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**AIR FORCE
MANUAL**

**ARMY FIELD
MANUAL**

AEROSPACE OPERATIONAL DOCTRINE

**US AIR FORCE/US ARMY
AIRSPACE MANAGEMENT
IN AN AREA OF OPERATIONS**

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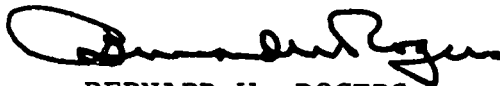
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
and
DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF

US AIR FORCE/US ARMY AIRSPACE MANAGEMENT
IN AN AREA OF OPERATIONS

FOREWORD

This manual sets forth procedures and guidance jointly agreed upon for use by US Army and US Air Force commanders and staffs in preparation for and execution of airspace control responsibilities and airspace management functions in an area of operations. It describes a mutually supporting system that recognizes the special relationship and cooperation that must exist between Army and Air Force tactical forces. It has been jointly developed to promote and enhance the effectiveness of US Army and US Air Force units in combat.

In that context, this manual: (1) provides for establishment of a joint Army/Air Force airspace control system; (2) specifies and clarifies responsibilities for exercising airspace control authority and accomplishing airspace control and management functions, and (3) establishes general procedures for use at operational levels of an airspace control system.



BERNARD W. ROGERS
General, United States Army
Chief of Staff



DAVID C. JONES
General, U.S. Air Force
Chief of Staff

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Aerospace Operational Doctrine

**US AIR FORCE/US ARMY AIRSPACE MANAGEMENT IN AN
AREA OF OPERATIONS**

This publication provides joint US Air Force/Army airspace management operational functions and procedures for airspace control in an area of operations.

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Chapter 1

INTRODUCTION

1-1. General:

a. Purpose. The purpose of this manual is to provide joint US Air Force/US Army airspace management operational functions and procedures for airspace control in an area of operations.

b. Basis. This manual fulfills the requirement for joint operational doctrine and procedures developed in accordance with responsibilities assigned by Departments of the Air Force and the Army and recognizes the broad doctrine, procedures, and provisions contained in AFM 1-3/FM 100-28/NWP 17/LFM 04, Doctrine and Procedures for Airspace Control in the Combat Zone.

c. Recommended Changes or Comments. Users of this manual are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to ensure understanding and complete evaluation. Comments from Army sources should be prepared, using DA Form 2028, Recommended Changes to Publications and Blank Forms, and forwarded directly to the Commandant, United States Army Command and General Staff College, ATTN: ATSW-ST, Fort Leavenworth KS 66027. Comments from Air Force sources should be forwarded directly to HQ TAC/XPD, Langley AFB VA 23665.

1-2. Scope and Application. The procedures set forth herein are designed as guidance for Air Force and Army forces engaged in planning for and conducting contingency and combat operations. The influence of political, military, and geographical considerations is such that procedures must be tailored to each area and special situation. This manual provides guidance for developing an effective airspace control system that must accommodate conditions existing in the theater of employment. It is applicable to joint force operations or combined operations in support of indigenous ground forces of a host nation. In joint training exercises, peacetime safety considerations may dictate more stringent and restrictive procedures than those described herein.

1-3. Fundamental Considerations and Basic Principles. The primary objective of airspace control is to maximize the effectiveness of combat operations. This is achieved by establishing an airspace control system, developing operational procedures, and accomplishing airspace management functions that adhere to certain fundamental considerations and basic principles. The guiding principle in the formulation of procedures is the overriding requirement that they promote the ability of air and ground forces to attain the joint force objectives through joint or unilateral component action. In this regard, air defense and airspace control are interrelated and inseparable. Thus a coordinated and integrated air defense and space control system under a single authority is essential. For joint Air Force-Army operations, the Air Force Component Commander/Commander, Air Force Forces will be designated the area air defense commander and the airspace control authority with the responsibility for operation of the airspace control system in accordance with objectives of the joint force commander.* The airspace control authority must have the capability to assure that friendly aircraft may enter, depart, or move within the area of operations without undue restrictions on their movements and without interfering with the effectiveness of the offensive and defensive capabilities of the joint force. The airspace control authority will be responsive to the needs of all airspace users. He will develop procedures that reduce mutual interference between airspace users, enhance the flexible employment of both ground and air weapon systems, and promote maximum efficiency in accomplishing joint force objectives. Other fundamental considerations and basic principles are contained in AFM 1-3/FM 100-28/NWP 17/LFM 04.

1-4. Explanation of Terms. The terms used herein are those defined in JCS Pub 1, AFM 11-1, AR 310-25, and in Attachment 1, Glossary of Terms.

*As used herein, the term "joint force commander" refers to a unified, subordinate unified, or joint task force commander.



Chapter 2

ORGANIZATION, MANAGEMENT, AND RESPONSIBILITIES

2-1. General:

a. An airspace control system consists of the organization, personnel, facilities, policies and procedures required to prevent collisions between aircraft, aircraft and obstructions to flight, and aircraft and surface launched weapons; and to contribute to maximizing combat effectiveness by promoting the safe, efficient, and flexible use of airspace. An airspace control system must provide the maximum flexibility to apply timely, efficient, and mutually supporting combat power of all elements of the joint force.

b. Joint US Air Force/US Army combat operations conducted in an area of operations require coordination, integration, and regulation. These terms (coordination, integration, and regulation) apply to the use of airspace in the area of operations and comprise the three primary functions of airspace management. In this context, airspace management entails four basic and indivisible tasks—air defense, air traffic regulation, tactical mission control and certain aspects of fire support coordination. Air traffic control and tactical mission control may be either positive, procedural, or a combination of positive and procedural, depending on tactical needs and/or system capability. Identification of all aircraft moving within the airspace over the area of operations is essential for effective air defense, and fire support coordination procedures must not inhibit the employment of supporting fires demanded by the tactical situation.

(1) Consistent with the directives issued by higher authority, each Service component/commander will organize available resources to best accomplish assigned missions, and therefore, the organizational arrangements for operating the airspace control system and accomplishing airspace management functions may vary.

(2) The organization and management arrangements described in this chapter may be modified by the airspace control authority. Such modified arrangements will be in accordance with the joint force commander's guidance and consistent with the principles described herein.

(3) In joint operations, the joint force commander, through the airspace control authority, will provide general priorities and assign responsibilities for accomplishing airspace management functions in the operation of the airspace control system.

2-2. **Organization.** The Air Force Component Commander/Commander, Air Force Forces will

be designated the airspace control authority and the area air defense commander. As the airspace control authority, he will be charged by the joint force commander to provide airspace control in the area of operations. This requires organizational arrangements among Service components to facilitate management and to ensure compatibility with the air defense organization. The entire area of operations is generally labeled the airspace control area. This area may be subdivided into airspace control sectors that are normally compatible with the air defense organization subdivisions. The number of such sectors may vary, depending on factors such as the combat situation, geographical features, the complexities and characteristics of air traffic, and air defense requirements.

