Chapter 10: Aviation

This page is a section of TC 7-100.2 Opposing Force Tactics.

The ability of the OPFOR to employ its aviation assets will depend on the level of airspace dominance the OPFOR possesses. When fighting a weaker opponent, the OPFOR expects to establish and maintain air superiority and thus to employ its aviation with relative ease. When faced with a superior enemy, however, the OPFOR will alter aviation missions to ensure the most effective use of its air power without the unnecessary loss of assets. In either situation, the OPFOR makes maximum use of unmanned aerial vehicles (UAV) at all levels. This chapter addresses the OPFOR aviation tactics of fixed- and rotary-wing aircraft and UAVs. For information on the impact of strategic concepts on aviation operations and airspace dominance, see FM 7-100.1.

Command and Control

Aviation forces are allocated to specified levels of command to meet mission requirements. Organizational structures are designed to maintain the appropriate level of centralized control to ensure the limited number of assets are available at the right place and time. For more information on the organization of aviation units at the operational-level or above, see FM 7-100.1. However, even aviation units that are part of organizations above the tactical level can perform missions that have tactical-level impact and must, therefore, be addressed in a tactical context.

Decentralized Versus Centralized Control

The OPFOR will task-organize aviation assets to tailor the force for the specific mission. Thus, it is possible to task-organize a fixed-wing aviation unit from the Air Force to an operational-strategic command (OSC), which is the lowest level of joint command. However, army aviation rotary-wing assets can be found allocated not only to an OSC but also to a division tactical group (DTG) or a brigade tactical group (BTG). The OPFOR is more likely to task-organize its aviation to the lowest levels against a weaker opponent, when it has established air superiority. This decentralized control allows greater flexibility and responsiveness from OPFOR aviation assets in support of ground commanders.

Note. A tactical group is a task-organized unit organized around the baseline, administrative structure of a division or brigade. Throughout this chapter, the terms DTG or BTG will be used to identify that level of command, since a maneuver division or brigade does not include constituent or dedicated aviation assets unless it has been task-organized as a tactical group. The terms division or brigade will be used only to highlight differences (when they occur) from a tactical group.

Against a superior force, however, the OPFOR is apt to maintain control of its helicopters and airplanes at OSC and theater level, respectively. This centralized control allows the OPFOR to better protect its assets, more thoroughly plan missions, and improve reaction time during the limited windows of opportunity.

Command and Control Relationships

The OPFOR employs its aviation assets using its standard command and support relationships (see chapter 2). Since army aviation assets are not found below the operational level in the administrative force structure, it is the OPFOR practice to augment tactical maneuver units by allocating aviation assets in one of three command and support relationships: constituent, dedicated, or supporting.

Constituent

A constituent command relationship is the assignment of a unit to a headquarters. The headquarters has the authority for its employment and the responsibility for all of its logistics support. An example of this type of command relationship would be a medium-lift helicopter battalion assigned to a DTG to provide transportation capabilities for its ground forces.

Dedicated

A dedicated command relationship is similar to constituent with the exception of logistics support. The subordinate unit still receives logistics support from its parent aviation unit. An example of a dedicated relationship is an attack helicopter battalion dedicated to a DTG. The battalion continues to receive logistics support from its parent combat helicopter brigade, while the DTG has sole employment authority of the battalion.

Supporting

A supporting aviation unit remains under the command of its parent organization. It also receives all of its support from its parent unit. It executes missions according to the supported unitâ s priorities. The supported unit plans and employs the asset for the time allotted by the higher headquarters. The principle advantage of this is to the parent commander, who retains maximum control of his most flexible assets. An example of a supporting relationship is the employment of theater or OSC attack aircraft in the direct air support (DAS) role at division or brigade level.

Fixed-Wing Aviation

Fixed-wing assets of the Air Force are not task-organized in a constituent or dedicated relationship below the OSC level, since that is the lowest level of joint command. However, Air Force units retained at higher levels of command might have a supporting relationship with a division, DTG, brigade, or BTG. Subject to the approval of the theater or OSC commander to whom they are subordinate, they can also respond to mission requests from tactical-level units (see the section on Request Process later in this chapter).

Rotary-Wing Aviation

Helicopters are employed across the battlefield to support the ground commander in the combined arms fight. Because of their flexibility, maneuverability, speed, and firepower, they have the capability to execute missions down to the BTG level. Helicopters can be called upon to execute any mission to support both the offense and defense. Based on mission, command and support relationship, and availability of aircraft, the OPFOR organizes its helicopters using three methods:

- Attack helicopters and possibly some combat support (CS) and combat service support (CSS) helicopters with missions related to fire support can be part of a DTGâ s integrated fires command (IFC).
- Other CS and CSS helicopters can be directly subordinate to the DTG commander.
- Still other attack, CS, and/or CSS helicopters can be subordinate to a BTG commander.

In a DTG IFC

The IFC is a command and control (C2) structure with a task organization that allows rapid employment of aviation systems with other ground systems. The assignment to the IFC may be in either a constituent or a dedicated relationship, but it is always tailored for the specific mission of the organization it supports. Figure 10-1 shows an example of an IFC at DTG level.

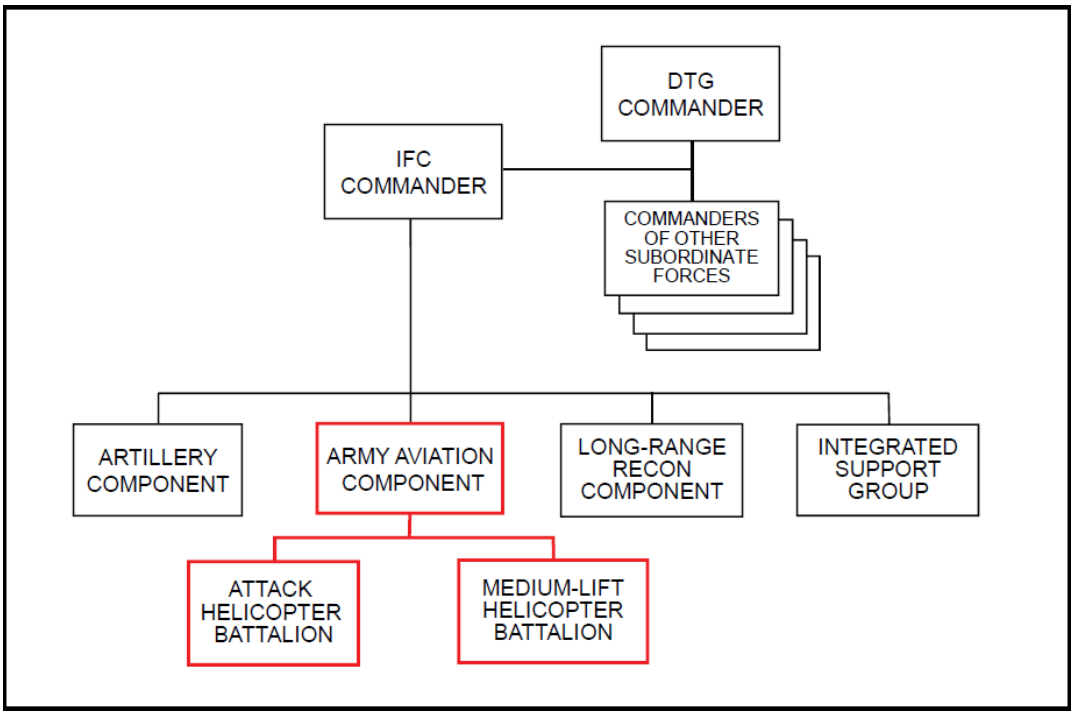

Figure 10-1. Example of aviation in a DTG IFC

An IFC may be organized to include an army aviation component. The missions assigned can include attack, DAS, and reconnaissance for an attack helicopter unit. The IFC may also employ CSS helicopters for troop movement, resupply, and C2 platforms. The command and support relationship to the IFC is based on the type of mission, available assets, and duration of the mission. If the IFC requires continuous lift capabilities to rapidly employ forces, a lift helicopter battalion may be constituent or dedicated to the IFC. On the other hand, if the movement of troops is a one-time requirement, the helicopter battalion may not become part of the IFC, but instead may have a supporting relationship for the duration of the mission while remaining under the control of the parent aviation unit. The same applies to the attack helicopter units. See chapters 2 and 9 for more details on the IFC.

In a DTG Other Than in IFC

Because the IFC is tailored for fire support missions, not all aviation assets are organized under the IFC headquarters. Army aviation units that are constituent or dedicated to a DTG, but not associated with fire support, are directly subordinate to the DTG commander or perhaps to a BTG within the DTG. Figure 10-2 on page 10-4 shows an example of how an aviation unit might be outside the IFC in a DTG organization.

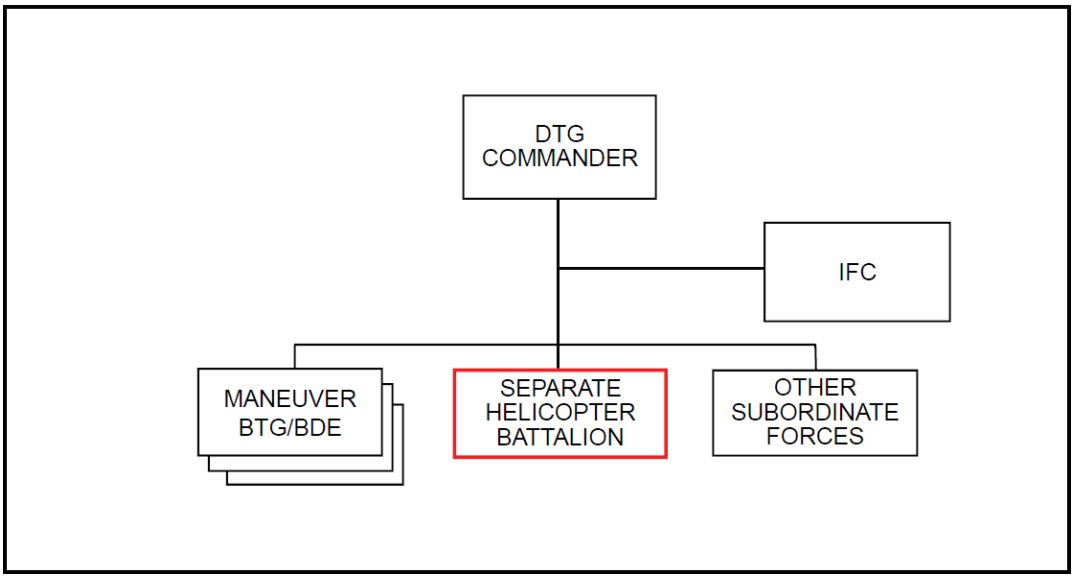

Figure 10-2. Example of DTG-level aviation other than in the IFC

A combat helicopter brigade or one or more of its battalions may become constituent or dedicated to a DTG. In this case, the attack helicopters are most likely to be employed in the DAS, attack, reconnaissance, and security roles outlined later in this chapter. In the first two of those missions, they would most likely be part of the DTGâ IFC (unless allocated to a subordinate BTG). In reconnaissance and security roles, however, they could be employed outside of the IFC unless those roles are specifically related to fire support.

As an exception to the rule, a highly-trained unit equipped with modern attack helicopters may be employed as a maneuver element in the ground commanderâ scheme of maneuver. In this role, the attack helicopter unit can be used as a disruption, fixing, assault, or exploitation force in the offense, or serve as a disruption or counterattack force in the defense. In either offense or defense, it could serve as a reserve or deception force. Such missions would require thorough planning and rehearsals to be successful.

For CS and CSS helicopters units, the various missions are assigned primarily with a supporting relationship. However, some units that rely on routine support may be allocated a helicopter battalion or company with a constituent or dedicated command relationship.

