, VA 22304-5050.

### DOCUMENTS NEEDED\*

These documents must be available to the intended users of this publication.

#### ***Field Manuals***

FM 100-5. Operations. 14 June 1993.

FM 100-103. Army Airspace Command and Control in a Combat Zone. 7 October 1987.

FM 101-5. Staff Organization and Operations. 25 May 1984.

FM 101-5-1. Operational Terms and Symbols. 21 October 1985.

#### ***Joint Chiefs of Staff Publications***

JCS Pub 1-02. Department of Defense Dictionary of Military and Associated Terms. 23 March 1994.

JCS Pub 3-52. Doctrine for Joint Airspace Control in a Combat Zone. 3 December 1993.

#### ***Multiservice Publications***

FM 100-103-UFMFRP 5-61/NDC TACNOTE 3-52.1/ACCP 50-38/USAFEP 50-38/PACAFP 50-38, Multiservice Procedures for Integrated Combat Airspace Command and Control. 3 October 1994.

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\*These sources were also used to develop this publication.

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FM 100-103-2/FMFRP 5-62/ACCP 50-54/PACAFP 50-54/USAFEP 50-54/NDC TACNOTE  
3-56.2. The Theater Air-Ground System. 1 April 1994.

***Technical Manuals***

TM 95-225. United States Standard: Flight Inspection. 1 May 1963.

TM 95-226. United States Standard for Terminal Instrument Procedures (TERPS).  
1 July 1976.

**READING RECOMMENDED**

This reading contains relevant supplemental information.

***Field Manual***

FM 100-20. Military Operations in Low Intensity Conflict. 5 December 1990.

## CHAPTER 1

### AIR TRAFFIC SERVICES DOCTRINE

***The Army of the future must deploy on short notice and operate successfully on many battlefields and in many environments. Therefore, we must tailor our forces for contingencies as they occur during war or during operations other than war.***

#### Section I. Operations

##### 1-1. THE EVOLUTION OF ARMY OPERATIONAL DOCTRINE

**a. *AirLand Battle Doctrine.*** AirLand Battle doctrine produced the best trained Army in our nation's history. Applying the tenets of agility, initiative, depth, and synchronization, AirLand Battle doctrine focused primarily on operations in central Europe, the Middle East, and Korea.

**b. *Army Operational Doctrine.*** FM 100-5 is the natural evolution of AirLand Battle. Army operational doctrine is designed for an Army that can function well during peacetime and war. Upholding the tenets of AirLand Battle, Army operational doctrine adds versatility. Based on these tenets, the Army must train to proficiency in joint, combined, and interagency operations to perform its mission of providing land forces to deter or win conflicts and wars.

##### 1-2. THE CHANGING THREAT

**a.** Previous doctrine concentrated on the Soviet threat. Today, the US and its NATO allies would have significant warning before the outbreak of a European-based war. European nations would require extensive, visible preparation for such a war.

**b.** Army operations now focus on regional threats. These threats may pursue their interests through economic, political, religious, or technological factors. Regional powers may decide to conduct insurgencies instead of open aggression. Regional threats try to exploit weak, third-world countries. Other threats, such as narcoterrorists, continue to conduct insurgencies that may threaten US interests. They may try to overthrow friendly governments or deny access to resources and emplace a hostile government to destabilize a region.

**c.** Major technological advancements are becoming available to more nations. Therefore, we must expect to encounter technologically advanced forces in the future. The

developers of new systems must consider threat technology and provide a means to counter and exploit enemy systems.

### **1-3. IMPACT OF CHANGES ON AIR TRAFFIC SERVICES**

In the changing world environment, fewer assets will be deployed forward. In the 1990s and beyond, ATS units must be ready to deploy anywhere in the world. As they deploy to contingency theaters, the tenet of versatility requires continued planning for other global missions including operations other than war.

**a. Roles.** Deployed air traffic service units will function as an integral part of joint, combined, and interagency forces. These units must conduct both opposed and unopposed early entry operations. In some cases, ATS units, in cooperation with joint, combined, and interagency forces, should help develop the airspace structure used for regional stabilization. Chapters 3 and 4 expand the discussion of the roles for Army ATS.

#### **b. Characteristics.**

**(1) Tailored force.** Commanders must tailor ATS forces to meet global contingencies, and ATS organizations must train to perform mobile, short-notice missions. As a tailored force, ATS supports Army Aviation during all phases of the operational cycle. Commanders must consider ATS capabilities in all deployment scenarios.

**(2) Army airspace command and control.** By providing airspace management expertise, ATS units augment the G3 and J3 of the field army and land component commander. These units also augment the battlefield coordination element and the control reporting center at echelons above corps. In addition, they augment the corps, division, and brigade A<sup>2</sup>C<sup>2</sup> element. Augmentation at EAC, corps, division, and brigade A<sup>2</sup>C<sup>2</sup> provides the joint, combined, or interagency interface for ATS systems throughout the theater of operations. This interface must focus on all military operations from warfighting to operations other than war.

**(3) Training.** The professional development of air traffic controllers must include training for joint, combined, and interagency operations. ATC personnel must train for operations in the NAS and TAGS. ATC facilities at Army fixed-base airfields, as well as tactical ATS units, must help provide this training base. Commanders at every level must support the training requirement and ensure that ATC personnel maintain their skills.

**(4) Expansibility.** ATS forces must be capable of being expanded. Force structure must be based on a modular concept for developing organizations to perform the functions of ATS. The tactical aviation control team is the smallest element that can conduct independent operations for a specified time. ATS forces must be able to perform their functions as part of a small force or a larger, tailored force. Reserve Component ATS assets allow for the expansion of ATS capabilities.

**c. Employment.** ATS units must be versatile and prepared to meet different contingencies of varying intensity. They also must be able to function as part of joint, combined, and interagency forces. As part of the A<sup>2</sup>C<sup>2</sup> element, the ATS unit is the Army's primary coordination link to the joint integrated airspace C<sup>2</sup> system.

**d. Limitations.** Air traffic services is a limited resource. Therefore, its deployment must provide the ground commander with a decisive advantage. The ground commander deploys these resources after he considers the JFC's concept of operation for the third dimension of the battlefield.

## Section II. Operational Concept

### 1-4. RANGE OF MILITARY OPERATIONS

The operational concept refocuses doctrine for a strategic Army and a changing environment. This concept considers employment of Army forces in joint, combined, and interagency operations during periods of war and during operations other than war. War and operations other than war are the major components in the range of military operations (Figure 1-1).

**a. Peacetime.** Peacetime is largely a nonhostile state where military capabilities other than combat power are used. National assistance is the primary objective during operations other than war.

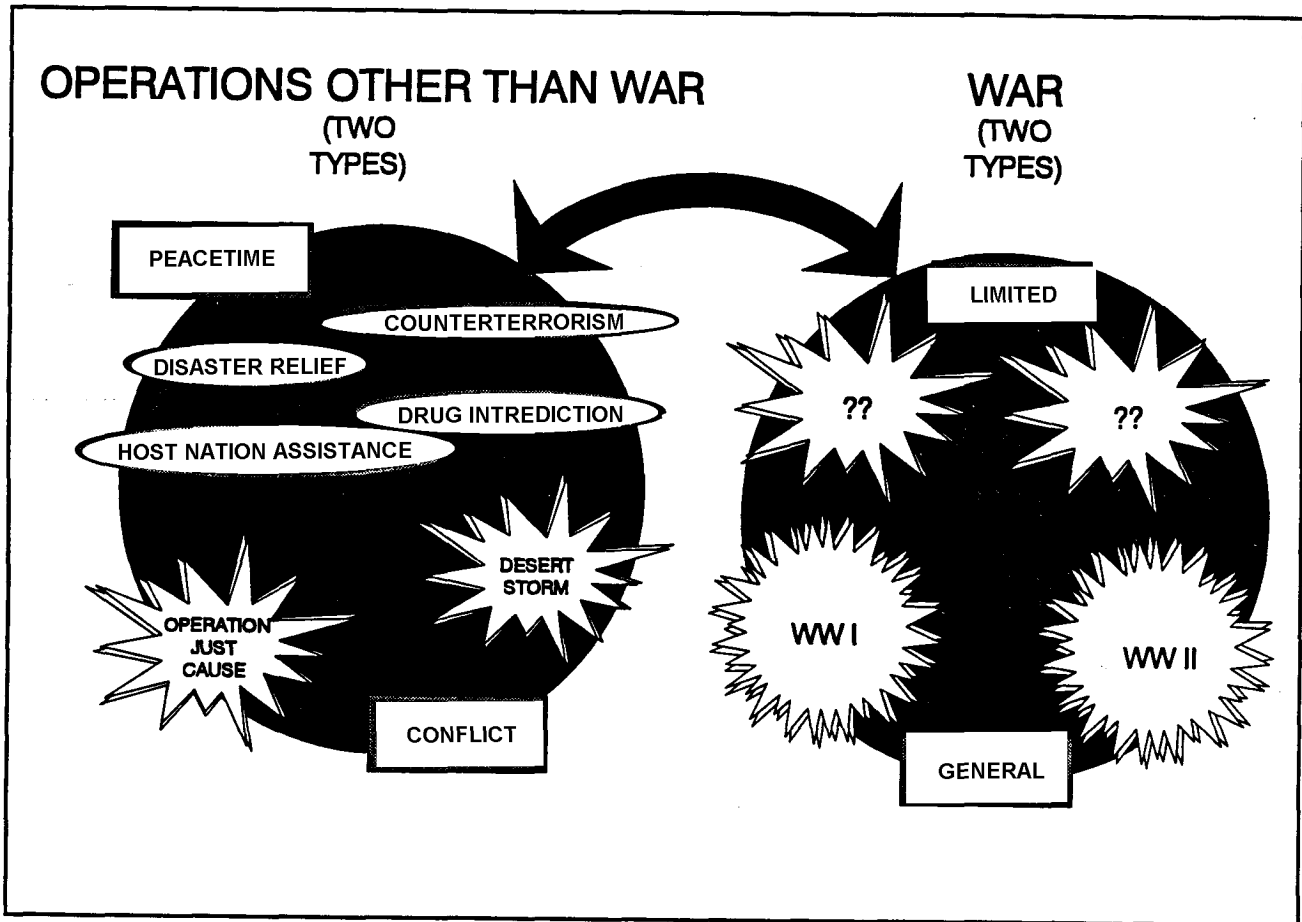
**b. Conflict and War.** Conflict and war are hostile states where the combat power of military forces is predominant. ATS units conduct their missions throughout the range of military operations.

**c. The Army's Mission.** The mission of the Army is to achieve deterrence by showing a credible capability to project overwhelming combat power. Global responsibilities and reduced forward deployments require that ATS units organize, train, and equip for rapid deployment of exceptionally capable elements. Units may deploy from both CONUS and forward-stationed OCONUS locations. When the Army deploys as an element of national power, ATS units will provide Army Aviation with a decisive advantage.

### 1-5. WARFIGHTING

**a. Conditions.** Army operations. shape the battlefield by considering technology, force levels, and the importance of operating in regions without continuing US presence. Military operations under these conditions will always be joint and are usually combined.





**Figure 1-1. Range of military operations**

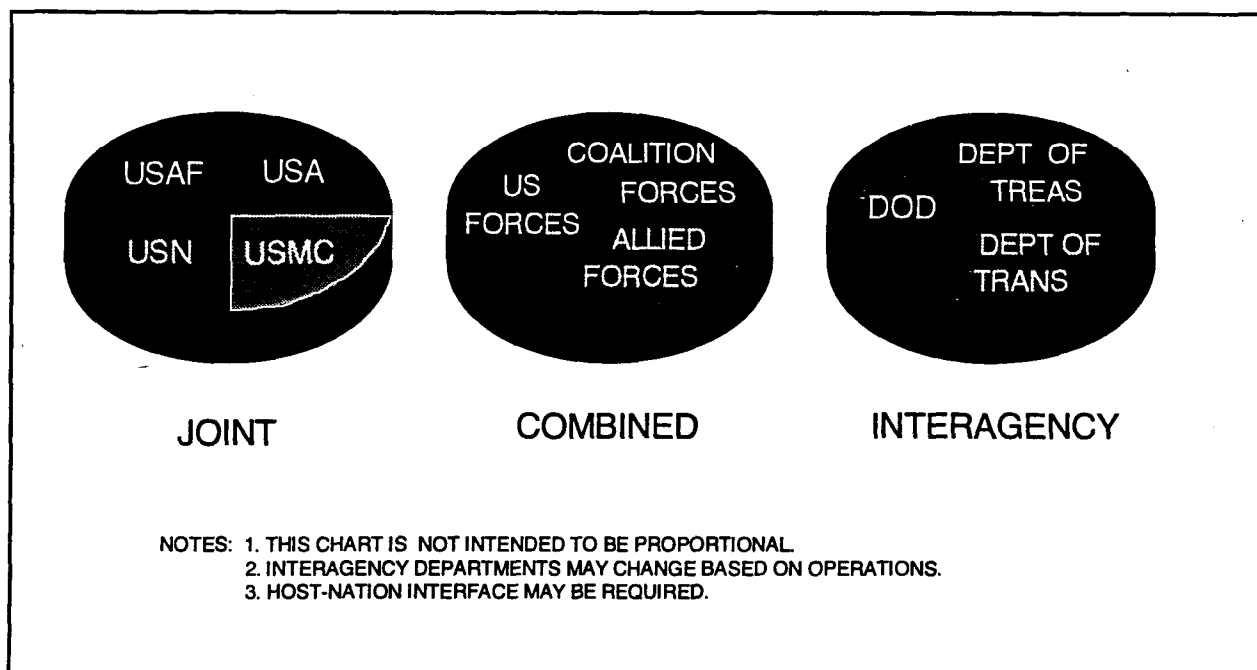
(1) **Technology.** New technology is becoming increasingly available to more nations. Therefore, Army Aviation must maintain the technological edge to operate in new environments with less visibility. Army Aviation shares airspace with a multitude of weapon systems. ATS units enable Army Aviation to maximize technology by helping coordinate airspace and providing precision recovery capabilities from division to EAC.