2-3. **Management.** Airspace management consists of the coordination, integration, and regulation of the use of airspace of defined dimensions. In this context, coordination is that degree of authority necessary to achieve effective, efficient, and flexible use of airspace. Integration considers the necessity to consolidate requirements for the use of this airspace in the interest of achieving a common objective at the lowest possible level. Regulation indicates the requirement to supervise activities in this airspace to provide for flight safety and connotes the authority required to insure such safety.

a. The Airspace Control Authority:

(1) Will coordinate, integrate, and regulate the use of airspace in an area of operations through the facilities of the airspace control system, making maximum use of the elements and capabilities of all Services.

(2) Will coordinate and integrate the capabilities of the airspace control system with any existing allied military, civil, national, or international air traffic/airspace control systems to effect unity of the airspace control effort throughout the area of operations.

(3) Will provide for the establishment of airspace management liaison sections (AMLS) with representatives from each Service component involved. An AMLS will be established at appropriate elements within the airspace control system. The AMLS will coordinate operational commanders' airspace requirements and requests for the establishment of special procedures for the use of airspace. These sections will also assist the airspace control authority in the coordination and integration of flight operations and air warning information of the component Services.

b. **Airspace Control Sector Authority.** Airspace control sector authorities and their areas of responsibility will be designated by the airspace control authority.

(1) The airspace control sector authority will manage the use of designated airspace through appropriate elements of the airspace control system according to procedures developed by the airspace control authority and the guidance described herein.

(2) All Service components involved will provide AMLS representatives, as appropriate, to the airspace control sector authority.

2-4. Responsibilities:

a. Subject to the operational command/control of the joint force commander, each component commander within the joint force has responsibility for the following:

(1) Tactical employment and internal administration of his own forces.

(2) Employment of air defense weapon systems in accordance with the policies and procedures promulgated by the area air defense commander.

(3) Coordinating the operations of his forces, aircraft, and weapons with other Service components, as required.

(4) Providing airspace control and performing airspace management functions in any area that may be assigned by the airspace control authority.

b. In addition to the above, the Air Force Component Commander/Commander, Air Force Forces, acting as the airspace control authority and area air defense commander is responsible for:

(1) Air defense procedures and rules of engagement.

(2) Promulgating IFF procedures.

(3) The overall planning and operation of the airspace control system within the airspace control area.

(4) Developing the area airspace control plan and promulgating airspace management procedures which include:

(a) Airspace control boundaries.

(b) Inflight reporting.

(c) Control of all air traffic operating under instrument flight rules/instrument meteorological conditions.

(d) Coordination procedures for aircraft operating under visual flight rules/visual meteorological conditions.

(e) Procedures for integrating air operation information produced by component command and control system into the airspace control system.

(f) Establishment of an airway structure and arrival, departure, en route, and handover procedures when required for air traffic control.

(g) Establishment of airspace control sectors, airspace restrictions, and high density airspace control zones when required.

(h) Standardized formats for the exchange of airspace control information and coordination of airspace management activities (e.g., airspace restrictions, minimum risk routes, and coordinating altitudes).

2-5. Continuity of Operations. Rules and procedures will be established at all levels to provide for continued accomplishment of airspace management functions and combat operations in a degraded control environment.

Chapter 3

AIRSPACE CONTROL FACILITIES

3-1. General. The airspace control authority will fulfill his responsibilities through the airspace control system which includes elements of the tactical air control system (TACS) and appropriate Army command and control activities. (Figure 3-1 depicts a sample airspace control system organization and communications structure.) Effective operation of the airspace control system depends upon timely performance of airspace management functions. These functions are accomplished by appropriate control/management facilities that are employed as elements of an integrated system under rules and procedures promulgated by a single authority. This provides for efficient and flexible use of airspace and will provide positive interface with the air defense mission.

3-2. Air Force Facilities:

a. **Airspace Control Center (ACC).** The ACC is the element within the Tactical Air Control Center through which the airspace control authority coordinates and integrates the use of airspace in a combat area. The ACC is responsible for:

(1) Formulating air traffic control policies, plans, procedures, and coordination of air traffic control activities that complement planned tactical mission requirements.

(2) Coordinating airspace utilization with adjacent air traffic control agencies.

(3) Ensuring that air traffic control plans are compatible with current operational capabilities.

(4) Obtaining appropriate representation from the other Service components to man and operate the airspace management liaison section (AMLS) of the ACC.

(5) Evaluating requests for and establishing airspace restrictions and special procedures for the use of airspace.

b. **Airspace Management Center (AMC).** The AMC, which includes an AMLS, is an element within the control and reporting center. The AMC functions in response to airspace/air traffic requirements as an integral part of the airspace control system. It is established to control, coordinate, regulate, and identify air traffic operating in an assigned airspace area/sector. It provides continuous cross-coordination, regulation, and integration of the component Services' air operations. Essential to these functions, is the coordination of airspace use data between the AMC and

the appropriate airspace control/management facilities.

