

AAR CONOPS

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AAR Doctrine is a part of the JAPCC project "Enhanced NATO AAR Interoperability". This document, with the name "NATO AAR NATO DOCTRINE Draft" was presented in the AAR Panel meeting in San Diego (CA) on April 2006.

Nations expressed opinions that AAR Doctrine is not necessary currently.

The document is based on the document "AFDD 2-6.2 Air Refuelling". It is logical if we consider that almost 80% of the NATO tankers are enlisted in the USAF. In this situation it is not required to establish another concept, but only to remove national issues and adapt those ideas to the NATO structure and organisation. The result was this document "AAR CONOPS".

Thought the document has not been approved, we think is good to post it in this webpage due to the following reasons:

1. It is a JAPCC product, consequence of the JAPCC members work, and establishes how we think NATO AAR operations should be.
2. The document was not rejected, but was considered unnecessary by some nations.
3. NATO and EAC representatives considered this document needed for NATO.
4. Finally, and this is the main reason, AAR CONOPS promotes a better understanding about AAR and NATO.

BUT PLEASE NOTE THAT THIS DOCUMENT IS NOT OFFICIAL, IT DOES NOT STATE NATO, NATO NATIONS OR NATO ORGANISATIONS, POSITION.

CHAPTER 1 INTRODUCTION

101. GENERAL.

1. Air-to-Air Refuelling (AAR) contributes to Air Operations as a force multiplier by extending the range, and/or time on task and flexibility of aircraft, as well as enabling a trade off between fuel-load and weapon or payload.
2. It allows air power to be projected over great distances or concentrated where and when it is most needed.

102. PURPOSE.

1. This chapter provides doctrinal guidance to commanders and their staffs on the planning and execution of Air-to-Air Refuelling (AAR) Operations; establishing concepts, structure and a common understanding.
2. Chapter 6 'AAR Doctrine' develops MCM 217 'Alliance AAR Concept' continuing the intent to provide a useful tool also applicable to those operations conducted by a coalition of NATO and non-NATO nations within the framework of NATO assets and capabilities.
3. This chapter is intended for use primarily by commanders and staff at the operational level, but could be used at any level as a reference, giving a basic knowledge to help integrate AAR Operations in the Air Campaign.

103. SCOPE.

1. This chapter addresses the doctrine associated with AAR Operations and the key aspects of the associated Command and Control mechanisms.

104. RELATED NATO PUBLICATIONS.

AJP- 01	Allied Joint Doctrine.
AJP- 3	Allied Joint Operations Doctrine.
AJP- 3.3	Joint Air and Space Operations Doctrine.
AJP- 3.3.7	CJFACC.
AJP- 4.4	Allied Joint Movement and Transportation Doctrine.
AAP- 6	NATO Glossary of Terms and Definitions.
APP- 7	Joint Brevity Words Publication.
APP- 8	Allied Tactical Air Messages.

CHAPTER 2 GENERAL CONCEPTS

201. AIR-TO-AIR REFUELLING DEFINITION.

1. Air-to-air refuelling is an air support operation consisting of the in-flight transfer of fuel between tanker and receiver.

202. APPLICATIONS.

1. AAR Operations are an integral part of NATO forces mobility and bring enhanced capability to combat and combat support aircraft for all air power operations. They can be applied at all stages of a contingency; deployment, employment, sustainment and redeployment.

2. These operations enable:

- Short range fighter-bomber aircrafts to be given reach for deployment and deep missions, either for strategic effect or indirect air operations.
- Airborne control, ISTAR, EW and Personnel Recovery (PR) missions to be extended in duration and range.
- Aircraft assigned to a base under threat to be held in flight for survival or delayed tasking.
- Combat aircraft to be held aloft, increasing their ability to respond to a short-notice task.
- Short-range combat aircraft to escort large combat or combat air support aircraft over long ranges.
- Range extension to allow deeper incursions into enemy territory for strategic effect missions or provide routes to targets avoiding known defences.
- Aircraft to take off at lower fuel weights, permitting greater opportunities for short field operations (and hence dispersal) with greater weapons loads.

3. Summarizing, AAR allows air power to increase levels of mass, surprise, economy of force, flexibility, versatility, and manoeuvrability, and can concentrate more assets for offensive operations. The overall effect of these applications is a force enabler and force multiplier in air power employment.

