

FM 1-60

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Reference

# FM 1-60

DEPARTMENT OF THE ARMY FIELD MANUAL

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reference

# ARMY AIR TRAFFIC OPERATIONS

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HEADQUARTERS, DEPARTMENT OF THE ARMY

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FIELD MANUAL

NO. 1-60

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 12 November 1968

**ARMY AIR TRAFFIC OPERATIONS**

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\*This manual supersedes FM 1-60, 24 August 1960.



## PART ONE

### GENERAL

## CHAPTER 1

### INTRODUCTION

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#### 1 - 1. Purpose

This manual contains doctrine for Army air traffic operations in the airspace over the combat zone. The objective is to provide guidance for commanders and staff officers of larger Army land forces, Army aviation staff officers, and commanders of Army aviation and air traffic control units.

#### 1 - 2. Scope

a. The manual is primarily concerned with air traffic control as it influences the capability of Army aviation to support the operations of land combat forces.

b. Part One of the manual discusses the relationship of the joint force commander to the service component commanders, and the inter-relationships among the service component commanders, with regard to Army air traffic operations.

c. Part Two provides doctrine for the use of the airspace over the combat zone, with emphasis on Army air traffic operations.

d. Guidance is provided for—

(1) General war, to include a consideration of the employment of and protection from nuclear munitions and chemical, biological, and radiological agents; and operations in nuclear, chemical, or biological environments.

(2) Limited war.

(3) Cold war, to include stability operations.

e. This manual is in consonance with the following international standardization agreements which are identified by type of agreement and number at the beginning of each appropriate chapter in the manual: SOLOG 117, Homing and Navigation in the Combat Zone for Army Air Traffic; STANAG 3117, Aircraft Marshaling Signals; STANAG 3465, Safety, Emergency, and Signaling Procedures for Tactical Aircraft Operations.

#### 1 - 3. Recommendations to Improve Clarity or Accuracy

Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded directly to the Commanding Officer, Army Combat Developments Command Aviation Agency, Fort Rucker, Alabama 36360. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, Army Combat Developments Command, Fort Belvoir, Virginia 22060, to facilitate review and followup.



## JOINT CONSIDERATIONS

### CHAPTER 2

(SOLOG 117)

#### Section I. COMMAND RESPONSIBILITIES

##### 2 - 1. General

a. The airspace over the combat zone is subject to use by all friendly forces participating in an operation. Policies for the coordinated use of this airspace are based upon the necessity for permitting each participating force to fully utilize and exploit its capabilities with minimum interference with other friendly forces.

b. Since policies for the use of the airspace are interservice in scope, they are established consistent with the provisions of Unified Action Armed Forces (UNAAF), Joint Chiefs of Staff (JCS) directives, and the guidance of the establishing authority. Within his command area, the commander of the U.S. joint force establishes the boundaries within which airspace control is to be exercised; provides the general priorities and restraints to be applied, with due regard for the requirements of all users of the airspace; and resolves differences that cannot otherwise be agreed upon by the component commanders concerned.

c. Where U.S. and Allied forces are conducting combined operations, the provisions of SOLOG 117 will apply to aircraft operations in the combat zone.

##### 2 - 2. Joint Force Commander

The joint force commander, as discussed in this manual, is the U.S. commander in whom is vested authority for the direction, coordination, and control of a force consisting of significant elements of two or more U.S. military services. He establishes the broad guidance necessary to insure coordination of the airspace operations of participating service components, and may designate a single service component commander as airspace control authority for

the supervision of these functions throughout the theater. Where authority is so delegated, the joint force commander retains approval authority for coordination measures of airspace utilization and air traffic control (ATC).

##### 2 - 3. Air Force Component Commander

The Air Force component commander maintains command and operational control of all Air Force elements operating in the theater. He normally is designated the airspace control authority for the theater, with responsibility for coordinating the establishment of an ATC system for use throughout the theater. In this effort, he coordinates with the Army component commander to establish procedures for accomplishment of ATC functions in and over the field army areas.

##### 2 - 4. Army Component Commander

The Army component commander maintains operational control of all Army aviation elements, Army fire support coordination systems, and Army ATC systems. He assigns organic Army air defense (AD) means to the field armies and to the theater AD organization, as prescribed in the theater AD plan. In conjunction with the other service component commanders, he determines and recommends to the airspace control authority the coordination altitude below which aircraft operations over the field army area are conducted under authority of the field army commanders. He establishes an ATC system compatible with similar systems of other components of the joint force, and coordinates air traffic operations within the Army block of airspace (fig. 3 - 1).

## 2 - 5. Navy Component Commander

The Navy component commander maintains control of all Navy elements, to include Marine Corps elements, operating in the theater. He establishes an ATC system compatible with similar systems of the other components of the joint force, coordinates all friendly air traffic in the airspace over the fleet operational areas, and maintains liaison with appropriate AD commanders ashore to minimize mutual inter-

## Section II. JOINT AIR TRAFFIC CONTROL

### 2 - 6. General

The difference in performance capabilities of Air Force and Army aircraft is an important consideration in joint air traffic operations. High performance Air Force aircraft normally operate at relatively high altitudes, and depend upon their speed to reach objective areas quickly. Lower performance Army aircraft, normally operating under decentralized control at unit level, operate at lower altitudes and depend more upon their proximity to objective areas than upon speed of movement to provide responsive support to ground units. Where high speed aircraft operations may require visibility over greater distances to avoid collision with other aircraft, lower speed aircraft, particularly helicopters, can be operated safely on a "see and be seen" basis during far more restrictive visibility conditions.

### 2 - 7. Basic Principles

The following basic principles apply to the establishment of measures for the identification and regulation of air traffic in the theater of operations:

a. Air traffic control (ATC) provides for the regulation of aircraft in flight. It does not include the exercise of mission control over aircraft operating in its area of jurisdiction.

b. Procedures developed must permit maximum freedom for all airspace users consistent with the degree of risk that is considered operationally acceptable.

c. Each component commander is responsible for the employment and internal control and coordination of his own forces, aircraft, and weapons within the limits established by the airspace control authority. However, based on the conditions set forth in the order of

ference. During an amphibious operation, he coordinates all friendly ATC efforts in the area of operations until command control of the operation has passed ashore or until some other event designated by the joint force commander has taken place. Relationship during joint amphibious operations will be in accordance with the provisions of JCS Pub. 2 and FM 31 - 11 as amplified by the Joint Chiefs of Staff or the joint force commander.

attachment (FM 100-27/AFM 2-50), it may be necessary for the Air Force and Army component commanders to identify the ATC procedures to be used by Air Force tactical airlift units attached to Army units.

d. Each component commander is responsible for coordinating his air traffic operations with the other services concerned in accordance with procedures established by the airspace control authority.

e. The system established must be compatible with established ATC procedures for adjacent areas.

f. The system established must be compatible with AD requirements, to include identification and warning functions.

g. The system must provide for warning airborne aircraft of NBC weapons employment and conflicting use of the airspace over the combat area. Consideration must be given to the use of existing facilities and equipment as well as saturation levels of communication control systems and radar site facilities.

h. Basic responsibility for complying with the rules of flight rests with the individual aircraft commander.

### 2 - 8. Airspace Control Authority

The Air Force component commander normally is designated the joint force airspace control authority and is delegated authority by the joint force commander to provide for the integration, regulation, and coordination of air traffic in the theater. In this capacity, he—

a. Promulgates the priorities for and the objectives to be achieved through use of airspace.

b. Provides for the ATC of friendly aircraft in conjunction with his responsibilities for air defense.



c. In coordination with the Army component commander, establishes the procedures for ATC over the combat zone for approval by the joint force commander.

d. Specifies the primary and subordinate control facilities which will coordinate overall area ATC operations for the theater.

e. Insures coordination of operations and

exchange of information between all service facilities assigned ATC functions, and furnishes communications means necessary to link these facilities together.

f. In coordination with the service component commanders concerned, designates a system of map coordinates to be used in ATC operations.

### Section III. JOINT AIR DEFENSE OPERATIONS

#### 2 - 9. General

The primary objective of air defense (AD) is to limit the effectiveness of enemy offensive air efforts to a level which permits freedom of action for all friendly forces. Since active AD operations are conducted in the same airspace used by friendly aircraft, and identification of aircraft traffic is a prime requirement in active AD operations, it is necessary to establish positive procedures which provide for a minimum of mutual interference between AD operations and other friendly airspace operations over the combat zone.

#### 2 - 10. Area Air Defense Commander

a. Within an oversea unified command, subordinate unified command, or joint task force, the commander will assign overall responsibility for AD to a single commander. Normally, this will be the Air Force component commander. Representation from the other service components involved will be provided, as appropriate, to the area AD commander's headquarters.

b. The mission of the area AD commander will be to coordinate and integrate the entire AD effort within the unified command. Subject to the authority of the commander of the unified command he will establish broad policies and procedures for the employment of AD means and the coordination of such means with the operations of other elements within the area.

c. Where a significant portion of the means for AD from ~~land areas~~ is contributed by a service other than that of the area AD commander, a senior officer should be appointed from that service to serve as deputy in AD matters to the area AD commander (JCE Pub 8).