(2) **Force levels.** Three factors affect force levels around the world. These factors are the changing threat, arms control negotiations, and the cost of maintaining modern armed forces. As battlefields become less dense, technology and mobility dominate a strategy that is more nonlinear.

(3) **Planning focus.** Deterring aggression in Europe is no longer the Army's primary warfighting focus. In the 1990s and beyond, overwhelming land power must deter and defeat potential regional threats. These threats could range from narcotics trafficking to insurgences to a major war involving weapons of mass destruction. Military action must be kept to a minimum while national security goals are met. When called upon, the combat power of the US Army must overwhelm the enemy decisively.

(4) **Total force integration.** Future ATS deployments may require significant commitment of forces from the Reserve Component. Commanders must carefully consider the aspects of total force integration. This includes involvement before mobilization to ensure that capstone units are training for the proper missions and tasks. As part of the planning process, commanders must carefully measure the strengths and limitations of Reserve Component elements.

(5) **Combined and joint operations.** As shown in Figure 1-2, future ATS deployments will require extensive integration and coordination with joint, combined, and interagency forces. Differences in equipment, procedures, doctrine, and capabilities characterize these deployments. ATS personnel must train to support Army Aviation in this environment.



**Figure 1-2. Joint, combined, and interagency operations**

(a) **Theater planning.** Army forces participate in joint and combined operations to secure theater-strategic objectives. From a land perspective, the primary focus of joint coordination is on operations affecting the joint battle area. Using guidance in the theater plan, air, naval, and land component commanders develop their plans to support joint and combined operations.

(b) **Air operations.** Air operations forces focus on gaining and maintaining early local air superiority over the battlefield and staging operations. They also provide interdiction and close air support. As they approach the joint battle area, air operations forces become increasingly focused on interdiction in support of land forces. Most integrated air and land operations are in the joint battle area.

(c) **ATS operations.** The primary focus of ATS units is to support Army Aviation in the joint battle area. The area of military operations dictates specific battlefield geometry. Policies of regional nations may frequently constrain this geometry, but certain battlefield characteristics remain consistent. Future battlefields probably will have more breadth and depth than linear battlefields and concentrate more on the enemy than on terrain.

**(6) Nonlinear warfighting.**

(a) **Linear versus nonlinear.** The operational commander avoids the attritional nature of linear operations. When linear operations are required, they are limited to areas that create nonlinear conditions, positional advantage, and opportunities to conduct operational maneuver.

(b) **Operational maneuver.** Operational maneuver allows the commander to attack selected enemy elements to prevent them from interfering with his plan. It also lets the commander avoid the attrition of mass-on-mass warfare inherent in linear operations. Operational maneuver requires superior intelligence and the ability to shape or condition the battlefield in depth and exploit conditions quickly. When Army Aviation conducts operational maneuver, ATS units play a vital role by integrating aviation airspace requirements through the operational level. Efficient integration of joint, combined, and allied forces in the third dimension of the battlefield is critical to successful operational maneuver.

**b. Concept.** As previously stated, Army operational doctrine is the evolution of AirLand Battle. Therefore, in a changing environment, the tenets and imperatives of operational doctrine are still fundamental. These operations focus on seeking and taking advantage of nonlinear situations.

(1) **Application.** Operational doctrine is a universal concept with implications for offensive and defensive operations on both linear and nonlinear battlefields. It applies to all levels of command and to joint, combined, and interagency operations.

(2) **Joint operations.** Army Aviation units will routinely perform missions with joint, combined, and interagency forces. ATS elements support aviation operations in each of these missions. ATS personnel at division, corps, and EAC perform airspace integration with joint and combined forces. They help other members of the A<sup>2</sup>C<sup>2</sup> cell at brigade, division, corps, and EAC to integrate the airspace requirements for joint and combined forces. ATS terminal facilities provide division, corps, and EAC with an instrument recovery capability. Airspace information centers provide airspace guidance and an airspace-management interface. When requested, TACTs provide Army Aviation units with on-the-spot control and advisory capabilities in any environment.

(3) **Initiative.** Operational doctrine demands that the initiative be seized and maintained. If Army Aviation is to support ground commanders in achieving this goal, operational doctrine must be integrated into the total airspace environment. ATS personnel in A<sup>2</sup>C<sup>2</sup> elements will help to accomplish this task. Airspace integration of Army Aviation assets span the cycle of planning, execution, and recovery. ATS units must plan to coordinate airspace requirements, provide an interface for airspace coordination during execution, and

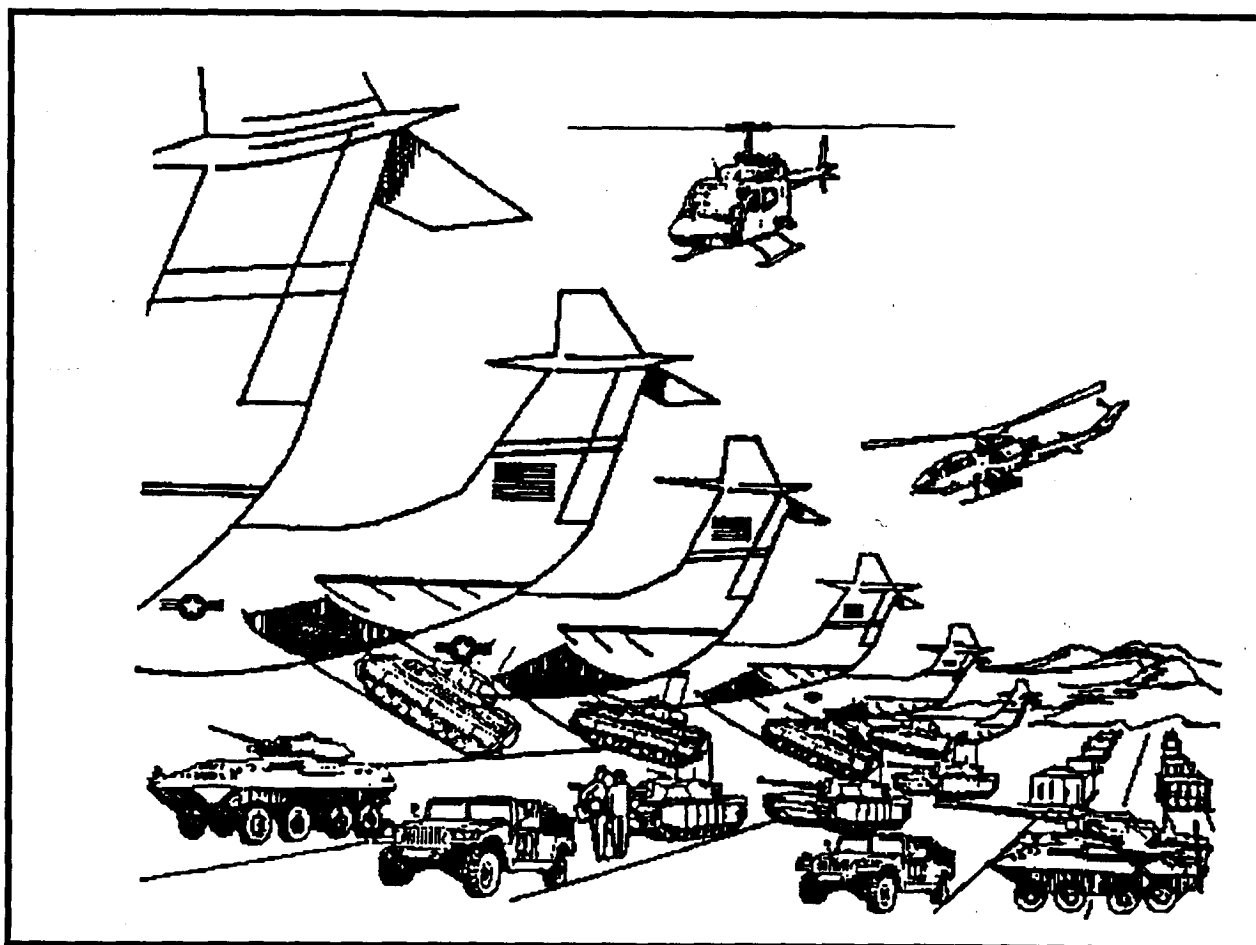
provide an instrument recovery capability. By performing these services, ATS units help the ground commander seize and maintain the initiative. A<sup>2</sup>C<sup>2</sup> elements enhance initiative through their force protection role by relaying real-time situational awareness. This information is critical to the survival of airspace users.

**(4) Operational focus.** Nonlinear operations center on seeking and taking advantage of nonlinear situations. These operations will occur on one extended battlefield and may occur separately in space and time. Linear operations will remain necessary, especially at the tactical level, and will support the goal of nonlinear operations. Critical activities still may occur in a spatial or sequential relationship characteristic of deep, close, and rear operations. To prevent enemy reinforcement, rear area bases must be protected. Critical enemy forces must be attacked in depth and destroyed or neutralized in close battle. Linear and nonlinear operations must be synchronized to accomplish the operational commander's goal of defeating the enemy force.

**(5) Nonlinear battlefield.** For ATS, nonlinear operations require well-planned support for aviation missions. In coordination with aviation liaisons, missions are examined to ensure that they are deconflicted with other airspace users. ATS personnel generate airspace requests for missions outside predetermined airspace structures. En route facilities coordinate real-time airspace actions and pertinent in-flight information. The forward-area support service that TACTs provide is well suited for nonlinear operations. These teams provide control and advisory information for sustained aviation operations in the linear or nonlinear environment.

**c. Force Projection Operations.** Although the stages of force projection operations often overlap in space and time, they follow a general sequence (Figure 1-3). Therefore, commanders should assume no set arrangement of events. Commanders and units must remain sensitive to changing situations and adjust activities as necessary. Nonetheless, conceptualizing a logical flow from phase to phase helps as long as commanders and units remain physically and mentally prepared for changes. The stages of force projection usually include--

- Mobilization.
- Predeployment.
- Deployment.
- Entry operations.
- Combat operations.
- Postconflict or postcrisis operations.
- Redeployment and reconstitution.
- Demobilization.



**Figure 1-3. Force projection in action**

(1) **Mobilization**- Mobilization is the process by which the armed forces augment active components in preparing for war or other national emergencies.

(2) **Predeployment**. Successful force projection operations rely on fully trained, well-led, properly equipped, and sustained units and soldiers. All Army units (Active or Reserve Components, CONUS or OCONUS) are an integral part of the force projection strategy. Therefore, ATS commanders must ensure that training is based on the unit METL, which reflects the appropriate mobilization and predeployment tasks. Also, unit training must emphasize and integrate critical aspects of force projection.

(3) **Deployment**. The joint operations planning and execution system provides an umbrella for the deployment of Army units. Although sealift and airlift assets are limited, they are critical to the successful projection of the force. The Army makes every effort to integrate the capabilities of the deploying force with host-nation support and forward-presence capabilities to maximize available sealift and airlift resources. Therefore, assets at

theater level must be ready to deploy early to perform host-nation interface with existing air traffic systems and subsystems. To support the ground force commander, theater-level ATS units must ensure that joint, combined, and interagency planning includes ATS interest. The ATS force structure will be designed to include the principle of tailoring forces and provide a modular, team-building concept. The smallest element capable of short-term independent operations will be the TACT. In addition to organizational and force structure issues pertinent to deployment, ATS equipment must be sized to meet rapid deployability parameters.