203. LIMITATIONS AND DEPENDENCIES.

1. While AAR offers greatly enhanced flexibility and capability to air forces, there are important limitations concerning the time taken to refuel, the volume of the airspace required and the need for control of that airspace to negate enemy action. The high demand placed on tankers makes proper employment critical.

2. Due to most tankers lack of threat warning and defensive systems, AAR missions rely on accurate and updated information on enemy threats, and reliable communications to advise on changes to these threats. AAR is also dependent on secure information exchanges to ensure both tankers and receivers crews are in receipt of the correct rendezvous information.

3. Tankers are vulnerable and are considered High Value Air Assets (HVAA); therefore, they will, normally, only fly in areas of minimum risk where an adequate degree of air control can be guaranteed, AAR supporting Special Operations could be one exception to this rule.

204. AAR AND THE APPLICATION OF THE AIR POWER.

1. Control of the Air. AAR is a force enabler. AAR in Air Defence operations enhances endurance of those assets tasked on CAP, saving aircraft while the desired level of control of the air is achieved. In Offensive Counter Air operations, the integration of AAR allows extensions to range,

putting deeper targets in reach of combat aircraft. The capability to refuel C2 assets extends the duration of military actions from an airborne command post.

2. Power projection. AAR is the third pillar of the air deployment operations. It is a facilitator that enhances quantity while saving time avoiding constraints, like enroute stops, allowing bigger payloads and extending the endurance of those assets involved in a deployment. The application of AAR accelerates these operations since ground-refuelling stops can be reduced or eliminated.

3. Operations exploiting flexibility. Flexibility is an inherent characteristic of Air Power. AAR complements this characteristic in planning, offering the chance to refuel different kinds of receivers, carrying out various missions and roles.

4. Operations exploiting initiative. Reach, ubiquity and flexibility of Air Power are characteristics enhanced by AAR. AAR, extends reach and endurance (further and for more time), and is a decisive support in sustaining the desired rhythm and tempo needed to maintain the initiative.

5. Parallel Operations. The capability to refuel different assets during a single tanker sortie gives the chance to carry on different operations and missions in parallel, thus making more credible the determination of the Alliance.

6. Symmetric and Asymmetric Operations. AAR supports every kind of air operation in both Symmetric and Asymetric warfare allowing the efficient employment of Air Power, and enhancing the effectiveness of those operations performed against any kind of enemy force or vulnerability.

CHAPTER 3 AAR OPERATIONS

301. GENERAL.

1. The main contribution of AAR to air power is based on the force enabling and force multiplying effects of increased range, payload and endurance provided to the refuelled aircraft. The capability of AAR forces must be consistent with overall NATO strategy and operational doctrine of airpower forces supported in a wide spectrum of operations conducted in both strategic and theatre air operations.
2. The Strategic concept of Air-to-Air Refuelling mainly consists of supporting operations outside the JOA; facilitating the long-range movement of aircraft between or toward the JOA/AOR. It supports missions such as; global attack, National Single Integrated Operation Plan (NSIOP) and air transport assets in an air bridge.
3. The Operational concept of Air-to-Air Refuelling mainly consists of supporting operations within the JOA; it extends the range and endurance of those assets operating inside of the AOR/JOA. Usually tankers participating in combined operations are attached to the JFACC who exercises OPCON or TACOM over these forces.
4. Combined AAR support to Outside JOA and Within JOA air operations can be useful and must be taken in account during the planning and execution of operations to enhance flexibility and capability of air power.

302. AAR PROFILES.

1. Anchor. A tanker flies a racetrack pattern within a defined airspace waiting for receiver aircraft to arrive (once joined with the receiver, the tanker can fly in an expanded racetrack pattern while refuelling the receiver). Usually an anchor is used to support Within JOA air operations where air space is limited or receivers operate in a central location. The anchor profile is best suited for small, highly manoeuvrable aircraft.
2. Track. Air refuelling accomplished along an air-refuelling track is usually used to support Outside JOA operations. The tanker rendezvous can be accomplished in two ways:
 - a. The tanker can orbit at a designated point along the track awaiting the receiver's arrival.
 - b. The tanker and the receiver can be preplanned to simultaneously arrive at a designated rendezvous point.
2. Many missions require tankers to refuel their receivers while in a multiple ship formation. The requirements of the missions may dictate different types of tankers and receivers. Cell formation refuelling is one of the most demanding of AAR operations due to the intensity of the rhythm of air operations. Cell formation operations may alleviate airspace constraints by allowing the same number of tankers to operate in less airspace than if they were operating individually.