#### 2 - 11. Regional Air Defense Commander

The area AD commander may establish AD regions, and appoint a regional AD commander for each, to reduce the span of control within the theater and provide a more effective AD system. When regions are established, each regional commander will be fully responsible for and will have full authority for the AD of his region. He will, however, normally delegate authority to the field army commander for control and operational employment of organic Army AD means for those parts of the region in the field army area, subject to the overall coordination of the area AD commander.

#### 2 - 12. Field Army Air Defense Commander

The field army commander normally is responsible for control and operational employment of Army AD means assigned to the field army. A detailed discussion of air defense artillery (ADA) functions in the field army is contained in FM 44-1.



**PART TWO**  
**DOCTRINE FOR USE OF AIRSPACE OVER THE COMBAT ZONE**  
**CHAPTER 3**  
**AIRSPACE AUTHORITY**

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**3 - 1. Delegation Of Authority**

Auhority is delegated to the Army component commander as necessary to enable him to employ his tactical organic aircraft on an immediately responsive basis over those land areas under his control. This delegation of authority normally is made by the airspace control authority in behalf of the joint force commander.

**3 - 2. Army Block of Airspace**

The delegation of authority normally is accomplished by assigning to the Army component commander authority for the control of air traffic within an assigned block of airspace. This area, known as the "Army block of airspace," encompasses that airspace up to an agreed altitude that lies over the combat zone

(fig. 3-1). It is the responsibility of the Army component commander to establish and operate an ATC system capable of coordinating Army and other aircraft traffic operations in this block of airspace. Where one or more field army areas are involved, the Army component commander normally delegates authority for airspace control to his field army commanders. However, regardless of the magnitude of the Army block of airspace, the ATC system established must be compatible with ATC procedures and systems of other service components of the joint force operating in the theater.

**3 - 3. Dimensions**

The dimensions of the Army block of airspace normally are as follows:

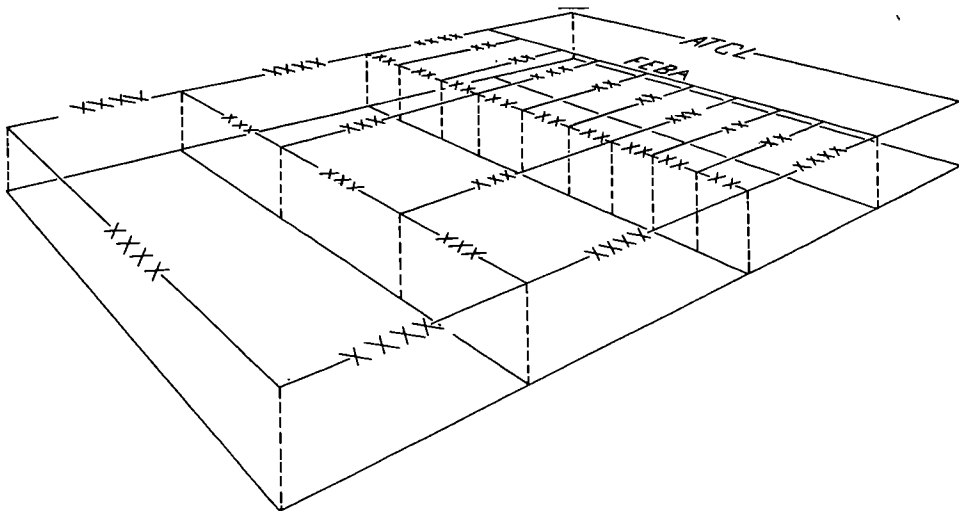


Figure 3-1. The Army block of airspace.

a. *Width.* The Army block of airspace extends across the width of the field army area.

b. *Depth.* The Army block of airspace extends from the field army rear boundary to the air traffic control line.

c. *Altitude.* The Army block of airspace extends upwards from the terrain to the coordination altitude.

### 3 - 4. Air Traffic Control Line

The Army component commander coordinates with the other service component commanders the location of an air traffic control line (ATCL). The ATCL is a line established forward of the FEBA along prominent terrain features readily identifiable by observers from the air and ground. Normally it is located at or forward of the fire support coordination line (FSCL). This line enhances freedom of movement of all friendly aircraft operating in the vicinity of the FEBA, and provides AD with a demarcation line to facilitate identification of all detected aerial objects penetrating the forward combat zone.

### 3 - 5. Coordination Altitude

a. The coordination altitude delineates the upper limit of the Army block of airspace, agreed to by the component commanders and approved by the airspace control authority.

Normally, this is the altitude at which the preponderance of air traffic changes from that of the Army component commander to that of the Air Force component commander.

b. Army aircraft traffic at or above the coordination altitude, over the Army block of airspace, will be regulated by ATC facilities of another service, normally the Air Force. Army aircraft operations below the coordination altitude will be controlled in accordance with ATC procedures established by the Army component commander without necessity for coordination with the ATC facilities of other services.

c. There is no set height at which the coordination altitude is established. However, it must provide the Army commander with sufficient airspace to employ his aviation assets according to his needs, priorities, and the degrees of risk which he is willing to accept. The airspace allotted must be large enough to allow mass helicopter movements using both IFR and VFR procedures applicable to all types of weather conditions. This normally will include designation of an airspace segment, excluding control zones, in which Army aircraft can conduct low-level VFR operations virtually without ATC restrictions. Above this low-level segment, ATC traffic levels can be established, as necessary to accommodate Army air traffic, up to any level below the coordination altitude.

## CHAPTER 4

### ARMY AIR TRAFFIC OPERATIONS

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#### 4 - 1. General

Army air traffic operations are conducted in the Army block of airspace in accordance with procedures established by the Army component commander. To reduce the span of control, the commander may suballocate applicable portions of the Army block of airspace to his subordinate tactical commanders. Appendix B discusses a type Army air traffic control unit which may be used to provide ATC services in the field army area.

*a.* The primary objectives of Army ATC procedures in this airspace are to—

- (1) Regulate and expedite the safe and orderly flow of Army air traffic.
- (2) Facilitate air defense operations.
- (3) Assist in the identification of aircraft operating in the Army block of airspace.
- (4) Provide air warning and inflight assistance to aircraft operating in the Army block of airspace.
- (5) Coordinate Army air traffic operations with the air traffic operations of other services.

*b.* In order to achieve these objectives, certain air traffic rules are established for use by all personnel participating in Army air traffic operations. For flights conducted under visual flight rules (VFR), the basic means of controlling Army air traffic is by unit control exercised through the aviation unit commander, largely by use of unit SOP. For flights conducted under instrument flight rules (IFR), positive control through an ATC facility is necessary. A third category of flight rules, known as general flight rules, applies to all flights of Army aircraft, whether operating under VFR or IFR. Responsibility for complying with rules of flight appropriate to any given flight rests upon the individual aircraft commander.

*c.* Criteria will be established to indicate the conditions under which aircraft are to be operated according to IFR and under which they are to be operated according to VFR in the Army block of airspace. Generally, IFR will apply when flight is conducted without reference to terrain features, or when visibility is such that aircraft have insufficient space in which to maneuver to avoid collision with other aircraft. However, at major Army airfields in rear areas and where aircraft density dictates, it may be feasible to establish specific weather minimums for fixed and rotary wing aircraft. Regardless of the criteria used to determine whether flight will be conducted under VFR or IFR, provisions will be made to enable the Army commander to fully utilize the capabilities of his organic aircraft while they are operating in his allocated airspace.

*d.* When operations are conducted under marginal weather or visibility conditions, coordination through appropriate communication facilities will be accomplished to minimize the danger of mutual interference which could result from clearances being issued for other service aircraft to operate in this area.

#### 4 - 2. Tactical Operations Center

*a.* The tactical operations center (TOC) is a command installation in which the necessary communications facilities and personnel are centralized to control and coordinate current tactical operations. Usually it is established at field army, corps, and division. The primary function of the TOC is to provide the commander with current information and recommendations concerning the conduct of combat operations and the use of resources. FM 101-5 discusses the organization and functions of the TOC in detail.

b. The coordination of TOC activities is accomplished by grouping together representatives of major functional elements in a central location. Within the authority delegated by the commander, TOC elements are responsible for preparing and disseminating orders, requests, and reports necessary for conduct of current operations. Elements of the TOC having a major interest in ATC include the airspace control element (ACE), tactical air support element (TASE), and the fire support element (FSE). The ACE has overall responsibility for coordination of the use of airspace and serves as the source of information on Army aviation operations for use in airspace utilization planning. Conflicts among users of airspace are resolved directly among the users or referred to the G-3 element for resolution.

c. The TOC prepares and disseminates airspace control guidance by means of the airspace utilization annex (app C) and other appropriate annexes to the operations order when not prepared by a staff element outside of the TOC. This guidance will include the concept of airspace utilization, airspace priorities, AD rules of engagement, reentry procedures, and any other information necessary to facilitate the flow of air traffic. It may include information on the establishment of prohibited areas over which air traffic operations are forbidden, or restricted areas over which flights may be conducted only under specified conditions.

d. At brigade and battalion level, these functions normally are performed in the fire support coordination center.