If allocated to a DTG in a constituent or dedicated relationship, a combat helicopter brigadeâ s lift helicopter and reconnaissance helicopter battalions (or companies from them) would normally be in the DTGâ IFC only if they perform missions associated with fire support. Otherwise they would be outside the IFC, under either the DTG commander or one of his BTG commanders. This would also be true of CS and CSS helicopters from separate helicopter battalions that were not part of a combat helicopter brigade.

If a DTG is allocated an entire combat helicopter brigade (or major parts of one), that brigadeâ s headquarters would typically come under the IFC headquarters, especially if that is where most of its battalions are employed. If most of its subordinate battalions are employed outside the IFC, the brigade headquarters could be directly under the DTG headquarters.

In a BTG

Attack, CS, and/or CSS helicopters can be directly subordinate to a BTG commander. An example of this would be a motorized infantry BTG conducting heliborne assaults. Such a BTG may include a medium-lift helicopter battalion to insert infantry units and an attack helicopter battalion to provide security and armed escort for the troop-carrying helicopters or to prepare the landing zone (LZ) by fire (see figure 10-3).

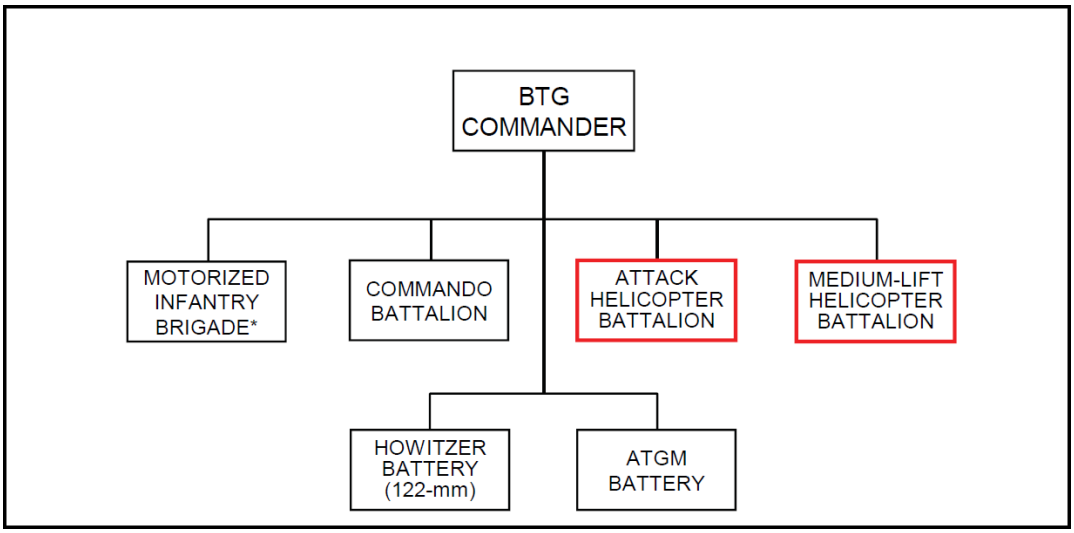

Figure 10-3. Example of aviation in a BTG

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Unmanned Aerial Vehicles

The military application of UAVs has become standard practice in armies worldwide. The OPFOR is no exception. It operates UAVs at all levels, from the strategic level down through division, brigade, maneuver battalion, and some companies, to special-purpose forces teams.

UAV units may be employed at the echelon where they are assigned in a constituent or dedicated status. However, smaller units, down to individual UAV teams, may be task-organized in a supporting status to support lower-level units as dictated by the mission. Both are standard practices. Which method the commander selects depends on the military situation.

Airspace Management

The OSC is the lowest level of joint command with control of both Army and Air Force units. On the staff of an OSC, under the operations officer, the chief of airspace operations (CAO) is responsible for airspace management issues and procedures. The CAO maintains the airspace control net for controlling the commandâ â airspace. OSC headquarters typically receive liaison teams from all constituent, dedicated, and supporting Air Force, army aviation, and air defense units associated with the command. All these units and their liaison teams are on the airspace control net. For additional information on airspace management, see FM 7-100.1.

The OPFOR assigns its organizations an area of responsibility (AOR) that typically includes not only the surface area of a defined geographic space but also the associated airspace. The coordinated use of battlefield airspace and aerial delivery of ordnance close to friendly troops are two problems any combined arms force faces. OPFOR doctrine stresses the need to provide maximum aviation support to ground force commanders. Therefore, aviation control and communications are closely aligned with those of the ground force to ensure effective and continuous communications.

To reduce air-to-ground coordination problems during the execution of missions, the OPFOR employs proactive staff elements and control measures. Planners can use attack helicopters, fixed-wing ground-attack aircraft, UAVs, and artillery simultaneously in the same part of the AOR only if coordination measures exist and controlling elements are working in conjunction with each other to ensure deconfliction. This deconfliction includes those assets allocated or employed by higher headquarters, including attack helicopters, fixed-wing ground-attack aircraft, UAVs, artillery, and surface-to-surface missiles (SSMs).

Chief of Airspace Operations

Air and ground force commanders and staffs work out coordination procedures between aviation elements, air defense elements, and ground forces before the launch of combat air missions. These procedures are the responsibility of the CAO at all levels of command down to brigade or BTG, even when no aviation units are subordinate to that headquarters.

It is imperative that air defense units be notified when friendly aircraft (or UAV) are flying within the air defense umbrella. Failure to coordinate with these elements will result in unnecessary fratricide. The senior air defender in the command will notify air defense units. For additional information on the coordination of air defense units, see chapter 11.

At every level of command, the CAO is responsible for airspace deconfliction. To assist in that function, he has a staff at his disposal for coordination and deconfliction of air missions. He and his staff make up the airspace operations subsection (AOS) under the operations officer. This staff subsection includes liaison officers from all subordinate units requiring airspace deconfliction. This ensures that the aviation, fire support, and air defense units continually coordinate all operations with each other. Since aviation assets are not constituent or dedicated to the pure division or brigade, the primary functions of the CAO and his staff there are to request and monitor employment of higher-level aviation assets allocated to the division or brigade in a supporting role.

Airspace Operations Subsection

The overall mission of the AOS is to advise commanders and staffs on the use of all air assets and to deconflict airspace use. There is an AOS at each level of command down to and including maneuver brigades. These AOSs all perform the same mission, but vary in size and complexity.

The AOSs form a vertical and horizontal channel through which airspace coordination requirements, plans, orders, and information are coordinated, disseminated, and synchronized with the battle plan. Theyâ

- Transmit air support requests to higher-level AOSs and aviation organizations.
- Coordinate all air support.
- Maintain communication with and provide deconfliction for all aircraft in the AOR.

An AOS may divide into two or more cells. The primary cell is located in the main command post (CP), while smaller AOS cells may be in the forward CP and/or IFC CP.

Theater Level

For issues related to air support and interface, the theater-level CAO coordinates with aviation assets within the theater, including the theater air army CP (Air Force), the army aviation CP, and elements of the subordinate air defense, artillery, and SSM units. The AOS at theater level consists of several dozen individuals with aviation, artillery, SSM, or air defense coordination experience filling permanent staff positions and interfacing with their respective subordinate units.

The AOS is the theater commanderâ s primary means of turning his guidance into a comprehensive plan for air operations. It allocates resources and tasks forces through the publishing of the aviation support plan (ASP). For more information, see the Aviation Support Plan later in this chapter.

The AOS establishes vectoring and target designation posts (VTDPs) as necessary to exercise control of aircraft in a designated AOR. These posts are air traffic control facilities that support the movement of aviation assets within an AOR and can also direct aircraft to ground targets. The VTDPs are primarily ground-based and serve as an intermediate air traffic control facility between the aircraftâ s parent unit and the forward air controller (FAC). (See below under BTG

Level.) They accomplish direct coordination among helicopters, ground-attack and fighter aircraft, ground-based air defense units, and FACs, primarily through VHF voice transmission. These posts are equipped with radar, communications, and automated equipment used for identification and tracking of both friendly and enemy aircraft.

Occasionally the OPFOR can employ airborne C2 aircraft to perform the same intercept function as a VTDP. These aircraft are referred to as airborne control stations (ABNCSs), and may be used to augment or replace VTDPs within the OPFOR AOR.

In mountainous terrain with VTDP radar dead space, visual observers (VOs) are used. These observers are connected into the VTDP network via VHF communications. Each observer section is equipped with radios, binoculars, and sound detection devices.

If the OPFOR uses ABNCSs or VOs, their employment is no different than that of a VTDP. They control the flow of friendly aircraft, and provide enemy intercept data to OPFOR counterair aircraft and air defense units.

OSC Level

The AOS at OSC level is manned and equipped similar to the theater-level AOS. When the theater only has one OSC, the theater AOS functions are performed by the OSC AOS.

DTG Level

At the DTG level, the AOS has some personnel filling permanent staff positions and some liaisons from subordinate units. Air support coordination is controlled by the interaction between staffs within the fire support coordination center, army aviation CP, and subordinate air defense unit CP. These staffs provide deconfliction for all aircraft operating within their AOR by monitoring radar and radio communications.

Since Air Force aviation units are not constituent or dedicated to a ground forces division or DTG, the supporting aviation regiments or squadrons normally colocate a CP with the division or DTG main CP. This facilitates the close coordination required by the AOS.

BTG Level

The BTG-level AOS is located with the BTG main CP to assist the commander and staff in all tasks associated with planning and employing air support assets. The AOS is responsible for coordinating air support by serving as the primaryâ

- Liaison between the BTG staff and the DTGâ s AOS.
- Liaison between ground forces and supporting fixed- or rotary-wing aircraft.
- Director for attacking aircraft by passing messages directly to the flight leader about targets.

The CAO is responsible for the operation of the AOS. He coordinates with the BTG commander to ensure proper integration of air missions into the overall scheme of maneuver. If a BTG employs a forward CP, a subelement or representative of the AOS may locate forward with the commander, if required. These representatives are also qualified to perform the duties of a FAC if necessary, but this is not preferred.

The BTG AOS is responsible for the coordination of all airspace and air routes within the BTGâ s AOR. It coordinates with the air defense units, aviation units, and the chief of fire support coordination. The AOS serves as the central point of contact for all actions between the ground force and aviation units. It continually monitors the status of ongoing and planned missions and the availability of air support.

FACs may colocate with the maneuver battalions when air strikes or support missions are planned, or when the brigade or BTG commander expects the battalions to require immediate or on-call air support. The FAC is a senior helicopter pilot experienced in combat helicopter brigade

support procedures. The FACâ goal is to employ fixed- and/or rotary-wing aircraft simultaneously in the same area, and coordinate aircraft employment with artillery fires. If successful, impacts coincide in time, with different target sectors allocated.

The FAC arrives at the maneuver battalionâ CP prior to a mission with his own radio set for communications with helicopters and/or fixed-wing aircraft. The type of radio is based on the type of aviation he supports, since fixed-wing and rotary-wing missions use different frequencies for communication. The radio is either VHF or UHF. Provision is made in the brigade or BTG headquarters for a FAC vehicle, and it has unique mounts for these radio sets.

A FAC serves as the ground commanderâ direct liaison with aviation support. Heâ

- Plans air missions to support the ground commanderâ scheme of maneuver (based on the sortie allocations from higher headquarters).
- Establishes control procedures.
- Orchestrates mission execution.

Battalion Level

A maneuver battalion seldom has a staff member dedicated to serve as an air representative and rarely receives a dedicated FAC. The brigade or BTG may allocate a FAC to a battalion when air support is planned specifically in its AOR. In such cases, a FAC works in conjunction with the commander, artillery observer, and battalion chief of fire support to coordinate the actions of attack aircraft with the artillery fires and the ground scheme of maneuver. When the maneuver battalion is not allocated a dedicated FAC, the battalionâ chief of fire support is the primary coordinator to facilitate DAS at the battalion level. The platoon leader of the battalionâ man-portable air defense system (MANPADS) platoon (or the senior air defender) also coordinates with the appropriate staff member, or FAC if present, to deconflict any possible fratricide issues.

