



AIR REFUELING OPERATIONS

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Air refueling (AR) creates opportunities for the use of in-flight refuelable aircraft in operations. Whether keeping surveillance aircraft on station to observe adversaries, refueling airlifters flying long direct delivery missions, or enabling sustained strike operations; AR is an invaluable part of overall Air Force capability.

Air Refueling Airspace

Most intratheater [air refueling](#) (AR) is conducted in airspace specifically designated for AR. In peacetime, AR information (e.g., airspace boundaries, altitudes, and communication data) is published in-flight information publications. During a contingency, AR airspace, as well as routing to and from the AR airspace, may change in response to air operations and enemy threats. Applicable AR information is published in the daily and weekly [airspace control plan](#), [airspace control order](#), and special instructions, and should be followed carefully to avoid conflicts or hazardous situations, especially during joint or multinational operations where the risk of midair collisions in theater is high.

There are generally two types of refueling areas: tracks and anchors. The choice of track or anchor depends on several factors such as receiver mission and routing, number and routing of tankers, offload required, receiver number and type, weather, time available to accomplish rendezvous and refueling, and availability of airspace. At times both types of refueling areas may be used to facilitate the same operation. For example, pre-strike refueling may be accomplished in an anchor to facilitate package formation, and post-strike refueling may be accomplished along a track to facilitate recovery of receiver aircraft. In addition, special purpose AR areas may be established through the use of an altitude reservation. Detailed information on AR track and anchors for peacetime operations can be found in Federal Aviation Administration Joint Order 7610.4 ("[Special Operations](#)"), chapter 10 (Aerial Refueling), or the theater-specific instruction.

Tracks

AR along a designated AR track is the preferred method for intertheater refueling. Normally, tracks have a designated AR entry point, rendezvous initial point, rendezvous

control point and a designated AR exit point. Tracks are used when receiver aircraft are required to maintain a predetermined aspect to an objective area. Finally, AR tracks are best when either tanker or receiver performance would be impacted by multiple turns.

Anchors

In anchor areas, the tanker flies a racetrack pattern within a defined airspace while waiting for receiver aircraft to arrive. Once joined, the tanker flies an expanded racetrack while refueling occurs. Anchor refueling is normally used for intratheater operations where airspace is confined or where receivers need to operate from a central location. Anchor areas are best suited for small, highly maneuverable aircraft.

Operation ALLIED FORCE (OAF) Airspace Structure

32 AOG/C5, OAF: "Limited airspace – near midair collisions every night"



Airspace control for air refueling operations is vital. During OAF, air refueling concerns mandated a dramatic restructuring of effort to ensure mission accomplishment and safety were both given their due. Additional information on airspace control can be found in AFDP 3-52, [Airspace Control](#).

Nuclear Operations Support

AR supports [nuclear operations](#) in several ways:

Bomber Support

Tanker assets are incorporated into nuclear operations to support bomber strike requirements. AR provides the nuclear-equipped bomber force the ability to deliver their payloads to any location in the world and recover to suitable reconstitution bases. Through AR, the payload, range, and endurance of bomber aircraft is significantly increased, further enhancing their flexibility to strike at distant targets. Bombers may be launched during periods of increased tension and proceed to orbit areas well beyond the range of enemy missiles or attack aircraft, providing flexible options to national

senior leadership. With AR the bombers can maintain this orbiting status until they are directed to fulfill their mission or are recalled.

Reconnaissance in Support of Nuclear Operations

The greatly enhanced flight endurance provided by AR is also an indispensable component of reconnaissance in support of nuclear operations. It enables the reconnaissance assets to provide timely and accurate intelligence information to the command authorities.

Command and Control Aircraft Support

In the same manner, the greatly enhanced flight endurance provided by AR is an indispensable component of the strategic airborne command post concept. It provides the President and Secretary of Defense the ability to continue to direct military action from an airborne platform.

Global Strike Support

Tankers give strike platforms the ability to reach any target globally without relying on intermediate basing locations. This provides the ability to rapidly strike targets in distant locations and recover to safe areas. Depending on the situation, tanker assets may be transferred to other combatant commanders in support of existing operation plans. AR provides continental United States (CONUS)-based airpower forces a global presence, providing geographic combatant commanders with greater capabilities than they may otherwise have available.

Airbridge Support

An airbridge creates a line of communication linking the CONUS and a theater, or any two theaters. AR makes possible accelerated airbridge operations since en route refueling stops are reduced or eliminated. It reduces the number of aircraft on the ground at staging bases, minimizes potential en route maintenance delays, and enables airlift assets to maximize their payloads. This significantly increases the efficiency and effectiveness of airlift operations by making possible the direct delivery of personnel and materiel. It is an effective method for moving forces in the initial days of a conflict; however, the level of effort required is significantly increased and such operations may reduce the number of tankers available for other potential missions like combat support. Outside the CONUS, tanker basing may be a requirement for airbridge operations.

