PLANNING CONSIDERATIONS

Last Updated: 6 September 2019

Counterair planning may be conducted at every echelon of command and across the range of military operations. Counterair planning should take into account the capabilities of all the Services, joint force components, interagency, and multinational partners. Counterair planning is conducted using the joint planning process for air. For details on this process, see AFDP 3-0, *Operations and Planning* and Joint Publication (JP) 3-30, *Joint Air Operations*. During joint intelligence preparation of the operational environment (JIPOE), planners should determine the adversary's active and passive counterair capabilities, as well as their intent to contest control of the air with those capabilities, if possible. JIPOE's main focus is to provide intelligence designed to help the JFC discern the adversary's probable intent and most likely future course of action (COA). This, in turn, should inform the joint force air component commander's (JFACC's) and joint force commander's (JFC's) decision-making efforts during mission analysis and COA development. For more information on JIPOE see JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment*.

Normally, **the JFACC's first priority should be to define the level of control of the air needed to achieve the JFC's objectives and what level of risk they are willing to accept to achieve it**. Once defined, the JFACC should identify the current level of control of the air (parity, superiority, or supremacy) and what actions are needed to reach the desired level of control to include space and cyberspace operations. For further discussion on risk, refer to Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3105.01, *Joint Risk Analysis, Enclosure C, Chairman's Risk Assessment* and Air Force Tactics, Techniques, and Procedures (AFTTP) 3-3, *Combat Aircraft Fundamentals Integrated Planning & Employment (IPE)*. This guidance will drive the priorities for joint air operations center planners. The JFACC should inform the JFC as to which level of control of the air is realistically achievable given current capabilities and allocation of assets.

OFFENSIVE COUNTERAIR

Offensive counterair (OCA) may be the highest payoff air component mission when the enemy has the capability to significantly threaten friendly forces with air and missile assets. Given finite resources, the JFACC should judiciously allocate them in order to meet the JFC's objectives. Successful OCA results in greater freedom *from* attack,

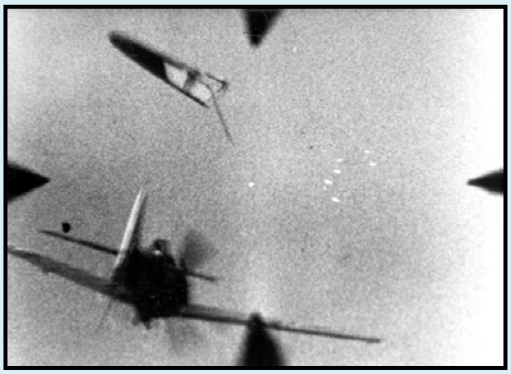
enabling increased freedom of action, and freeing assets for other operations against the enemy. In other words, the initial investment in OCA operations to achieve the desired level of control of the air may pay significant dividends toward overall mission accomplishment. Determining which enemy capabilities hinder control of the air is fundamental to successful OCA operations. For instance, it may not be necessary to completely destroy a given capability, but only temporarily degrade it in order to achieve desired effects. The latter may require much less effort, thereby freeing up assets for other missions. This type of analysis may vary from one operation to another but often results in an effective set of target priorities and an efficient use of assets to achieve the desired effects.

Offensive Counterair Example

To gain control of the air, friendly forces must counter enemy air and missile threats not only to assure full force protection, but also to enable full flexibility to conduct parallel operations across the operational environment. The flexibility of air power may tempt commanders to divert it to other tasks; this must be guarded against. The air component commander assists the theater commander in achieving control of the air as a prelude to subsequent theater operations. Relaxing pressure on the enemy's air forces may allow them to gain air superiority with disastrous results. For example, Hitler's decision during World War II to divert the Luftwaffe from direct attack of the Royal Air Force (RAF) to the bombing of cities allowed the RAF breathing space it desperately needed to reconstitute and eventually win the Battle of Britain.