303. AIR-TO-AIR REFUELLING MISSIONS.

1. These missions represent the broad, fundamental and contributing activities of the AAR system. AAR forces perform these missions in support of strategic, operational and tactical level objectives across the spectrum of military operations.

3031. Global Attack Support.

1. AAR assets can be employed to give attack platforms the chance to reach any target globally without relying on intermediate bases. This provides the ability to rapidly strike targets in distant locations and recover to safe areas.
2. Performing long-range attack missions from outside the JOA is particularly crucial since, in the beginning of a crisis or conflict; most NATO air forces may be based out of the JOA.
3. AAR supporting Global Attack missions is useful in allowing the rapid projection of air power anywhere in the world. Air assets can launch from their bases in the AOR/JOA and reach any target without reliance on an intermediate staging base.
4. AAR supporting Global attack missions provides a wide range of response options:
 - Air Expeditionary Forces can deploy faster and deliver desired effects in a short time, even engaging targets on the inbound route, when necessary.
 - Combat aircraft can fly straight to any location to neutralize strategic targets and return to their base without stopping.
 - Air transport aircraft can fly directly from their bases to provide humanitarian assistance, peacekeeping forces or combat troops to reinforce deployments.
 - Reconnaissance and Intelligence gathering platforms can provide commanders valuable information about distant locations or targets.
5. The capability of AAR to support Global attack is a decisive tool of NATO policy because of the deterrent effects produced. AAR facilitates a global presence by NATO air power.

3032. Air Bridge Support.

1. An Air Bridge consists of a series of enroute locations outlining an uninterrupted air route of travel linking NATO AOR and different theatres or locations, forming an enroute mobility support structure to sustain the logistic effort.
2. AAR support for an Air Bridge is effective when it:
 - Makes it possible to accelerate air bridge operations, since route ground refuelling is reduced or eliminated.
 - Reduces reliance on forward staging bases.
 - Minimizes potential en route maintenance delays.
 - Enables air transport assets to maximize payloads.
 - Enhances the efficiency of air transport operations by making possible the direct delivery of personnel and material.
 - Increases the speed and throughput of an air bridge.
3. Commanders should observe the economy of force principle when planning AAR support. Tanker aircraft are low density / high demand assets. Consequently AAR support should be designed to maximize the efficiency of tanker aircraft supporting the Air Bridge. Failure to do so will result in AAR assets being less available to support other missions. It is possible that tanker units could support Global attack, Deployment and Air Bridge missions simultaneously.

3033. Deployment Support.

1. Deployment support consists of escorting and refuelling combat and/or combat support aircraft during deployments; usually it is developed outside JOA.

2. Air-to-Air refuelling is especially effective when it:
 - Extends the range of deploying aircraft allowing them to fly a non-stop flight to the JOA.
 - Facilitates a more rapid response to a regional crisis.
3. Multirole tankers, those that can carry cargo and passengers on refuelling missions, are especially useful during deployments.
4. Force extension is the refuelling of one tanker by another tanker. It is one of the best means to provide deployment support given a limited number of tanker aircraft, and provide an efficient system.
5. Deployment support is divided in two categories: Coronets and Air Expeditionary Forces (AEF).
 - Coronets are movements of air forces in support of contingents, rotations, exercises or aircraft movements for logistic purposes. Coronets normally have long lead times for planning, tasking and execution. Planners should use this opportunity to maximize the efficiency of deployment support tankers.
 - Air Expeditionary Forces are readiness forces maintained to deploy to a JOA, Air-to-Air refuelling is useful to provide commanders the ability to move this forces in a defined short term of time. In that sense, and following the CONOPS, SACO (SACEUR?) will give the appropriate alert order to deploy, or support the national deployment, the tankers that will support the Air Expeditionary Forces.