#### 4 - 3. Army Air Traffic Control System

The Army component commander establishes a system for the control of aircraft traffic within the Army block of airspace. This system will include provisions for the coordination of Army air traffic operations with the air traffic operations of other services to facilitate transit through and operation in the Army block of airspace. Staff supervision of the system is accomplished by the aviation at each command echelon. Its principal element is an ATC unit which establishes and operates a system of flight operations centers and flight coordination centers as discussed in paragraph 4-5.

#### 4 - 4. Degree of Control

In determining the degree of control necessary for Army aircraft operations in the Army block of airspace, the field army commander may authorize varying degrees of control, normally with aircraft operations in forward areas being subject to less exacting ATC procedures than aircraft operations in rear areas. Since activities in control zones are not adaptable to variation in the degree of control, their use is subject to adherence to normal ATC procedures.

a. *Brigade and Division Areas.* At brigade and division level, coordination of VFR flights for ATC purposes is minimal for areas in which tactical operations are being conducted. Except in the case of an airmobile division, authority for establishing ATC procedures to govern Army aircraft operations normally is retained at division level. However, where the division commander elects to delegate this authority to his brigade commanders, the brigade commanders will establish procedures to govern aircraft operations in their respective areas. These procedures will be compatible with the ATC procedures used in the Army block of airspace and will include provisions for coordinating the movement of other aircraft into and out of the brigade area. For VFR operations within the division (brigade) area, local flight clearances are filed with the operations element of the unit to which aircraft are assigned or attached. When possible, appropriate entries on the local flight clearance should be completed by the pilot prior to takeoff. However, when a situation dictates, filing of the flight clearance by the pilot may be omitted. In such a case, mission requirements will be recorded and retained at the unit operations element and this record will constitute a local flight clearance. For all flights conducted under local flight clearance, the unit with which the clearance is filed will retain responsibility for flight following. Military flight plans will be filed with ATC for all IFR flights regardless of route or destination. Air traffic control services for IFR flights in the division/brigade area will be provided by ATC elements organic to the division. Where division ATC elements are inadequate for this purpose, additional ATC sup-

port may be requested from field army Air Traffic Control Unit (AATCU) resources. Specific procedures for operations conducted under local flight clearances should be included in unit SOP. This permits maximum use of the organic capability with minimum response time, yet will provide knowledge to the parent unit of the location of organic aircraft within reasonable limits.

*b. Corps Area.* At corps level, the same general procedures can be applied as for brigade and division. Local flight clearances generally are adequate for VFR flights within the corps area. When military flight plans are filed for VFR flights within the corps area, they will be used primarily for identification rather than for ATC purposes.

*c. Field Army Service Area.* In the field army service area, preplanning of missions is the rule rather than the exception. In this respect, operations differ greatly from those of the division and brigade areas and, to a varying degree, from those of the corps area. Within this area, conventional ATC procedures are applied to flight operations.

#### 4 - 5. Flight Operations Center

A network of flight operations centers (FOC) serves as the primary agency for the control of aircraft operating within the Army block of airspace.

*a. Location.* Flight operations centers are established as necessary to provide coverage of the combat zone (fig. 4-1). Each FOC has an assigned area of responsibility and receives en route air traffic from, or hands off traffic to, adjacent FOC. This normally is accomplished by establishing one or more FOC in the field army area and one FOC in each corps area. Also, it may be necessary to establish an FOC to support a division, such as an airmobile division, that habitually conducts large-scale aircraft operations. Since constant communication must be maintained between the FOC and the Army air defense command post (AADCP) for coordination purposes, collocation of these facilities is desirable. Collocation of the AADCP and the Air Force control and reporting center (CRC) is also desirable for similar reasons. However, consideration should be given to the disadvantages of providing a

lucrative target for enemy attack by collocating these agencies.

*b. Functions of the FOC.* Each FOC is responsible for the control of all IFR air traffic and designated VFR traffic in its assigned area, excluding airfield control zones, in accordance with procedures established for use in the Army block of airspace. The FOC accomplishes the planning, coordination, administration, and communications necessary for the continuous operation of the Army ATC system. This includes responsibility for coordination with ATC agencies of other services for all air traffic departing or entering the Army block of airspace. *Except where local authority is delegated to an FCC or terminal facility, the FOC is the only agency authorized to issue clearances for IFR flights in the Army block of airspace.* Another important function of the FOC is the dissemination of weather information, by use of periodic weather reports or upon request, to flight crews. (Weather reports issued by the FOC are based upon information provided by the Air Force's air weather service.)

*c. Flight Coordination Centers.* Flight coordination centers (FCC) are established to extend the communications capabilities of the FOC. They normally serve as communications links between the FOC and the terminal facilities of instrumented airfields. In the field army rear area, FCC are located as necessary to enable the FOC to provide coverage throughout its area of responsibility. FOC and FCC are located as necessary to provide coverage to aircraft operating in the corps area of responsibility, normally extending forward to the division rear boundary where traffic is handed off to or received from FCC operated by organic division elements. Coordination between the division FCC and the ADA battalion AADCP is accomplished by communications or collocation. Where an FCC is assigned responsibility for a specific area, it is normally authorized to issue IFR clearances for flights conducted *wholly within that area*. For flights leaving the area, prior clearance by the appropriate FOC is required.

#### 4 - 6. Control Zones

*a. General.* A control zone is established for

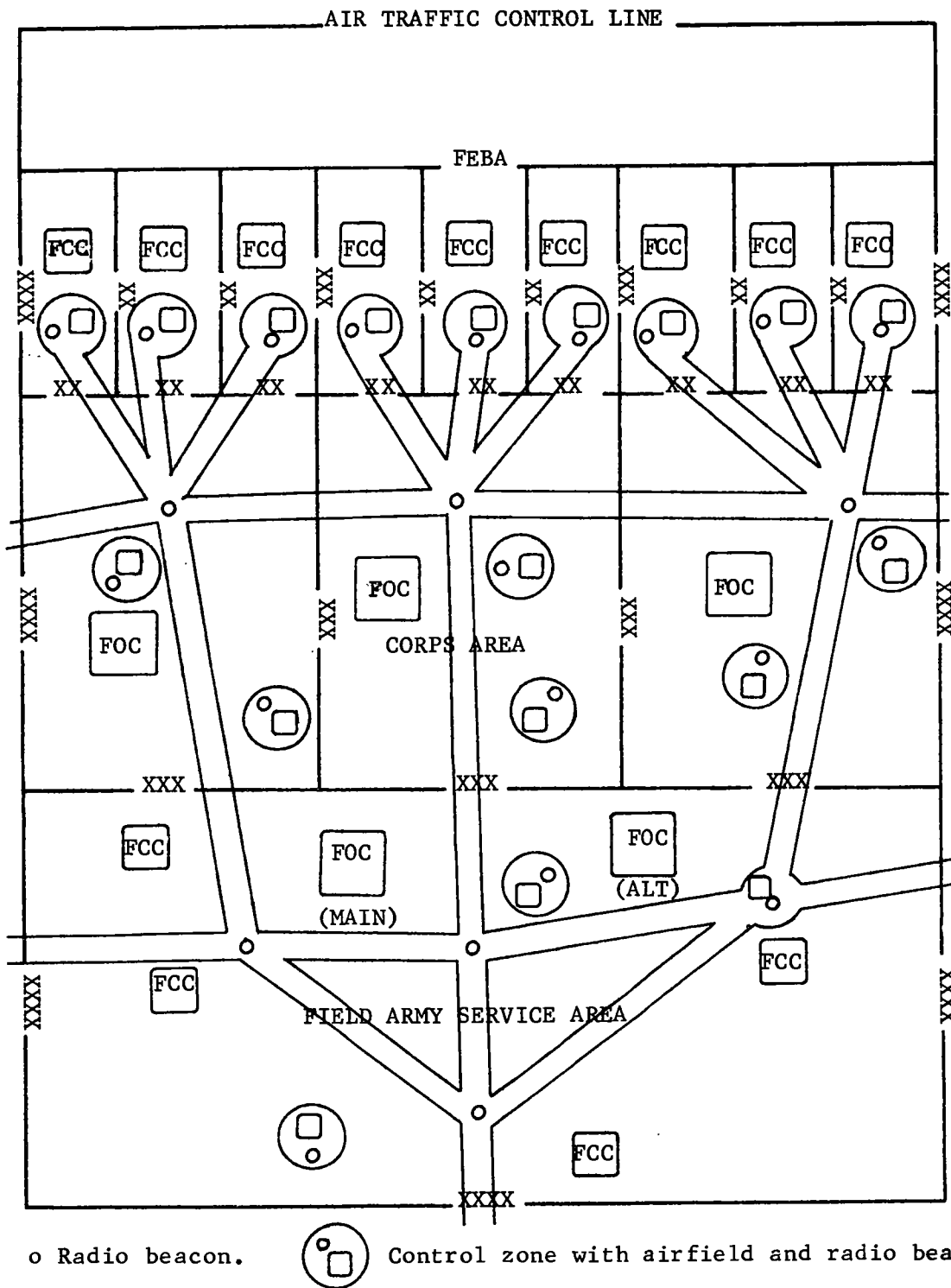


Figure 4-1. Type combat zone airways system.



each major airfield in the Army block of airspace, to include the field army, corps, and division base airfields and such other airfields as may be designated. A control zone covers a specified area, such as the area with a 5-kilometer radius of the airfield, and extends upwards from the ground to a specified height. Coordination of hand-off points, altitudes, and other procedural matters necessary for control of aircraft operating between control zones and FOC is accomplished by personnel of the AATCC. This normally is done through use of informal letters of agreement which delineate the responsibilities of each control zone authority and FOC in this regard. Where there is a requirement for instrument approach procedures for use by aircraft of another service entering an Army control zone, those procedures will be developed through coordination between the other service commander and the Army component commander.