What the Luftwaffe failed to do was to destroy the fighter squadrons of the Royal Air Force, which were, indeed, stronger at the end of the battle than at the beginning.

—Air Chief Marshal Sir Hugh C.T. Dowding
Fighter Command, Royal Air Force



The nature of airpower is such that offensive combat power can frequently be "massed" by *distributing* forces. In fact, the most effective OCA efforts may be achieved as part of

a broader, parallel attack on the adversary as a system-of-systems with all available assets, to include cyberspace and space capabilities. For instance, attacking electrical power and isolating national military leadership may aid the operation's overall OCA effort while also helping achieve other objectives. However, as with other operations, care must be taken not to dilute the OCA effort to the point where it is ineffective. Concentration of effort in the context of space and time will ensure that direct effects allowing access are balanced with indirect effects that degrade the overall enemy system over time. If the OCA effort is spread too thin, the JFACC risks losing the initiative and the benefits of airpower's offensive nature. When considering counterair assets available, it is important to give full consideration to the assets and capabilities of other components.

Planners should utilize intelligence to determine the adversaries' capabilities and expect at a minimum that adversaries will have at least a rudimentary integrated air defense system (IADS), consisting of both active and passive defenses, even if they do not possess any significant offensive air potential. IADS range from coordinated fire from small-caliber antiaircraft artillery, man-portable air defense system missiles and small arms fires (which may, nonetheless, employ sophisticated passive measures such as camouflage and concealment), to complex, integrated, and highly redundant systems. In all cases, strategists and planners should develop means of neutralizing these systems, or negating their effectiveness, in order to create a permissive air environment at desired places and times. In the case of the more complex IADS, attacking the larger enemy system in parallel (versus concentrating on the IADS alone) will likely be more effective and may yield cascading failures within the IADS, as systems it relies upon also fail. Ironically, more rudimentary or "primitive" defense systems may be harder to defeat because they are more distributed and easily concealed (or otherwise protected), and may be rendered ineffective only by imposing operating restrictions on friendly forces (since such defense systems are typically short-ranged).

The following considerations are important for determining OCA targeting priorities and methods:

- **Threat.** The threat posed by specific enemy capabilities (aircraft, theater missiles, etc.) includes an assessment of the urgency or the need to counter that threat. A weapon of mass destruction-capable missile launcher would normally merit diversion of assets from a less immediate threat, such as a surface-to-air missile (SAM) site.

- **Direct effects.** First-order results of actions with no intervening effects between action and outcome. These are usually immediate, physical, and readily recognizable (e.g., weapon employment results). These are important in determining whether friendly tasks were accomplished. Planning for them must also consider such factors as collateral damage potential and rules of engagement restrictions.

- **Indirect effects.** Second, third, or higher-order effects created through intermediate effects or causal linkages following causal actions. These may be physical, psychological, functional, or systemic in nature. They may be created in a

cumulative, cascading, sequential, or parallel manner. They are often delayed and typically are more difficult to recognize and assess than direct effects. Understanding these and the causal linkages between them may be vital for achieving objectives.

- **Forces available.** The forces available are assessed against the number, types, and priority of targets that can be attacked. Sufficient and capable forces should be provided to ensure the desired results are obtained.

- **Time available and time required.** Time constraints are integral to prioritization and planning. The time allowed to achieve the direct and indirect effects as well as the duration required of those effects will influence the number and type of forces required.

- **Risk.** Risk calculation involves weighing the risk to friendly forces against expected gains from target attack. Risk calculation should also consider the risks entailed in *not* taking planned actions. Different objectives and circumstances drive different acceptable levels of risk.

- **Measures and indicators.** These are the essential component parts of assessment; the means of evaluating progress toward creating effects and achieving objectives. They should be determined during planning.