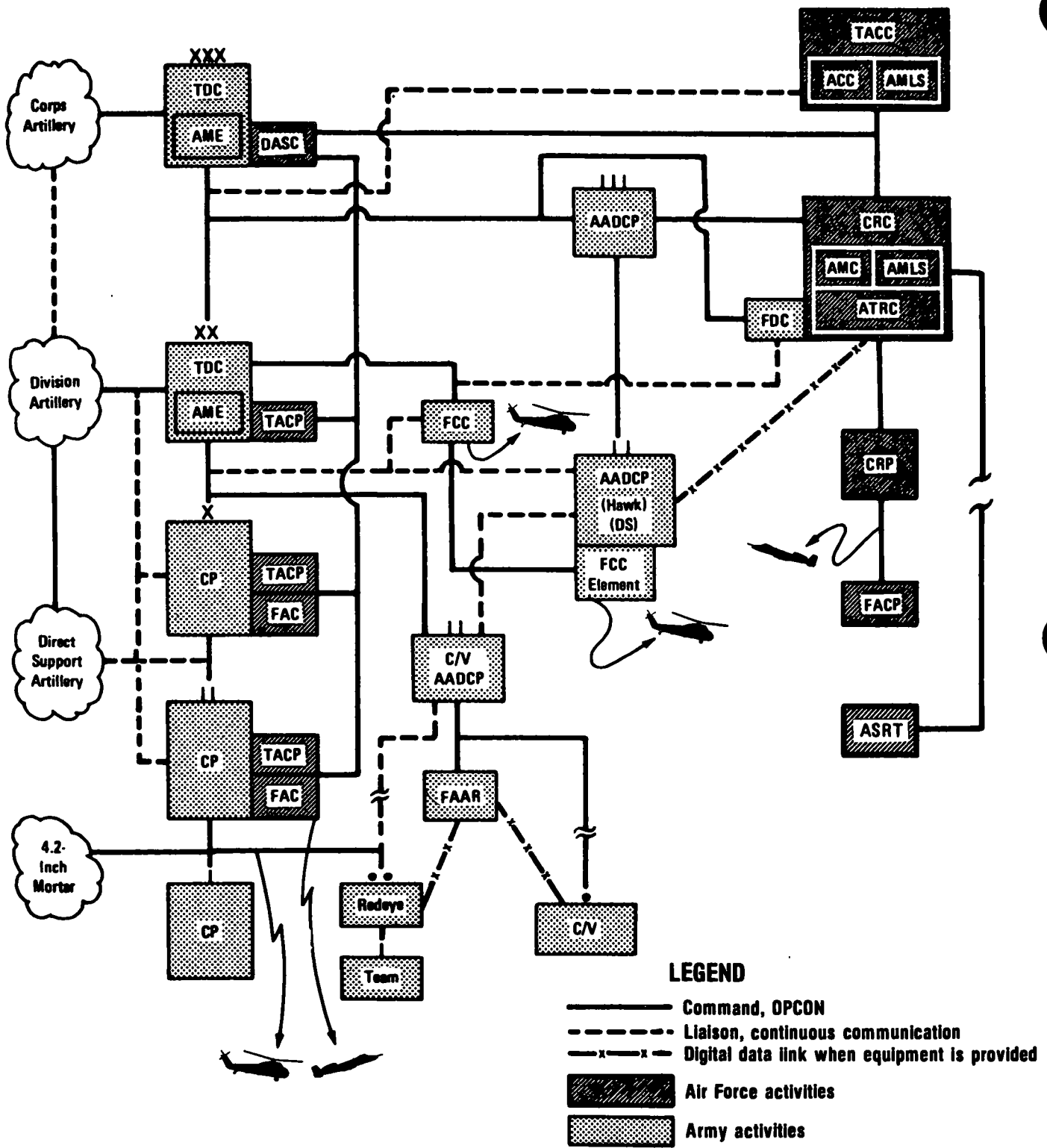
c. **Tactical Air Control Center (TACC).** The TACC serves as the control center of the TACS. The TACC is dedicated to and operationally responsive to the Air Force Component Commander/Commander, Air Force Forces (AFCC/COMAFFOR) for airspace control, ground target sensor surveillance, air support coordination and control, and air strike coordination and control. Through the TACC, the AFCC/COMAFFOR permits decentralized execution of air missions by subordinate TACS elements to promote mission effectiveness and enhance responsiveness.

d. **Airborne Warning and Control System (AWACS).** The AWACS is an airborne radar platform capable of providing all-altitude surveillance, warning, and aircraft control. AWACS operation will vary depending on the nature of the threat and the tactical missions being conducted. In locations where a ground TACS is present, AWACS will augment and/or extend the range of the control and reporting center. In the absence of ground TACS elements, the AWACS can operate autonomously to provide radar surveillance and airspace control in a combat zone as directed by the AFCC/COMAFFOR.

e. **Control and Reporting Center (CRC).** The CRC is an element of the TACS from which air defense, radar control, and warning operations are conducted within its area of responsibility. The CRC supervises the activities of subordinate radar units and collects, displays, evaluates, and disseminates information on air activities throughout the TACS. The CRC provides defensive and offensive mission control, navigational and air rescue assistance, and threat warning for friendly aircraft. The CRC provides the means for air traffic regulation and identification, coordination of air defense activities, and is the primary control agency in the airspace control area/sector.

f. **Control and Reporting Post (CRP).** The CRP augments the CRC by extending radar surveillance and control capabilities. When the CRC is not operational, or as otherwise directed, the CRP assumes the primary functions of a CRC (including the AMC and AMLS functions) within its capabilities. The CRP functions as an airspace control facility in a airspace control sector.

g. **Forward Air Control Post (FACP).** The FACP is a subordinate facility of the CRC or



NOTE: Organizational structure shown represents Army-Air Force relationships with one corps deployed. Modification will be required for multicorps operations.

Figure 3-1. Airspace Control System Organization and Communications Structure.

CRP and consists of lightweight surveillance and control radar to extend system coverage, fill gaps, and provide limited extension of control capability. Due to its mobility and advanced capability, the FACP is the preferred ancillary control unit. The FACP functions as an airspace control facility in an airspace control sector.

h. Air Support Radar Team (ASRT). The ASRT is a mobile unit equipped with precision radar to provide all-weather guidance for tactical strike aircraft on an attack against ground targets. It may also be used to position reconnaissance and tactical airlift aircraft over predetermined coordinates.

i. Airborne Battlefield Command and Control Center (ABCCC). The ABCCC is an airborne command and control element manned by a battlestaff commander, aircraft and weapons controllers, and operations, intelligence, and communications specialists. The ABCCC provides the capability for control of tactical air operations in forward battle areas, sometimes beyond the range of ground based TACS elements. Its primary function is to serve as a direct extension of the TACC Current Operations Division, but it can provide limited non-radar control of aircraft proceeding to and from designated target areas in the combat zone.

j. Tactical Air Control Party (TACP). The TACP requests, coordinates, and controls tactical air support for ground forces, advises and assists ground commanders, and meets other related tactical air support special requirements of individual ground force echelons. TACP's above brigade do not normally perform the forward air controller function.

k. Forward Air Controller (FAC). The FAC is a member of a TACP who controls close air support aircraft and integrates air strikes with the fire and maneuver of the supported ground forces. He may operate from airborne or ground positions. The FAC will maintain contact with the strike aircraft, other TACS elements, and the appropriate fire support coordinator or ground commander. His airspace functions include coordination of air attacks with artillery and appropriate aviation elements of the supported force in the target area.

l. Combat Control Team (CCT). The CCT provides limited weather observations, installs and operates necessary navigational aids and communications equipment, and controls air traffic in an airhead area until mobile tactical control elements are in place.

3-3. Army Facilities:

a. Tactical Operations Center (TOC):

(1) Centralized control and coordination of current tactical ground force operations are ac-

complished in the TOC. The TOC is neither a formal military organization nor a separate agency or level of command. It is formed solely from resources of the command as an operating element to accomplish timely staff actions on matters concerning current operations. It has no fixed composition but normally contains those elements and personnel considered necessary to perform the recurring functions encountered in most combat situations. Elements that are considered minimum for normal accomplishment of the TOC mission are:

(a) G2 (intelligence) and G3 (operations) elements.