Air support providing reconnaissance is coordinated by the platoon leader of the reconnaissance platoon, who serves as the battalion chief of reconnaissance. He in turn keeps the battalion intelligence officer abreast of reconnaissance activities and findings. The intelligence officer then coordinates with appropriate staff personnel.

Airspace Control Measures

The purpose of airspace control measures is to maximize the effectiveness of combat missions. Airspace control measures are established so that ground and aviation units may apply timely, efficient, and mutually supporting combat power while minimizing the risk of fratricide. This is accomplished through two methods: positive control and procedural control. In the airspace coordination order (ACO) portion of the ASP, the CAO delineates all positive and procedural airspace control measures.

Positive Control

Positive control is a method of airspace control that relies on electronic means such as positive identification, tracking, and aircraft vectoring, done by radar control or electronic monitoring. Positive control is established by air traffic control services around airbases and in the support zone. As aircraft depart these areas, they are handed off to subordinate airspace coordination facilities (such as a VTDP, ABNCS, or VO) and then finally to the FAC as they approach his AOR.

Procedural Control

Procedural control relies on previously coordinated and disseminated orders or procedures to control the operation and flow of air traffic. These procedures, coupled with the OPFOR emphasis that combined arms forces must be generally familiar with each otherâ tactics and equipment, help alleviate problems that arise in coordination during combat.

The OPFOR employs coordination procedures that separate airspace horizontally, vertically, or both. This buffer zone minimizes the possibility of fratricide while maximizing ordnance effects. Figure 10-4 depicts the different airspace coordination procedures available to the OPFOR.

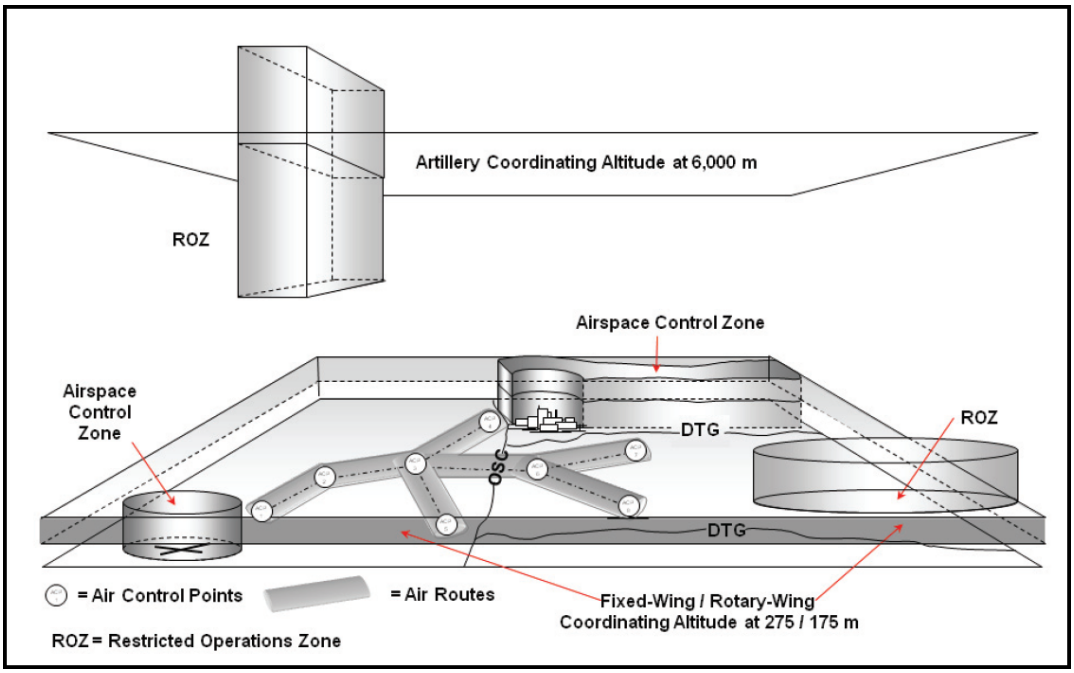

Figure 10-4. Airspace procedural control measures (example)

Coordinating Altitudes

A coordinating altitude outlines an arbitrary altitude below which fixed-wing aircraft do not fly, and above which rotary-wing aircraft do not fly. Artillery coordinating altitudes exist to deconflict artillery shell trajectories and fixed-wing traffic at high altitudes. A buffer zone may exist between coordinating altitudes to allow small altitude deviations. For example, coordinating altitudes are generally no higher than 175 m above ground level (AGL) for helicopters and no lower than 275 m AGL for fixed-wing aircraft. Deviating from these altitudes requires further coordination. Artillery coordinating altitudes are generally established at 6,000 m AGL or higher. Fixed- or rotary-wing aircraft planning extended penetration of the coordinating altitudes must notify the appropriate AOS, but prior coordinating altitude deviation approval is not required.

Airspace Control Zones

These zones define airspace that is characterized by a high density of aircraft or a high concentration of usage. An airspace control zone has defined dimensions that coincide with geographic or manmade features and extend vertically to a given altitude. The requesting authority, such as a brigade or division commander, dictates air defense weapon control status within the airspace control zone.

Restricted Operations Zones

A restricted operations zone (ROZ) is established to define a volume of airspace for a specific mission or purpose, such as a drop zone(DZ), landing zone (LZ), UAV flight pattern, or electronic warfare (EW) aircraft flight route. An ROZ is used to restrict some or all airspace users until termination of the mission. It may restrict airspace horizontally and/or vertically and by time of usage. An ROZ, for example, may be set up to restrict airspace from 1,500 to 3,000 m AGL, 5 km in all directions from a given point, from 0200 to 0600 hours, for the purpose of UAV overflights. The requesting authority, such as a brigade or division commander, controls air defense weapon control status within the ROZ.

Air Routes

Air routes are made up of air corridors and air control points (ACPs). These control measures are implemented to control the travel of aircraft through friendly airspace and to prevent friendly forces from firing on friendly aircraft. ACPs are predetermined points over the ground at a given altitude where the air route changes direction or links with another air route. An air corridor is the path of linked air control points starting at the initial point (IP) and ending at the release point.

Some air routes may include the use of mandatory reporting points. These points serve to control and monitor the flow of air traffic by requiring radio calls to the controlling authority stating the aircraftâ s position. An air route, for example, may dictate: returning aircraft fly above 1,500 m AGL, outbound aircraft fly below 1,500 m AGL, all helicopters below 30 m AGL. All aircraft should see and avoid other aircraft and remain within 500 m of the corridor centerline for safe transit.

Every level of command down to BTG has a unique airspace structure supporting the movement of aircraft within its AOR. Air routes run from the supporting airfields, through the theater and/or OSC airspace controlled by the VTDPs, to a â crossing checkpointâ at the DTG boundary. The aircraft then follows the airspace structure unique to that particular DTG until it reaches a BTG boundary. The BTG will provide routes that support the mission, taking the aircraft to the DZ, LZ, pick-up zone (PZ), or to an initial contact point where control is assumed by the FAC. Using the ASP, the routes are published and distributed to each level of command. Each air defense element is responsible to disseminate the information to the troops within those boundaries to prevent the fratricide of friendly aircraft. The ASP incorporates all forward arming and refueling points (FARPs) and all planned LZ and PZs for helicopters. The ASP may change the route structure on a daily basis.

Air Defense Control Measures

To coordinate the use of aviation assets with ground forces, the OPFOR utilizes different types of air defense weapons control status and procedural controls. Primarily, it employs a system of identification, friend or foe (IFF) between aircraft and air defense systems. To protect friendly aircraft from fratricide from non-IFF-capable systems, strict procedural controls are enacted. These control measures (described above) are disseminated daily using the ASP through AOS channels and aviation unit headquarters elements.

The air defense coverage may be â switched offâ to allow friendly aircraft to pass, on a mission planned in advance, and then â switched onâ as they exit the area. For other missions, air defense coverage may allow aircraft to transit only on â safe corridorsâ based on air routes or other procedural methods. If aircraft deviate from these coordinated areas, they risk being shot down by friendly ground force units. The OPFOR views the possible loss of aircraft through fratricide as a lesser risk than allowing gaps in its radar and air defense coverage that the enemy might exploit. See also chapter 11 for more information on air defense asset employment.

Fire Support Coordination Measures

Fires from mortars, cannon and rocket artillery, and SSMs pose a potential hazard to friendly aircraft activities. The highest probability of conflict between aircraft and surface-to-surface indirect weapons fire occurs at relatively low altitudes in the immediate vicinity of firing positions and targeted areas. To reduce these potential conflicts between indirect fires and aircraft, information pertaining to firing positions, targeted areas, and fire support plans is provided to the AOS at each level of command. See chapter 9 for more information on artillery employment and coordination measures.

Missions

The OPFOR considers the ability of its aviation assets to provide responsive and continuous fire support to ground forces a tremendous influence on the battlefield. It emphasizes that aviation must be employed early to achieve the following goals:

- Early attainment of air superiority.
- Effective reconnaissance and targeting.
- A coordinated attack on enemy targets at all tactical and operational depths.
- Employment in mass during all phases of combat.
- Survivability and responsiveness using effective planning and preparation.

Aviation assets perform numerous other missions to support ground forces in combat and logistics roles. Many of these missions are performed by elements located at the operational or strategic level. However, tactical ground force commanders may feel their impact.

Air Force

As enemy air and ground forces are introduced into an AOR, the Air Force must concentrate missions to gain the desired degree of airspace dominance. However, the operational situation dictates the amount of aircraft dedicated to the attainment of air dominance versus support of ground forces.

Initially, most theater air assets conduct strategic- and operational-level missions. Examples of these higher-level missions are strategic bombing, counterair, air interdiction, theater air reconnaissance, EW, and CBRN delivery.

Early operational and tactical aviation missionsâ suchas air interdiction and attacks (air strikes) on ground targetsâ mayallow the OPFOR to attain air superiority from the outset. The degree of airspace dominance dictates aircraft employment throughout the theater at the strategic, operational, and tactical levels.

Note. Air Force or army aviation helicopter units and mixed aviation units can also perform some of the missions.

Degree of Airspace Dominance

The degree of airspace dominance has the following affects on the missions of the Air Force and how it supports the ground force:

- Aircraft sortie rates change.
- Aircraft missions may be restricted.
- Depth and distance of mission execution may be limited.
- Aircraft may assume other roles than those for which they are specifically designed.
- Aircraft ordnance changes.

The OPFOR uses standardized terms to define the degree of airspace dominance: air supremacy, air superiority, local air superiority, or air parity. This allows planners to best employ assets in the theater to satisfy the requirements to support ground forces.

Air Supremacy

Air supremacy is defined as the condition when the enemy air force is incapable of effective interference. Through the complete destruction of the enemy air forces, this condition is the ultimate goal of air operations. Yet, this condition may be difficult or even impossible to achieve. It may occur, however, through the establishment of a diplomatic â no-fly zone.â Under the condition of air supremacy, the OPFOR commander employs all of his aircraft at will.

Air Superiority

Air superiority is defined as the condition when the conduct of operations is possible at a given time and place without prohibitive interference by the enemy. The most efficient method of attaining air superiority is to attack enemy early warning, C2, and ground-based air defense sites, and enemy aviation assets close to their source of maintenance and launch facilities.

The OPFOR expects to be capable of achieving air superiority against a weaker opponent. However, if faced with a superior enemy, the theater commander may be forced to hold more aircraft in reserve and to redirect aircraft from ground support to air defense operations. This will increase the burden on rotary-wing assets to fill the ground support role.

Local Air Superiority

Regardless of the scope and time of air superiority, if correctly exploited by the OPFOR, this window of opportunity can produce a devastating impact against the enemy. Even though the OPFOR hopes to attain (overall) air superiority, it recognizes the potential for only local air superiority to exist. Purely geographic in nature, this condition is characterized by well-timed aviation missions to coincide with enemy aircraft downtime, returning sorties, aircraft rearming, or gaps in air defense coverage. This condition may also occur in areas across the theater where the OPFOR or the enemy may not have adequate assets available to ensure air superiority. In certain situations or against certain enemies, local air superiority for a specified period of time may be a more realistic goal but just as lethal.