The types of resources available to perform OCA tasks are only “tools” in a planner’s “toolkit.” Desired effects should drive planning efforts and there may be many ways to impose a particular effect. The means may be chosen based on a number of criteria, including desired higher-order indirect effects. For example, there are multiple ways to suppress a SAM site. One may simply jam its communications and radars if short term local suppression is needed or if resources needed to create the intended effects are not available. One may destroy or degrade the operations center that controls the site, forcing the enemy to autonomous operations that often present less of a threat to friendly forces. One may destroy the site outright if its autonomous operation represents a sufficient threat to friendly operations. Planners and commanders should choose means carefully in order to satisfy requirements relating to the timing and tempo of operations, persistence of threats, and “opportunity costs” of using OCA assets for other purposes.

Planning for OCA usually takes place in the AOC as part of the joint planning process for air. In early stages of planning, the JFACC, along with the AOC’s strategy and intelligence, surveillance, and reconnaissance (ISR) divisions, will determine objectives, desired effects, and relative priorities. Planners in the strategy, combat plans, and ISR divisions will determine enemy systems, capabilities, and assets that can be used to contest control of the air. Combat plans and combat operations personnel will use this information to match desired effects to targets provided by the ISR division, and match targets with friendly forces to create tactical tasks. Planners should develop a prioritized target list before hostilities begin, continually updating it once the battle rhythm is

established based on current intelligence and progress of the operation. Planners should also build procedures to handle higher priority re-taskings, such as diversions to strike JFC-designated time-sensitive targets (TSTs), which for counterair, may be such targets as enemy ballistic missiles or the most modern SAMs that represent significant threats to friendly air operations. Planners must be able to rapidly re-task OCA missions in order to take appropriate action against TSTs and similar fleeting, emerging, or higher-priority OCA targets. For example, it may be necessary to pull a flight of aircraft off of attacking an enemy aircraft fuel facility to strike (or monitor) a probable ballistic missile launch site that is of higher priority to the JFACC and JFC. A frequently used best practice is to designate on-call aircraft with appropriate weapons loads to loiter, awaiting the call to strike a fleeting target, then striking a pre-planned OCA (or other) target if no call comes. Against fixed, often highly defended, targets deep within enemy territory, OCA planners should place great emphasis on detailed, accurate, and timely intelligence, target analysis, time-over-target deconfliction, active and passive defenses available to the enemy, and rules of engagement (ROE). Mission planners at the unit level should study these thoroughly to avoid friendly fire and mission interference, and enhance mission effectiveness. In addition, OCA planners should consider multi-domain solutions (such as use of cyberspace capabilities) to achieve OCA objectives against fixed, highly defended targets deep within enemy territory as a way to minimize risk to friendly forces.

The following considerations are important for OCA planning at the AOC and unit mission planning levels. For more information on integrated planning considerations, see AFTTP 3-3, *Combat Aircraft Fundamentals Integrated Planning & Employment (IPE)*.

- **Enemy threat, location, and capabilities.** The enemy threat to air operations needs proper consideration in the planning, positioning, and timing of OCA mission details. Specific threats to the OCA effort (aircraft, missiles, antiaircraft artillery, electromagnetic attack[4]) may require substantial emphasis be placed on their disruption prior to striking intended targets.

- **Friendly command and control (C2) capabilities.** Theater C2 assets such as Airborne Warning and Control System and Joint Surveillance Target Attack Radar System, are tasked by numerous units and agencies. As such, OCA planners should not assume that complete C2 capabilities will be available for every OCA mission. In all cases, C2 instructions should be carefully monitored, because this is the avenue through which higher-priority re-tasking will come.

[4] Air Force language has evolved from using the term “electronic warfare” (and related terms such as “electronic attack” to refer now to “electromagnetic warfare”. The legacy term, “electronic,” speaks to actions to attack and protect the electronic circuits associated with radios and radars. With expanded use of the electromagnetic spectrum (e.g., infrared applications, lasers, microwave and satellite communications, computers) the broader term “electromagnetic” is more technically accurate. This evolution also anticipates a similar change in joint doctrine. For more information, see AFDP 3-51, *Electromagnetic Warfare and Electromagnetic Spectrum Operations*.