(b) Fire support element (FSE).

(c) Tactical air support element (TASE).

(d) Airspace management element (AME).

(e) Electronic warfare element (EWE).

(f) Administration section.

(2) Each TOC element maintains a continuous estimate of the situation within its particular area of competency. Each acts on its own initiative to incorporate new or revised information into its estimate of the situation and is responsible for prompt coordination with other elements when changes in its estimate appear to impact on the activities of other elements or on the overall combat situation.

(3) The G3 is specifically responsible for overall coordination of TOC activities.

b. Airspace Management Element (AME). The AME is an element within the corps and division TOC and is under staff supervision of the G3. Its primary purpose is to accomplish airspace management functions among Army airspace users and with other Services. The AME is a manual planning and management element and has limited information-handling capabilities. Manning of the AME should include an air defense officer, an aviation officer, and supporting operations and clerical personnel. The AME determines how the commander's airspace requirements can best be met. User activities and requirements differ between the division area and corps rear area and, in this respect, the functions of the AME will differ accordingly. The AME:

(1) Coordinates the use of airspace.

(2) Coordinates Army air defense artillery operations.

(3) Coordinates Army air traffic.

(4) Provides information on aviation status and recommends the allocation and reallocation of Army aviation resources.

(5) Provides intelligence obtained through air defense channels.

c. Army Air Traffic Control Facilities. A network of flight operations centers, flight coordination centers, approach/departure control facilities, airfield control towers, and naviga-

tional aids is provided throughout the area of operations for the control and coordination of Army air traffic. The AMLS at the TACC and CRC arranges for the integration of Army air traffic control facilities with other Service component control facilities. Coordination of Army air traffic with other Service component air traffic and integration of Army air traffic into and out of division areas are normally accomplished by these Army air traffic control facilities. These facilities provide the required Army en route and terminal services, and should not duplicate those services that can be provided by the facilities of other Service components or existing facilities of the host country.

(1) Flight Operations Center (FOC). The FOC is a corps level en route air traffic control facility. It is collocated with, or electronically connected to, the CRC. When the FOC is physically separated from the CRC, the Air Force will furnish communications for connecting the two facilities. The FOC serves as the primary air traffic control facility for control of Army air traffic in the rear operations area.

(2) Flight Coordination Center (FCC). FCC's are en route air traffic control facilities employed in corps rear and division areas. When employed in the corps rear area, the FCC provides an extension of communications for the corps FOC. The FCC in the corps rear area designated as the alternate FOC will be collocated or electronically connected to an Air Force facility (CRP or FACP) to insure continuity of the flow of information required for air defense and air traffic management operations. When employed in the division area, the FCC provides a communications link between the terminal facilities of the division airfields, other airfields located nearby, division tactical operations centers, other FCC's, and the corps FOC.

(3) The FOC/FCC:

- (a) Provides flight following.
- (b) Monitors the operations of Army aircraft.
- (c) Hands en route traffic over to terminal facilities or en route facilities.
- (d) Initiates or relays warnings to Army aircraft.
- (e) Provides available information of air traffic movement within its assigned area.
- (f) Passes IFR flight plans to the airspace management center for approval.

(g) Passes VFR flight plans to the appropriate air traffic control facility.

d. Army Air Defense. Army air defense fire units are controlled from Army air defense command posts (AADCP). AADCP are established at Army air defense group and battalion levels. The AADCP coordinating the fire of Hawk and Hercules fire units are supported by local radars and semiautomatic command and control systems, which are tied to the control and reporting center or the control and reporting post of the sector. Chaparral/Vulcan AADCP are manual and depend on voice communications and procedural methods for control. AADCP are key airspace control facilities in both the corps rear and division areas. They become integral parts of the airspace control system by virtue of their inclusion in the area air defense system.

3-4. Maneuver Brigade/Battalion Airspace Management Functions. At brigade and battalion levels, airspace management is accomplished primarily by procedural, communication, and visual control means. At these levels, airspace management functions involve detailed coordination and integration of tactical air, indirect fire, organic air defense, and tactical fire and maneuver operations. It is those individuals directly involved in the conduct of localized combat operations—battalion and company commanders, fire support coordinators, air liaison officers, and forward air controllers—who perform airspace management functions as part of the airspace control system. The maneuver unit commander is responsible for detailed employment, control, or coordination of airspace use by forces when they are directly supporting his operations. This control and coordination will be accomplished through or by existing staff, supporting liaison and fire support representatives, and subordinate unit commanders. The maneuver unit commander is also responsible for coordinating his airspace activities with other elements of the airspace control system when those activities impact on other airspace users.

3-5. Facilities of Other Services. The airspace control facilities of other Services, when interfaced with the above listed Air Force and Army facilities, may be employed by the airspace control authority when so authorized by the joint force commander.

Chapter 4

CONTROL AND COORDINATION PROCEDURES

4-1. General. Airspace control must contribute to the overall objective—effective combat employment of the joint force. To this end, procedures are designed to specify airspace control responsibility and to define the means of accomplishing airspace management functions.

a. Agreements: The procedures described herein reflect certain fundamental agreements:

(1) Each service component within a joint force has requirements to operate aircraft or weapons system within the airspace in the performance of assigned missions.

(2) Joint operations in complex combat environments cannot be effective if conducted under complicated, overly restrictive control procedures for airspace use near the line of ground force contact.

(3) Procedures should be as simple as possible and based on the principle of management by exception.

(4) Fire support coordination must not inhibit the employment of supporting fires demanded by the tactical situation.

(5) Army aviation operations must have freedom of movement in the forward area and will normally be conducted in a procedural control environment.

(6) The ability to rapidly shift and concentrate the employment of air assets will be essential to the success of air-land operations.

(7) Mutually acceptable joint procedures eliminate requirements for duplicative equipment and capabilities for airspace control.

b. Use of Airspace Restrictions. Operational factors may generate requirements for airspace restrictions to be applied to the use of segments of airspace within the area of operations to accommodate specific operational requirements of component forces. The use of airspace restrictions must be minimized. These restrictions will be evaluated on a case-by-case basis, be temporary in nature, and limited in time and space.

c. Coordination Requirements:

(1) To effectively provide airspace control in an area of operations, air traffic control/airspace control facilities must have a capability for air traffic identification and control, and for receipt and dissemination of information on activity involving use of airspace. Coordination is required between facilities of the airspace control system and component command and control elements to prevent unnecessary disruption of other activities.