Air Parity

Air parity is defined as the functional equivalency between enemy and friendly air forces in strength and capability to attack and destroy targets. Under the condition of air parity, where neither side has gained superiority, some enemy capabilities affect friendly ground forces at times and places on the battlefield. Air parity manifests itself to the commander primarily in the amount of fixed-wing aircraft used for DAS of ground forces. More aircraft are dedicated to interdiction and attack missions to gain air superiority.

Counterair

10-72. Counterair missions integrate offensive and defensive actions to establish and maintain the desired degree of air dominance. For the mission of countering enemy air forces, the OPFOR is heavily reliant on VTDPs as well as friendly air defense assets. OPFOR aircraft survivability and success in counterair missions depend on the ability of the VTDP network to identify enemy targets and redirect fighters in flight to the proper location at the most opportune time for a successful engagement. This mission primarily falls on the assets at the operational or theater level. OPFOR ground force commanders may feel the effects of this, because assets needed to support counterair missions may detract from the ability of the theater or OSC to support the tactical maneuver.

Reconnaissance and Targeting

The theater or OSC commanderâ staff prepares an overall reconnaissance plan detailing tasks for all aviation reconnaissance assets. Operational-level air reconnaissance is a principal method to gather deep target intelligence. Yet, the information the aircrews obtain from those missions is analyzed and disseminated to tactical commanders.

Specifically equipped aviation assets (such as a reconnaissance aviation regiment) have the primary responsibility for air reconnaissance. They provide reconnaissance support for tactical combat actions by transmitting target information to ground CPs via radio from specially

equipped reconnaissance aircraft. The division or DTG conducts its own tactical reconnaissance primarily through ground reconnaissance and UAV assets. Aircrews at all levels of command returning from missions are instructed to report sighted enemy locations and activities. The classification and location of targets obtained through intelligence gathering is the basis for planning air interdiction and attack missions.

Interdiction

The theater air forces conduct air interdiction missions to annihilate, or neutralize the enemyâ s military potential before it can be used to inflict damage on friendly forces. These missions are flown to the extent of the enemyâ s operational width and depth, and they require little integration between friendly air and ground assets.

Interdiction missions are flown to attack targets beyond the range of friendly surface weapons. These missions are usually planned and conducted at an operational level by the OSC to achieve theater and/or OSC objectives. Therefore, the tactical ground force commanders provide very little input to target selection and little or no assistance during the mission execution. Maneuver commanders may notice the impact of these missions and factor the results into their planning process.

Air interdiction missions are planned at the highest level to synchronize, complement, and reinforce the ground force scheme of maneuver. Typical targets include bridges, roads, railroads, airfields, and large troop support facilities such as supply depots or logistics bases.

Attack

The OPFOR considers air strikes within the enemyâ s tactical depth to be attack missions. These are deliberate missions to attack priority enemy targets such as assembly areas, supply routes, artillery or antitank positions, multiple rocket launcher (MRL) positions, forward air bases, and reserves.

With attack missions, the ground force commander nominates targets to facilitate his scheme of maneuver. (For more information, see Planning and Preparation later in this chapter.) Targets are classified as single, multiple, line, or area. Table 10-1 shows the OPFOR classification of targets and attack techniques.

Table 10-1. Classification of attack targets

Classification	Example Target	Attack Technique
Single (or Point)	An MRL, tank, or armored vehicle; parked aircraft or helicopter; radar, observation post, or bunker	Single pair of aircraft using lower-level or dive delivery of ordnance
Multiple	Group of 10-20 single targets, occupying an area of 1-1.5 km2	Attack by a small group of (2-8) aircraft
Line	Tactical march column (usually 1 km or longer), a train, or a runway	Attack by a single aircraft or small group of aircraft along the long axis of the target, or flanks
Area	Assembly areas of battalion or larger unit, supply depot, large C2 center, or airfield	Massive and concentrated air attacks delivered from various altitudes and directions

The AOS plans attack missions to ensure coordination between the aviation force and the ground force and to ensure survivability. Aircraft sorties and ordnance types are requested to achieve the desired results, based on the target classification. The missions are well planned with triggers to signal aircraft launch. Procedures for airspace deconfliction are enacted prior to launch.

The ground force commander uses attack missions to shape the battlefield. By attacking priority targets, these missions should prepare the conditions for his success over the ensuing 24 hours or reinforce successful attacks by his ground forces. Attack missions can help create penetrations, cover withdrawals, and guard flanks, and can be most effective when employed at

decisive points in a battle. The ground force commander plans an energetic scheme of maneuver to complement attack missions and trap or destroy major elements of the enemy force.

Direct Air Support

The objective of DAS is to disrupt and destroy enemy forces in proximity to friendly forces. Although DAS is the least efficient application of air forces in terms of damaging enemy capabilities, it is the most critical to ensuring the success and survival of ground forces. These missions have the greatest potential to make an especially important contribution to the ground force commanderâ s plan. He must be ready to exploit the effects of DAS through rapid maneuver, either by closing with and destroying the enemy or by bypassing enemy forces.

Due to the proximity of these missions to friendly ground forces, extensive care is taken to minimize fratricide. Effective DAS requires reliable air-to-ground communications and flexible, responsive C2. (See Airspace Control Measures earlier in this chapter.) It requires aviation components to appreciate the capabilities, limitations, and risks to ground forces. It also requires the ground component to understand the capabilities and limitations of DAS.

The OPFOR normally conducts DAS with fixed-wing ground-attack aircraft and rotary-wing attack aircraft. These missions typically extend only to the range of friendly ground-based systems. That is, OPFOR aircraft are covered by the fire of friendly weapon systems, and under the air defense coverage of friendly systems. They target objects of immediate concern to the ground force commander when the fires of his constituent or dedicated assets are not capable of engaging the enemy or when a mass concentration of fire is required.

DAS missions are entirely controlled by the FAC. Once the AOS or the VTDP notifies the FAC that aircraft are inbound to his location, he establishes communication with the aircraft and provides the necessary data for the aircraft to complete their mission. A FAC controls all aspects of their mission. FAC control procedures includeâ

- Establishing an IP.
- Establishing attack positions (APs), normally at maximum effective weapons range.
- Issuing control graphics.
- Identifying and marking friendly troop locations.

As the aircraft travel inbound from the IP, the FAC provides the pilots withâ

- Target location (either in grid coordinates or in relation to a predetermined reference point).
- The exact time to execute the attack.
- Information on the ground situation.

He may also give the flight leader a signal to direct the flight to climb, acquire the target, and attack.

The primary responsibility of pinpointing the target is left up to the flight leader. He orders the flight into different formations, divides the target, and assigns individual sectors to the aircraft in his flight. The FAC assesses damage and adjusts the flight for successive target runs if necessary. So, the FAC must maintain visual contact with the target while the aircraft are on station.

Transport

Transport missions for airlift, airborne insertion, airdrop, and aerial resupply are all Air Force fixed-wing transport aircraft missions that are performed by operational-level assets. (Air Force or army aviation helicopter units and mixed aviation units can also perform some of these missions.) They may, however, have impacts on the tactical ground force commander, by limiting his maneuver. For example, if a forward airbase or an airdrop site is set up by the operational-level commander to resupply adjacent tactical units, a large area is dedicated to the Air Force for

the mission. This area may present an obstacle or a restriction to the ground scheme of maneuver for the tactical commander.

Army Aviation

Army aviation is a component of the ground forces and is intended for actions directly in the interests of combined arms organizations. Based on the type of missions performed, army aviation is divided by predominate aircraft capabilities into attack, CS, and CSS helicopters.

Attack helicopters are the primary assets used to provide firepower to ground forces. These assets can perform armed reconnaissance or fire support in all types and phases of ground combat. They can also provide fire support for heliborne landings. Other helicopters can also conduct heliborne landings, lay minefields, or perform a variety of logistics, reconnaissance, liaison, and communications functions in accordance with the plans of the supported combined arms organizations. Some helicopters are capable of performing in multiple roles.

Attack Helicopters

Attack helicopters (also referred to as fire support helicopters), rather than fixed-wing aircraft, provide the preponderance of the support to the ground force and provide an excellent fire and maneuver capability to the ground commander. The primary categories of tactical missions for attack helicopters are attack, DAS, and reconnaissance and security. Some attack helicopters may be modified to perform air-to- air combat roles. The majority of OPFOR attack helicopters are equipped for all-weather and night operations.

Attack helicopters generally have integral cannons, miniguns, and/or automatic grenade launchers. They also have the provisions to mount antitank guided missiles (ATGMs), rockets, bombs, or other ordnance on fuselage or under-wing hardpoints. Most employ target acquisition and sighting systems (such as laser, thermal, or infrared).

The OPFOR may employ multirole helicopters in the same capacity as a pure attack helicopters, but generally with less firepower. These aircraft have the provisions to carry a limited number of passengers and may have mounts for a cannon, rocket pods, or a few ATGMs. They are small, relatively quiet, and easy to conceal from radar and visual detection when silhouetted against background clutter.

Helicopter Attack

Helicopter attack missions are conducted within the enemyâ tactical depth. Similar to the fixed- wing attack mission, the purpose of helicopter attack missions is to destroy priority enemy targets such as artillery or antitank positions, MRL positions, and reserves. The OPFOR may employ army aviation helicopters to attack counterattacking enemy armor columns or enemy columns moving forward to reinforce engaged units.

Deep autonomous attack helicopter missions in the disruption zone are the exception rather than the rule. However, they may occur against an extremely high-priority target. The commander understands the risks involved in missions such as these and realizes the high probability of loss of aircraft and crews.

For these disruption zone attacks, the OPFOR will launch the minimal number of aircraft (two to four) to accomplish the mission. Suppression of air enemy defenses (SEAD) is normally executed in support of the mission. The focus of the SEAD is to destroy, degrade, or neutralize enemy air defense systems in a specific area through either attack or electronic jamming. The depth of these helicopter attacks will be limited primarily by the range or endurance of the aircraft. Consideration is given for planning additional contingency time for the aircrews to react to unexpected actions in enemy territory. The distance may also be limited by the range of the artillery. Normally, if attack helicopters are operating deep, they are operating as part of an IFC at

OSC or DTG level.

The primary deep mission in the disruption zone for attack helicopters is in support of heliborne landings. These helicopters can provide security and armed escort for troop-carrying helicopters. They may prepare the LZ by fire and remain after the insertion to provide DAS to the ground force. The number of aircraft employed depends on the size of the heliborne force, the degree of protection desired, and expected enemy resistance. For more information on the heliborne landings, see Combat Support Helicopters.

Like fixed-wing attack missions, helicopter attack missions are planned by the AOS to ensure coordination between the aviation force and the ground force, and minimize the risk of the mission. Based on the target, number of available helicopters, and required ammunition, missions are planned to achieve the desired results. The missions are planned in detail with triggers to signal aircraft launch. Rehearsals are performed to identify any problems and increase the probability of mission success.

Direct Air Support

The disruption and battle zones provide opportunities to the commander to effectively employ attack helicopters when the enemy presents numerous targets in the open. Armed with ATGMs and rockets, helicopters provide DAS for the advance of the ground forces by flying behind OPFOR ground forces and firing over them. This places the helicopters out of friendly direct fire ranges and behind or under friendly artillery trajectories.

Since army aviation serves as the ground force commanderâ s primary asset for air support, DAS is the most common type of mission. In the DAS role, helicopters can augment fixed-wing DAS, ground- based artillery, and direct fires from ground forces. This fire support is conducted throughout the disruption and battle zones. Attack helicopters destroy tanks, antitank weapons, and other armored targets located in proximity to friendly units.

DAS missions use two to eight aircraft per mission. They are flown using the wingman concept with a minimum of two aircraft. The wingman has the responsibility to provide local security while the lead is focused on the target. Helicopters firing ATGMs may be exposed and vulnerable during missile flight, depending on the type of missile. To minimize exposure time, the helicopters can also employ rockets or the main gun in lieu of ATGMs, but with less effectiveness.