**(4) Entry operations.** After deployment, the requirements of entry operations will vary. Entry may be in direct support of host-nation or forward-presence forces and either be opposed or unopposed. Commanders sequence combat and support units into the contingency area to gain and sustain the initiative and protect the force. When they are a part of initial entry forces, ATS units will establish terminal operations at landing areas if needed. These landing areas may be existing host-nation landing areas or captured enemy landing areas (airheads).

**(a) Unopposed entry.** Whenever possible, the Army seeks unopposed entry. With host-nation assistance, the Army enters the theater peacefully. Units that deploy early may flow through airports or seaports into a lodgment area from which they will prepare to assist forward-presence or host-nation forces. From there, they can protect the force, reconfigure, build combat capability, train, and acclimate before conducting combat operations. During operations other than war, entry operations normally will be unopposed. However, even in an apparently benign entry operation, the force must be protected.

**(b) Opposed entry.** During an opposed entry, deploying forces must land in the theater. An early entry force may have to move immediately to combat operations. They may move to combat operations to take advantage of an opportunity, protect the force, or conduct retrograde operations to gain time for additional force buildup. These situations are likely to arise with little or no warning. Opposed entry operations will require the full synchronization of joint capabilities to place large ground forces in the theater.

**(5) Combat operations.** Combat operations often involve the commitment of the ground commander's air assets. Synchronized with other supporting fires, these assets engage the enemy well forward to delay, disrupt, and destroy forces moving toward the battle area. The commander also uses these air assets to counter the insertion of large enemy forces to the rear of friendly combat forces. ATS units must plan to provide--

- Terminal services in corps and the theater of operations.
- En route systems throughout the theater area of operations.
- TACT support throughout the battle area as the ground commander considers appropriate.
- Terminal systems to deploy within the division area of operations when landing areas are required.

**(6) Postconflict operations.** This stage of operations centers on those activities that occur after open conflict ends. Emphasis is on restoring order and reducing confusion following the operation. The postconflict stage also reestablishes the host-nation infrastructure and prepares the forces for redeployment. During this stage, commanders stress activities such as national assistance and civil affairs. Other programs also are stressed that reduce postconflict or postcrisis turmoil and stabilize the situation until the department of state or a host-nation agency assumes control. ATS units will provide airspace information and terminal services to aid in the safe and orderly flow of air traffic until the host-nation can assume ATC responsibilities.

**(7) Redeployment and reconstitution.** During this stage, commanders are faced with the same challenge as they were with deployment. The factors of METT-T must be balanced against the available lift assets. Forces and materiel not required for subsequent operations will be redeployed to CONUS or the home theater to prepare for future missions. ATS units will provide terminal services in large assembly areas before air assets are redeployed. Normal theater en route services will remain in place until they are no longer required to support the host nation, joint/combined, or interagency airspace management system.

**(8) Demobilization.** Demobilization is the process by which units, individuals, and materiel are transferred from active to reserve status. The overall focus of demobilization normally is on units and individuals. However, the demobilization of logistics also requires supplies, materiel, and support activities.

## **1-6. OPERATIONS OTHER THAN WAR**

The threat to our national interests through the next decade most likely will see US armed forces engaged in operations other than war. For Army Aviation and ATS units, this means increased emphasis on operations that support our friends and allies. Peacetime engagement demands new, proactive planning that promotes regional stability to deter conflict. The principles of unity of effort, adaptability, legitimacy, perseverance, restraint, and security guide operations other than war. Chapter 4 discusses ATS units that engage in operations other than war.

## **1-7. AIR TRAFFIC SERVICE REQUIREMENTS**

Air traffic services must evolve from AirLand Battle doctrine to the force projection doctrine contained in FM 100-5. The principles discussed in the paragraphs that follow support this evolution.

### **a. Force Projection**

**(1) Deployment.** ATS units must deploy early. These units must be included in the initial planning for the area of operations airspace control plan. ATC personnel must be manifested on the same sorties as other joint airspace planners. This allows Army Aviation

operational requirements to be included in joint force operations airspace requirements. It also allows joint force operations to be proactive rather than reactive.

**(2) *Employment.*** ATS personnel must be trained to act immediately upon arrival in the theater. Close coordination with liaison officers, division and corps staffs, joint and combined airspace planners, and interagency airspace authorities is essential. Early employment of ATS personnel provides the framework for the arrival and deployment of other airlift assets.

**(3) *Timeliness.*** A<sup>2</sup>C<sup>2</sup>, ATS terminal, airspace information, and forward-area support assets should arrive early. This will provide the units that are arriving in theater with effective, coordinated A<sup>2</sup>C<sup>2</sup> planning and execution and air traffic services.

### **b. *Command and Control***

**(1) *Airspace control.*** As a subset of command and control, A<sup>2</sup>C<sup>2</sup> is a command responsibility. ATS units enable Army Aviation to operate in an integrated airspace C<sup>2</sup> structure. They conduct careful airspace planning for proposed aviation missions and provide support for mission execution. ATS elements are at all echelons to support airspace C<sup>2</sup> requirements.

**(2) *Airspace control authority.*** Appointed by the joint force commander, the ACA is normally the commander with most of the aircraft and the ability to perform C<sup>2</sup>. The ACA establishes the air operations center, the airspace control system, and policies and procedures contained in the airspace control plan. The ACA authorizes the use of ATS control functions. Therefore, liaison between the ACA and the ATS command and control structure in theater is necessary to ensure that airspace control procedures include ATS procedures. Combat zone airspace control includes coordinating, integrating, and regulating airspace. This increases operational effectiveness by promoting the safe, efficient, and flexible use of airspace. It also places the fewest restraints on friendly airspace users. Combat zone airspace control gives the commander the operational flexibility to employ his forces effectively in a joint or combined campaign.

**(3) *Airspace control plan.*** The ACA is responsible for the ACP, which details the broad policies and specific procedures to which airspace planners must adhere. The ACP may be published as an annex to the OPLAN/OPORD or as a separate document. ATS involvement in developing the ACP can be accomplished through the airspace management liaison section of the battlefield coordination element. ATS involvement during the development of the ACP also helps ensure that policies and procedures support the needs of the ground commander and reflect the guidance of the JFC.

**(4) *Airspace control order.*** ATS units perform airspace control functions based on the ACO. The ACO outlines approved airspace control measures and other active airspace control procedures. Air traffic services A<sup>2</sup>C<sup>2</sup> personnel coordinate control measures, control functions, and special procedures at all echelons to provide commanders maximum flexibility in employing Army operational assets.



**c. *Joint Operations.*** Based on Army operational doctrine, Army forces will be jointly employed in the 1990s and beyond. ATS units and personnel must be trained to integrate with joint forces for all future operations. They also must be capable of providing services for joint aviation assets. In addition, they must participate in joint training exercises to remain proficient in joint airspace control functions. ATS training must support the capability to provide services to joint aircraft that operate in ATS-controlled airspace. However, for ATS elements to retain their ability to operate independently, they must operate in special environments during operations other than war.

**d. *Combined Operations.*** Future conflicts will require that ATS function with multinational forces. ATS units at EAC must be able to integrate the airspace requirements of Army Aviation with those of the multinational forces and interagency or host-nation airspace agencies. ATS systems employed in multinational operations must support the full spectrum of equipment capability consistent with the nature of ATS required. For example, if an FM radio is the only radio that a multinational aircraft has, then ATS also must have an FM radio.

**e. *Logistics.*** Future engagements will require a robust logistical capability. ATS units must support a proactive, streamlined logistics system that can be easily tailored. ATS equipment must be maintainable through standard Army logistics channels.

**f. *Interagency Operations.*** Interagency operations concentrate on support for the host nation. Depending on the supported nation's long-term objectives, the Army's role in these operations will vary. In some cases, Army forces may fall under the control of a civilian authority. Airspace and ATC activities will require close coordination with the host nation's air traffic and airspace control authority. The use of sovereign airspace for various military activities and training usually will require approval from the host nation. ATS commanders must become involved in the initial planning for airspace and air traffic control. They also must ensure that airspace requirements supporting ATS operations are coordinated with and approved by the proper agency.

**g. *National Assistance.*** National assistance describes the type of support provided to help nations promote their own sustainment. The goal of national assistance is to help provide long-term regional stability, pluralistic governments, sound democratic institutions, viable economies, and processes for orderly change. ATS units support aviation operations during the conduct of national assistance. These units may participate in the development of a host-nation airspace infrastructure. This may involve training host-nation ATS personnel or aviators in ATS operations and procedures. ATS personnel provide planning, terminal, airspace information, and forward-area support services to aviation assets conducting national assistance.

**h. *Echelonment.*** Army ATS is integrated with the theater airspace management structure. ATS units support Army operations at all echelons within a theater. The level of echelonment may vary depending on the size and maturity of the theater. The level also depends on the relative composition of allied and joint forces. ATS units are configured for

divisions, corps, and EAC. These units support their respective echelons with a full range of ATS tailored to the assignment.

### **Section III. Implications of Army Operations**

#### **1-8. FUTURE DOCTRINE**

Future doctrine must reflect the continuous evolution of Army operations. All soldiers must practice current doctrine and provide feedback for future doctrine. Future doctrine must support the entire range of military operations, force projection, and decisive advantage.

#### **1-9. TRAINING AND LEADER DEVELOPMENT**

**a.** Training prepares soldiers, leaders, and units to fight and win in combat. Individual training must produce soldiers who are disciplined, physically tough, highly motivated, and proficient in battlefield skills. Leader training is essential at every echelon; it is an investment in the Army of today and tomorrow. Unit training must prepare our forces for the rigors of the battlefield. ATS training will focus on joint and combined operations and operations conducted in the integrated airspace control system.

**b.** In peacetime, the Army must be trained and ready to deter war, to fight and control wars that do start, and to participate in operations other than war. The collapse of the Soviet Union and the rise in several well-armed developing nations have removed the time buffer that the US enjoyed in the past. That buffer allowed the US to mobilize and train jointly with a combined arms team before engaging in combat or operations other than war. As recent events have shown, the ability of the US to deter attack or act decisively to contain and deescalate a crisis demands an essentially instantaneous transition from peace to war preparedness. Therefore, all Army leaders must understand, attain, sustain, and enforce high standards of combat readiness. The Army can achieve this standard only through tough, realistic multiechelon combined arms training that challenges and develops individuals, leaders, and units.

**c.** Duty assignments, institutional training, and self-development must evolve with doctrine and technology. ATS training must support not only tactical requirements but all military operations. Leaders must be trained in A<sup>2</sup>C<sup>2</sup> and support Army Aviation in strategic, operational, and tactical environments. Depending on specific operational requirements, commanders must prepare to shift the focus of training rapidly.

#### **1-10. ORGANIZATION AND MATERIEL**

**a. *Organization.*** Air traffic service organizations must support force projection, versatility, and mobility and be echeloned to support Army Aviation throughout the range of military operations. ATS organizations also must support joint, combined, and interagency operations.

**b. Materiel.** Air traffic services equipment must be user-friendly for controllers and maintenance personnel. It also must be versatile and easily moved to support flexible activities. Automated systems must enable ATS to integrate into and support the theater air-ground system. The standard Army logistical channels must support ATS systems. Applying the building block concept, these systems must support the force structure that provides the full range of air traffic services to all airspace users.

### **1-11. SOLDIER SUPPORT**

Tables of organization and equipment for ATS units must remain robust enough to support all aviation activities on a 24-hour basis. Airspace requests and airspace procedures must be simple and practical so ATS personnel can handle them in near real-time. These requests and procedures must support all Army operations.

## CHAPTER 2

### COMMAND, CONTROL, COMMUNICATIONS, AND AUTOMATION

***This chapter describes command, control, and communications and the automation of Army ATS units. It also explains command and control functions and facilities, command relationships, and communication requirements.***

#### 2-1. COMMAND AND CONTROL FUNCTIONS

a. Command and control is vital in the synchronization of Army operations. Command and control and coordination begins with the force commander; he alone is responsible for combat operations on the battlefield. Air traffic service C<sup>2</sup> units operate in the same way as other combined arms organizations. However, the battlefield over which ATS routinely operates encompasses the force's entire area of operations. Throughout the range of military operations, ATS units must be able to communicate with local airspace authorities and host-nation airspace infrastructures using telephones and radios.

b. Army ATS units have certain C<sup>2</sup> requisites that help support the force with real-time airspace information. These requisites enhance the synchronization of combat power against threat weaknesses. They include-

- Effective ATS liaison.
- Mobile ATS facilities.
- Reliable communications.
- The relay of timely intelligence.
- Support for airspace coordination.
- The relay of accurate weather information.

c. ATS commanders at all levels are responsible for coordinating with the force commander through the chain of command. They also assist the force commander with the employment of air assets.