- **Rules of engagement** and related special instructions (SPINS) found in tasking orders, as well as rules for use of force, (often used in situations such as homeland defense and civil support missions) are directives, issued by competent military authority, that must be followed for any mission that falls under that particular operation. ROE and SPINS may critically affect how missions are performed. All levels, from the JFACC down to individual aircrews, should understand the ROE that apply to the accomplishment of their missions and include both the ROE and SPINS in mission planning.

- **Weaponeering.** Assigning the correct weapons and platforms to target sets is critical to achieve the desired effects. Accurate weaponeering increases the chances of achieving desired effects.

- **Deconfliction.** The sheer number of airborne assets—manned, unmanned, and ballistic—demands that planners deconflict to protect friendly forces from unnecessary risk. Deconfliction must also be conducted for non-kinetic effects supporting counterair missions to ensure desired effects are provided and to mitigate unintended consequences.

- **Environmental conditions.** The significance of environmental conditions on counterair cannot be overstated. Weather can limit sensor or seeker sensitivity and ultimately limit the planner's munitions selection. Likewise, varying terrain can be a challenge to pilots or offer refuge to an adversary. Terrain will often limit munitions selection. Planners should address the need for sufficient counterair assets to offset the loss of capability and desired effects due to environmental factors.

- **Distance, timing, and refueling.** Counterair assets typically require refueling support for sustained presence. Refueling coordination requires constant management by planners, and details need to be stated in ATO SPINS. See AFDP 3-36, *Air Mobility Operations*, for more detail on refueling considerations.

DEFENSIVE COUNTERAIR

While OCA seeks to affect enemy counterair systems close to the enemy location, DCA seeks to affect those same systems closer to friendly locations. In some cases, DCA may also be the only allowed means of countering air and missile threats due to constraints imposed by the political situation. Effective OCA greatly reduces the DCA requirement, freeing assets for more offensive operations, but some degree of DCA is normally necessary in every operation. DCA operations defend friendly lines of communication, protect friendly forces and assets by denying the enemy the freedom to carry out offensive attacks from the air, and provide a secure area from which all elements of the joint force can operate effectively. DCA operations can be conducted in conjunction with or independent of OCA operations and generally fall into one of two categories: Active air and missile defense (AMD) or passive AMD.

Just as in OCA operations, DCA planners prioritize which assets and capabilities to defend. This is commonly done by a critical asset list (CAL) and/or a defended asset list (DAL). For additional information, see AFTTP 3-2.31, *Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense*. Planners at all levels identify enemy targets and capabilities to defend against, while matching available forces against the threat. They use many of the same OCA planning considerations. Planners determine which mission-critical assets and capabilities to protect, which will vary from operation to operation.

An emerging threat to airbase operations arises from the proliferation of low, slow, and small unmanned aircraft (UA). These UA pose a unique challenge to conventional DCA capabilities. As capabilities are developed to counter this threat, integration with existing DCA C2 systems must be a priority. Countering this threat is a shared responsibility between DCA operations and airbase defense. For further information, see AFTTP 3-2.31, *Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense*.

Active Air and Missile Defense

Active AMD involves defensive actions taken to destroy, nullify, or reduce the effectiveness of hostile air and ballistic missile threats against friendly forces and assets. Active AMD consists of both air defense (AD) and ballistic missile defense (BMD) and is conducted using the area air defense commander-established friendly IADS which is a mix of the Services' weapon and sensor systems, supported by secure and highly responsive C2 systems, to find, fix, track, target, and destroy or reduce the effectiveness of hostile airborne threats. The IADS is unique to each operations area and contributes to defense in depth, with the potential for multiple engagements that increase the probability for success. Active AMD targets include any air and missile threat that negatively impacts friendly operations.