(2) The coordination of information pertaining to component Services' flight operations, air

defense operations, and indirect surface-to-surface fires that may create potential conflicts in the joint use of airspace will be normally accomplished at the lowest level of the airspace control system having the capability to prevent or resolve conflicts. Deconfliction will normally require coordination actions at an appropriate airspace management liaison section (AMLS).

(3) Army representatives at the AMLS are responsible for the coordination and integration of Army airspace user requirements with those of other Service components. At the tactical air control center, Army liaison will normally be provided by the senior Army commander. At the control and reporting center, the AMLS includes Army air defense and air traffic control representatives and will normally be provided by the appropriate corps commander and air defense artillery group. At other tactical air control system facilities, AMLS representatives will be provided when required.

4-2. Identification Procedures:

a. To ensure timely engagement of enemy aircraft, conservation of air defense resources, and reduction in risk to friendly forces, the air traffic identification requirements for airspace control must be compatible with air defense identification requirements.

b. Identification of friendly aircraft by rapid and reliable means promotes effective airspace control, timely engagement of enemy aircraft, conservation of air defense resources, and reduction in risk to friendly forces and facilities. Monitoring air movement by electronic methods will normally provide the most rapid and reliable means of identification and will facilitate flexibility of aircraft employment in an area of operations. Electronic identification should therefore be used when available. However, when one or a combination of factors preclude electronic monitoring and identification, visual or procedural means of identification may be used.

4-3. Air Traffic Regulation:

a. The procedures employed in performing air traffic identification and control functions will vary from the surveillance and advisory-only aspects of a monitoring service to one of positive air traffic separation provided under the concept of positive control. Factors which determine aircraft identification procedures and the degree of air traffic control possible include the following:

(1) The nature, magnitude, and imminence of the enemy air threat and air defense capability.

(2) The nature, capability, and controllability of deployed friendly air defense and surface-to-surface weapon systems.

(3) The volume of friendly air traffic.

(4) Weather conditions.

(5) The nature and intensity of friendly air and ground operations.

(6) The characteristics and electronic self-identification capabilities of friendly aircraft operating in the area of operations.

(7) The capabilities and number of deployed airspace control facilities.

(8) The degree to which operations have been planned.

(9) Enemy electronic warfare capabilities.

(10) Degradation or loss of air traffic control facilities.

b. Recognizing that one or a combination of the factors listed above may preclude positive control of all traffic in an area of operations, the objective of the airspace control system is to provide, as a minimum, flight following service to all flights conducted in visual flight conditions that will cross an airspace control boundary either inbound or outbound.

c. Flights into instrument flight conditions require clearance. Tactical aircraft flying fragmentary operation orders missions, scrambled for a defensive counter air mission or an immediate tactical air support mission, or which are on an emergency support mission are exempt from filing flight plans. In these cases, the following clearance procedures apply:

(1) A fragmentary order is considered a flight plan, and clearance will be provided.

(2) The authority ordering a scramble will notify the appropriate air traffic control element.

(3) If a mission is ordered from a location where an air traffic control facility is not available, the pilot will contact an appropriate air traffic control facility as soon as practical after becoming airborne.

d. Peacetime traffic separation criteria and procedures would be desirable; however, if such criteria are not sufficiently responsive to mission requirements, airspace control facilities may employ reduced criteria. In consonance with the degree of risk deemed acceptable by higher authority, this reduced criteria may mean:

(1) That even though the system may be saturated with numerous aircraft of different types performing varied missions, acceptance of tactical offensive and defensive traffic will not be reduced or denied, as is standard in normal air traffic control procedures.

(2) Air traffic control delays to priority traffic because of lack of standard ICAO/FAA separation will not be tolerated; rather, the tactical

mission will continue without delay with the risk of reduced separation accepted as necessary.

(3) Low-priority traffic may be denied access, diverted, or delayed when airspace saturation is imminent.

(4) In an effort to provide the maximum safety practical to a mission through correlation of known air traffic, acceptance of a lesser degree of control than is normal during peacetime may be necessary.

e. Aircraft movement within an area of operations may be conducted in instrument or visual meteorological conditions (IMC or VMC). The joint force commander, based on recommendations from Service component commanders, will establish the criteria by which aircraft will operate under instrument or visual flight rules, depending on mission requirements and system capability.

(1) All air traffic operating in IMC will be provided air traffic control service and, to the maximum extent feasible, positive radar control. Positive separation of traffic is dependent on knowledge in the airspace management center of all movements operating under like conditions; therefore, clearance for all instrument flights will be issued by the airspace management center. Coordinated tactical clearance procedures (fragmentary orders, etc.) will normally be used, and separation of aircraft will be effected through air traffic control facilities designated by the airspace management center.

(2) When instrument meteorological conditions prevail and tactical operations of an emergency nature must be conducted on an immediate basis, the air traffic control capabilities of terminal radar facilities may be used, when available, to provide traffic separation until such time as control may be coordinated with and assumed by another airspace control facility. The airspace management center will be notified of such operations by the most expeditious means available.

(3) When air operations are conducted in VMC, responsibility for air traffic separation is vested in the aircrews. Monitoring service and/or navigational assistance should be obtained from an appropriate air traffic control facility, when available.

4-4. Airspace Control in Planned Operations:

a. Prior to operations, plans will normally incorporate provisions for airspace control in an area of operations in accordance with these procedures. Standing operating procedures (SOP) will be developed to coordinate operations that will require use of airspace, with a view toward reducing coordination requirements after such operations have commenced. The airspace control

center at the tactical air control center must have knowledge of planned airspace use as far in advance as possible in order to resolve conflicts, establish minimum risk routes, conduct necessary coordination, and plan for the provision of air traffic control and air defense identification. Deviations from SOP should be minimized to facilitate coordination.

b. During operations, the airspace management center will be provided plans for use of airspace by aerial vehicles and weapon systems to include: airspace restricted area notices, fragmentary orders, flight plans, mission intent messages, or other suitable documentation containing flight plan or weapons employment data. Conflicts arising during operations that cannot be resolved by the airspace management center will be passed to the airspace control center for action.

c. The airspace control authority will establish procedures, when required, to accommodate host country or allied forces' air defense capabilities and to assure integration of these resources into the overall airspace control environment. Formal agreements between US, host country, and allied

forces will be negotiated by appropriate national agencies.

d. Airspace control authorities at the subordinate unified command and joint task force levels will coordinate on intra-theater airspace control matters to insure:

(1) Unity of effort and to minimize interference along adjacent boundaries.

(2) Agreement on procedures for coordination of flight information, clearance of aircraft to enter and depart the adjoining airspace, and the corresponding coordination of airspace control services.