While in proximity to friendly forces, attack helicopters are afforded the protection of air defense assets and the covering fire of ground systems. Using the integrated fires of tank or mechanized forces, artillery, and attack helicopters, the commander creates corridors through the enemyâ s forward ground forces. These corridors, coupled with SEAD, allow further employment of all other types of air assets.

In the defense, helicopters can be used to counterattack tank or mechanized forces while serving as the commanderâ s antitank reserve. The commander may employ them to independently execute a counterattack into the flanks of an enemy formation. Armed with ATGMs and rockets, the helicopter force seeks routes allowing undetected approach to the flanks of the enemy force. If terrain variations do not provide adequate concealment for the force, the helicopters may use smoke to conceal their approach. The helicopter formation then engages enemy targets from APs along preplanned attack routes.

Reconnaissance and Security

Attack helicopters are used for armed reconnaissance when visibility is limited, target information is incomplete, or enemy flanks are unprotected. In these circumstances attack helicopters, by flights of two, conduct high-speed, low-altitude penetration of enemy lines. Targets of opportunity such as radars, communication nodes, missile launchers, and antitank

weapons are engaged at the discretion of the flight leader. Because these missions are considered hazardous, they are normally reserved for very experienced pilots, and therefore are quite risky to the ground force commander.

Commanders also use attack helicopters to provide assistance with the ground force counterreconnaissance battle. These helicopters are launched in small numbers to positions in the disruption zone to engage enemy ground reconnaissance assets as they approach friendly positions. The commanderâ s intent is to deny the enemy the reconnaissance information that may expose weaknesses in his scheme of maneuver.

Attack helicopters may be employed to protect the flanks of a tank or mechanized column in the attack or counterattack or in a tactical movement by screening the column from the enemy. The aircraft protect the column by flying along the route or maneuvering by bounds using the cover and concealment of the terrain along the route. Similarly, they may serve as convoy escort.

Counterair

Helicopter air-to-air combat modifications are commonly available on the open market, and some newer helicopters may be designed with the capability. While attack helicopters are the likely candidates for this role, other types of helicopters could be configured to mount air-to-air weapons. Helicopters can employ from external weapon racks some of the same missiles used as surface-to-air missiles in the ground forces. Several ATGMs are able to engage other aircraft from aerial platforms, and mounted automatic weapons may also be employed. Helicopters equipped with such weapons (if available) are the only form of air-to-air engagement available to support the tactical ground force commander.

Combat Support Helicopters

CS helicopters serve in numerous roles. They are designed with troop- or cargo-carrying capabilities and can be armed with miniguns or machineguns fired by crewmembers other than the pilots. They have provisions to carry external loads such as fuel tanks, ATGMs, rockets, or EW equipment on external hardpoints or underslung on cargo hooks. Their primary function is to act as transport aircraft in a heliborne landing and to serve in other supporting roles. Thus, the resulting cargo weights limit the type and amount of armament used. If the OPFOR lacks a dedicated attack airframe, these helicopters may perform both roles. However, they would be less effective than designed attack helicopters, because they lack an integral fire control, sensor, and optic systems.

The OPFOR launches a heliborne landing for the purpose of inserting a ground force or reconnaissance assets, usually in the disruption zone. This normally occurs under the cover of darkness and up to 2 to 6 hours prior to a planned ground attack. LZs are selected beyond the range of enemy direct fire weapon systems. Prior to insertion, LZs are targeted with artillery (if within range) or escorting attack aircraft. After troop insertion, the CS helicopters depart, and the attack helicopters may remain. Forces remaining in position longer than 24 hours are resupplied by helicopter.

In addition, CS helicopters are called upon to transport antitank squads or perform electronic jamming. CS aircraft can also supplement obstacle detachments by laying mines along threatened flanks and gaps, and assist in the preparation of complex battle positions by providing logistics support. They may also fill a variety of other support or logistics functions.

Combat Service Support Helicopters

Helicopters providing CSS are large and lightly armed (if at all). They have large cargo areas with provisions to load freight and fuel internally or carry them underslung on cargo hooks. Their movement is usually limited to conducting resupply missions in the support zone, yet they may

be employed in the battle and disruption zones in some circumstances.

These aircraft may be employed to transport an airborne or heliborne force. Attack aircraft may escort them to the DZ or LZ. The forces they carry are used to augment the prior insertion of a heliborne force by CS helicopters once the objective is secured.

Some CSS helicopters can be fitted with extra fuel tanks and pressurized refueling hoses and may be employed to establish a FARP prior to a heliborne insertion or attack mission. They do not perform this mission in enemy territory.

These helicopters may also be used in search and rescue, and downed-aircraft recovery roles. Missions such as these are escorted by two to four attack helicopters.

Forward Arming and Refueling Points

The flight services elements of the army aviation units have the personnel and equipment to establish FARPs. The OPFOR does not place as much emphasis on FARP employment as do military forces of some other nations. This is due to the lack of deep autonomous attack helicopter missions that would require FARPs.

FARPs would normally be established within friendly territory to support helicopter missions. FARPs are placed near open areas to allow for landing sites, but with nearby terrain that affords cover and concealment from the enemy. FARP operations will move to an alternate site if compromised. The flight services element may set up temporary or deception FARPs based on supporting the ground force scheme of maneuver. A combat helicopter brigade has the ability to place one FARP per attack helicopter battalion. The FARP includes four to six refueling points and an area for rearming. Under reasonable conditions, a flight of four aircraft can expect to be replenished with fuel and ammunition in 45 minutes. In maximum employment conditions, this time increases due to logistics constraints and a finite number of refueling points. Also, in adverse weather and at night, these times increase. Some aircraft may perform area security while others in the flight are refueled and rearmed. Upon completion of the air support mission, the FARPs are moved or removed, while aircraft recover to their holding areas or airfields.

Unmanned Aerial Vehicles

The Air Force and the Army both use UAVs. This chapter primarily discusses UAVs in the tactical role. The techniques and employment of the larger and more capable operational- and strategic-level UAV platforms used by the OPFOR are similar to those employed worldwide.

Capabilities

UAVs can support combat operations anywhere on the battlefield. When equipped with the proper sensors, they provide imagery day and night and in all-weather conditions (depending on the size and capability of the platform). UAVs are an excellent imagery asset, providing the commander with a near real time (NRT) reconnaissance and battlefield surveillance without the possibility of risk to a manned aircraft. They provide OPFOR commanders a dedicated and rapidly taskable asset that can look wide as well as deep. During a preplanned UAV mission, changes in mission priorities or identification of new targets may occur. The commander selects the appropriate UAV based on what is available, current mission configuration, operating range, operating radius, and endurance (flight time) of the UAV. The OPFOR commander can then direct a UAV to support a different mission or area.

Note. The size, ease of operation, and simple design of many smaller UAVs lend them to field expedient modification. Converting these UAVs into a munitions delivery system (improvised attack UAV) is not difficult and offers several tactical advantages. Off-the-shelf remote controlled aircraft can also provide this capability.UAV teams can launch UAVs from either improved or unimproved airstrips. Small UAVs can be hand-, canister- (vehicle), or tube-launched. Many UAVs

are used in various roles to support destruction of enemy systems and suppression of enemy missions. Those roles vary from target acquisition to direct attack with an impact kill by the UAV.

Some air defense, antitank, artillery, SSM, littoral, logistics, and other units with stationary facilities requiring security patrols can use UAVs to execute the mission while reducing personnel and vehicle requirements. SPF, commandos, and some paramilitary forces (such as insurgents and guerrillas) can use UAVs.

UAVs can provide NRT combat information about terrain, disposition of enemy units, and battle damage assessment. They can assist in recognition, detection, designation, and illumination of targets. They can also assist in route, area, and zone reconnaissance.

Note. A GPS jammer the size of cigarette pack transmitting 4 Watts, can effectively deny use of GPS in an area ranging as far as 150-200 km. It is extremely simple to install one of these lightweight GPS jammers into a small UAV. Off-the-shelf remote controlled aircraft can also be modified to provide this capability.

Missions

UAVs are capable of locating, recognizing, and possibly engaging enemy forces, moving vehicles, weapons systems, fixed structures, and other targets. Some example OPFOR missions using UAVs includeâ

- NRT reconnaissance and surveillance (see chapter 8.)
- Target acquisition.
- Direct attack (used as a mini-cruise missile or other weapons delivery system).
- Laser designator. Some UAVs can be fitted with laser designators to mark targets, and others may be armed.
- EW (such as deception, GPS jamming, spoofing, meaconing [rebroadcast real GPS signals], or intercept).
- Communications relay.
- Security.
- Vectoring.
- Cargo transport.

Information gathered via UAVs may be immediately acted upon, or it may be integrated with other sources to support or shape the immediate combat mission, to plan future operations, or to re-allocate reconnaissance assets. The data may be integrated with that from combat reconnaissance, ground surveillance radar, intelligence assets, or any other information.

Planning and Preparation

Ground commanders can employ air support, integrated with other forms of fire support, throughout the AOR to attack the greatest threats to successful ground combat. Mission planners are responsible for incorporating the most current information on enemy and friendly positions, current weather, terrain, fire support plans, and EW targets to plan air support missions that complement the ground maneuver plan.

Planned missions afford ground maneuver commanders greater freedom of movement and flexibility by allowing them to mass firepower at decisive points to annihilate or neutralize enemy forces. At every level of command from battalion to OSC, ground commanders nominate targets for air support assets to attack. Assets are requested, forces are allocated, an ASP is produced, and pre-mission planning is performed to maximize effects and minimize risk.

Target Selection

At theater and OSC levels, the targets are selected based on strategic or operational-level goals. At tactical levels, targets are selected to shape the battlefield for the success of the ground

forces. The targeting process is mostly preplanned, based on integrating the fires of ground assets (such as artillery, MRLs, and SSMs) and aviation assets. It is a continuous, ongoing process designed to exploit current intelligence and attack high-priority targets in all phases of the battle to best achieve the commanderâ s scheme of maneuver. As the tactical battle continues, targets are selected from the existing targeting database, or new ones emerge as windows of opportunities develop.

Target lists are categorized and prioritized based on depth into the enemy forces. The OPFOR attempts to plan targets for its attack aircraft which shape the battlefield versus reacting to ground maneuver forces that require immediate support. However, the following priorities are established:

- Enemy forward positions, maneuver units, artillery, and C2 nodes.
- Deeper artillery, C2 nodes, reserves, assembly areas, supply routes, artillery or antitank positions, MRL positions, and forward air bases.
- Deeper reserves, lines of communication, airbases, and troop support and logistics facilities.

From these target lists, requests for artillery fire and air support are generated at every level down to battalion. The targeting responsibilities of the ground force do not end with target nomination. Commanders and their AOSs planning fires must continue to refine and update target information until the desired results are achieved. The forum for this is the targeting meeting held within the AOS at each level of command. These AOSs correlate the ground force commanderâ s targeting priorities with actual targets, plan attack positions, incorporate FAC input from prior missions, and discuss mobile targets. The latter is particularly important, since mobile targets represent the most difficult problem facing ground force commanders. When considering mobile targets, commanders may employ one of three methods to control the timing of the air attack: on-call, immediate, or preplanned. For more information on this subject, see Aviation Support Plan below.

Commanders plan for targeting contingencies during the course of a battle. When a target of opportunity presents itself, the commanderâ through his AOS and FACsâ has the ability to redirect his air support to attack the new target. Additionally, pilots have the capability of acquiring targets in the performance of their mission. This presents an ability to exploit targets of opportunity that present themselves to the pilots, provided the targets are included on the commanderâ s targeting list.

Request Process

Formally, the lowest command level capable of requesting aviation support is the brigade or BTG. Battalion commanders input requests to the brigade or BTG. However, as every commander plans and conducts combat actions, he identifies situations where aviation attacks or DAS can be employed to enhance mission accomplishment. The brigade or BTG AOS also assists in nominating targets and integrating aviation into the overall scheme of maneuver. This same procedure occurs at each level of organization by the supporting AOS.