*b. Terminal Traffic Control.* Terminal traffic control is exercised from an airfield control tower which issues information to facilitate aircraft movement within the control zone. This service normally is provided through employment of personnel and equipment organic to the Army aviation unit operating from the terminal facility concerned. When flying in a control zone under VFR, the aviator is directly responsible for avoiding collision with other aircraft, but is aided by information issued by the control tower. When flying under IFR, the pilot must depend upon instructions from the tower to avoid collision with other aircraft known to be operating in the control zone. Instructions to aircraft taxiing on an airfield are issued by the tower. Hand signals, when used, will be in accordance with STANAG 3117 as illustrated in FM 1-105. STANAG 3465 prescribes safety, emergency, and signaling procedures for use in tactical air transport operations.

*c. Departures.* For aircraft departing the control zone under VFR, the control tower provides only such assistance as may be necessary for the aircraft to taxi, take off, and turn on course for departure without collision with other aircraft. For aircraft departing under IFR, the tower also serves as a radio relay station to request ATC clearances for aircraft

to operate on airways after leaving the control zone. Such IFR clearances, issued by the appropriate FOC, will specify the time and altitude at which the aircraft may enter the control area. The tower will relay each clearance from the FOC to the aviator and assist the departing flight as necessary to comply with the terms of the IFR clearance.

*d. Arrivals.* For IFR flights entering a control zone, the FOC or FCC advises the control tower as to the altitude and expected time at which the aircraft will enter the control zone. Additionally, the aviator establishes radio contact with the tower prior to entering the control zone. The tower provides information, based on aircraft approach procedures established by the senior aviation officer of the field army, corps, or division area in which the terminal facility is located, to enable the aviator to safely enter the control zone and terminate his flight.

#### 4 - 7. Control Areas

*a. General.* A control area is an airspace segment of specified dimensions forming a portion of the ATC system. Control areas in the Army block of airspace extend upwards from a specified level above the ground to a specified altitude below the coordination altitude. Aircraft being operated under IFR conditions may enter a control area only after clearance has been issued by an appropriate FOC.

*b. Airways.* Airways are control area segments normally established between navigation aids to facilitate the orderly flow of aircraft traffic between designated points, to include control zones, in the Army block of airspace.

*c. Special Airways.* Where the established airways system is not adequate for a planned operation, special airways can be developed for that purpose. Examples of operations requiring special airways are those involving large numbers of aircraft, and those involving a mix of high performance aircraft of other services and lower performance Army aircraft. When it is expected that high performance aircraft will be operated in or through the Army block of airspace on a continuing basis, special airways or air corridors may be designated for their exclusive use. Also, it is possible to designate one or more recovery corridors for emergency use, as for damaged Air Force aircraft returning to

friendly areas. The location, including altitude, of these corridors is coordinated within the TOC or FSCC and established in advance.

*d. Penetration and Climb Corridors.* Where the density of other service high performance aircraft warrants, it may be necessary to establish penetration and climb corridors. Army aircraft will not operate in these corridors unless specifically cleared for such operations by the appropriate ATC facility.

*e. Separation.* The separation of air traffic operating on airways under IFR conditions is provided through use of—

(1) *Longitudinal separation.* Aircraft flying at the same altitude are kept a minimum distance apart by longitudinal separation. This method is effective where aircraft traveling at similar speeds are concerned, but generally is not recommended for maintaining separation of a mix of high performance and low performance aircraft. FOC will set appropriate time spacing by taking into account aircraft speeds, traffic density, and local conditions.

(2) *Altitude assignment.* The assignment of aircraft to operate at different altitudes is particularly effective for flights involving aircraft passing each other while flying in different directions or in the same direction at different speeds.

(3) *Lateral separation.* The spacing of aircraft may also be controlled by the assignment of different flight routes (airways) terminating at the same destination.

*f. Reporting Points.* The use of reporting points for IFR flights provides the ATC agency a means of periodically determining the specific location of each aircraft. Where compulsory reporting points are used, a voice radio report will be made from each IFR flight passing over those points. Also, an ATC agency may request any flight to report passage over any identifiable point along an airway.

#### 4 - 8. Listening Watch

While in flight, aviators maintain a constant listening watch with the ATC facility of the area in which they are operating. This enables the facility to relay to the aviator information relative to the flight, to include air strike, naval gunfire, and artillery fire warnings.

#### 4 - 9. Flight Following

Flight following is a service provided by an ATC facility in which the en route progress and/or flight termination of an aircraft is determined by use of aircraft position reporting procedures. The service includes relaying to aircraft information on known factors affecting a flight such as weather conditions, and planned artillery fires and airstrikes.

*a. Instrument Flight Rules.* Through use of normal IFR position reporting procedures, FOC and FCC monitor the en route progress of IFR flights within their areas of interest.

*b. Visual Flight Rules.* For VFR flights, flight following is provided by FOC/FCC upon request. Unit SOP for ATC elements providing flight following services should be coordinated in advance with aviation units using those services. Procedures to be used by FOC and FCC in the event that a scheduled report from an aircraft in flight is not received, when a flight plan has not been closed by a specified time, or when communications cannot be established with an aircraft, should be included in this coordination. Procedures should be established for use by FOC and FCC when search and rescue assistance is needed.

#### 4 - 10. Flight Plans and Clearances

Provisions will be made to permit the operation of organic Army aircraft within the Army block of airspace without need to forward flight plans to any other service agency. However, in order to provide the capability to resolve conflicts as required by the tactical situation for AD purposes, and in order to provide required information for rescue purposes, the field army commander is responsible for monitoring air movements within the Army block of airspace. Such monitorship must not restrict freedom of operation. This monitorship is highly flexible, especially as applied to VFR flights in forward areas, and can be delegated to aviation unit level at which flights can be authorized without use of any flight clearance or flight plan. However, except under conditions of urgency, the local flight clearance normally is used for these flights. The two types of flight plans used for Army aircraft operations are as follows:

*a. Local Flight Clearance.* The local flight

clearance is filed, not for ATC purposes, but primarily to provide a method of accounting for the location of unit aircraft engaged in operations at any given time. This clearance is most often used for aircraft being flown from a base airfield without coming under the control of an ATC facility. It is widely used for operations in forward areas, and is used only for flights conducted wholly within the Army block of airspace.

*b. Military Flight Plan.* The military flight plan is more formal than the local flight clear-

ance. It is used primarily for ATC purposes, and is filed for all IFR flights and for those VFR flights for which the local flight plan is inadequate. IFR flights using this flight plan must adhere to the information entered on the plan, to include all instructions issued by ATC agencies with regard to the flight. Intention to deviate from the planned flight should be reported to and approved by an appropriate ATC facility, normally by use of voice radio, before the deviation is initiated.



## CHAPTER 5

# ARMY AIR DEFENSE CONSIDERATIONS

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### 5-1. General

The primary objective of air defense (AD) is to limit the effectiveness of enemy offensive air efforts to a level which permits freedom of action for all friendly forces. Achievement of the primary objective is facilitated using early friendly identification provided by ATC and other resources, rapid dissemination of AD information to all echelons, and effective application of AD weapons. Combat power of the AD means available is applied by the exercise of the principle of centralized direction and decentralized authority, compatible with identification capability. Normally, this is accomplished by the AD commander through the organic facilities of the Air Force tactical air control center (TACC) and the Army air defense command post (AADCP). The regional AD commander normally delegates authority to the field army commander for control and operational employment of organic Army AD means within the field army area. This chapter discusses Army AD activities as they influence Army air traffic operations over the field army area. Detailed information on the employment of AD artillery is contained in FM 44-1.

### 5-2. Coordination Principles

The Army AD commander must insure, through organization and adherence to approved doctrine, that optimum effectiveness is realized from each of the various AD weapons systems, and that no unnecessary restrictions are placed upon their employment. To facilitate coordination of AD means, the AADCP maintains communications with, or is collocated with, the CRC. Air defense operations are coordinated in the ACE of the tactical operations center, and by AD representatives at brigade and battalion levels. Common func-

tions at all levels of command include the following:

- a. Coordination of Army AD operations with other tactical support operations.
- b. Supervision of Army AD operations within the prescribed policies of the area AD commander.
- c. Supervision and coordination of the use of nuclear weapons in AD operations, both internally and with other services.
- d. Coordination of Army AD operations with AD operations of other services.
- e. Coordination of the Army airspace utilization plan in conjunction with other appropriate elements.

### 5-3. Coordination at Operational Level

Coordination of Army AD and ATC elements at the operational level is conducted primarily through communications between the AADCP and the FOC having responsibility for the same area. Although collocation of AADCP with FOC may be desirable, it is not always practicable. However, whether these elements are collocated or not, they must maintain constant communication with each other for flight plan coordination purposes, to direct aircraft away from or out of areas in which AD measures are planned, and for other ATC functions.