## 2-2. COMMAND AND CONTROL FACILITIES

a. ATS commanders and their staffs that operate with liaison elements in tactical operations centers collect, process, display, issue, and coordinate critical C<sup>2</sup> information. These TOCs plan combat operations and help the commander with C<sup>2</sup> functions during the execution of operations. The ATS group and battalion headquarters are located where they best facilitate command and control of organic assets.

b. Tactical operations centers at all levels must provide C<sup>2</sup> for the entire spectrum of the battlefield including deep, close, and rear operations. The TOC should be limited in size and electronic signature and be easily displaced. The flow of the battle and the desires of the commander dictate the movement of the TOC.

## 2-3. COMMAND AND SUPPORT RELATIONSHIPS

The widespread nature of ATS support creates a need for diverse command and support relationships with the supported units. ATS commanders will task-organize their units to best perform the mission.

### a. *Command Relationships.*

(1) The following paragraphs discuss command relationships used for Army ATS units.

(a) **Assigned.** An attached ATS unit is placed in an organization permanently. It is controlled and administered by that organization for its primary function or the greater portion of its functions.

(b) **Attached.** An attached ATS unit is placed in an organization temporarily. The commander to which the unit is attached is subject to the limitations specified in the attachment order. However, he exercises the same degree of command and control responsibility for the attached unit as he does over his organic units. The command to which the unit is assigned normally retains responsibilities for transferring and promoting personnel and administering the UCMJ. The attachment order should state clearly the administrative and support responsibility of the gaining unit.

(c) **Operational control.** An ATS unit is in an OPCON relationship when it is provided to another commander for a specific mission or task that is limited by function, time, or location. The commander may deploy the unit concerned and keep or assign tactical control of the unit. Operational control does not include administrative and logistic responsibility, discipline, internal organization, and unit training. When applied within NATO, OPCON does not include the authority to assign separate employment of unit components.

(2) Command relationships for ATS units are shown below.

(a) Groups are assigned to the theater as directed by the JFC.

(b) Battalions normally are assigned to ATS groups. The ATS battalions are assigned to the corps aviation brigade or as directed by the JFC when the ATS group is not activated.

(c) Corps and division companies are assigned to ATS battalions.

(d) Communications zone and GS and SRA companies are assigned to the ATS group. If they are task-organized, these companies are assigned as directed by the JFC. When the ATS group is not activated, it is assigned to the battalion.

(e) ATS elements are attached to a supported unit during deployment operations.

### **b. Support Relationships.**

(1) Air traffic service units normally are found in direct support or general support organizations.

(a) **Direct support.** An ATS unit in DS of a specific unit or force gives priority of support to that unit or force. The ATS unit providing support will take support requests directly from the supported unit or force. It normally will establish liaison and communications and advise the supported unit. An ATS unit in DS has no command relationship with the supported force and, therefore, cannot be suballocated, reassigned, or reorganized.

(b) **General support.** ATS units in GS will support the total force and not any particular subdivision of the supported force. Subdivisions or subordinate units may request support through the supported force headquarters. However, only the supported force headquarters can determine priorities and assign missions to these ATS units.

(2) Support relationships for ATS units are shown below.

(a) ATS groups are in GS to a theater.

(b) ATS battalions are in GS to a corps.

(c) ATS companies are in DS to a division and/or GS to a corps.

## **2-4. COMMUNICATIONS**

a. ATS commanders and staffs need reliable, long-range, redundant communication systems. With these, they can exercise effective C<sup>2</sup> throughout the supported force's area of

operations. ATS forces must communicate on the move and maintain and sustain the same communications capabilities as other maneuver forces.

**b.** Radio normally is the primary means of internal and external communications. ATS units use FM, HF (AM) voice, UHF, VHF, common-user systems, and internal wire to expedite command and control. ATS also must be incorporated into the automatic data distribution system to support aviation's position location, reporting, and tactical information distribution requirements. The airspace information center requires UHF-FM demand-assigned multiple access satellite communications intelligence and weather broadcast. SATCOM serves as the non-line-of-sight (NLOS communications HF) backup means of communications. ATS units require dual HF for simultaneous voice and data transmission and reception. The dual HF requirement also supports the air coordination A<sup>2</sup>C<sup>2</sup> net (ground-to-ground) and NLOS requirements for ground-to-air. In addition, the AIC requires an air picture, which may be obtainable only through a joint tactical information distribution system.

**c.** When ATS units conduct operations over extended battlefields, they must have access to battlefield communication systems to relay and retransmit messages. These systems will ensure uninterrupted battlefield communications, especially when aircraft are operating at terrain flight altitudes.

## **2-5. AUTOMATION**

**a.** Automation interface with adjacent air traffic facilities ensures fast, reliable, and informed services. This equipment must be compatible with the digitized battlefield automated systems planned for the future. To ensure that airspace users have the airspace control plan, ATS personnel must be able to collect, process, display, and issue A<sup>2</sup>C<sup>2</sup> information.

**b.** Automation is necessary to provide-

- A<sup>2</sup>C<sup>2</sup> services.
- Terminal services.
- Airspace information services.
- Forward-area support services.

**c.** Automation also is needed for ATS personnel to perform their functions at echelons above corps, corps, division, and brigade. If ATS is to remain viable, requirements developers must identify special automation requirements for ATS functions. Materiel developments then must satisfy these automation requirements.

## CHAPTER 3

### ARMY AIR TRAFFIC SERVICES WARFIGHTING OPERATIONS

*This chapter describes the critical roles of air traffic service units during warfighting operations. These units are capable of conducting force projection operations from CONUS and OCONUS locations.*

#### 3-1. EMPLOYMENT ROLES

Air traffic service units promote safe, flexible, and efficient use of airspace. ATC units also enhance air operations for ground force initiatives. In addition, they serve as a combat multiplier for the maneuver commander by-

- Providing ATS support forward of the division rear area to coordinate A<sup>2</sup>C<sup>2</sup>.
- Providing A<sup>2</sup>C<sup>2</sup>, airspace information, terminal, navigational, and forward-area support services.
- Interfacing with theater, joint and combined, or host-nation ATS assets during Army and joint/combined operations.
- Providing input to A<sup>2</sup>C<sup>2</sup> efforts with emphasis on air operations and collecting, processing, displaying, and issuing airspace user information.
- Supporting US government agencies (interagency operations), as necessary, in the interest of national security during peacetime and contingency operations.

#### 3-2. TERMINAL AND AIRSPACE INFORMATION FOR DEEP, CLOSE, AND REAR OPERATIONS

**a. Terminal Operations.** ATS terminal operations include a full range of services to support the regulation of landings and takeoffs within concentrated areas of aircraft activity during deep, close, and rear operations.

**(1) Deep operations.** Tactical aviation control teams will conduct ATS terminal operations in the deep operations area. Using lightweight man-portable equipment, these teams can deploy with airborne, SOF, and LRS units to provide navigational assistance to aircraft during deep operations. In the deep battle area, ATS terminal operations include--

- Providing weather and A<sup>2</sup>C<sup>2</sup> information.
- Conducting visual surveillance of austere DZs, LZs, PZs, and airheads.



- Providing procedural control rather than positive control, as required.
- Providing situational updates about friendly, unknown, and hostile aircraft.
- Providing austere DZs, LZs, PZ, and airheads with on-call nonprecision approach NAVAIDs.

**(2) Close operations.** During close operations, ATS terminal operations will be limited. As required by the tactical situation, these operations will be set up in areas designated for priority logistics and medical evacuation. They also will be setup in FARPs and maneuver force assembly areas. During close operations, ATS terminal operations include--

- Providing A<sup>2</sup>C<sup>2</sup> situational update information.
- Providing visual surveillance of landing areas.
- Providing separation and sequencing of arriving and departing aircraft.
- Providing the capability for conducting nonprecision approaches for IMC recovery.
- Providing short-notice backup support if the battle tempo or the requirements to aid in resupply and reconstitution change.
- Providing positive or procedural control measures as required by environmental factors, the density and complexity of air traffic, and the airspace situation.
- Coordinating the movement of air traffic with other ATS facilities, A<sup>2</sup>C<sup>2</sup> elements, and joint/combined service elements to effect an unimpeded flow of aircraft into and out of the close-battle area.

**(3) Rear operations.** ATS terminal operations in the rear will be more extensive than in the forward areas. They provide main operating bases and satellite airfields and landing areas in the theater, corps, and division areas with all-weather capabilities. Terminal operations include--

- Providing enhanced movement of aircraft.
- Providing visual and electronic surveillance.
- Providing traffic pattern separation and sequencing.
- Providing precision or nonprecision approach NAVAIDs.
- Designing terminal area precision and nonprecision approaches.

**b. Airspace Information Operations.** The ATS unit provides continuity for the preplanned en route system in the COMMZ down to whatever echelon the commander desires. The ATS unit can also move rapidly to meet unforeseen contingencies during deep, close, and rear operations.

**(1) Deep operations.** In the deep battle area, low altitudes, radio discipline, and threat EW capabilities may limit airspace information services. Terminal elements that have a communications capability with the en route system will provide on-call navigational assistance and airspace information about the en route system. Technical evaluation and planning of en route segments will be available to aircraft with self-contained navigation equipment.

**(2) Close operations.** ATS elements will provide some en route navigational assistance and airspace and flight information. These elements can help deconflict planned and immediate flight routes for use by aircraft with self-contained navigation equipment.

**(3) Rear operations.** Rear operations and operations conducted in the COMMZ will be characterized by both fixed- and rotary-wing operations. These operations will include aircraft that transition through the coordinating altitude as they fly forward and return. Aircraft performing maneuver, C<sup>2</sup>, CS, and CSS missions will operate day and night. They will perform these missions in adverse weather and at altitudes that vary from low level to NOE depending on their location and the enemy situation. Aircraft operations may include joint/combined, interagency, or host-nation flights. ATS airspace information centers supporting rear operations will provide-

- On-call or demand-activated en route NAVAIDs.
- Dissemination of weather and critical flight data.
- En route aircraft separation and deconfliction on designated flight routes.
- Interface with the other joint/combined, interagency, and host-nation airspace management systems.
- A transition to the comprehensive en route airway structure used to support air traffic to and from the rear operations area.

### 3-3. DEPLOYMENT CONSIDERATIONS

a. Commanders must consider specific ATS deployment capabilities when conducting deep, close, and rear operations. They must plan for--

- Support during all-weather and natural light conditions.
- The number of sorties and airspace users in all missions.

- Aircraft survivability and aviation support for mission accomplishment.
  - Mobile and fixed-base facilities that require secure and ECCM-capable communications.
  - Secure data and voice communications capabilities that are compatible with joint and combined service elements.
  - Lightweight, air-ground mobile, rapidly deployable equipment that allows deployment based on the battlefield threat level.
- b.** The ATS commander must address specific considerations when conducting deep, close, and rear operations. He must--
- Be sure that lower echelons understand his intent.
  - Establish guidelines for reacting to contingencies that may develop.
  - Always be aware of the mission and appreciate the objectives of the higher echelon.

### **3-4. COMPANY AND TEAM DEPLOYMENT**

The deployment of ATS units in a theater of operations depends on the extent to which Army forces, particularly Army Aviation forces, are committed. ATS units and their organic teams are task-organized to provide direct support to aviation combat forces of various sizes when they are in the theater of operations or deploy as a separate task force.

#### ***a. Communications Zone Support Company.***

(1) The COMMZ support company can provide teams to support terminal area operations at up to four designated airfield locations or austere landing sites in the theater. These locations are expected to be used for sustainment operations where joint and combined forces aircraft conduct landings and takeoffs.

(2) The COMMZ support company headquarters provides A<sup>2</sup>C<sup>2</sup> liaison personnel to the CRC and normally is located with or near the supported aviation unit CP. The COMMZ support company must provide AIC services in the COMMZ. The AIC normally will accept handoffs of aircraft at designated air control points from adjacent terminal teams employed in the theater.

(3) The COMMZ support company can move rapidly using its internal TACTs in a terminal configuration.

**b. Corps Support Company.**

(1) The corps support company provides a terminal team to support terminal area operations at each designated airfield or austere landing site. It also provides airspace information services in the corps area of operations. The company headquarters will normally be located with or near the supported aviation unit CP.

(2) The corps airspace information center is organic to the ATS corps support company and is collocated with the corps A<sup>2</sup>C<sup>2</sup> element.