Air support requests from ground maneuver forces are screened at every level of command to determine whether or notâ

- Ground support missions can be supported while meeting strategic- or operational-level air requirements.
- The level of air support to ground forces meets operational and tactical requirements for achieving the goals of ground battle plan.
- Alternate systems (such as artillery, MRLs, or SSMs) would be more effective to accomplish the mission.
- Air requests are supportable based on current available aircraft.
- Planned airspace usage, artillery fires, and intelligence requirements can be met.

All requests for aviation support are compiled and submitted through AOS channels for approval

by the theater and OSC commander. The DTG commander will approve missions for rotary-wing aircraft constituent or dedicated to his level of command. The AOS must divide the requests between those supportable by rotary-wing assets and those supportable by fixed-wing assets. Helicopter missions are ranked by assigned priority and precedence, and given to the executing army aviation headquarters for planning. Some air support requests continue on to be filled by theater or OSC fixed-wing assets. If approved, these requests are also assigned a priority and precedence. Requests for air support are submitted as early as 72 hours prior to the requested aircraft on-station time and no later than 24 hours prior to the start of the ASP.

Preplanned, immediate, and on-call refer to the requests themselves. Preplanned requests are those submitted in time to be included in the published ASP. Immediate requests fill operational or tactical requirements that are too late to be published in the ASP. On-call mission requests do not state a specific aircraft time-on-target. They involve aircraft placed on an appropriate alert status and employed when requested by the supported unit. Aircraft used to fill immediate requests may come from on-call missions established for this purpose.

Starting at the brigade or BTG level, the CAO submits the air support requests. He submits preplanned requests through ground command and staff channels, or immediate requests through AOS channels. On-call requests are transmitted by the FACs or the AOS to the division or DTG AOS using VHF communications.

The AOS at every level is of key importance in the processing of immediate air support requests. This type of request is primarily passed via the FACs and AOSs to the level of command that controls the required aircraft. If an OSC aviation unit can support the requesting ground force, it fills the requirement. If not, the request will be passed up to the theater AOS. Once an immediate request is approved at the theater or OSC level (depending on the type of supporting aircraft), the AOS tasks on-call missions or diverts scheduled missions to satisfy that request.

Once a request is approved at either theater or OSC level, it is forwarded to the aviation unit to determine if it is supportable based on the projected sortie generation rate and operational tempo. If disapproved at any level, the requests are returned to the originator through AOS channels with an explanation.

For all requests, the higher aviation command or IFC provides the required information (including target, location, required on-station time, and radio frequency) to the tasked unit. Each aviation unit then conducts its own mission planning and coordinates directly with the ground maneuver unit. The approved missions and enacted airspace procedures are disseminated to all levels of ground and aviation commands through the ASP.

Sortie Generation

The aviation units are able to manipulate and predict to some extent their ability to launch and sustain aircraft. This information is compiled and forwarded up to the AOS at theater and OSC level where it is reconciled with the commanderâ s scheme of maneuver and the requests for air support. There, the commander determines the number of air assets to best fit into his plans for the operation. The decision is made how to employ all of the available air assets to accomplish the theater or operational goals, including support to ground forces. The resulting product is known as the maximum sorties available in a single 24-hour period.

The OPFOR defines an aircraft sortie as a flight by one aircraft in an air action. Across the theater, the maximum aircraft sortie rates are determined daily incorporating many factors, at every level of organization. Table 10-2 contains a generic formula that holds true for both fixed- and rotary-wing aircraft. It can incorporate many of the factors involved, which are listed in the paragraphs following the figure.

Table 10-2. Calculation of aircraft sorties (example)

Maximum Theoretical Sorties/Day =

(Total Aircraft Available â Attrition) x Allocation x OR Rates x Aircraft Sorties/Day

An example calculation of sortie generation rate follows.

Conditions:

110 total aircraft.

10 lost yesterday through combat action.

The commander wants 40 % dedicated to DAS, 30 % to attack, and 30 % to interdiction.

OR rate today = 80 % based on logistics sustainability and maintenance posture.

Aircraft sorties/day are: 3.5 DAS, 2.0 attack, and 2.5 interdiction.

(110 â 10) x 40 % x 80 % x 3.5 = 112 DAS sorties today

(110 â 10) x 30 % x 80 % x 2.0 = 48 attack sorties today

(110 â 10) x 30 % x 80 % x 2.5 = 60 interdiction sorties today

Total Aircraft Available

Total aircraft available, or â flyable,â is calculated to incorporate all aircraft regardless of type or mission. This number can be calculated to account for aircraft by specific mission type.

Attrition

Attrited, or â nonflyable,â aircraft is the number of aircraft losses due to combat, fratricide, or irreparable enemy damage since the last sortie generation calculation. Attrited aircraft may be returned to service for future sortie generation cycles.

Allocation

Allocation or â how flying,â is the ground force commanderâ s intent on how sorties should be allocated to individual missions, such as interdiction, attack, DAS, counterair, airlift, or transport. As hostilities develop in the region, the OPFOR balances the strategic- and operational-level goals against the tactical air support requirements to determine how to best allocate the aircraft to specific missions to attain the desired effect or change upon the enemy. At the strategic level, this allows the ground commander to account for the air objectives and ground force objectives. At the operational and tactical levels, it allows ground force commanders to allocate percentages of air support assets to best fit the ground scheme of maneuver.

Depending on how the OPFOR perceives the air situation, the allocation may differ. (See Degree of Air Dominance earlier in this chapter.) Multirole aircraft prove most valuable in considering allocation. They can quickly and easily be tailored to perform different missions based on the commanderâ s needs. Commanders may also elect to keep a number aircraft as a reserve ready to serve if needed for unexpected contingencies.

Operational Readiness Rate

The operational readiness rate (OR rate), or â ready-to-fly rate,â refers to the capability of a unit, equipment, or weapon system to perform the mission or function for which it was organized or designed. This encompasses the ability of the OPFOR to sustain its aerial forces. Factors considered includeâ

- On-hand major end items.
- Spare part availability.
- Scheduled aircraft maintenance.
- Logistics and resupply procedures.
- Transportation capabilities.

- Aircraft cannibalization and/or transfer procedures.

Initially, an OR rate in excess of 85 to 90 percent is considered normal. As hostilities continue, this rate can diminish considerably, based on the above-listed factors.

Aircraft Sorties per Day

The number of aircraft sorties each day, or â turnsper day,â varies with each type of aircraft. It is primarily a function of mission duration and the time required to refuel and rearm the aircraft for the next mission. This also can incorporate the human factors of pilot-to-aircraft ratio, aircrew availability, proficiency, endurance, and training level. It can also encompass the availability of fuel and proper munitions for the intended mission. If the aircraft is fueled, properly armed, and mission-ready, it cannot fly the planned number of sorties per day without a qualified, prepared crew to man the cockpit.

Commanders must balance their ability to regenerate their aviation assets against their willingness to allow that ability to be degraded through loss of assets. Planning rates allow aviation units to operate at a certain sortie rate for a certain period of time, normally 30 days, without resupply. Units may elect to operate in a â sustainmodeâ with a slower operational tempo, planned maintenance, and a normal logistics flow. This allows them to operate at a higher rate over a longer stretch of time.

Alternatively, units may elect to conduct â surgeoperations.â This is characterized by a higher than usual operational tempo, and neglecting preventive maintenance and scheduled services for 1 to 2 weeks. This gives units the ability to fly more sorties than normal in a short period of time. Compared to sustain mode, surge operations actually force a slower operational tempo over the long term, since more extensive maintenance needs to be performed on these aircraft. Eventually logistics stocks are depleted and fatigue increases. Following an extended surge, a unit must recover by performing the maintenance that has been neglected. If the unit returns to surge rate prior to recovery, its sortie generation capability may continue to fall, and future recovery time increases.

Aviation Support Plan

The theater or OSC AOS publishes a daily document called the aviation support plan (ASP). This document has two parts: the air tasking order (ATO) and the airspace coordination order (ACO).

The ATO is the portion that outlines all approved fixed-wing, rotary-wing, and UAV missions to include interdiction, attack, DAS, counterair, reconnaissance, airlift, transport, or aerial refueling. The ATO development process is continual and starts with requirements for air support that are submitted as requests. These requests are changed, refined, or reviewed at each dayâ s targeting meeting. (See Target Selection earlier in this chapter for more information.) All requests must be finalized and submitted no later than 24 hours prior to the beginning of the next ATO cycle. The ATO is published 12 hours prior to going into effect, which occurs in the early morning hours and continues for 24 hours.

To publish the ATO, the theater or OSC AOS reconciles air support requests from all levels of command with sortie generation capabilities and command objectives for the allocation of air assets. The AOS does so with the assistance of the air army (Air Force) CP, the army aviation CP, and the theater or OSC IFC CP. Ground commanders are advised to submit preplanned requests for on-call missions to ensure availability of sufficient sorties with appropriate ordnance to respond to immediate air support requests. If more aircraft are available on a given day than required for combat operations, the excess are either assigned missions to augment the air missions already planned or held in reserve. Conversely, if there are more air support requests than available aircraft, missions are filled based on the priority assigned to each request.

Once the ATO is published, it is an execution order. All published missions occur for that 24-hour

period. Ground force commanders may not know which unit or what type of aircraft will support them, but they are assured the support.

The second portion of the published ASP is the ACO. This is also an execution order that delineates all positive and procedural airspace controls enacted to best accomplish the ATO. The ACO controls the combined efforts of all aviation assets, and missile and artillery forces. The ASP is disseminated to all air and ground force unitâ Asos.

The OPFOR uses three types of air support missions to meet the needs of ground force commanders. The names are based on the types of request and on the timing of the air support. They are preplanned, immediate, and on-call. (See also Request Procedures, above.)

Preplanned

DAS missions are primarily preplanned. The ground force commander identifies the targets, times, and desired damage for the missions. The IFC commander determines the force, size, ordnance, and technique that can accomplish the mission. The IFC staff plans these missions in great detail and integrates them with other forms of fire support. The target selection process identifies possible kill zones for the application of aviation assets. The sortie generation process, coupled with the ASP cycle, assigns aviation assets to the highest-priority missions to attack targets, allowing the ground force commander to achieve his scheme of maneuver. Aircraft are allocated, prepared with the proper ordnance and countermeasures, and launched to attack a target at a specific time and place as a part of an integrated ground and air scheme of maneuver.

After ASP confirmation of preplanned requests for air support, a ground force commander consults his IFC staff to finalize detailed plans for the coordinated air and ground scheme of maneuver in his AOR. If they plan to use attack helicopters, the planners coordinate directly with the army aviation unit to ensure target deconfliction and to limit fratricide. The planned attack allows the ground force to update targets, current enemy and friendly situation, and disposition of enemy air defenses just prior to the mission.

Additional detailed pre-mission planning and coordination done prior to a preplanned mission by the ground force and the aviation force specifiesâ

- Target description and desired results.
- Type and number of assets required to accomplish the mission.
- Time.
- Location.
- Attack technique.
- Ordnance required.
- Communication frequencies and codes.
- Approach and departure routes.
- EW support.

Once airborne, the aircraft proceed to a designated checkpoint behind friendly lines and confirm their target assignment with VTDPs controlling their transit through the AOR to their APs. En route to the IP, the flight receives target updates from the VTDP or the FAC.

Preplanned missions are similar for CS and CSS helicopters. Most of the missions flown by these types of helicopters are preplanned in nature. The lack of time-critical constraints allows the aviation unit and the maneuver unit to conduct the greatest amount of coordination before the mission even commences. This coordination can cover issues such as LZ/PZ preparation, equipment preparation, pick-up and drop- off times, airspace management, and communications. Preplanned missions also allow the aviation units to take all possible steps to minimize risk throughout the course of the mission.