Integrated employment of air-to-air and surface-to-air defense systems, along with multi-domain detection, tracking and warning capabilities, through coordinated detection, identification, engagement, and assessment of enemy forces is necessary to defeat enemy attacks and protect friendly forces. Planners should keep in mind the complexities of airspace control in a DCA environment. Airspace control in an active AMD environment is extremely difficult and becoming more complicated with the proliferation of unmanned aircraft systems. Rapid, reliable, and secure means of identification are critical to the survival of friendly aircraft and to facilitate an effective defense against enemy air and missile attacks.

The effective execution of AMD via an IADS requires the ability to quickly detect a potential air or missile threat, identify it, track and target it, and attack it. DCA engagements may occur inside friendly airspace, requiring deconfliction between friendly assets, such as fighters and SAMs. To facilitate engagements, continuous surveillance and reporting of real time and near-real-time target track data is required. To maximize damage to the enemy force, the engagement process is continuous throughout the threat's approach, entry into, and departure from the friendly operational

area. Target track production is a sequential process that begins with the surveillance function.

Effective surveillance and track identification depends upon fusing all-source sensor data (ground, air, sea, and space-based sensors) into an accurate common tactical picture. As a track is detected, it is identified and labeled; this information is then disseminated as rapidly as possible via datalink, voice, and text as applicable. The track data provided should be sufficiently detailed and timely to permit the C2 system to evaluate the track, determine its threat, and designate the appropriate AMD asset for engagement if required. The optimum employment of DCA forces involves the earliest possible discrimination of friend from foe to maximize engagement opportunities. **To prevent friendly fire, great caution should be exercised when employing autonomous combat identification in DCA operations.** If no IADS is established, procedural means should be used to permit the safe passage of friendly aircraft while still allowing for the use of available AMD weapons. Since many AMD assets are owned by different Services and coalition partners, standardized integration, coordination, and airspace control procedures are required to enable or enhance the capabilities of the various systems.

Passive Air and Missile Defense

Unlike active AMD, passive AMD does not involve the employment of lethal weapons. Passive AMD provides individual and collective protection for friendly forces and critical assets and is the responsibility of every commander in the joint force. It includes measures, other than active AMD, taken to minimize, mitigate, or recover from the consequences of attack aircraft and missiles. Passive AMD is similar for air and ballistic missile threats, with the exception of detection and warning times. Passive AMD measures are designed to provide protection for friendly forces and assets by complicating the enemy's identification, surveillance, and targeting processes and by countering the enemy's planned effects.

The first step of passive AMD is to hide valuable assets from the enemy or to encourage the enemy to attack decoys. Like active AMD, thorough passive AMD should include layered defense in depth. Passive measures can work concurrently to achieve this goal. Measures to reduce enemy targeting effectiveness include mobility; deception; electromagnetic warfare; camouflage, concealment, and deception; hardening; reconstitution; dispersal; and electronic and infrared countermeasures.

When planning passive AMD there are four principal considerations (JP 3-01, *Countering Air and Missile Threats*):

- **Detection and Warning Systems and Procedures.** Timely detection and warning of air and missile threats provide reaction time for friendly forces to seek shelter or take appropriate action. Reliable and redundant connectivity for communications and sensor systems is vital for accurate and timely warning. **Warning methods**

and procedures should be established, disseminated, and rehearsed down to the unit level to be effective.

- **Reduction of Enemy Targeting Effectiveness.** Certain measures may be taken to reduce the effectiveness of enemy targeting and attacks, to include mobility, deception, electromagnetic warfare, and operations security.

- **Reducing Vulnerability.** There are four measures that may enable friendly assets to survive enemy attacks by reducing their vulnerability: hardening; redundancy; dispersal; and chemical, biological, radiological, and nuclear defense.