### 5-4. Rules of Engagement

The area AD commander establishes the rules of engagement and disseminates them to subordinate AD commanders. The field army AD commander establishes rules of engagement for field army AD forces within the rules established by the area AD commander and disseminates them to field army AD unit commanders and, through the TOC, to all units having aircraft. The theater rules of engage-

ment will refer to criteria by which an aircraft may be designated hostile. For example, SOP may classify as hostile any aircraft which meets one or more of the following criteria (FM 44-1):

- a.* Attacking friendly elements.
- b.* Responding improperly to electronic IFF

interrogation.

- c.* Operating at prohibited speeds, altitudes, or directions.

- d.* Improper or unauthorized entry into an area designated as restricted, prohibited, or as an ADA battle zone.

## CHAPTER 6

# FIRE SUPPORT CONSIDERATIONS

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### 6-1. General

Significant parts of the Army block of airspace are used by elements and weapons providing fire support to land combat forces. These include Air Force aircraft, Naval gunfire, Army AD, Army aerial fire support helicopters, and organic high trajectory weapons such as mortars, cannon, rockets, and missiles. Coordination of supporting fires and aviation activities is accomplished at the tactical operations center (TOC) or corresponding agencies below division level, assisted by the Army ATC system and the tactical air control system. FM 6-20-1 and 6-20-2 discuss fire support coordination in detail.

### 6-2. Surface-to-Surface Fires

Friendly surface-to-surface fires delivered by cannon, rockets, and missiles in the field army area are controlled through fire direction centers, fire support coordination centers, or fire support elements at division, corps, and field army. To facilitate coordination and effective air warning, these facilities should be furnished AD, friendly artillery, fighter strike, weather, and other aviation information. Fires of mortars and other organic weapons are controlled through the ground combat units to which they are organic and normally are adjusted on target by unit personnel. Since these weapons furnish a major part of the land force commander's firepower, and are employed under all conditions of weather or visibility in close and continuous support of the maneuver forces, they must be immediately responsive to the requirements of the maneuver force commander. Coordination before and during the execution of surface-to-surface fire missions is accomplished through a continuous interchange of information, primarily in the TOC at each echelon, by

the various agencies responsible for control or coordination of supporting fires or aircraft operations. This coordination is accomplished at the unit level by briefings which are given to aircraft crew members and ground forces participating in the operation. Followup information is provided to aircraft commanders from FOC by use of the listening watch while in flight.

### 6-3. Nuclear Fires

In the case of nuclear fires, the requirement for prior warning is necessary both for airspace control purposes and as a precaution against the effects of such fires. Fires employing nuclear, chemical, or biological warheads produce target area effects which are considered separately from the hazard of the projectile in its trajectory. In the case of the projectile, aircraft crew members are informed of the hazard by use of the procedures described above for surface-to-surface fires. Since target areas normally are forward of the FEBA, the most significant hazard from such fires to Army aircraft and crew members results from the overpressures and the flash produced by the nuclear weapon. The effects on Army aircraft operations resulting from use of nuclear weapons by friendly forces can be minimized by providing advance warning to Army aviation elements, normally as described in paragraph 6-1. This warning is accomplished primarily by the designation of restricted areas. These are areas of concentrated surface-to-surface or nuclear fires that warrant exclusion of all friendly aircraft from that area for a stated period of time. Information on restricted areas normally will be disseminated by all warning services on a priority basis with, where practicable, a minimum of 15 minutes early warning. Warning

prior to AD nuclear bursts may be minimal or nonexistent.

#### **6-4. Army Direct Aerial Fire Support**

Organic Army armed/attack helicopters and aerial artillery aircraft perform most of their tasks in forward areas where coordination of VFR flights for ATC purposes is minimal. Since their primary mission involves the delivery of direct aerial fire support, their operations are largely restricted to VFR conditions. Based on these principles, ATC procedures normally do not apply to Army aerial fire support operations except as exercised by aviation unit commanders and by individual aviators in compliance with the rules of flight, to include maintaining a listening watch to receive notice of planned operations involving the use of airspace. Coordination of units providing aerial fire support with other services providing close

air support to land forces is accomplished pri-

#### **6-5. Other Services Support**

Requests for support to be provided to Army forces by other services, to include close air support and naval gunfires, are coordinated in the TOC or fire support coordination center at the appropriate level. Information affecting aircraft operations in the Army block of airspace is relayed from the TOC or fire support coordination center to the ATC facilities concerned. Based on this information, the ATC facilities take necessary action to preclude aircraft operations at the affected time and place, mainly through communication with the forward air controller (FAC) or the fire support coordinator at that level. Normal control of armed/attack helicopter fires is accomplished as discussed in paragraph 6-2.



## CHAPTER 7

# STABILITY OPERATIONS

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### 7-1. General

Army ATC activities in a stability operation are directly dependent upon the extent to which Army forces, particularly Army aviation forces, are committed to each operation. Although only the minimum ATC elements required for mission accomplishment should be used, they must be sufficient to provide continuous ATC support during the frequent displacements necessary in stability operations. Also, in determining ATC support requirements, consideration should be given to the physical configuration of the theater of operations which can differ greatly from, and cause a greater requirement for ATC facilities than, that encountered in more conventional operations.

### 7-2. Allied Forces Operations

Where U.S. Forces operate as part of a combined force containing military elements of allied nations, the combined force commander will establish the basis for allocation of airspace authority to elements of the combined force. For those areas in which airspace authority is allocated to participating U.S. Army forces, ATC services will be provided by Army elements as discussed in chapter 4.

### 7-3. Host Country Considerations

*a. General.* When U.S. forces are participants in military operations conducted in a host country, policies for the use of airspace by U.S. forces normally are developed through agreements between the U.S. joint force commander and representatives of the host country government. These agreements may specify that all airspace over the host country will remain under control of the host country government, with operational control of certain airspace

being delegated to the authority of the U.S. joint force commander. Where this is the case, the U.S. airspace control authority may delegate to each component commander authority over the airspace segment of which his component is the principal user. The host country may delegate other airspace areas to the authority of host country civil and military organizations, together with responsibility for providing ATC services for their areas. Thus, since several different organizations may become involved in ATC activities, it is necessary that the ATC facility established in each area be compatible with each of the other ATC facilities operating in the host country.

*b. Host Country Aviation.* Host country civil and military aircraft flights in areas not delegated to U.S. or other authority are conducted in accordance with ATC procedures established by the host country organization concerned. Flights by these aircraft into airspace delegated to U.S. military authority are regulated by ATC procedures established for each area by the service concerned in accordance with guidance from the joint force commander through the airspace control authority.

*c. Security.* Military aircraft operations habitually are oriented toward the use of security measures such as the controlled use of radios and lights. Civil aviation operations may be less oriented toward the use of such security measures. This could result in acquisition by the enemy of information for use in countering civil aviation operations, or for use against military installations and operations in the same or nearby areas. Adequate procedures must be established to insure that all military and civilian aircraft operating in the airspace that has been delegated to the responsibility of the joint force or component force commander will comply with existing security measures.

#### 7-4. Army Air Traffic Control Procedures

a. Army ATC procedures used in stability operations are those procedures established for conventional tactical operations, adjusted to meet the requirement of the environment in which operations are being conducted. Adjustments will include those necessary to provide ATC services when the configuration of the area of operations does not permit an airways system of the type shown in figure 4-1, as when the disposition of forces is based on establishment of tactical areas of responsibility (fig. 7-1) rather than on conventional dispositions. Regardless of the adjustments necessitated by the tactical environment, the Army ATC system will be based upon the general principles established in preceding chapters of this manual.

b. Since the procedures used by the FOC and FCC in controlling air traffic generally are the same as those used in more conventional operations, the type Army air traffic control unit (AATCU) discussed in appendix B generally is adequate to establish and operate an Army ATC system for stability operations. Elements of the AATCU may establish airways for use by air traffic between tactical areas of responsibility, with air traffic within those areas being controlled by ATC elements organic to the force occupying each area.

c. For aircraft operating in areas adjoining a tactical area of responsibility, the responsible ATC facility may provide a flight following service. The primary function of this service is to provide a record of the general area in which specific aircraft are operating, and the time at which voice radio reports are to be made to the ATC facility for use as a basis for alerting

search and rescue elements when necessary. Also, the ATC element uses knowledge that these flights are being conducted to provide information to aircrews regarding friendly or enemy operations which may affect the flights.

#### 7-5. Other Considerations

a. The poor road networks and rugged terrain often associated with stability operations increase the requirement for Army aviation support of land combat forces. Where land forces are located in scattered positions (fig. 7-1) throughout the combat zone, freedom of movement of Army aircraft transporting troops and materiel between these points must be maintained.

b. Stability operations are characterized by a reduced air threat. This permits other service aircraft, which normally would be used to counter the enemy air threat, to be used to increase the close support capability. The increased close air support capability, scattered areas of troop disposition, and increased requirement for surface-to-surface fire support necessitate the close coordination of all fire support activities of the participating services. Accordingly, elements of the TOC may be required to broaden their functions and may become more involved in the minute-to-minute coordination which is essential to this type of operation.

c. Where road nets are inadequate or not under the control of friendly forces, there will be increased dependence on air lines of communication (ALOC) for delivery of supplies and equipment. This may require the establishment of special airways for the exclusive use of aircraft engaged in ALOC operations.