3034. JOA air operations support.

1. JOA air operations support consists of refuelling aircraft based in a JOA to facilitate their operations.
2. AAR will be used to:
 - Allow basing of air assets beyond the range of adversary threats, thus enhancing the security of the air forces.
 - Increase the endurance of those assets supporting air operations that usually require extensive regeneration periods between sorties.
 - Reduce the number of sorties required, decreasing ground support requirements at forward location or reducing the number of aircraft deployed in a JOA.
3. Tankers allocated for JOA air operations support may be called upon to provide Air-to-Air refuelling support to Air Bridge operations. ACO Commander must judge the capabilities and requirements for tankers assigned or attached to the JOA to determine their ability to provide Air Bridge support. When Air Bridge support operations will adversely impact JOA support operations, the Joint Air Component Commander (JFACC) must consider the JFC's overall campaign objectives when decide how to task tanker missions.

3035. Special Operations Support.

1. Special Operations Support consists on providing prepared AAR assets and crews to perform special operations forces missions.
2. Air-to-Air Refuelling will be useful to:
 - Enable special operations forces to maintain a long-range operations capability.
 - Enhance flexibility and versatility of the special operations forces.

3. Air-to-Air refuelling forces especially trained can be designated to provide this support, JFC will decide if those tankers are assigned under JFSOCC or there will be a supporting-supported relationship between JFACC and JFSOCC.

304. SECONDARY MISSIONS.

1. In addition to these Air-to-Air refuelling missions, tankers can be used in several other circumstances.

3041. Emergency Air-to-Air Refuelling

1. Emergency AAR consists on provide short-notice support for airborne fuel emergencies, for which some AAR assets may be kept on ground or airborne alert. Fuel emergencies can result from missed refuelling, en route winds greater than planned, battle damage, or excessive time engaged with enemy aircraft or targets.

2. While dedicated ground alert aircraft normally meet emergency air refuelling requirements, excess fuel capacity of airborne tankers can provide at least a partial emergency air refuelling capability. Carrying fuel in excess of mission requirements, known as 'spare fuel,' ensures that airborne tankers maintain a limited emergency refuelling capability.

3. Whenever possible, support to Outside JOA operations should be planned either over, or in close proximity to, existing air bridge routes. This allows tankers positioned for air bridge support to also provide emergency air refuelling support.

4. When Outside JOA missions cannot be planned along air bridge routes and the mission is deemed important enough to provide emergency air refuelling support, planners should use a combination of ground and airborne spare aircraft. Ground spare aircraft are maintained in various stages of readiness depending on mission requirements. Airborne spare aircraft consist of one or more tankers that accompany the air refuelling formation, but do not participate in any air refuelling unless required to do so. No matter which option is used the concepts must be adequately delineated in mission directives so tankers, receivers, and participating command and control elements are thoroughly familiar with the procedures to be used in a fuel emergency.

5. The dynamic environment and quick tempo of Within JOA operations provide a more pressing need for emergency air refuelling support. Nevertheless, shorter distances and numerous refuelling assets, making tankers more responsive to requests for emergency air refuelling support, generally characterize Within JOA operations. The preferred method of providing emergency support is through a combination of ground and airborne aircraft.

6. Ground alert aircraft and crews primarily provide units the capability to meet mission requirements when fuel emergencies occur due to battle damage or excessive time engaged with enemy aircraft or targets. The best tanker aircraft for ground alert duties are those capable of quick response times, high cruise speeds, and a takeoff fuel load large enough to accommodate all offloads. Ground alert tankers and crews may be dedicated solely to this function.

7. Because of airspace limitations in an AOR/JOA the best means of providing an airborne emergency air refuelling capability may be with a 'reliability orbit'. Reliability orbits are normal air refuelling anchor areas that have dedicated altitudes and procedures for both tankers and receivers involved in emergency air refuelling. Depending on the size of the area of operations and the number of aircraft involved, planners may need to dedicate airspace for several reliability orbits.

8. In addition, when tankers have excess fuel at the end of their scheduled mission, they can offload it to a receiver capable tanker rather than returning to base with the excess fuel.

3042. Air transport.

1. Refuelling platforms can act as augmentation to the airlift fleet. This capability is most important during the deployment phase when air transport requirements are highest, and requirements for theatre support refuelling are the lowest. During contingencies, ACO Commander, JCF and JFACC should continually evaluate tanker allocations to air transport missions, weighing the loss of assets from traditional tanker missions, against the benefits gained by a larger, augmented air transport fleet. This evaluation must consider the objectives of the entire joint campaign and not just those of the air component.