- **Recovery and Reconstitution.** Following an air or missile attack, units should be restored to a desired level of combat effectiveness commensurate with mission requirements and available resources.

Passive AMD is often an additional means of defense should active AMD efforts fail.

For details on planning considerations for Active and Passive AMD, see AFTTP 3-2.31, *Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense*.

AIR REFUELING

Air refueling **is an essential enabler of counterair operations.** Many air assets that perform the counterair mission have relatively short on-station times or operate from bases far removed from their intended targets. These assets rely on air refueling to extend range, on-station time, tactical flexibility, and persistence. Strategists and planners should build needed refueling support into the air component's planning products. Refueling coordination requires constant management during both planning and execution.

Advanced adversary capabilities may require refueling aircraft to operate in airspace contested by naval, surface, and air threats. This airspace is determined by the needs of the receiver aircraft, enemy threat capabilities, risk analysis and acceptance levels, and political boundary consideration.

The effectiveness of air refueling in counterair operations relies on sound planning, execution, and integration with the joint force. Fuel planning is determined by receiver requirements, tanker fuel capacity available, and refueling booms or refueling drogues available to refuel aircraft. Planners must appropriately match compatible refueling aircraft configurations to Air Force, Navy, Marine, or coalition forces. Fuel and boom/drogue requirements vary between OCA and DCA. The nature of OCA allows for more predictable fuel planning but will require more tankers to provide fuel simultaneously prior to an OCA push. Refueling support to DCA operations may require fewer tankers but the fuel planning and execution is more dynamic.

Complete refueling planning goes beyond fuel and compatibility requirements and must include: a robust command and control (C2) plan; sufficient battlespace situational awareness; expedient threat notification; and detailed retrograde planning.

For more information on air refueling, see AFDP 3-36, *Air Mobility Operations*.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

Intelligence, surveillance, and reconnaissance (ISR) is defined as "an activity that synchronizes and integrates the planning and operations of sensors, assets, and processing, exploitation, and dissemination systems in direct support of current and future operations. This is an integrated intelligence and operations function." ISR consists of separate elements but requires treatment as an integrated whole in order to provide optimized support to counterair operations throughout each phase of the targeting cycle. Effective counterair operations planning and execution require timely, reliable, and accurate ISR from air, surface, and space-based sensors that contribute to warning, situational awareness, targeting, and assessment. Finally, ISR is needed to identify and attack or exploit emerging targets that pose a substantial threat to friendly operations. Timely target detection, development, geolocation, weapon selection, mission planning, and assessment all depend on integrated collection and analysis. **Effective integration of ISR assets is often as crucial to successful counterair operations as are traditional lethal effects.**

Without accurate, well-defined enemy intelligence mission data (IMD), friendly forces operate under increased risk. Robust IMD planning includes the development, production, and sharing of information including, but not limited to: signatures, electromagnetic warfare integrated reprogramming, order of battle, and system characteristics and performance. Additionally, planning and direction; collection; processing and exploitation; analysis, prediction and production; and situational awareness dissemination and relay, contribute directly to a more robust ISR picture, thereby providing friendly forces with greater opportunity to counter adversary capabilities. ISR may also provide important indications concerning how an adversary may use their own counterair capability. An example might be how enemy operators are trained and what tactics they employ. Further, while ISR cannot read the mind of the enemy commander, it can provide valuable clues as to the enemy commander's intent. Other component intelligence resources can provide valuable information concerning air operations within their areas of operations.

Strategy Division targeteers use ISR products, to include target system analysis (TSA) products, to continuously update TSA assessment and to develop the objectives, tasks, and measures of effectiveness which form the foundation of the combat assessment process. Likewise, targeteers also provide combat assessment inputs (contributing to battle damage assessment, munitions effectiveness, and mission assessment), feeding the ATO cycle.

For further details on ISR systems and requirements, see AFDP 2-0, *Global Integrated Intelligence, Surveillance and Reconnaissance Operations*.