(3) The corps support company can move rapidly using its internal TACTs in a terminal configuration.

**c. Air Traffic Services Divisionh/Assault Division Support Company.**

(1) The division support company headquarters normally is located with or near the supported aviation unit CP. The division support company provides--

- Two tactical aviation control teams.
- Airspace information services in the division area of operations.
- The division maneuver brigade's A<sup>2</sup>C<sup>2</sup> elements with A<sup>2</sup>C<sup>2</sup> liaison personnel.
- Terminal area services at each designated airfield location or austere landing site.
- The division airspace information center, which is organic to the ATS division support company and collocated with the division A<sup>2</sup>C<sup>2</sup> element.

(2) The assault division support company is the same as the division support company except for the number of TACTs. Like the division support company, the assault division support company headquarters normally is located with or near the supported aviation unit CP. The assault division support company provides--

- Six tactical aviation control teams.
- Airspace information services in the division area of operations.
- The assault division maneuver brigade's A<sup>2</sup>C<sup>2</sup> elements with A<sup>2</sup>C<sup>2</sup> liaison personnel.
- Terminal area services at each designated airfield location or austere landing site.
- The division airspace information center, which is organic to the assault division support company and collocated with the division A<sup>2</sup>C<sup>2</sup> element.

**d. Air Traffic Services Airspace Information Team**

**(1) Corps airspace information center.**

(a) The CAIC is the primary ATS facility that provides A<sup>2</sup>C<sup>2</sup> services, airspace information services, and coordination of Army, joint, and combined air traffic operating in the rear operations areas. It also is the primary interface with the joint and combined airspace management system concerning the coordination of flights conducted below the coordinating altitude. The CAIC normally is employed in the corps area of operations. It is collocated with the corps TOC and the CRC. Based on the USAF air combat command communications plan, when the CAIC is physically separated from the CRC, the CRC has identified circuits and is responsible for communications connectivity for the two facilities.

(b) The CMC provides a coordination link between the theater air control system's CRC/ASOC and the ATS A<sup>2</sup>C<sup>2</sup> liaison team at the corps CTOC, the corps ADA brigade CP, adjacent AICs, and ATS terminal control facilities operating at designated COMMZ airfields. The CAIC can provide real-time air picture situational updates as required. These updates include-

- Hostile aircraft intrusion warnings.
- On-call or demand-activated NAVAIDs.
- Dissemination of terminal airfield status.
- Flight following and navigational assistance.
- Aircraft sequencing on designated flight routes.
- Assistance in defensive and offensive operations.
- Dissemination of current and forecasted aviation weather information.
- Search and rescue assistance to aircraft performing combat SAR operations.
- The collection, processing, displaying, and dissemination of critical air information (A<sup>2</sup>C<sup>2</sup> data).

**(2) Division airspace information center.**

(a) The DAIC provides A<sup>2</sup>C<sup>2</sup> and airspace information services and is employed in the division area of operations. It serves as a communications extension for the CAIC and another DAIC. The DAIC supports the CAIC with its coordination activities. The DAIC also can provide real-time air picture situational updates as required. Each DAIC accepts en route air traffic from or passes traffic to the CAIC or adjacent DAICs. The DAIC also relays current and forecasted weather information and is the primary coordination link

between the brigade A<sup>2</sup>C<sup>2</sup> and division A<sup>2</sup>C<sup>2</sup> elements. Although located at different echelons, all AICs perform essentially the same function and have the same tactical equipment. This is true whether the AIC operates in the corps or division area of operations.

(b) The AICs operating in the division area of operations provide a coordination link between the CAIC, TACS (FACP/TACPs), ATS liaison element at the DTOC, ADA battalion CP, adjacent AICs, ATS terminal control facilities, and TACTs. When the CAIC is inoperative or moving, the ATS commander will designate another AIC to serve as the main AIC. The redesignated AIC operates and employs the same as the original CAIC. This link ensures continuity in the flow of information required for air defense and air traffic management operations.

### (3) *Tactical aviation control teams.*

(a) TACTs normally are employed at auxiliary areas and remote locations. They can be organized in several configurations using a manpack secure data/voice communications package. TACTs are task-organized to support specific missions in the forward areas. Cross-FLOT operations require the teams to use all concealment measures available including radio silence. If radio silence is used, TACTs must communicate using data bursts.

(b) TACTs extend the communications capability of the AICs. TACT operations will provide portable, lightweight NAVAIDs for passage points and landing site designation and integration. Multispectral lighting capabilities are desired.

**e. Terminal Teams.** Certain factors should be considered when selecting a suitable location for ATS terminal teams. These factors are--

- The threat.
- Traffic patterns.
- Terrain, weather, and prevailing winds.
- Applicable governing regulations and SOPs.
- Siting limitations of the tower and GCA systems.
- Obstructions in the terminal area of operations.
- Primary instrument runway and landing area coverage.

#### (1) *Tower team*

(a) The tower team normally is employed at main operating bases where high density air traffic exists. Based on ACA guidance, this team provides tower services similar

to those that are conducted in a fixed-base environment. Tower teams control air traffic that is transitioning, landing, or departing main operating bases or tactical landing sites.

**(b)** The tower team is the primary ATS unit for regulating and integrating ATS terminal services at the main operating base. It also establishes the nonprecision approach capability for the terminal area of operations. All aircraft movements at the airfield or tactical landing site that the aviation operations section or appropriate A<sup>2</sup>C<sup>2</sup> element initiates should be coordinated with the tower team. This procedure provides effective control of traffic in the terminal area.

**(2) Ground-controlled approach team.** The GCA team normally employs with the tower team at main operating bases. This team provides a near all-weather, passive, precision, and nonprecision approach and recovery capability. It also provides simultaneous surveillance vectoring and precision/nonprecision approach guidance to arriving and departing aircraft. operating in the terminal area.

**f. Army Airspace Command and Control Liaison Teams.** Airspace management doctrine requires that A<sup>2</sup>C<sup>2</sup> elements be assigned at all echelons from brigade to EAC. The A<sup>2</sup>C<sup>2</sup> liaison team furnishes the personnel for the A<sup>2</sup>C<sup>2</sup> elements at each echelon. It provides A<sup>2</sup>C<sup>2</sup>, airspace information, and air traffic services. The A<sup>2</sup>C<sup>2</sup> liaison teams are the primary players in helping A<sup>2</sup>C<sup>2</sup> elements provide synchronization, regulation, identification, and deconfliction of all airspace users. These teams must be robust enough to afford 24-hour services yet mobile enough to move rapidly as combat operations develop. The A<sup>2</sup>C<sup>2</sup> liaison teams are located as shown below.

**(1) EAC.** The ATS group furnishes an A<sup>2</sup>C<sup>2</sup> liaison team to the G3/J3 of the field army or LCC. It also furnishes a liaison team to the BCE. The COMMZ support company furnishes an A<sup>2</sup>C<sup>2</sup> liaison team to the CRC.

**(2) Corps.** The ATS battalion furnishes an A<sup>2</sup>C<sup>2</sup> liaison team to the corps A<sup>2</sup>C<sup>2</sup> element.

**(3) Division.** The ATS division support company furnishes an A<sup>2</sup>C<sup>2</sup> liaison team to the division A<sup>2</sup>C<sup>2</sup> element. An A<sup>2</sup>C<sup>2</sup> liaison team also is assigned to each maneuver brigade to perform airspace management planning and execution.

### 3-5. NAVIGATIONAL AID DEPLOYMENT

**a.** Procedures contained in TM 95-226 shall be used to construct a precision or nonprecision approach to serve the terminal area. The en route criteria shall be as established by the ACA. Critical information about tactical approach procedures at instrumented heliports and airfields must be issued to aviation units via the terminal approach procedures system form.

**b.** In a combat or contingency zone, the ATS unit normally provides limited flight inspection of deployed air navigational facilities using organic expertise and aviation assets.

The ATS commander will be responsible for advising the supported aviation units of the risks involved in using these air navigational facilities when a certified flight inspection has not been performed. This is especially true when IMC conditions may or will exist.

(1) TM 95-225 prescribes procedures and techniques for performing flight inspections on air navigational facilities. This manual is based on joint FAA/DOD standards (FAA Order 8240.46A) and criteria. The Army is responsible for 100 percent of its own tactical flight inspections, operational evaluations, and precommissioning work. Paragraph 7b of FAA Order 8240.46A, reads: "The DOD is delegated the responsibility to conduct flight inspections of DOD VFR-only training facilities and all DOD mobile navigational aids deployed in support military exercises, contingency operations, or interim mission support on a worldwide basis. The DOD flight inspection support will continue, provided the ownership of mobile navigational aids is retained by the deploying military unit. Where FAA resources are available and their use can result in savings of time and resources, the DOD may coordinate exceptions with FAA."

(2) The potentially catastrophic results of a major natural disaster or the need to respond quickly to a military emergency demands that operational requirements be planned and defined in advance. The ability to provide sustained flight inspection support for the many different requirements that may exist is founded on the use of abbreviated flight inspection procedures.

### **3-6. NIGHT OPERATIONS**

Night operations require a greater degree of caution because of reduced visibility. More often, aviators are using night vision devices while they train at night to perform their missions. ATS personnel, especially tower teams and TACTs, must be trained in the use of NVDs to perform their functions. The use of NVDs increases the ATS unit's capability to conduct ATS operations in support of friendly air operations. It also allows the ATS unit to detect, through electronic surveillance, threat air and ground forces during offensive or defensive operations. TACTs and tower teams that provide terminal services also must be able to provide multispectral lighting control measures.



## CHAPTER 4

### AIR TRAFFIC SERVICES IN OPERATIONS OTHER THAN WAR

***Operations other than war are not new to Army Aviation or ATS. The mission may be peacekeeping, nation assistance, support for insurgency and counterinsurgency, noncombatant evacuation, or humanitarian aid and disaster relief. Whatever the mission, complex situations are likely to occur. Operations other than war center on national assistance. Interagency or host-nation airspace control authorities should become self-supporting once these operations are successful.***

#### 4-1. SCOPE

**a. Missions.** The missions of ATS units in operations other than war are the same as in wartime but may not be on as large a scale. The environment, the supported agency or unit, and interface requirements may change. However, ATS units are fully capable of performing their mission during operations other than war.

**b. Host-Nation Airspace Systems.** ATS units, along with NAS resources of other countries, will be used frequently during operations other than war. In this role, ATS units coordinate and integrate Army airspace user requirements into the host nation's airspace system. Coordination of all airspace activities is essential.

**c. Categories.** Operations other than war primarily center on supporting US allies. FM 100-20 classifies these operations in four overlapping categories. They include supporting insurgency and counterinsurgency operations, combating terrorism, and performing peacekeeping and contingency operations. Contingency operations include, but are not limited to--

- Disaster relief.
- Strikes and raids.
- Nation assistance.
- Rescue and recovery.
- Counterdrug operations.
- Shows of force and demonstrations.
- Noncombatant evacuation operations.

**d. Future Roles.** Many ATS and aviation operations throughout the next decade will involve employment in operations other than war. Commanders must be sure that ATS personnel receive the proper training to perform their mission not only during wartime operations but also during operations other than war.

**e. Training.** The training of ATS personnel must tie into ATS missions for tactical operations in concert with the FM and host-nation airspace systems. Personnel assigned to A<sup>2</sup>C<sup>2</sup> positions must be school-trained in airspace management in all military operations. They also must practice A<sup>2</sup>C<sup>2</sup> during major exercises. The need for trained soldiers in control towers, instrument approach facilities, temporary VFR terminal facilities, and flight-following facilities will be ever-increasing. Therefore, commanders must plan for and use ATS assets to perform training missions during peacetime if they expect to be successful during wartime.

#### **4-2. HOST-NATION INTERNAL DEFENSE**

During internal defense operations, civilian and military agencies of the United States participate in actions taken by another government. The intent is to free and protect the society from subversion, lawlessness, and insurgency. These agencies support the host nation so it becomes the primary agent in most actions.

**a.** Initially, the US directs its effort toward assessing the threat to the host-nation government and US interests. Under the direction of the US, the diplomatic mission leader of the “country team,” normally an ambassador, assesses the situation. He then recommends the level of aid, if any, that the US should provide. If the host nation requests support and US interests are involved, US national command authorities may direct the military to participate.

**b.** Airspace control in this environment focuses mainly on providing ATS and coordinating military airspace requirements with host-nation civil air operations. It also focuses on integrating and coordinating air operations with fire support and ground activities. Expanded ATS can provide greater positive control of airspace. Air traffic regulations and control of civil and military airspace users is the basis for airspace control. In the host-nation internal defense, the ATC system often provides the framework for most of the airspace control functions. The airspace control system may require some changes depending on the situation.