Immediate

Most air support missions are preplanned, but immediate missions also are used extensively. Ground force commanders can request them through AOS channels for inclusion in the ASP. By doing this, ground force commanders identify general times and places where they believe air support is required, but without finalizing the intricate details as in a preplanned mission. An immediate mission allows the ground force commander to have air support assets readily available to employ at a given time against targets. This type of request is used primarily for attack aircraft. If a CS aircraft is needed for this type of mission, it locates in the vicinity of the requesting CP and assumes more of an on-call role.

The ASP allocates air support assets for immediate missions. Some pre-mission planning and coordination occurs between the supported and supporting forces to ensure aircraft survivability. Aircraft designated for immediate missions can be airborne or on the ground at airfields. Before takeoff, pilots are briefed on a checkpoint to proceed to, and possible target type and location. Aircraft are prepared with the ordnance and countermeasures for the most probable target they may encounter. As the ground force commander decides he needs the air support to engage, he notifies the AOS or the FAC to pass the request. The request is passed to the attack helicopter battalions or to the fixed-wing units. See figure 10-5 for details on the immediate DAS request process.

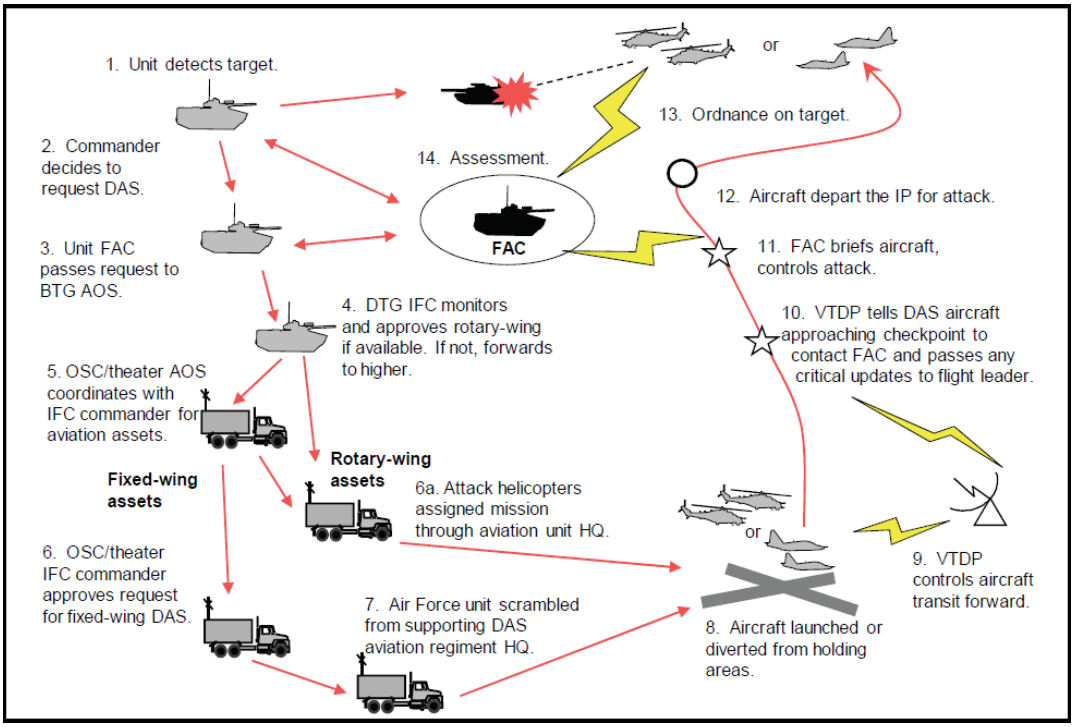

Figure 10-5. Immediate DAS request process

The aircraft are launched from airbases, or released from holding areas. The flight establishes communications with the VTDP as it moves forward. En route, the aircraft are briefed on the frequency and contact point to establish communications with the FAC, and receive critical mission updates. With communication established, the FAC gives them final target designation and confirmation, and the aircraft depart the IP for the attack.

Note. A holding area is a site (on the ground or in the air) located between airbases or FARPs and IPs that may be occupied for short periods of time by aircraft while coordination is being made for movement to the IPs.In some cases, there may be an excess of aircraft available as compared to requested missions outlined in the ASP. Then the theater or OSC IFC commander can establish a pool of aircraft to be available for immediate missions if unforeseen contingencies develop. He may also designate that multirole aircraft be configured for DAS. These extra aircraft may be armed and prepared for â generic targets and launched to holding areas. Once in the holding area, they serve as an available asset to subordinate ground force commanders that require immediate air support. The ground commanderâ s FAC

requests these aircraft and briefs them on the target en route. Sometimes the OPFOR refers to this practice as â pushâDAS.

On-Call

Planners may allocate aviation assets for on-call missions where the ground force commander can time the attack at his discretion. He bases the trigger for the attack on the enemyâ s reaction to the OPFOR scheme of maneuver at planned decision points. This allows him to mass his fires at decisive places and times on the battlefield and to refrain from employing the attack assets if the target no longer threatens. Additionally, he may elect to shift the assets to attack another target. If not supporting a preplanned mission, CS and CSS helicopters assume an on-call role. By using these methods of employment, the commander can conserve his air assets for use when needed, or avoid the need for the ground forces to halt their attack to wait for an unnecessary preplanned air support mission.

On-call mission requests do not state a specific aircraft time-on-target. They involve aircraft placed on an appropriate alert status and then employed when requested by the supported unit. Prior to the employment of air assets, the ground force will have established communications or liaison with the aviation unit. On cue from the ground force, the aviation unit performs the necessary preparations to launch when the ground force requires the air support.

Readiness Conditions

The OPFOR recognizes three levels of combat readiness for fixed- and rotary-wing aircraft and aircrews. Aviation unit CPs use these three categories to describe varying levels of alert status or readiness conditions and thus to guide the units to total mission preparedness for the most probable launch execution order. Aircraft in categories one and two can be expected to respond to on-call missions timed by the ground force commander. Table 10-3 on page 10-26 lists the categories and shows their duration and time before assets can be in the air. Based on his decision points, the ground force commander tells the designated aviation unit when to increase the level of readiness. Under these conditions, both parties prepare to execute the air support mission when needed.

Table 10-3. Levels of combat readiness

Category	Crew and Aircraft	Duration of Readiness	Time Before Takeoff
One	Aircraft are fully serviced and armed. Combat crews are briefed on their mission and are in the aircraft ready to start engines. Ground personnel are assisting the combat crews.	1-2 hours	3-5 minutes
Two	Aircraft are fully serviced and armed. Combat crews are briefed and are on standby in the vicinity of the aircraft, ready to take off within a specified short period of time after receiving a mission order.	2-4 hours	15 minutes
Three	Aircraft are refueled and serviced. Cannons are loaded. External systems (such as bombs, rockets, missiles, and fuel tanks) are not loaded. Combat crews are designated, but not on standby; they have not been briefed on the air and ground situation, but will be before takeoff.	2-4 days	1-2 hours

Army aviation tends to operate from FARPs or holding areas. A flight of helicopters held at the highest state of readiness should reach its target in 15 to 20 minutes; a full battalion or squadron requires up to 25 minutes. Preparation of a follow-on attack could take as little as 15 to 20 minutes depending on the number of helicopters involved and refuel and rearm procedures. Fixed-wing aircraft, at the highest readiness state, should reach their target in 20 to 30 minutes after launch, since the aircraft are based further away, but travel at much faster speeds. Ground commanders are aware of these approximate aircraft transit times and factor them into the

launch trigger.

Risk Management

Effective pre-mission planning and preparation are paramount to increasing the survivability of aircraft in combat. Prior to any aviation mission, aircrews must have a detailed intelligence picture of the battlefield. They use this information to plan every aspect of the mission. This helps crews to determine ingress and egress routes through gaps in enemy air defense coverage and to plan tactical maneuvers. Similarly, they try to use routes that afford cover and concealment from the enemy, while allowing the protection of friendly air defense assets.

Deception and Surprise

The OPFOR emphasizes the importance of deception and surprise to paralyze hostile air defenses and enhance aircraft survivability. Aircraft approach target areas at the lowest permissible altitude, given weather and terrain restrictions. They maintain minimum radio transmissions, emanating only the minimum required communications and sensor signals. The OPFOR exploits detected gaps in enemy radar coverage and often uses decoy flights in advance of attacking aircraft to distract enemy air defense systems. If more than one pass is necessary to destroy the target, attacking formations approach the target from different directions or from bright sunlight, minimizing air defense effectiveness, visual detection, and recognition.

Suppression of Enemy Air Defenses

Whenever possible, the combined arms commander includes a plan for SEAD. He can employ other aviation assets, artillery, MRLs, SSMs, and EW assets to prepare the ingress and egress routes for helicopters and fixed-wing aircraft air support missions. The entire purpose behind SEAD is to disarm or disable enemy early warning radars and to destroy or reduce enemy air defense assets that may come to bear on friendly aircraft. If SEAD is employed, it precedes the approaching aircraft by 20 seconds to 1 minute. SEAD may be employed along the flight route to cover areas where the aircraft are unprotected by terrain or friendly weapon systems. It may also be employed to prepare the AP prior to aircraft occupation.

The effectiveness of air support may be increased through the use of artillery to suppress enemy air defenses. Additionally, suppression of electronic systems that provide early warning, target acquisition, fire control, communications, and data support for air defense systems is a high priority. Specially equipped airborne and ground-based EW systems target both the radar and C2 networks used by enemy air defense. Both fixed- and rotary-wing aircraft, particularly the most advanced, employ a mix of radar warning receivers, self-protection jammers, flares, and chaff.

Flight Tactics

To obtain the full potential desired from an air assets, different tactics are employed by fixed-wing and rotary-wing aircraft. The OPFOR prefers to employ fixed-wing aircraft more frequently on missions with previously reconnoitered routes, fixed or semifixed targets, and greater depths. Fixed-wing aircraft are vulnerable to ground-based air defenses when executing ground attacks. This necessitates a low-altitude, high-speed target approach and minimum time in the target area. Under such conditions the pilotâ ability to visually acquire and properly identify the target may be extremely limited.

The OPFOR prefers to use helicopters for time-sensitive attacks close to friendly forces. Helicopters have reduced logistics requirements compared to fixed-wing aircraft, allowing their deployment close to the battle zone. This proximity enhances their ability to respond to requests for air support. Tactically, helicopters have two advantages over fixed-wing aircraft:

- Their ability to maneuver relatively undetected.

- Systems that allow the pilots to rapidly evaluate and react to battlefield conditions.

Fixed-Wing Tactics

Fixed-wing assets can be employed at the strategic, operational, and tactical levels simultaneously. The tactics employed by fixed-wing assets to support tactical ground force battles are designed to ensure aircraft survivability in a high-threat air defense environment and provide supporting fires to the scheme of maneuver. Fixed-wing aircraft are employed much less often than attack helicopters to support the ground force commander. Yet, when effectively employed, these aircraft have the ability to give friendly forces great advantages in firepower, mobility, and shock effects.

Rotary-Wing Tactics

Many of the tactics and techniques used by the OPFOR are similar to tactics employed worldwide. Helicopter design dictates the capabilities and limitations of each aircraft and, to a large extent, their employment. Some minor variations among models can cause similarly designed helicopters to differ in hovering capabilities, cargo and load capacities, and employment characteristics.

Flight Modes

All OPFOR helicopters can employ any of three differing flight modes: nap-of-the earth (NOE), contour, or low-level.

Nap-of-the-Earth

NOE is flown at varying airspeeds and altitudes as close to the earthâ surface as possible while following the contours of the terrain. It is a weaving flight path that orients along the axis of movement and takes advantage of terrain masking.

Contour

The contour mode is flown at relatively low altitudes, conforming generally to the contours of the terrain. The flight is characterized by varying altitudes and varying airspeed. This mode of flight is most often employed with helicopters offering limited maneuverability. Because altitudes are higher than NOE, aircrews are able to fly at higher airspeeds to reduce exposure times. The aircraft may begin in support zones at contour altitudes and then reduce altitude and airspeed to NOE flight as the probability of enemy contact increases.