4-5. Rear and Tactical Operations Areas (Figure 4-1):

a. Based on general patterns of air traffic flow and the types of combat activities therein, the combat zone can be divided into two areas—the rear operations area and the tactical operations area. The boundary between the tactical and rear operations area will normally be the division's rear boundary. Procedures for airspace control must reflect the differences in traffic flow and

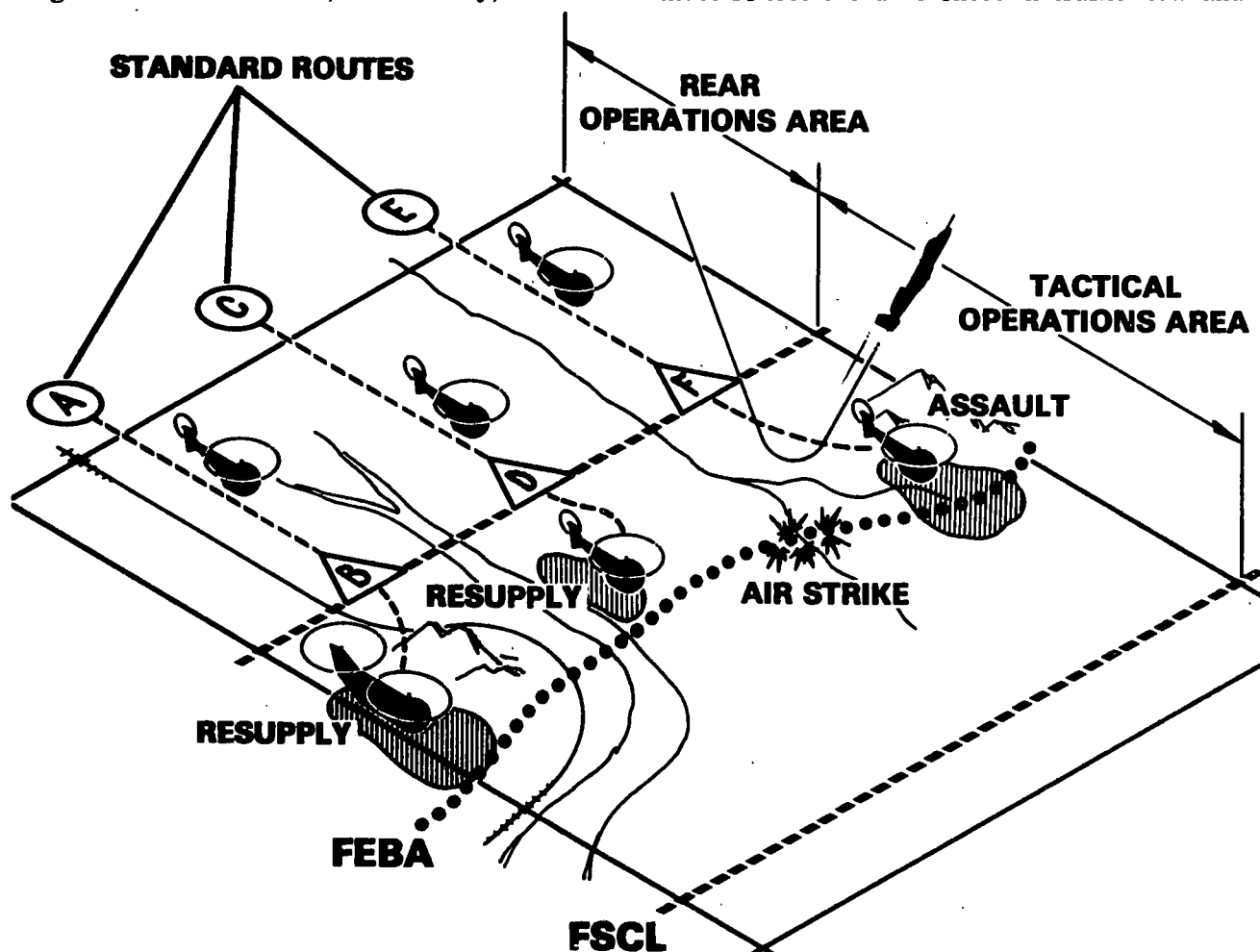


Figure 4-1. Rear and Tactical Operations Areas.

characteristics and complexities of air operations in each area.

b. In the rear operations area, Army air traffic will be predominantly along an axis perpendicular to the FEBA, in transit between forward and rear. This area is more definitive in terms of traffic movements and electronic control. Radar advisory service will be used to the maximum extent practicable. Rear operations area coordination procedures may, when approved by the airspace control authority, include standard-use Army aircraft routes.

c. Air traffic in the tactical operations area will be both parallel and perpendicular to the FEBA and characterized by the need for rapid and flexible response to both air and ground commanders' requirements. Freedom of movement throughout the area is necessary. The required flexibility for tactical operation and the potential density of air traffic make individual reporting neither feasible nor desirable. However, the coordination of information reflecting the intensity of Army aviation activity is an important conflict-avoiding tool. Other airspace management tools employed in the tactical operations area include the following: airspace restricted areas/airspace restrictions, coordinating altitudes, high density airspace control zones, and minimum risk routes.

4-6. Aircraft Coordination Procedures:

a. Both rotary and fixed wing aircraft have a requirement to operate in the low and medium altitude structure. Therefore, the use of airspace restrictions must be minimized, and coordinating procedures are required to reduce interference between friendly aircraft operating in areas of intense activity, airspace control facility degradation, or excessive enemy jamming of communications/radar while expediting safe, orderly, and effective combat employment of all aircraft. Basic considerations include:

(1) Most Army aircraft in the tactical operations area will be operating at low level in VMC and in a procedural rather than electronic control environment.

(2) A considerable portion of tactical air force operations will be in a radar advisory/control environment, in radio contact with tactical air control system elements.

(3) Coordination procedures must not cause delays in mission employment and must not restrict the movement of support aircraft or the tactical commanders' control of organic fire.

b. Remotely piloted vehicles (RPV) may also be employed in an area of operations. Each Service component is responsible for coordinating its

RPV activities when they affect other airspace users. Flight data for RPV operations will be provided to appropriate airspace control facilities.

4-7. Indirect Fire Support Coordination:

a. Coordination of indirect fire support with other aircraft activities should be effected to the maximum extent possible, particularly when not associated with an established high density airspace control zone or airspace restricted area. To achieve this aim, close coordination must be maintained between fire support agencies and the appropriate airspace control facilities. Detailed procedures must be tailored according to the characteristics of the area of operations and the tactical situation. However, the following considerations form the basis for the development of coordination procedures incorporating indirect fire support:

(1) The intensity, duration, and location of friendly fires are tied to the tactical situation and therefore are not generally predictable.