**c.** Bilateral and international agreements often establish regulatory guidance affecting the use of airspace and the conduct of air traffic activities. Any required changes or waivers to national regulations should be sent to the JFC. Problems that result from restrictions to military operations also should be sent to the JFC. Changes may then be referred to diplomatic channels for resolution.

**d.** Procedural airspace control plans and measures, such as WFZs, BDZs, LLTRs, and ID requirements, may or may not be required. Threat and friendly ADA system minimum-risk passage requirements and the density of friendly air operations are significant airspace control factors.

e. National sovereignty and host-nation laws and procedures receive first consideration. The airspace control system must be coordinated and integrated with these national procedures. Where these procedures do not support military operations, training must be conducted or host-nation capabilities must be augmented with equipment, personnel, or both. Augmentation is the least desirable course of action. When possible, the host nation must solve its problems within its own resources, which will reinforce its sovereignty and legitimacy.

f. As a rule, threat air defense capabilities do not force friendly air assets into the terrain flight environment. Aircraft normally will operate at altitudes above the effective range of small arms and crew-served direct-tie weapons. The situation will dictate the need for a coordinating altitude.

### **4-3. PEACEKEEPING FORCES**

Peacekeeping forces provide stability and establish conditions that permit the resolution of international or internal political conflicts. Peacekeeping forces are interposed between two or more belligerents. International contingents may compose this force.

a. The terms of reference between the belligerents will govern participation in the peacekeeping mission. These terms dictate how the airspace control mission is accomplished and establish the policies and procedures governing the use of airspace. The airspace belongs to the belligerent entities involved. The terms of reference established between the belligerents govern the peacekeeping force's use of airspace.

b. Airspace control activities in this environment are mostly air traffic regulation and control. Special identification procedures and air traffic regulations may require that all flight operations be planned and coordinated with the appropriate ATC systems of the nations involved. All airspace control activities must adhere to ICAO regulatory procedures.

### **4-4. TERRORISM COUNTERACTION**

a. The primary purpose of terrorism counteraction operations is to prevent terrorist acts by protecting personnel, units, and facilities. The measures adopted and carried out by command directives dictate how to use airspace and perform airspace control functions.

b. Terrorism counteraction operations will somewhat overlap all aspects of military operations. The measures taken to counter terrorism can impact ATS. They also impact operations at air terminals, aerial ports, and Army airfields and heliports. The use of restricted areas around sensitive facilities is commonplace.

### **4-5. COUNTERDRUG OPERATIONS**

a. One of the newest threats to US national interest is the drug threat. The illegal drug trade associated with some South American countries has received much attention. The Caribbean Basin is the major transportation network to the US for sea vessels and aircraft.

**b.** The influence and actions of international cartels and the terrorist support structures are clearly threats to the security of producers, suppliers, and users. Their influence and actions corrupt every level of government and society and cross every ethnic, social, and financial boundary.

**c.** Drug trafficking is linked to terrorist or insurgent organizations such as governments, military police, and societies. As such, drug trafficking is a true form of LIC. Likewise, counterdrug operations and LIC operations are closely associated. Counterdrug operations involve military operations other than war such as a show of force or armed intervention. Therefore, the Army plays a bigger role in counterdrug operations than just supporting law enforcement agencies.

**d.** Factors that affect counterdrug operations include direction, leadership, and support bases for drug trafficking. The lack of governmental control and a vulnerable population, such as the host nation, are other factors. Commanders should consider all of these factors when they plan and conduct counterdrug operations. Commanders should also focus primarily on the leadership and support bases. Doing so allows the host nation to regain control of the situation and recapture the support of its people.

**e.** As in the past, ATS units will continue to play an important supporting role in counterdrug operations. The two phases of counterdrug operations are interdiction and eradication.

**(1) *Interdiction*** disrupts or intercepts drug trafficking operations during transport from outside CONUS into the United States. ATS units employ as an independent force to conduct surveillance operations along US borders. They can be integrated into other systems to locate and track suspected drug traffic along identified air avenues of approach. Along with other federal and military agencies, ATS units can provide information on suspected drug trafficking flights. They also can give radar intercept guidance for friendly counterdrug agency air assets.

**(2) *Eradication*** implies that the operations are in OCONUS. During eradication operations, ATS units deploy in much the same way as in other levels of conflict and tactical operations. During these operations, ATS units may employ as part of a joint task force. This task force will provide airspace planning, terminal services, airspace information services, and TACTs at forward areas.

#### **4-6. FORCE PROJECTION OPERATIONAL CYCLE**

The force projection operational cycle for operations other than war remains the same as for war. However, the focus of ATS is the airspace environment.

**a.** During war, airspace control is mostly procedural with some positive control at airfields and austere landing areas primarily in the rear area. Future technological developments may allow greater positive control of battle space.

**b.** In operations other than war, ATS units use more positive control. Often, ATS contributes directly to the identification of aircraft for the host-nation airspace system. Strict host-nation rules and laws may require that ATS units maintain continuous communications with every aviation mission. Commanders must ensure that ATS personnel are trained and proficient in ICAO rules and procedures.

**(1)** ATS terminal operations may be required to support Army Aviation in a variety of missions. Joint, combined, or interagency personnel may share ATS facilities. When Army Aviation performs sustained, high density operations from any airfield or landing area, commanders must consider providing ATS terminal personnel. ATS commanders will coordinate with joint, combined, and interagency personnel to determine employment requirements and conditions for individuals in these facilities.

**(2)** Operations other than war require ATS support in interagency airspace infrastructures. Careful attention to detail will help preserve the sovereignty of the host nation.

**(3)** In operations other than war, ATS continues operations to support interagency actions. While the type of services provided remain the same, the ACA and the location of ATS assets may differ. The decisive operation maybe flight following for aircraft supporting drug interdiction operations.

**(4)** The focus remains on the continued security and sovereignty of the supported country during operations other than war. ATS activities may shift to the support of aviation retrograde operations at disembarkation points. The JFC determines whether host-nation assistance with airspace activities is to continue.

#### 4-7. UNIT FUNCTIONS

To integrate Army Aviation with joint, combined, and interagency forces during operations other than war, ATS units augment A<sup>2</sup>C<sup>2</sup> staffs with ATS personnel. These units also perform terminal operations and provide en route assistance and forward-area support. ATS units often perform these functions in host-nation airspace. Therefore, commanders must ensure that ATS personnel are trained to host-nation standards as well as US Army standards.

**a. Function 1 (A<sup>2</sup>C<sup>2</sup> Services).** ATS planners and airspace users will coordinate and integrate airspace requirements as necessary. Throughout the stages of force projection, Army Aviation must have freedom of movement to accomplish its mission.

**b. Function 2 (Airspace Information Services).** To provide airspace information services, ATS airspace information centers deploy as required by the situation and the desires of the commander. The following paragraphs discuss airspace information services.

**(1)** The primary role of the AIC is to maintain communications with Army Aviation units during their missions. This helps link aviation units with the airspace control

system in place. The AIC can flight-follow aviation missions and pass on airspace and weather information and other data useful to the aviator.

(2) Instead of using host-nation facilities, interagency airspace authorities often make agreements to provide internal flight following for aviation assets. The regional situation and the nature of the strategic and operational intent normally will determine the specific role of the AIC.

(3) The AIC coordinates airspace information with A<sup>2</sup>C<sup>2</sup> personnel and other airspace authorities as required. In coordination with ATS battalion or company commanders, A<sup>2</sup>C<sup>2</sup> personnel normally determine specific areas of responsibility for the AIC.

(4) The AIC will continue to support flight following, national assistance, airspace coordination, and A<sup>2</sup>C<sup>2</sup> interface throughout the force projection stages.

(5) personnel in the AIC may work together with allied and interagency personnel to train them to use the en route infrastructure.

***c. Function 3 (Terminal Services).***

(1) Terminal personnel and equipment must be considered in tailored force packages when Army Aviation performs sustained operations. Terminal facilities deconflict airspace in the terminal area, sequence arriving and departing aircraft, and provide instrument approach capabilities. Therefore, these facilities provide commanders with valuable assistance during any stage of force projection operations. In some cases, national law may require these facilities. ATS units must support aviation assets throughout all stages of force projection. Additionally, coordination with the host-nation and joint airspace authorities must be continuous.

(2) In some cases, ATS terminal services personnel may need to develop training for allied and interagency personnel. This training helps host-nation personnel become self-sufficient in terminal area operations.

***d. Function 4 (Forward Area Support Services).***

(1) The mobility of the TACT allows the commander flexibility during all stages of force projection. The TACT can perform short-term independent operations. With its secure, long-range communications, the TACT is ideal for providing terminal area services at remote, austere landing areas. Most tailored force packages using aviation assets should include TACTs. The TACT provides terminal control and advisory services at any location where Army Aviation requires coordinated movement of aircraft.

(2) The TACT is task-organized to support aviation operations. Missions may vary from intratheater airlift support to training host-nation military personnel in TACT operations. The focus is always on providing support to aviation; the goal is to ensure coordinated aviation operations at austere landing areas.

## CHAPTER 5

### COMBAT SUPPORT AND COMBAT SERVICE SUPPORT

***This chapter discusses the CS role in the success of ATS operations. It outlines the logistical support needed for ATS sustainment, regulation, coordination, planning, and maintenance. Successful ATS operations depend on the cooperative efforts of other Army, joint, combined, interagency, and host-nation forces. This chapter also provides an overview of the various CSS logical organizations, functions, and services required.***

#### 5-1. ENGINEER SUPPORT

Engineers alter terrain to multiply the effectiveness of fire and maneuver. They perform their role from the FLOT, back through the COMMZ, and out to aerial or sea ports of entry. In addition, engineers open routes for friendly maneuver forces and counter threat fires. They also repair critical areas damaged by threat fire.

**a.** By removing natural and man-made obstacles, engineers free the commander to maneuver tactical units into positions of advantage. The following paragraphs outline the areas of engineer support.

**(1)** Engineers perform the construction necessary to support Army Aviation and ground facility requirements (forward aviation combat engineering). The forward area combat element prepares or repairs LZs and landing strips. It also prepares or repairs low altitude parachute extraction system sites in the forward battle area.

**(2)** Engineers provide topographic engineering that defines the terrain for planning and operations. They also furnish precise data for the placement of modern weapon systems. Engineer topographic units have the personnel, special training, and equipment to provide terrain information and analysis from division through EAC. The Defense Mapping Agency produces standard topographical products and stores them in CONUS and OCONUS map depots.

**b.** Units that request engineer support for rear area combat operations in the COMMZ will route their requests from base or area commanders to the TAACOM and TA. The TAACOM or TA also may direct the ENCOM or senior engineer headquarters to provide support. Engineer units may be under OPCON of area commanders to perform this function. Using the same channels as US requests for host-nation support, the ASG and TAACOM receive host-nation requests for US engineer support. The ASG will develop requirements

for wartime host-nation engineer support to include contract construction. The ASG or TAACOM will request construction repair and maintenance using host-nation support procedures. Requests for new construction or work beyond the ability of the TAACOM are passed to the TA. However, the ASG or TAACOM will remain responsible for coordinating the requirements for host-nation support.

c. The broad spectrum of EAC engineer support includes, but is not limited, to the following:

(1) Planning, designing, supervising, and performing the construction, maintenance, repair, or rehabilitation of airfields, ports, pipelines, roads, railroads, and inland waterways.

(2) Constructing missile sites, AD emplacements, protective shelters, field defenses, and other works that support COMMZ AD and local ground security.

(3) Providing minor construction, repair, maintenance, fire protection, and utility operations support for all Army installations and facilities in the COMMZ.

(4) Providing topographic engineering support to the TA, supported corps and divisions, and other services throughout the theater. Topographic support includes terrain analysis, map distribution, and standard and special topographic map production (survey, cartography, and associated reproduction).

(5) providing engineering support for deception operations such as construction of dummies and decoys and the preparation of deceptive AD and missile positions.

## **5-2. SIGNAL SUPPORT**

a. The TCC-A provides communications support for a theater army. Under command of the USAISC, the TCC-A is a major functional command of the TA. The TCC-A is under OPCON of the TA during peacetime and war. It provides frequency management services for the TA and ground and air messenger services for Army units at EAC. Used to deliver information to the TA commander, the TA communications system is one of the four subnets of the Army Automation Communications Network. The TACS permits communications flexibility and provides a traffic handling capacity that is adequate. Communications traffic includes critical, real-time CSS data transfers and RSP information exchanges. Communications traffic also includes intelligence and survivability information.

b. The corps signal brigade installs, operates, and maintains communications within corps C<sup>2</sup> facilities. It also is an extensive area communications network that connects all corps elements. The signal brigade uses radio and wire communications to send voice, digital data, and facsimile into an integrated tactical communication system. The corps signal brigade has three area signal battalions and one support battalion.