Aircraft Deployment Support

Tankers extend the range of deploying combat and combat support aircraft, often allowing them to fly with few or no stops en route to an area of responsibility. AR increases the deterrent effect of CONUS-based forces and allows rapid response to regional crises. The capability of aircraft to fly non-stop to a theater may eliminate the

need to obtain landing rights from countries remaining neutral in a conflict. Deployment support is key to achieving successful expeditionary operations. The deployment support operation is considered a separate and distinct operation because the coordination, communication, and search and rescue responsibilities differ based on receiver capabilities. Deployments of heavy aircraft (bombers, airlifters) normally use an airbridge operation for primary support. This operation can also be associated with the movement of fighter aircraft between theaters in the form of missions named Coronets.

Coronets support the movement of multiple air assets, usually fighter aircraft, during deployment rotations, contingencies, exercises, and aircraft movements for logistics purposes. Joint Publication 3-36, [Joint Air Mobility and Sealift Operations](#)⁷, refers to Coronets as “*a movement of air assets, usually fighter aircraft, in support of contingencies, rotations, and exercises or aircraft movements for logistic purposes.*” These flights may include a dual-role cargo- and passenger-carrying element as well as refueling. They normally have long lead times for planning, tasking, and execution, and the tanker portion of the flight is normally planned by the [618th Air Operations Center \(AOC\) \(Tanker Airlift Control Center \[TACC\]\)](#). Coronet operations usually have a higher priority than routine training operations. Depending on operational requirements, the 618 AOC (TACC) may position tanker aircraft and crews in preparation for deployment and may coordinate with the theater AOC for AR support, if required. Typically the tanker accompanies the receivers for the majority of the flight, especially during an oceanic crossing.

Theater Support (Combat Air Refueling Support)

During a combat operation, the highest priority for intratheater AR forces is normally supporting combat and combat support aircraft executing the air portion of the [joint force commander's](#) (JFC's) campaign. This is especially true during the initial phases of a conflict. Combat aircraft may be based well outside enemy threats to protect them from hostile attack, and may need tankers to give the range and increased weapons load necessary to engage targets. AR increases the endurance of air combat support assets. Airborne [command and control](#); battle management; and [intelligence, surveillance, and reconnaissance](#) aircraft are used to manage, direct, conduct, and assess combat operations. Without in-flight refueling, these assets have limited endurance and may require extensive regeneration periods between sorties. In a peer/near-peer conflict, tanker support may be required in known threat areas. This will make counterair escort or suppression of enemy air defenses a likely requirement (reference AFDP 3-01, [Counterair Operations](#), for more specific information).

Tankers allocated for theater support may occasionally be called upon to provide support to airbridge operations, especially supporting direct delivery missions. The theater [commander, Air Force forces](#) (COMAFFOR), after considering theater air refueling requirements, determines if theater assigned or attached tanker forces can

⁷ Common Access Card enabled site

support the CONUS-to-theater airbridge. If additional tanker forces are required, the COMAFFOR may request increased augmentation from the JFC.

Special Operations Air Refueling Support (SOAR)

SOAR enables special operations forces to maintain a long-range operating capability, as well as endurance and persistence in an operational area. [Air Mobility Command](#) maintains AR crews trained to air refuel special operations aircraft. Successful operations require specialized equipment, crew training, and operational procedures. When assigned or attached to a joint task force, these forces may fall under a special operations functional component commander who reports directly to the JFC.

Joint and Multinational Operations

Joint and multinational operations require [unity of effort](#). When working with other Services and nations, differences in procedures and terminology may provide challenges. Therefore, tactics, terminology, and procedures should be standardized when working in joint or multinational operations. For example, Allied Tactical Publication (ATP) 3.3.4.2 [Air-to-Air Refueling](#) [formerly ATP 56(C)] under Standardization Agreement 3971, was published for North Atlantic Treaty Organization (NATO) members to standardize in-flight refueling operations within a NATO context. While detailed procedures depend on aircraft type, mode of employment, and national requirements, most allies should achieve sufficient commonality. Commanders of multinational forces should determine a common set of doctrine, tactics, and procedures for operations. Because airspace availability is a limitation in refueling operations, standardizing multinational formation procedures allows assets to operate in compressed airspace. Standardization is critical when refueling multiple receivers or multiple formations.