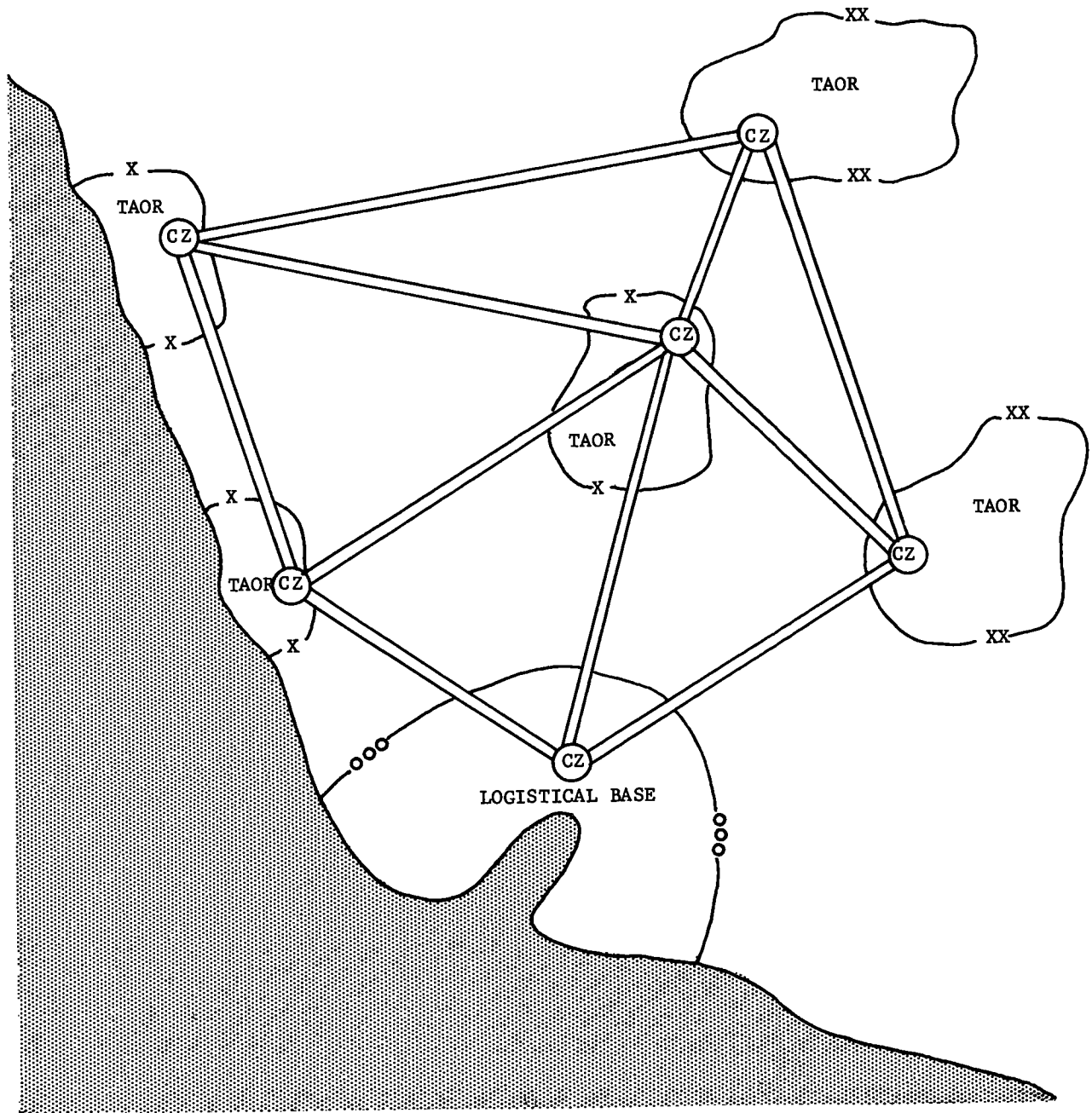


Figure 7-1. Type theater of operations for stability operations, showing airways connecting control zones (CZ) located in tactical areas of responsibility (TABOR).



## APPENDIX A

### REFERENCES

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#### A-1. Joint Chiefs of Staff Publication (JCS)

Pub. 8      Doctrine for Air Defense from Oversea Land Areas.

#### A-2. Army Regulations (AR)

320-5      Dictionary of United States Army Terms.  
320-50     Authorized Abbreviations and Brevity Codes.

#### A-3. Field Manuals (FM)

1-20 (TEST) Nondivisional Combat Aviation Battalion, Group, and Brigade.  
1-100      Army Aviation Utilization.  
1-105      Army Aviation Techniques and Procedures.  
6-20-1     Field Artillery Tactics.  
6-20-2     Field Artillery Techniques.  
44-1      U.S. Army Air Defense Artillery Employment.  
61-100     The Division.  
100-5      Operations of Army Forces in the Field.  
100-15     Larger Units, Theater Army—Corps.  
100-27     U.S. Army/U.S. Air Force Doctrine for Tactical Airlift Operations.  
(AFM 2-50)  
101-5      Staff Officers' Field Manual; Staff Organization and Procedure.



## APPENDIX B

### TYPE ARMY AIR TRAFFIC CONTROL UNIT

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#### **B-1. Purpose**

The purpose of this appendix is to describe the organization and functions of a type Army air traffic control unit (AATCU). Personnel desiring information on the currently approved Army ATC unit should consult the TOE of that unit.

#### **B-2. General**

The concept of operations of this example of an AATCU is based upon the following assumptions:

*a.* Normal day-to-day VFR operations within the Army block of airspace will require that a local flight clearance be filed for information purposes with the operations section of the unit to which the aircraft concerned is assigned or attached.

*b.* Each divisional aviation battalion contains an organic FCC and an aircraft terminal control facility for Army aircraft operating in the division area. For a division not containing an organic aviation battalion, the aviation support detachment will operate an aircraft terminal facility at the division instrumented airfield and will provide a means of communicating with an FOC, normally located in the corps area, for the purpose of coordinating information relating to aircraft flights. A similar capability may be provided to the separate brigade through authorization of organic terminal control teams as necessary.

#### **B-3. Mission**

The AATCU is designed to provide continuous air traffic regulation, warnings, advisories, planning and coordination, navigation aids, a system of airways, and a communications network. When interfaced with organic division ATC elements, and with the terminal facilities

located throughout the division, corps, and field army areas, the AATCU will provide a complete ATC system for the field army.

#### **B-4. Assignment**

The AATCU is allocated on the basis of one per field army. Within the field army service area there will be an FOC main, an FOC alternate, four FCC, and six navigation teams. Each corps area will contain one FOC and four navigation teams. Corps FOC will interoperate with FCC established and operated in division areas by elements organic to each division.

#### **B-5. Organization**

The AATCU is organized with a headquarters detachment, operations platoon, support platoon, three corps FOC detachments, and the field army FOC detachment. Figure B-1 illustrates the organization of the AATCU. This organization provides functionalized, partially self-supporting detachments for flexibility of command and employment. Elements of the AATCU are established as follows:

*a. Headquarters Detachment.* Personnel of the headquarters detachment include the company commander, first sergeant, clerk, and driver. These personnel perform the function of command and control of the AATCU. Personnel and administrative support for the corps FOC detachments are provided by the personnel and administration battalion in the corps support brigade, and by a similar battalion in the army support brigade for the remainder of the AATCU.

*b. Operations Platoon.* The operations platoon consists of a platoon headquarters, a communications section, and an aviation section. This platoon is the center for planning, coordinating, and disseminating ATC information to