(2) The Army command and control system does not currently possess the capability to collect, categorize, and disseminate timely artillery information with respect to intensity, duration, location, and maximum ordinate of friendly indirect fires throughout the entire tactical area of operations.

(3) The highest probabilities of conflict between aircraft and indirectly delivered supporting fires occur at relatively low altitudes in the immediate vicinity of firing unit locations and target impact areas. With the exception of these two areas, the probability of aircraft and indirect fire conflict is relatively low.

(4) Indirect fires will not normally be interrupted because of potential conflict with aircraft traffic.

(5) Consistent with mission requirements, tactical aircraft will avoid areas of high-risk, indirect fire conflict. Conversely, high-priority tactical aircraft missions will not be delayed because of potential conflicts with indirect fire support.

b. Consistent with the above considerations, the following apply to indirect fire support/airspace control coordination:

(1) In order to reduce the potential conflict between indirect fires and tactical aircraft, the requirement exists for coordination of information pertaining to indirect fire support activity at the lowest level having the capability to resolve the conflict.

(2) Since the reporting of all indirect fire support data would not be timely, coordination procedures must be based primarily on preestablished fire plans, updated to the maximum extent possible, and consistent with Army artillery sys-

tem capabilities and airspace control requirements.

4-8. Airspace Management Procedures:

a. Airspace Restrictions/Airspace Restricted Areas:

(1) Commanders will inform the airspace control authority of their requirements for airspace restrictions. The request will include the time period during which the airspace restriction will apply. The airspace control authority will coordinate all requests in consideration of the impact of such airspace restrictions on other airspace users. Airspace management liaison sections will continuously monitor the status of airspace restrictions and initiate action to delete them when the need for their establishment is terminated.

(2) The horizontal and vertical limits of airspace restricted areas, effective times, procedures for movement of aircraft to and from adjoining airspace, procedures for coordination of flight information, and dissemination of warnings involving flight safety hazards will be precisely defined by the airspace control authority.

(3) When airspace restricted areas or other restrictions have been authorized, the air traffic control/airspace control facility responsible for controlling the air traffic will coordinate instrument flight plans with the airspace management center and with adjacent airspace control facilities and provide separation of all aircraft in instrument meteorological conditions operating within or transiting the restricted airspace.

(4) For flight operations conducted in visual meteorological conditions over friendly territory solely within a designated airspace restricted areas, the commander for whom the restriction was established will determine when flight plans are required. A determination that flight plans are not required does not relieve the appropriate air traffic control facility of the requirement to monitor movements of aircraft within the airspace restricted area and maintain a capability to clear aircraft from the area for air defense purposes or to provide information for rescue purposes.

b. Coordinating Altitude:

(1) In order to reduce the conflict between rotary wing and fixed wing aircraft, an airspace restriction for specified areas, in the form of a coordinating altitude may be designated by the airspace control authority.

(2) Rotary wing aircraft will normally operate below the coordinating altitude, and fixed wing aircraft will normally operate above it. The coordinating altitude assigned to rotary wing aircraft may be below the altitude assigned to fixed wing aircraft if a buffer zone is desired. Rotary wing aircraft penetrating the altitude will notify

the flight operations center, flight coordination center, or an airspace control facility, who in turn will notify the airspace management liaison section at the control and reporting center. Fixed wing aircraft penetrating the altitude will notify an appropriate tactical air control system element, who in turn will pass this information to the airspace management liaison section at the control and reporting center. Approval or coordination acknowledgement is not required prior to penetration of the coordinating altitude from either above or below. This coordination procedure does not connote an approve-disapprove process nor the designation of block airspace. Conflict avoidance is basically see-and-be-seen during visual meteorological conditions. The height of the coordinating altitude will be based on the tactical situation, mission requirements, and capabilities of the Services involved. Penetration of the coordinating altitude by close air support sorties, flown in response to Army requests, is coordinated by the forward air controller or other tactical air control system elements.

c. High Density Airspace Control Zone (HIDACZ):

(1) The intensity of military operations in a HIDACZ requires clearly defined airspace control procedures and techniques to insure maximum freedom of operations while preventing or minimizing interference between friendly forces. The employment of aircraft, artillery/mortar/naval gunfire, local air defense weapons and surface-to-surface missiles may result in high density use of airspace which would require special airspace control measures to prevent or minimize interference. Commanders will inform the airspace control authority, through the appropriate airspace control facility, of their requirements for a HIDACZ. The statement of requirements will include the location and the lateral and vertical limits of the affected airspace. The airspace control authority will coordinate requirements for HIDACZ(s) with appropriate Service component commanders. In the determination of these requirements due consideration will be given to the intended use of the affected airspace by Service component commanders. When required, the affected airspace will be designated a HIDACZ, wherein the appropriate commander will effect airspace control in accordance with policies and procedures established by the airspace control authority.

(2) The airspace, or a portion thereof, overlying a ground tactical area of responsibility is particularly subject to high density use and, when appropriate, may be designated a HIDACZ with lateral and vertical limits precisely defined. Such HIDACZ(s) will normally remain in effect for a period sufficient to accommodate high density

airspace use requirements generated during sustained combat.

(3) Where possible, the boundaries of a HIDACZ should be defined in relation to appropriate geographical landmarks and navigational aids or fixes in order to facilitate location and identification during flight.

(4) In order to provide a full spectrum of airspace control in HIDACZ, planning for airspace control in these zones will normally take into full account the coordinated use of all available airspace control capabilities both within and external to the HIDACZ. As a minimum, the airspace control plan for a HIDACZ should provide for:

(a) Safe passage procedures.

(b) Arrangements for IFR air traffic control service.

(c) The expeditious movement of aircraft into a HIDACZ. (This should include direct handover, where possible, from an en route airspace control facility to the tactical air control or air traffic control element, as appropriate, within the zone.)

(d) Handover procedures for aircraft movement from a HIDACZ to include direct handover, where possible, from the tactical air control or air traffic control element to the en route airspace control facility.

(e) Coordination of fire support to include restrictive fire plans, as required.

d. Minimum Risk Routes (MRR):

(1) To facilitate Air Force planning for high speed aircraft to transit the tactical operations area at low altitudes, MRR may be established by the airspace control center. The airspace control center will establish the number of recommended MRR to be submitted and procedures for changes and cancellations. The corps will provide to the airspace control center recommended MRR and information on significant activities affecting airspace not previously identified as airspace restricted areas. They will also maintain a current MRR status display based on MRR established by the airspace control center. As a minimum, establishment parameters for MRR will include:

(a) Coordination of MRR with air defense procedures and rules of engagement.

(b) Indirect and air defense firing unit locations.

(c) Ground maneuver and fire support planning.

(d) Terrain.

(e) Known enemy indirect and air defense fire capabilities.