### **5-3. WEATHER SERVICE SUPPORT**

**a.** Weather may be the most significant factor to consider when planning tactical operations. Weather-related conditions affect mobility, air-ground operations, every piece of equipment, and every person on the battlefield. Conversely, good weather often improves the accuracy and effectiveness of complex weapon and support systems.

**b.** The Air Force Global Weather Central provides atmospheric and space products to support Air Force and Army operations. This unit builds, maintains, and applies a dynamic, real-time environmental data base.

### **5-4. COMBAT SERVICE SUPPORT**

The Army provides CSS based on the needs of the force and affordability. While the transportation system (surface and air) is heavily depended on, the soldier provides the most important support--self-sustainment. This support includes "buddy aid" for fellow soldiers and crew preventive maintenance. It also includes care of equipment, personal health, and a 30-day supply of rations and ammunition. The CSS base for all theaters is CONUS.

**a.** The planning required to provide CSS depends on the operational factors of METT-T. Threat doctrine recognizes the importance of logistics to aviation units. Threat forces know that destroying aviation support units renders aviation assets combat-ineffective.

**b.** Task-organizing the CSS base requires more planning time during LIC. Planning for storage facilities and the transport of personnel and equipment takes time as does developing a workable logistics system. Logistical requirements and CSS become more standardized as the intensity of the conflict increases. As support requirements become standardized, CSS mission planners need less time. However, each mission always will require a certain amount of planning time.

**c.** The logistics estimate that the S4 prepares shows the logistical factors that affect mission completion. Based on this estimate, the commander can draw conclusions and make recommendations concerning the logistical feasibility of various courses of action. He can also determine the effects of each course of action on logistical operations.

**d.** In a single corps or multicorps theater, a TA headquarters manages CSS operations. It establishes priorities, assigns missions, and allocates resources according to the TA commander's concept of operations. The MMC manages supply and maintenance; the MCC provides TA-level movement and management services.

**e.** The COSCOM performs normal corps support and selected base services that the TA usually provides when operating as part of a larger Army force. The logistics wholesale systems (USAMC, GSA DLA, MTMC, AMC, and MSC) provide resupply and support services. They also deal directly with the COSCOM. The Army corps works directly with DA agencies and MACOMS in matters involving support for ATS forces in the theater.

f. The DISCOM is the major service support organization that provides division-level CSS to all ATS organic and attached elements of the division. The DISCOM plans, directs, and supervises CSS for the division. It does not provide COMSEC, logistical, construction, legal services, and public affairs support. The DISCOM has six major functions. These functions include supply, maintenance, transportation, health services, personnel services, and field services.

## 5-5. LOGISTICAL SUPPORT

Logistics involves planning and carrying out the movement and maintenance of forces. Combat service support includes administrative and logistical support for combat forces. For this paragraph, however, logistics relates to CSS logistics (organic or nonorganic to ATS units) that deals with supply, maintenance, transportation, and field services.

a. Commanders must prioritize logistical support, giving the highest priority to critical operating systems affecting the mission. They also must conserve resources and place only the essential requirements on the logistical system.

b. Air traffic service commanders must be conscious of their staying power. They must be sure that their units can sustain operations from the beginning to the end of the mission. Commanders and their staffs must know their logistical requirements and capabilities.

c. The TAACOM is the key logistics operator in the COMMZ. It functions as a major subordinate command under the TA. The TAACOM is assigned on a geographical basis. Therefore, it is an area command not a functional command of PERSCOM, ENCOM, TRANSCOM, or MEDCOM. The number of TAACOMs in a theater depends on the size of the force in the theater, the workload, and the geographic area.

(1) Through its ASGs, the TMCOM provides GS-level logistical support (less movement control and line-haul transportation) to units in or passing through its assigned area. The TA commander may establish one or more TAACOMs in the COMMZ to provide--

- Backup DS maintenance to the corps.
- GS component maintenance and overhaul of major items for return to the supply system.
- Supply support to the corps for all supplies except those supplied directly from the CONUS by DSS ALOC.
- General support and special repair activity to ATS navigational assets using ATS GS/SRA Composition 1 and 2 units.
- Logistical and personnel service support to Army units located in or passing through the COMMZ to include reception, staging, and reconstitution.

(2) Depending on the geographic area and the number of subordinate units, each TACOM usually has one or more TASGs (GS). Under command of the TAACOM, the TASG is the GS supply, maintenance, and field service operator in the COMMZ.

**d.** The COSCOM is the principal logistical organization in the corps. It provides supply, field services, and transportation (mode operations and movement control) support to corp division and nondivisional units. It also provides maintenance and medical support to those units. The COSCOM is not a fixed organization. It contains a mix of subordinate units as required by the size and configuration of the corps. Within the COSCOM, corps support groups provide supplies (except Classes V and VIII), maintenance, and field services to divisions and nondivisional units. Functional commands provide transportation, ammunition, supply, and medical support.

**e.** The DISCOM provides division-level logistical and medical support to all organic and attached elements of the division. The DSA is that portion of the division rear occupied by the DISCOM CP and organic and attached units. This area also may contain CS units (signal, MP, and engineer) and COSCOM elements supporting divisional and nondivisional CS and CSS units. Normally, the DSA is close to landing facilities and main supply routes in the division rear area. Its precise location depends on tactical plans and the factors of METT-T.

(1) The DISCOM provides unit, area, and task support. The DISCOM provides unit support to a designated unit or group of units. (The command relationships for these units normally include OPCON, DS, and GS.) All units in a designated geographical area receive area support. Task support is a type or amount of support that an area or a designated unit receives. The DISCOM provides task support so an area or unit can accomplish a specific mission.

(2) Maintenance, supply, transportation, and medical assets form three forward support battalions and one main support battalion. The HHC and the division MMC form one element. The aviation maintenance company is organic to the aviation brigade and provides AVIM support to division aviation units.

(3) The FSB consists of an HHC and a coordinating, a technical, and a medical company. The FSB supports a brigade-size force. With augmentation, each FSB can support other divisional units operating in the area such as signal, cavalry, reconnaissance, MI, and aviation brigade elements. Assault and airborne divisions use the same concept; however, tailored support assets are called forward service support elements. Forward area support coordinators serve the same function in a forward service support element as the HHC in the FSB.

## **5-6. SUPPLY**

Supply is the acquisition, distribution, salvage, and care of stored material. It also includes determining the kind and quantity of supplies. Supplies consist of all items necessary for equipping, maintaining, and operating a command.

**a.** Combat service support elements normally provide supply support on an area basis. They use a combination of unit distribution and supply point distribution. For unit distribution, the supporting unit arranges for the transportation and delivery of supplies to the supported unit. For supply point distribution, the supporting unit issues the supported unit supplies from a supply point. The supported unit uses its own transportation to move the supplies.

**NOTE:** Throughput is a form of unit distribution in which shipments bypass intermediate supply organizations or installations.

**b.** Grouping supplies in major categories makes identifying items of a particular class easier. This system establishes a common supply terminology and provides a good management tool for logistical planning and operations.

**c.** The MSB supply and service company provides supply support for units in the division rear area. As a backup for the FSB forward supply companies, the MSB supply and service company manages division reserve supplies (Classes I, II, III, and IV). With augmentation, this company can provide clothing exchange, personal hygiene, and graves registration services. The MSB supply and service company also provides salvage collection services.

## 5-7. MAINTENANCE

Maintenance is a combat multiplier in wartime as well as peacetime. When the equipment of opposing forces is basically the same, the force that combines skillful use with a good maintenance system has the advantage. That force enters the battle with equipment that works and is likely to remain that way longer. The ability to repair and turn battle-damaged equipment around quickly is another advantage.

**a.** The Army maintenance system is evolving into a four-level system (unit, DS, GS, and depot). This system will accommodate new battlefield environments, new equipment, and new methods of employment. It will provide more responsive maintenance, improved operational readiness, and increased battlefield mobility and flexibility. It also will provide a direct link from DA down through the maintenance management chain to the user. However, using one or two levels may provide the necessary support at the best life-cycle cost. Nevertheless, the maintenance allocation chart remains the primary tool for assigning tasks.

**b.** Unit or DS maintenance provides quick turnaround based on replacement and minor repair (adjust, clean, lubricate, or tighten). DS or GS maintenance units should support the theater supply system through component repair and DX. Maintenance at this level will be job- or production-line oriented and performed by modular units composed of commodity-oriented platoons. These units will be able to organize mobile maintenance control teams to perform an area support role. Depot maintenance should support the supply system. It will be production-line oriented and performed by separate repair activities; for example, AMC depots and contract personnel.

c. Theater Army provides DS and GS maintenance to units in and passing through the COMMZ. TA also provides backup DS and GS maintenance support for one or more corps. It provides GS maintenance support to the theater supply system by repairing items, modules, assemblies, and components.

d. An integrated battlefield will discourage the formation of large, consolidated maintenance facilities that are vulnerable to attack. To reduce their vulnerability, commanders disperse COMMZ maintenance activities and use warning devices to protect equipment. Commanders may need to cluster some facilities to counter threats from rear area ground attackers.

e. Theater Army observes several principles when providing maintenance support. These principles are shown below.

- Conserve resources within the scope of mission accomplishment.
- Concentrate on the rapid return of equipment to the user and the supply system.
- Provide for channels to obtain the needed support from host-nation maintenance organizations.
- Ensure that forward elements are mobile enough to provide adequate support with minimal resources.
- Be balanced to ensure that total system support requirements are considered when allocating resources.
- Allocate critical maintenance skills to support ATS requirements that contribute the most to operational availability.
- Reduce the maintenance burden on forward elements. (Combat ASLs require a 90-day supply PLLs require a 30-day supply.)
- Have the survivability, mobility, and communications to support forward-deployed combat forces. (Maintenance units must provide forward maintenance support; therefore, they must be trained to survive and accomplish their mission during conventional warfire and under NBC conditions.)

f. Air traffic services GS/SRA provides general support and limited depot activities to organic units. It also deploys forward mobile maintenance contact teams to ATS elements from the COSCOM at COMMZ, corps, and division levels. Under control of the senior ATS headquarters, the GS/SRA establishes an SRA with the existing area maintenance supply facility. The GS/SRA company functions as an area maintenance supply facility in a theater where one does not exist.

(1) Units concentrate their repair efforts on materiel identified by the appropriate MMC. Support units provide evacuation of materiel beyond the repair capability or capacity of the supported unit. Maintenance units try to repair the equipment in 3 to 6 hours. If they cannot, GS maintenance support teams perform forward support maintenance or evacuate the item to the GS/SRA base. If the equipment cannot be repaired in 48 to 72 hours, it is sent to a CONUS GS/SRA according to instructions from the ATS group. Although the user recovers GS/SRA equipment in the COMMZ, the supporting maintenance unit may help with recovery.

(2) Current and future ATS equipment will be modular in design and contain more built-in test equipment. With these features, maintainers can diagnose component failures and repair line-replaceable units more rapidly. ATS systems support personnel must perform unit- or DS-level maintenance in the fluid battlefield. They must recover battle-damaged equipment, repair it as far forward as possible, and return it to service.

(3) Air traffic system repairers (MOS 93D) perform unit DS maintenance repair on ATS-specific systems and NAVAIDs. They diagnose, troubleshoot, and repair critical components in all ATS systems and NAVAIDs.

## **5-8. AUTOMOTIVE MAINTENANCE**

The DISCOM MSB heavy maintenance company provides DS maintenance support for automotive equipment, artillery equipment, and tank turrets. It also provides DS maintenance support for fire-control systems, engineer equipment, and small arms. In addition, maintenance support teams provide on-site and combat system maintenance support.

a. Laboratory personnel from the Army Oil Analysis Program test oil samples to detect impending equipment failures. They also determine the condition of lubricants used in the equipment. The Army Materiel Command is the executive agent for the AOAP. AMC provides the equipment, establishes procedures, and provides workload direction for the centralized Army laboratories in the COMMZ. Operating from fixed locations, laboratory personnel receive oil samples, perform analytical tests, and provide recommendations to the user. ATS commanders at the lowest level should designate an AOAP monitor and ensure that unit SOPs contain procedures for executing the program.

b. The TA Deputy Chief of Staff for Logistics establishes wartime policies regarding the AOAP. He ensures that regulations are followed and operational plans contain provisions for the continued operation of the laboratories. During the transition and sustainment phases of operations, AMC performs these functions.