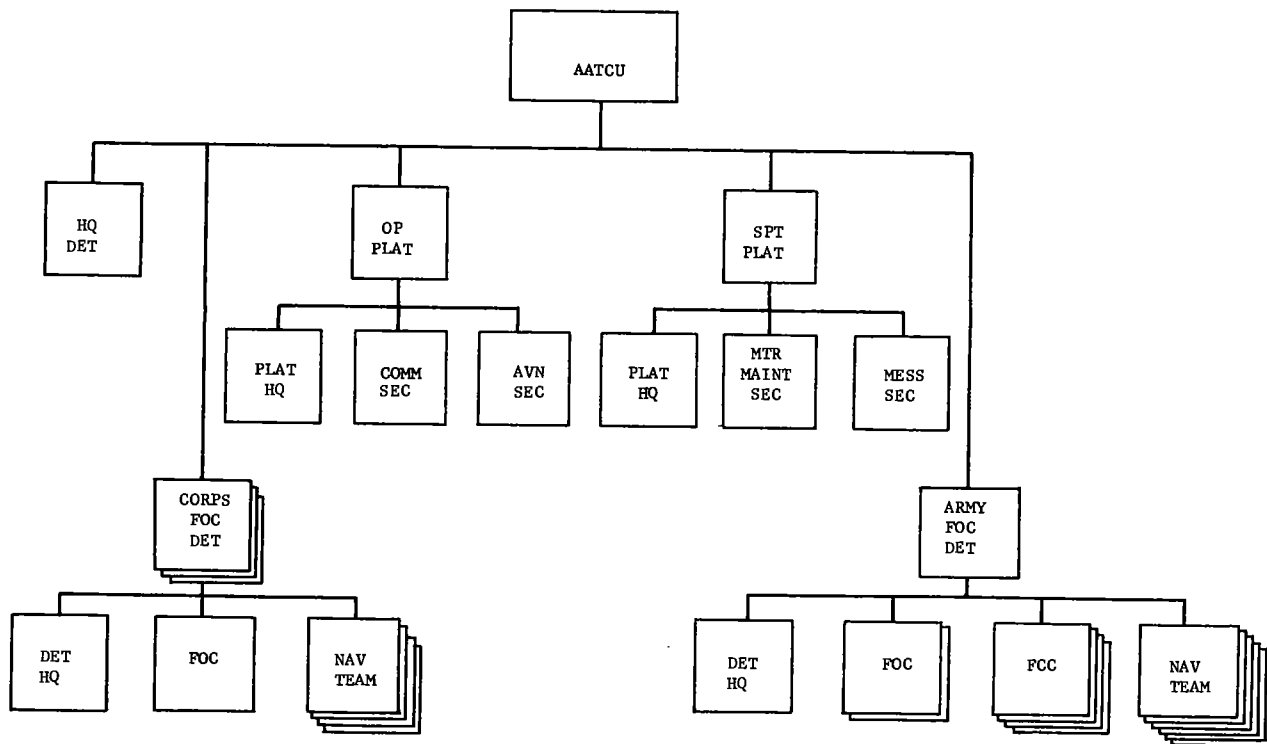


Figure B-1. Organization of a type AATCU.

users. It is responsible for consolidating and disseminating approach procedure charts for instrumented airfields in the Army block of airspace. Elements of the platoon are the—

(1) *Operations platoon headquarters.* The platoon headquarters consists of a platoon leader, platoon sergeant, and sufficient personnel and equipment to accomplish ATC planning and the preparation of air route overlays, approach plates, and ATC instructions. The platoon leader has the additional duty of executive officer of the AATCU.

(2) *Communications section.* Personnel of the communications section are the section leader, a communications technician, a communications chief, two communications electronics repair parts specialists, and a wire team. The section is responsible for installing and maintaining the communications assets within the AATCU; coordinating and controlling allocated radio frequencies; preparing and disseminating SOI and SSI; requisitioning and proper supply actions to insure that the authorized stockage list, prescribed load list,

and special tools are available; and advising the commander as to electrical power requirements throughout the AATCU. The wire team performs the necessary installation of wire within the headquarters, and assists the FOC, FCC, and navigation teams as required. The wire team or elements thereof frequently will be dispatched to the FOC or FCC to assist in displacement and prompt restoration of wire communications.

(3) *Aviation section.* The aviation section contains a section leader and sufficient aviators, mechanics, aircraft parts specialists, and service personnel to operate, maintain, and service the section's observation and utility helicopters. These helicopters are used for command and control, liaison, reconnaissance, resupply of critical items to AATCU elements, and movement of maintenance personnel and assistance teams to AATCU elements. To conserve maintenance facilities, the aircraft are maintained in a single section; however, they frequently will be dispersed throughout the field army area in support of the FOC and FCC.



Periodically, the aircraft will flight-check air routes to confirm beacon locations and their proper operation.

*c. Support Platoon.* The support platoon consists of a platoon headquarters, motor maintenance section, and a mess section.

(1) *Headquarters section.* Personnel of the headquarters section include the support platoon leader, unit supply technician, platoon sergeant, generator equipment supervisor, armorer, and supply clerk. The unit supply technician serves as the property book officer and the expert in supply policies and procedures for the procuring, receiving, storing, issuing, and accounting of supplies. The platoon sergeant of this section also serves as the AATCU supply sergeant. The generator equipment supervisor provides technical advice and assistance to the powermen in the AATCU in the establishment of a preventive maintenance program.

(2) *Motor maintenance section.* This section contains the motor maintenance sergeant, an automotive repair parts specialist, two equipment records clerk, and the requisite number of mechanics to perform unit level organizational maintenance on wheeled vehicles. The unit normally is fragmented as necessary to perform vehicle maintenance on unit vehicles, to include vehicles of unit FOC and FCC.

(3) *Mess section.* The mess section contains the mess steward and sufficient cooks to operate the AATCU mess, which normally feeds 125 men. A cook is provided to prepare food for each FOC or, when the FOC personnel mess with another unit, to assist the supporting mess.

*d. Corps Flight Operations Center Detachments.* Each corps FOC detachment consists of a detachment headquarters, personnel and equipment necessary to establish and operate an FOC, and four navigation teams.

(1) *FOC detachment headquarters.* Personnel of the detachment headquarters perform the overall planning and control for operation of the detachment. The detachment commander is responsible for the efficient operation of the detachment, to include its integration into the corps scheme of operations and air defense plans. The AATCU liaison officer normally is

located in the AADCP to assist the detachment commander in maintaining close liaison with the AADCP and the TOC, and may assist in the relocation of the navigation teams to conform to the air traffic control plan. The detachment sergeant supervises the activities of the enlisted personnel and assists the detachment commander in the operational functions of the detachment headquarters. A cook is provided to prepare food for the detachment or, when the detachment messes with another unit, to assist the supporting mess. The flight operations specialists and detachment clerk prepare plans; ATC charts; and information data sheets, records, and reports.

(2) *Corps FOC.* The corps FOC contains sufficient personnel and equipment to operate and maintain the corps FOC on a 24-hour continuous basis. Flight operations officers supervise the activities of each shift to insure compliance with standard ATC procedures, to include any special policies and procedures established for the particular area. In the absence of the detachment commander, the senior flight operations officer assumes command of the detachment. There are two en route control teams for each FOC, permitting two 12-hour shifts. Each shift is manned by a team chief and 4 air traffic controllers. The radio teletype team, consisting of a team chief and 4 operators, has a 24-hour capability. Radio and teletype repairmen are provided to perform organizational and limited direct support level maintenance of assigned radio and teletype equipment.

*e. Corps Navigation Teams.* Each corps FOC will contain four navigation teams, with each team consisting of a team chief and a powerman. These teams are positioned throughout the corps area at designated points to furnish position fixing and other navigational assistance to aircraft using the ATC system.

*f. Army Flight Operations Center Detachment.* The army FOC detachment consists of a detachment headquarters, 2 FOC, and 4 FCC.

(1) *Army FOC detachment headquarters.* The Army FOC detachment headquarters generally is similar to that of the corps FOC. The six navigation teams that support the army service area are contained in the detachment

headquarters, rather than assigned to the FOC, for centralized direction and control. This headquarters normally is collocated with the FOC main. The FOC alternate will monitor ATC activities and be prepared to assume control on order of the detachment headquarters or when the FOC main is out of operation. Where air traffic is of sufficient volume, the FOC alternate has the capability of performing as a routine element of the ATC system. The detachment headquarters directs the emplacement and displacement of the FOC, FCC, and navigation teams throughout the field army service area as necessary to conduct ATC operations.

(2) *Army FOC*. Each army FOC is identical in organization and function to the corps FOC discussed above.

(3) *Army FCC*. The FCC are located throughout the field army service area where they can best be utilized as ATC and communications extensions of appropriate FOC. The personnel to operate an FCC are reduced from those for an FOC. The FCC is not provided a mess capability, and must receive mess support from an adjacent unit. The FCC may be collocated with a terminal control facility, or it may be centrally located in relation to several airfields. In either case, the FCC normally provides ATC service to two or more airfields.

## APPENDIX C

### TYPE AIRSPACE UTILIZATION ANNEX

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Airspace Utilization Annex to Army Operation Order

(Annex issued separately from the order.)

\_\_\_\_\_  
(Classification)

Copy No. 7  
10th (US) Army  
HOMBURG (LV7965), GERMANY  
100800 January \_\_\_\_\_  
CX 34

Annex L (Airspace Utilization) to OPORD 4

Reference: Map, EUROPE, 1:250,000, \* \* \*

#### 1. SITUATION

- a. Enemy Forces. OPORD 4.
- b. Friendly Forces. OPORD 4.
- c. Attachments and Detachments. None

#### 2. MISSION

10th (US) Army provides airspace regulation and control to insure proper and efficient coordination and timely access to the airspace over the combat area by all users, with minimum mutual interference.

#### 3. EXECUTION

##### a. Concept of Operation.

##### (1) Airspace utilization.

(a) Aircraft of all services must be free to conduct combat operations without restraint except those required for command, control, coordination of effort within and among the participating services, and safety.

(b) The coordination altitude is established at 7,000 feet. Army aircraft will be free to operate VFR below this altitude with no restrictions except those imposed by this Annex. Appendix 1, Air Route Overlay.

(c) Surface-to-surface and air defense weapons are free to fire in all airspace subject only to normal fire support coordination measures, restraints imposed by readiness conditions, and rules of engagement.

\_\_\_\_\_  
(Classification)

(Classification)

(Anx L (Aspa Utilization) to OPORD 4—10th (US) Army)

(d) The restrictions and risks imposed on aviation and air defense reflect the commander's priorities for operations.

(2) Concept of air support.

(a) Army aviation. Annex J (Army Aviation) to OPORD 4.