Low-Level

The low-level mode is flown at low altitude, with constant heading, airspeed, and altitude to facilitate speed and ease of movement while minimizing detection. It is used only in areas where enemy contact is not likely.

Attack Helicopter Employment

Employment of attack helicopters varies according to scheme of maneuver and the desired results in an attack. Ground force commanders may elect to subdivide helicopter units and employ them at varying strengths as needed. This allows for longer asset employment and accounts for variations in strength of asset coverage. For example, an attack helicopter battalion has 20 attack aircraft arranged in five companies of four aircraft each (assuming that the unit has not been attrited and has no aircraft that are in scheduled maintenance). Any number of companies may be employed on a mission.

Employment Methods

The battalion commander typically employs his aircraft as companies, unless conditions dictate employment as a battalion. Subordinate company commanders decide employment within the companies. They may choose employment as a company or in pairs. The OPFOR categorizes these employment methods as maximum, alternating, and continual. The descriptions below apply to the employment of a battalion; however, with minor adjustment they also apply to employment of companies.

Maximum. In the maximum method, the entire helicopter force is launched simultaneously to different APs to produce a great force multiplier and shock effect for the OPFOR to rapidly defeat the enemy. The aircraft remain in the APs as long as their fuel and ammunition last, and as long as they are afforded the security of friendly air defense coverage. This employment method allows the OPFOR a great advantage in the battle, yet it removes supporting aviation assets from the battle for several hours after they attack, since they must return to rear areas for refueling and rearming. This high number of aircraft requiring service at the FARP at the same time places a heavy demand on the logistics system.

Alternating. The alternating method allows for some helicopter companies to attack the target, while the others wait in a holding area or at the FARP. For example, as the two companies engaging the enemy begin to break contact, the third and fourth fly in to continue the attack. As the latter leave station, they are replaced by the fifth company to continue the attack, but at a diminished rate. The alternating method allows the OPFOR to achieve a moderate amount of shock effects and force multiplier initially, but it allows for a longer engagement than the maximum method. This method also does not strain the logistics system as much. Therefore, the aircraft serviced at the FARP have the potential to return to the battle quicker and replace the company or companies in the AP.

Continual. The continual method employs only one helicopter company at any given time. While one company is in the AP, another is waiting in a holding area to replace it, a third is waiting in the FARP, and the other two flights are in transit between any two of the points. As the first breaks contact to return to the FARP, the others rotate forward. One moves in to continue the attack, while another assumes its position in the deployment area. This method allows the OPFOR the opportunity to keep constant pressure on the enemy with supporting aviation assets. It places little strain on the operation of the FARP, so individual companies can expect a quick turnaround time. This method allows the engagement to continue indefinitely, based only on the logistics capabilities to resupply the FARP, and the fatigue of the aircrews.

Attack Helicopter Formations

Attack helicopters utilize several formations in the attack, and the OPFOR stresses their use in flights consisting of companies or pairs. The most common formations used areâ

- Line abreast.
- Echelon (left or right).
- Trail.

In any of the three formations, separation between aircraft can be up to 90 m horizontally. Altitude may vary between helicopters in a pair. Separation depends on terrain, visibility, aircrew proficiency, and the enemy air defense threat.

Once the FAC provides the flight with target location, the flight leader executes attack control. Inbound to the AP from the IP, he orders the appropriate formation, divides the target, assigns individual target sectors, and determines the movement technique and engagement profile.

Movement Techniques

Approaching the AP from the IP, the flight commander may employ movement techniques based on the likelihood of enemy contact. The techniques areâ

- Traveling.
- Traveling overwatch.
- Bounding overwatch.

The traveling overwatch and bounding overwatch techniques can be used by all armed helicopters, not just attack helicopters.

Engagement Techniques

OPFOR engagement techniques, like much of the helicopter doctrine and employment techniques used worldwide, are based on the capabilities and performance of the aircraft and the ordnance they carry. The flight leader selects the appropriate engagement profile for his flight as determined by the situation. Either a hovering fire or a running fire is employed. The design of some helicopters makes them more conducive to the employment of the hovering technique, versus other helicopters that may require a running technique. Even two of the exact same model helicopters flying similar profiles under the same atmospheric conditions may perform differently based on gross weight. One may be able to hover because of a lighter fuel load and no cargo. However, the other may have a full fuel tank and be loaded to its maximum gross weight. This would cause the latter helicopter to require a running attack technique.

Hover Fire. The OPFOR employs hover fire in the attack if the capabilities of the aircraft allow. APs are chosen so that surrounding terrain provides cover and concealment for attack helicopters. They should also afford good, unrestricted fields of fire as the OPFOR attempts to engage the enemy at the maximum effective range of its weapons. These APs are near the ground forces, within the range of friendly air defense assets, and within range of friendly artillery. In the defense, the OPFOR prefers this technique, rather than running fire, and chooses APs to provide flanking fire on advancing enemy formations.

In the APs, the aircraft form into the attack pair, and mask themselves behind covering terrain. They unmask vertically or horizontally, fire their ordnance, and then remask. Based on a quick battle damage assessment, the FAC then directs the aircraft to engage the enemy again or to disengage. Because the AP was compromised, standard practice is to move to another location within the AP or to an alternate AP before firing again.

In hover fire, the helicopter may either be stationary or moving slightly. In either case, the pilot must keep the aircraft stable, for most accurate delivery of ordnance. In moving hover fire, the helicopter deliberately makes horizontal movement, which may be in any direction. However, movement is always below effective translational lift airspeed. The pilot can allow the helicopter to drift with the wind, if the threat situation and terrain permit.

If their weapons afford them a greater standoff range than enemy air defense systems can range, attack helicopters may not be concerned about masking. This allows them to employ their ordnance at the maximum range capable, and with a clearer shot at the target. These conditions also facilitate use of stationary hover fire.

Running Fire. If not employing a static AP with hover fire, attack helicopters can perform an attack using running fire. They can attack as a company or break down into pairs. Both simultaneous and successive attacks can be conducted from either one or two directions depending on the situation and target area.

The running fire profile is flown with an altitude that is terrain-dependant and is characterized by an increase in altitude prior to weapons release in order to acquire line of sight to the target. Airspeed varies between 90 and 280 km/h. The forward airspeed during running fire adds stability to the helicopter and thus increases the accuracy of ordnance delivery, especially for rockets. The dive to engage the target also results in fewer rotor down-wash effects on

munitions, further increasing accuracy.

Engagements using running fire begin with a high-speed, low-altitude run using one of the movement techniques from the IP to the AP. The flight leader selects an IP about 8 to 10 km from the target. The IP is typically an easily identifiable terrain feature along the desired route to the target. Beginning at the IP, the helicopters move toward the target, usually at contour altitudes, using terrain to mask the approach. Once the AP is reached, the flight leader directs the helicopters to climb and acquire the target. When the target is identified, the helicopters execute a shallow dive toward the target and engage it. Depending on the range of the weapon system to be used for the engagement, they may level off for a short distance, between acquiring the target and beginning a dive toward the target.

The distance at which the helicopters begin the dive and begin firing depends on the type of ordnance to be used. The helicopters begin firing during the dive, as they reach the most effective range for their munitions. The wingman maintains his position during the firing run and releases his ordnance simultaneously with the lead. The running fire profile can be used for delivery of either guided or unguided munitions.

At the end of the firing run (regardless of the types of munitions delivered), all aircraft break off and dive down and away from the target area, leaving at minimum altitude and using terrain masking. If more than one pass is needed, helicopters may approach from another direction, or from the sun, to hinder visual identification. Target identification and engagement distances are shorter when using this technique at night.

CS and CSS Helicopter Employment

CS and CSS helicopters primarily perform preplanned missions to support the ground force commander. In this role, these helicopters are employed individually or in pairs across the width and depth of the battlefield, but primarily in the support zones, to perform their individual missions as required. If they are flying in areas where enemy contact is likely, they operate with attack helicopter escort.

The CS and CSS helicopters fly to an LZ/PZ established by the ground force unit. It is carefully planned to ensure a landing area clear of debris and with minimal slope. The takeoff and landing direction is into the wind, and landing spots within the LZ/PZ are carefully marked to allow proper spacing and safe operating distances between aircraft. The marked sites should allow for both larger and smaller helicopters to maneuver in the LZ/PZ without their rotor downwash interfering with the operation of each other.

An airfield or LZ/PZ without an air traffic controller would have an assigned air-to-air radio frequency. Inbound flights make a call on that frequency approximately 10 km away. In this radio call, the flight leader states his intentions, requests information on the wind direction and the established landing direction, and passes all pertinent information: number of aircraft, formation used, and loads carried. If other aircraft are already operating in the LZ/PZ, they return the call stating their intentions, size of helicopter, and their location and number within the LZ/PZ. They also notify the incoming flight of the landing direction in use, and the inbound flight adopts the same procedures.

Similarly, if the helicopter or flight is arriving at a specific unitâ Isz/PZ, the flight leader makes an initial radio call to the ground force point of contact on a predetermined frequency upon entering the AOR. Another radio call is made 3 to 5 km away from the LZ/PZ. If there are no other aircraft operating in the vicinity, the flight leader states his intended landing direction. Once communication is established with the ground force and landing is assured, the aircraft requests a frequency change from the VTDP, and continues with no positive air traffic control into the LZ/PZ.

On takeoff, similar procedures are followed. The flight leader announces his intentions to taxi

and takeoff. If operating alone in the LZ/PZ, he can set his own procedures. If operating in conjunction with other aircraft, he uses the procedures already in effect. Another radio call is made to notify the LZ/PZ traffic the flight is clear of the LZ/PZ. The helicopter or flight lead then reports when leaving the ground forces unitâ Â AOR.

Weather and Night Capabilities

Night systems, infrared, radar, or avionics upgrades are readily available for procurement on the open market. Regardless of modern systems capabilities, the OPFOR still expects pilots to navigate by land, search for targets visually, and determine distances to targets. The effectiveness of air support depends on the ability of aircrews to positively identify targets in prevailing weather and light conditions.

The OPFOR realizes that system upgrades and improvements are financially more attainable and easier to procure in smaller numbers. It also understands that every aircraft in the inventory does not require the same modification. Similarly equipped units or higher-capability aircraft working in conjunction with unimproved aircraft can still present a definitive edge to OPFOR aviation and the ground force commander. Even a limited number of upgraded aircraft may have a significant impact on the battle.

Currently, flights in poor weather or at night are primarily conducted by helicopters, since they are routinely employed in marginal weather conditions, well below those acceptable to fixed-wing aircraft. They navigate through the use of instruments. This forces air assets to fly at a higher altitude and at slower airspeeds. Although this allows the OPFOR to accomplish missions in less than ideal conditions, it exposes the aircraft to greater danger. They are no longer afforded the cover and concealment of terrain, and may be unsupported by direct fire coverage from friendly ground force units.

Older or unmodified OPFOR aircraft are not likely to have any night-fighting capabilities without the aid of artificial illumination. Artificial illumination is still not adequate to fire ATGMs using day-only visual sighting, although guns and rockets can be effective under these conditions. If employed, illumination (flares or illuminating rounds) is fired from artillery or aerial platforms to assist friendly forces in engaging the enemy during periods of darkness or limited visibility.

The use of precision munitions offers a higher probability of the ordnance hitting the target than conventional projectiles or rockets that have ballistic trajectories. Precision munitions may be used for surgical air attacks in minimal weather conditions against targets such as bridges, small targets (weapon emplacements or armored vehicles), and specific buildings. External stores racks may allow OPFOR aircraft to carry precision munitions, yet most aircraft do not have the systems to aim or deliver these weapons to hit their intended targets. The munitions must be guided by other ground-based sources. Newer or recently modified aircraft may be able to deliver precision munitions in bad weather or at night.

1. Includesall units that were originally part of the motorized infantry brigade (see FM 7-100.4) before it was augmented with the additional units shown here.