(f) Areas of significant airborne or Army aviation activity.

(2) The tactical air control center will forward established MRR to tactical air control sys-

tem elements, tactical unit operation centers, and corps airspace management elements. The control and reporting center will utilize a current display of established MRR to reduce potential conflicts with tactical aircraft missions. The control and reporting center will advise the flight operations center of known conflicting aircraft movements and request updated information affecting established MRR.

(3) The airspace management element at corps and division, in coordination with the tactical air control party, will provide tactical air control system elements with information concerning known significant Army activities.

(4) The corps airspace management element will provide recommendations that MRR be updated, altered, and/or cancelled based upon changes in the tactical situation.

(5) Based on flight plan information, suitability of an MRR to mission requirements, degree of acceptable risk necessary for mission success, and the control and reporting center recommendations, aircraft transiting the tactical operations area will determine whether or not the MRR will be used. It is recognized that established air defense procedures will apply for aircraft returning through the tactical operations area from enemy territory.

(6) Since close air support sorties are flown in response to Army request and are coordinated by the forward air controller or other tactical air control system elements with the supported Army unit, close air support aircraft will not normally use MRR.

e. Standard-Use Army Aircraft Routes:

(1) The corps airspace management element, in coordination with the airspace control center, will establish standard-use Army aircraft routes through the rear operations area to designated points in the tactical operations area. These routes will terminate in relatively secure areas.

(2) Army aircraft movements, during visual meteorological conditions, in the rear operations area will utilize these standard-use Army aircraft routes to the extent practicable, following prescribed air traffic control procedures.

(3) Army aircraft movements in the rear operations area conducted during instrument meteorological conditions will comply with established IFR procedures.

(4) The flight operations center will be the focal point for the collection of Army aircraft movement data in the rear operations area and will interface with the control and reporting center.

(5) The control and reporting center will insure that Air Force aircraft avoid standard-use Army aircraft routes to the extent practicable

and will advise both the flight operations center and Air Force aircraft of potential conflicts.

4-9. **Airfield Terminal Control.** Component commanders will forward to the airspace control authority their requirements for terminal control zones associated with airfields that they operate,

along with desired procedures for flight coordination and transfer of control of flights into and from these airfields. The airspace control authority will coordinate the establishment of airfield terminal control zones and procedures in recognition of the stated requirements and in accordance with the guidance of the joint force commander.

BY ORDER OF THE SECRETARIES OF THE AIR FORCE AND THE ARMY

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GLOSSARY OF TERMS

Airspace Control. A service provided within the combat zone to contribute to the maximization of combat effectiveness by promoting the safe, efficient, and flexible use of airspace. Airspace control is provided in order to permit flexibility of actions in controlled airspace, while authority to approve, disapprove, or deny combat operations is vested only in the joint force commander.

Airspace Control Area. Airspace which is laterally defined by the boundaries of a joint force area of operations. The airspace control area may be subdivided into airspace control sectors.

Airspace Control Authority. A Service component commander, designated by the joint force commander to plan and coordinate airspace control matters with responsibility for the operation of the airspace control system in the airspace control area. As used in this manual, the airspace control authority is the Air Force Component Commander/Commander, Air Force Forces.

Airspace Control Boundary. The lateral limits of an airspace control area, airspace control sector, airspace restriction or high density airspace control zone.

Airspace Control Center (ACC). An element within the tactical air control center, which includes component Service liaison, responsible for planning and establishing rules and procedures for the coordinated and integrated use of the airspace by all component forces.

Airspace Control Facility. Any of the several Service component facilities which provide airspace control in the combat zone. As used in this manual, airspace control facilities include the airspace control center, airspace management center, air traffic control facilities, airspace management elements, air defense command posts, and other elements of the tactical air control system.

Airspace Control Sector. A subdivision of the airspace control area, designated by the airspace control authority in consideration of Service component airspace control capabilities and requirements.

Airspace Control Sector Authority. That individual designated by the airspace control authority as coordinating authority for airspace control within an airspace control sector.

Airspace Control System. A system consisting of the organization, personnel, facilities, policies and procedures required to prevent collisions be-

tween aircraft, aircraft and obstructions to flight, and aircraft and surface launched weapons; and to contribute to the maximizing of combat effectiveness by promoting the safe, efficient, and flexible use of airspace.

Airspace Management. The coordination, integration, and regulation of the use of airspace of defined dimensions.

Airspace Management Center (AMC). An element within a control and reporting center, which includes component Service liaison, responsible for continuous coordination, regulation, and integration of component Services' air operations, in accordance with the coordinated rules and procedures established by the airspace control center.

Airspace Management Liaison Section (AMLS). An agency staffed with representatives from all Service components involved, responsible to the airspace control authority, for planning, coordinating, and integrating activities related to airspace control.

Airspace Restricted Area. Airspace of defined dimensions, designated by the airspace control authority, in response to specific operational situations/requirements within which the flight of aircraft is restricted in accordance with certain specified conditions.

Airspace Restrictions. Special restrictive measures applied to segments of airspace of defined dimensions.

Air Traffic Control Facility. Any of the Service component airspace control facilities that may be involved in control of air traffic in an area of operations.

Air Traffic Identification. The use of electronic devices, operational procedures, visual observation, and/or flight plan correlation for the purpose of identifying and locating aircraft flying within the airspace control area.

Coordinating Altitude. An airspace management procedure, for use within airspace of defined dimensions, designed to reduce conflict between fixed-wing and rotary-wing aircraft.

High Density Airspace Control Zone (HIDACZ). Airspace of defined dimensions, designated by the airspace control authority, in which there is a concentrated employment of numerous and varied weapons.

Instrument Meteorological Conditions (IMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less

than the minima specified for visual meteorological conditions.

Minimum Risk Routes (MRR). Temporary routes of flight, recommended for Air Force use, presenting the minimum known hazards to low-flying aircraft transiting the tactical operations area.

Positive Control. The operation of air traffic in a radar/non-radar control environment in which positive identification, tracking and direction of aircraft within an airspace is conducted by an agency having the authority and responsibility therein.

Procedural Control. A type of airspace control which is accomplished by nonelectronic means.

Tactical Operations Area. That area between the fire support coordination line (FSL) and the rear operations area where maximum flexibility in the use of airspace is needed to assure mission accomplishment. The rear boundary of the tactical operations area should normally be at or near the rear boundary of the frontline divisions.

Rear Operations Area. That area rearward of the tactical operations area rear boundary where airspace control is more definitive. Dimensions are as directed by the joint force commander.

Visual Meteorological Conditions (VMC). Meteorological conditions expressed in terms of visibility, cloud distance, and ceiling, equal to or better than specified minima.