(b) 9th TAF. Appendix 2 (Air Fire Support) to Annex D (Fire Support) to OPORD 4.

b. Airspace Priorities.

(1) On receipt of the appropriate ZULU code, army air defense has total priority in the designated areas and all friendly air traffic will clear the airspace immediately.

(a) ZULU ALFA — Clear entire combat zone airspace.

(b) ZULU BRAVO — Clear 1st Corps airspace.

(c) ZULU CHARLIE — Clear 2d Corps airspace.

(d) ZULU DELTA — Clear 3d Corps airspace.

(e) Code BLUE SKY (all clear) will be broadcast every 30 seconds for 10 minutes.

(2) 1st Corps area priority to west-bound traffic on air routes/corridors A32 and T2.

(3) 2nd Corps area priority to east-bound traffic on air routes/corridors T1, T4, and D22.

(4) 3rd Corps area priority to west-bound traffic on air routes/corridors B30 and T3.

(5) U.S. Air Force tactical fighter bombers have priority on objectives A, B, and C from 180500 to 180550 January.

(6) Army airmobile and aerial fire support aircraft have priority from 180551 January until completion of the airmobile operation on objectives A, B, and C.

(7) Aircraft will not enter Restricted areas without complying with restrictive measures in effect. Appendix 1, Air Route Overlay.

(8) Aircraft will not enter or overfly Prohibited (exclusion) areas at any time. Appendix 1, Air Route Overlay.

c. Air Traffic Control Organizations. FOC and FCC locations and areas of responsibility, Annex J (Army Aviation) to OPORD 4.

d. Coordinating Instructions.

(1) All Army aircraft moving forward in the division area with the exception of surveillance aircraft remain below 600 feet until 180550 January.

(2) ATCL 2 effective 180550 January.

(3) Air warnings disseminated by all air traffic control elements, the AADCP, and the warning broadcast net.

(4) High-performance aircraft will not penetrate a lower safety layer of 1000 feet absolute altitude except for takeoff and landings unless under positive control of a forward air controller.

(5) All flights above the coordination altitude or departing the combat zone subject to control by the CRC of the 9th TAF.

(Classification)

(Classification)

(Anx L (Aspa Utilization) to OPORD 4—10th (US) Army)

(6) Air corridor B restricted between altitudes of 1,500 and 7,000 feet from 180645 until 180900 January for the use of troop lift aircraft.

(7) Flights operating in brigade areas of 2d and 4th Inf Div restricted to brigade aircraft and aircraft in direct support of the brigade.

(8) Air routes/corridors B1 and E1 are restricted to aircraft performing ALOC mission from 150600 to 162400 January.

(9) Aircraft flying along air routes/corridors under direct control of the appropriate air traffic control organization from time of departure until termination. The following coordination is required for controlled flights:

(a) Below the coordination altitude. Flight plan data passed to air traffic control facilities.

(b) At or above the coordination altitude.

1. Flight plan data passed to the 9th TAF CRC.

2. Flight plan data passed to the AADCP.

3. All Army ATC units concerned are notified.

(10) Air corridors A and B are designated recovery corridors.

e. Air Defense Rules of Engagement.

(1) Aircraft penetrating the ATCL from the enemy side will be engaged if not positively identified as friendly.

(2) Aircraft penetrating air defense restricted areas will be engaged if not positively identified as friendly.

(3) Aircraft employing ECM will be engaged if not positively identified as friendly.

(4) Aircraft operating below 150 knots ground speed within the combat zone and outside of air defense restricted areas will not be engaged unless positively identified as hostile.

(5) Aircraft committing hostile acts will be engaged.

f. Reentry Procedures

(1) Reentry points are on air corridors A and B and air routes/corridors T2, T1, T4, and T3.

(2) IFF transponder setting is mode 4, channel 31.

(3) Visual recognition procedures are as prescribed in ACP 150 (B).

(4) Emergency reentry procedures for aircraft experiencing IFF malfunction:

(a) Call SKY CAT control prior to reaching the ATCL, who will alert the AADCP.

(b) Attempt to reach a reentry corridor.

(c) Aircraft entering without an operational IFF must land at the first available airfield capable of receiving that type of aircraft.

#### 4. ADMINISTRATION AND LOGISTICS

ADMINO 4.

#### 5. COMMAND AND SIGNAL

a. Signal.

(1) Annex H to OPORD 4.

(Classification)

(Classification)

(Anx L (Aspa Utilization) to OPORD 4—10th (US) Army)

(2) Call words and frequency: 10th Army SOI.

(3) 9th TAF call words and frequency: 10th Army SOI.

(4) Navigation facility frequency en route: air navigation charts dated 210001 December.

b. Command.

(1) Annex C (Operation Overlay) to OPORD 4.

(2) Location of AADCP. Annex E (Air Defense) to OPORD 4.

Acknowledge.

Appendix: 1—Air Route Overlay

HANES

Distribution: B

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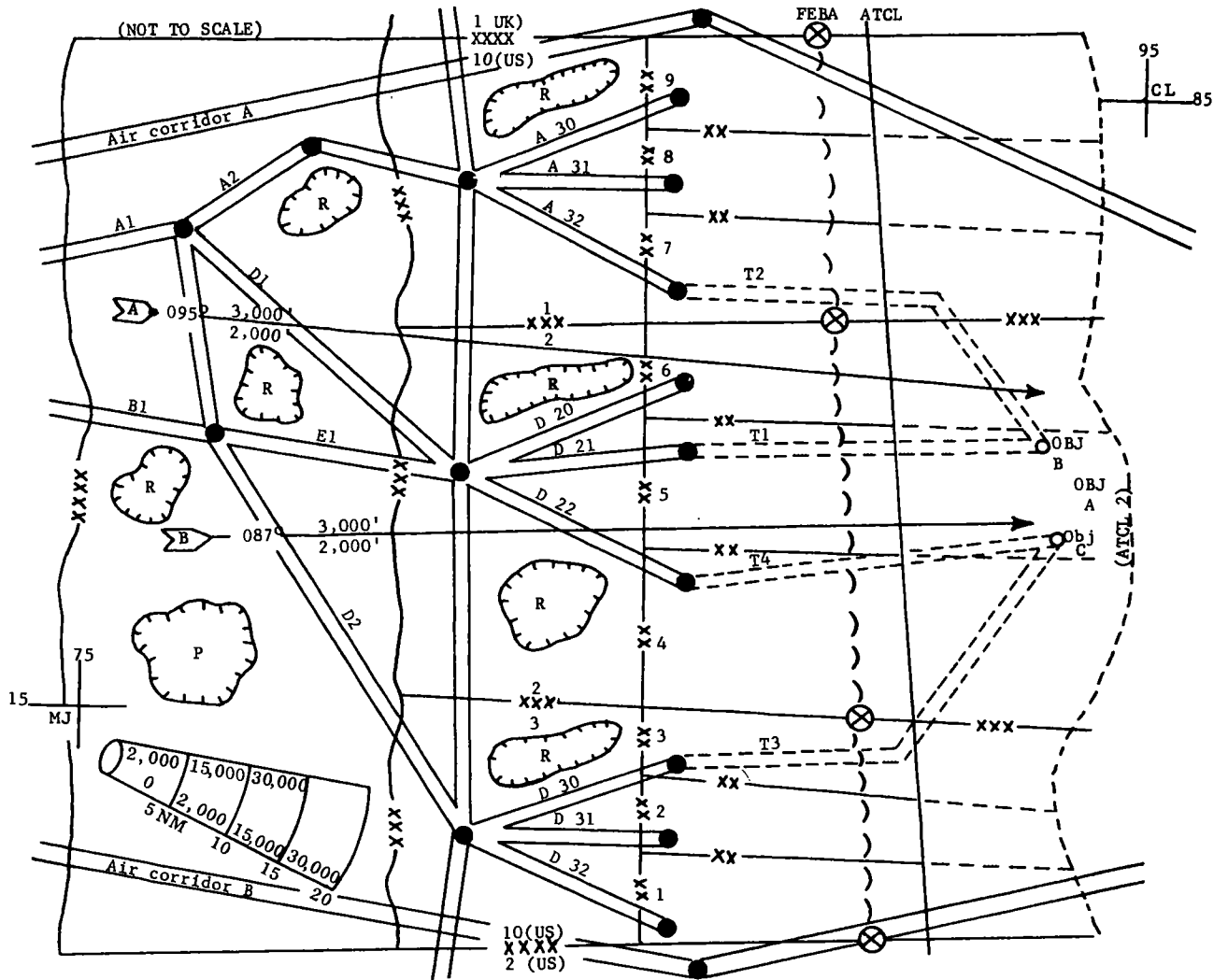
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(Classification)

(Anx L (Aspa Utilization) to OPORD 4—10th (US) Army)



LEGEND

- Prohibited area.
- Restricted area.
- High speed climb corridor (grad alt & nm fm tml fac).
- Primary air route/corridor (width 10nm).
- Temp air route/corridor (width 5 nm).
- Radio beacon.
- mag heading 5,000' ← max alt  
A 090° → Tunnel.  
radio beacon  
↑  
tunnel designator  
2,000' ← min alt

Figure C-1. Appendix 1 (Air Route Overlay) to Annex L (Airspace Utilization) to OPORD 4





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