## **5-9. COMMUNICATIONS SECURITY EQUIPMENT MAINTENANCE**

Because of the intelligence significance of COMSEC equipment, units do not process some COMSEC items through routine supply and maintenance channels. A COMSEC logistics

support company performs supply and maintenance tasks on COMSEC equipment in the theater.

**a.** Responsibility for maintaining nonclassified COMSEC items (controlled cryptographic items) may move to nondivisional intermediate DS maintenance companies. Eventually, electronics technicians in DS or GS maintenance units may maintain all COMSEC items.

**b.** The division signal battalion provides DS COMSEC logistical support to the division. The HHC and division communications-electronics elements of the signal battalion provide DS COMSEC logistical support relating to maintenance.

#### **5-10. TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT MAINTENANCE**

The Army Materiel Command provides and controls theater TMDE maintenance and calibration support. Operational control of in-theater TMDE calibration and repair support may pass to the TA. However, command of TMDE support activities remains with AMC. This service provides for one-step calibration and repair of general purpose TMDE to ensure materiel readiness. Units calibrate equipment on a scheduled basis and repair it as needed.

**a.** Mobile teams perform calibration and TMDE general-purpose repairs using the necessary tools, calibration standards, and repair parts. Normally, these teams are attached to DS or GS maintenance units. Housed in expandable vans, mobile teams are located in heavy workload areas and move with the units to which they are attached. Using units act as collection and distribution points for the teams.

**b.** General-purpose support for TMDE includes DS and GS maintenance and calibration. The using unit performs organizational maintenance. Specialized teams from a calibration and repair-support company perform TMDE special-purpose DS and GS calibration. If these teams cannot perform TMDE maintenance on a particular item, they send it to the parent TMDE calibration and repair support company.

**c.** The size of the CRSC depends on the density of TMDE in the area of responsibility. The basic company has three mobile teams. Additional mobile teams are added on the basis of 1 per 3,200 additional items of TMDE. The CRSC is authorized 21 mobile teams and 1 base mobile team. The parent company also provides technical supply support to the mobile teams. It provides an area calibration laboratory for secondary reference calibration of team equipment. The CRSC provides a base mobile team that supports using units in the immediate vicinity. It also provides backup support for the forward mobile teams. Normally, the CRSC has one forward mobile team per corps and one per EAC.

**d.** Each theater of operations has one TMDE support battalion. The TMDE support battalion controls all CRSCs in the theater and normally collocates with the CRSC. The ACL interfaces with the CONUS-based US Army Standards Laboratory for closed-loop calibration support.

## 5-11. TRANSPORTATION

Transportation is the means by which personnel, equipment, and supplies are moved by air, rail, ship, or vehicle to sustain combat operations. Transportation elements deliver the required personnel and supplies where and when they are needed.

a. Planners should develop a contingency movement program as soon as practical during the contingency planning process. ATS commanders should be aware of this plan and assist as necessary. Program execution provides for the forward movement of ATS supplies, personnel and equipment from support areas directly to the forward area. Using rotary-wing aircraft that fly short-range, tactical transport missions, the commander does not have to contend with en route terrain obstacles or damaged roads or railroads.

b. Commonly, movement control applies to the movement of materiel (mainly supplies) and personnel. From a broader viewpoint, movement control implies the total movement effort. This includes moving maneuvering elements throughout the battlefield. As a result, movement maneuvering management becomes a major concern of the S3 and S4.

(1) The S3 must plan tactical movement as the S4 plans CSS movement. If not planned concurrently, circumstances, such as road congestion, can thwart the best battle plans. If tactical movement is not planned concurrently, the transportation unit also may not be able to evacuate casualties and inoperable equipment or deliver supplies and replacements to maneuver forces. Maneuver elements almost always have priority even though their success depends on CSS traffic. Movement planning and management require close coordination between the commanders and staffs of many different organizations.

(2) The TADSCLOG operates the Theater Army Movement Control Agency. During both peace and war, the TAMCA provides theaterwide movement management and control of transportation assets in coordination with its host-nation counterparts. It also is the primary link between TA and CONUS transportation agencies. A wartime movement program developed by the TAMCA will provide for the orderly transition from a peacetime to a wartime posture. Program execution provides for the movement of supplies and equipment from support areas forward to deployed forces. It also provides for retrograde of materiel from these forces.

(3) The COSCOM movement control center is a subordinate element of COSCOM. It balances and coordinates shipping, transporting, and receiving activities. The MMC has corps highway regulatory responsibilities and coordinates movements within, into, and out of the corps area. Often, movements in the corps area are an integral part of the corps deception plan. Movement control includes planning, coordinating, and executing movements internal to the corps. It also includes those movements external to the corps (US and host-nation forces). Movement planning is conducted both within US channels at the corps rear CP and with host-nation movement planners. The CSS cell also coordinates with the corps provost marshal and the appropriate host-nation authorities. Together they establish US straggler and host-nation population control measures.



**(4)** The DISCOM movement control officer shares in movement control in the division area and tasks division transportation assets. The division transportation officer is the staff transportation planner and coordinates with external transportation agencies.

**(a)** The DTO coordinates with the division G3 on tactical troop moves. He also coordinates with the division G4 on logistical and administrative transport. The DTO is the division's staff communications link for transportation between the division and corps MCC. The DTO gives the DISCOM MCO broad policy guidance and staff supervision. He also provides basic plans and policies and assists with surface and aircraft transportation matters.

**(b)** As an agent of the DISCOM commander, the MCO controls the employment of motor transportation assets for division CSS. The MCO also coordinates priorities with the DTO. All transportation users send division transportation requirements to the MCO. The MSB or FSB may consolidate some requirements generated in a brigade support area for submission to the MCO. When requirements exceed capabilities, the MCO coordinates with the DTO who may request support from the supporting corps MCC.

**(c)** The MSB is the main transportation asset of the DISCOM. The TMT company transports Class I, II, III (packaged), IV, and VII supplies. It also transports division reserve supplies and furnishes vehicles to help division elements with other transportation requirements. These additional requirements include emergency unit distribution of Class V supplies. The TMT company also provides heavy equipment transportation for movement or evacuation operations.

**GLOSSARY**

A <sup>2</sup> C <sup>2</sup>	Army Airspace Command and Control
AAF	Army airfield
ACA	airspace control authority airlift clearance authority
ACL	area calibration laboratory
ACO	airspace control order
ACP	airspace control plan
AD	air defense
ADA	air defense artillery
ADDS	Automatic Data Distribution System
AIC	airspace information center
AL	Alabama
ALOC	air lines of communication
AM	amplitude modulated
AMC	(United States) Army Materiel Command
AMSF	area maintenance supply facility
AOAP	Army Oil Analysis Program
AOC	air operations center
ASG	area support group
ASL	authorized stockage list

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ASOC	air support operations center
ATC	air traffic control
ATS	air traffic services
attn	attention
AVIM	aviation intermediate maintenance
BCE	battlefield coordination element
BDZ	base defense zone
C <sup>2</sup>	command and control
CAIC	corps airspace information center
C&E	communications and electronics
COMMZ	communications zone
COMSEC	communications security
CONUS	continental United States
COSCOM	corps support command
CP	command post
CRC	control and reporting center
CRSC	calibration and repair support company
CS	combat support
CSS	combat service support
CTOC	corps tactical operations center
DA	Department of the Army
DAIC	division airspace information center
DAMA	demand-assigned multiple access

dept	department
DISCOM	division support command
DLA	Defense Logistics Agency
DMA	Defense Mapping Agency
DOD	Department of Defense
DS	direct support
DSA	division support area
DSS	direct support system
DTO	division transportation officer
DTOC	division tactical operations center
DX	direct exchange
DZ	drop zone
EAC	echelons above corps
ECCM	electronic counter-countermeasures
ENCOM	Engineer Command
EW	electronic warfare
FAA	Federal Aviation Administration
FAC	forward air controller
FACP	forward air control post
FARP	forward arming and refueling point
FLOT	forward line of own troops
FM	field manual; frequency modulation
FSB	forward support battalion

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G3	Assistant Chief of Staff, G3 (Operations and Plans)
G4	Assistant Chief of Staff, G4 (Logistics)
GCA	ground-controlled approach
GS	general support
GSA	General Services Administration
HF	high frequency
HHC	headquarters and headquarters company
HQ	headquarters
ICAO	International Civil Aviation Organization
ID	identification
IMC	instrument meteorological conditions
J3	Operations Directorate
JCS	Joint Chiefs of Staff
JFC	joint force commander
JOPES	joint operations planning and execution system
JTIDS	joint tactical information distribution system
LCC	land component commander
LIC	low intensity conflict
LLTR	low level transit route
LRS	long range surveillance
LZ	landing zone
MACOM	major Army command
MCC	movement control center

MCO	movement control officer
MEDCOM	medical command
METL	mission essential task list
METT-T	mission, enemy, terrain, troops, and time available
MI	military intelligence
MMC	Materiel Management Center
MOS	military occupational specialty
MP	military police
MSB	main support battalion
MSC	Military Sealift Command
MTMC	Military Traffic Management Command
NAS	National Airspace System
NATO	North Atlantic Treaty Organization
NAVAID	navigational aid
NBC	nuclear, biological, chemical
NLOS	non-line-of-sight
NOE	nap-of-the-earth
NVD	night vision device
OCONUS	outside continental United States
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
PERSCOM	US Army Total Personnel Command

PLL	prescribed load list
PZ	pickup zone
RSP	reconnaissance and security positions
S3	Operations and Training Officer (US Army)
S4	Supply Officer (US Army)
SAR	search and rescue
SATCOM	satellite communications
SOF	special operations forces
SOP	standing operating procedure
SRA	special repair activity
TA	theater Army
TAACOM	Theater Army Area Command
TACP	tactical air control party
TACS	theater air control system
TACT	tactical aviation control team
TADCSLOG	Theater Army Deputy Chief of Staff for Logistics
TAGS	theater air-ground system
TAMCA	Theater Army Movement Control Agency
TASG	theater Army support group
TCC-A	Theater Communications Command--Army
TERPS	terminal instrument procedures
TM	technical manual
TMDE	test, measurement, and diagnostic equipment

TMT	transportation motor transport
TOC	tactical operations center
TOE	table(s) of organization and equipment
TRADOC	United States Army Training and Doctrine Command
trans	transportation
TRANSCOM	(United States Army) Transportation Command
treas	treasury
UCMJ	Uniformed Code of Military Justice
UHF	ultra high frequency
US	United States
USA	United States Army
USAAVNC	United States Army Aviation Center
USAF	United States Air Force
USAISC	United States Army Information Systems Command
USAMC	United States Army Materiel Command
USMC	United States Marine Corps
USN	United States Navy
VA	Virginia
VFR	visual flight rules
VHF	very high frequency
WFZ	weapons-free zone
WW	world war



## REFERENCES

### SOURCES USED

This source was quoted or paraphrased in this publication.

#### ***Federal Aviation Administration Order***

FAA Order 8240.46A. The Division of Responsibility Between the Department of Defense and the Federal Aviation Administration for Flight Inspections. 11 August 1986.

This publication is available from the Director, US Army Aeronautical Services Agency, ATTN: MOAS-AI, Cameron Station, Alexandria, VA 22304-5050.

### DOCUMENTS NEEDED\*

These documents must be available to the intended users of this publication.

#### ***Field Manuals***

FM 100-5. Operations. 14 June 1993.

FM 100-103. Army Airspace Command and Control in a Combat Zone. 7 October 1987.

FM 101-5. Staff Organization and Operations. 25 May 1984.

FM 101-5-1. Operational Terms and Symbols. 21 October 1985.

#### ***Joint Chiefs of Staff Publications***

JCS Pub 1-02. Department of Defense Dictionary of Military and Associated Terms. 23 March 1994.

JCS Pub 3-52. Doctrine for Joint Airspace Control in a Combat Zone. 3 December 1993.

#### ***Multiservice Publications***

FM 100-103-UFMFRP 5-61/NDC TACNOTE 3-52.1/ACCP 50-38/USAFEP 50-38/PACAFP 50-38, Multiservice Procedures for Integrated Combat Airspace Command and Control. 3 October 1994.

---

\*These sources were also used to develop this publication.

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FM 100-103-2/FMFRP 5-62/ACCP 50-54/PACAFP 50-54/USAFEP 50-54/NDC TACNOTE  
3-56.2. The Theater Air-Ground System. 1 April 1994.

***Technical Manuals***

TM 95-225. United States Standard: Flight Inspection. 1 May 1963.

TM 95-226. United States Standard for Terminal Instrument Procedures (TERPS).  
1 July 1976.

**READING RECOMMENDED**

This reading contains relevant supplemental information.

***Field Manual***

FM 100-20. Military Operations in Low Intensity Conflict. 5 December 1990.

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