2. Another key application of tanker aircraft in transport role occurs during tanker unit movements. Tanker units deploying to a theatre or en route location will typically airlift their own support requirements under the Integral Tanker Unit Deployment (ITUD) concept (See para 5032). This allows tanker units to have key supplies and personnel on hand as soon as they arrive at their deployed location, and it relieves the air transportation system of at least a portion of their requirements.

3. Tankers perform the dual role function when they accomplish air transport and air refuelling on the same mission. A dual role mission maximizes the inherent transport capability of tanker aircraft. Dual missions are typically associated with fighter deployments. Dual role operations maximize the full capabilities of tanker aircraft. Tankers forward position to a deploying unit's location to upload cargo, personnel, and equipment needed to ensure the ferried unit can begin immediate operations once in theatre. Once airborne, tankers escort deploying fighters to their final destination, refuelling them along the way. Upon arrival, the tankers download their cargo and passengers who may immediately reconstitute and launch the deployed fighters. This allows arriving aircraft to be ready for follow-on missions quickly, simplifying required coordination for airlift support of deployments, and reducing the number of dedicated transport aircraft required to support an operation.

4. Aero-medical Evacuation (AE) is a specialized form of air transport for transporting ill or injured personnel under medical supervision to appropriate medical treatment facilities. Aero-medical transportation of patients requires aero-medical crewmembers to be with the patient prior to, and during the movement. During contingency operations, a capable AE system complements and supports the JOA medical infrastructure, allowing a smaller medical footprint within the JOA.

5. Normally, tanker aircraft are used only in the emergency aero-medical evacuation role. If tankers are used in the AE role the medical community will use carry-on medical equipment to provide patient care that does not require aircraft modification. Routine AE is currently conducted via other cargo aircraft. Air refuelling operations will not routinely be accomplished during AE missions. Unless properly marked, identified, and exclusively used for medical purposes, tankers used for emergency medical evacuations do not qualify as non-combatant medical equipment and the aircrews do not fall under the protections afforded medical personnel by the Geneva Conventions.

3043. Personnel Recovery (PR)

Tanker aircraft provide a limited capability to assist PR operations as a communications and coordination link between airborne and ground-based elements. This capability derives from the tanker's long endurance characteristics and organic communications equipment. Tankers can provide refuelling support to aircraft first on scene until dedicated PR forces arrive. In the case of a downed fighter, the wingman may attempt to remain on scene to ascertain the downed crewmen's status and provide protection until PR forces arrive. During this process, the tanker will normally remain at altitude, relaying information where communications connectivity is easiest, and will refuel on scene forces as required.

CHAPTER 4 COMMAND AND CONTROL

401. GENERAL

1. Command and control (C2) is based on the command relationships and control authorities set forth in the Transfer of Authority (TOA) for one Operations Plan (OPLAN) for a given contingency. Effective C2 relationships and command lines of authority must be based on NATO Joint Operations doctrine; doctrine that recognizes the airman's unique, theatre-wide perspective. This part discusses the types of C2 for all forces, the transition from peacetime C2 to contingency operations, and C2 specifics for each of the missions.

2. AAR assets can be used in any of the primary or secondary missions; so centralized C2 is essential to effectively fuse the capabilities inherent in those missions. Air-to-Air refuelling areas and global ranging capabilities impose theatre and general C2 requirements, which can only be fulfilled through the integrating function of centralized command under a knowledgeable airman. Centralized control and decentralized execution of AAR forces are critical. C2 structure should allow concise guidance and organization.

3. Delegation of execution authority to responsible and capable lower level commanders is essential to achieve effective span of control and to foster initiative, situational responsiveness, and tactical flexibility. Decentralized execution allows unit commanders to respond to unforeseen events that inevitably occur as a result of the 'fog and friction' of war.

402. TYPES OF COMMAND AND CONTROL

1. It is critical that commanders, planners, and operators understand the command relationships and control authorities associated with the employment of NATO forces. Using standardized terminology and structures facilitates rapid transition from peace to contingency and wartime operations. The following discussion is key to that understanding.

4021. Operational Command (OPCOM)

1. Forces are normally assigned to national commanders and fall under the national command authority of that commander. The majority of the NATO Air Force's Air-to-Air refuelling assets are under national commanders, which exercises authority through their National Structure of Command and Control. Mission requirements may dictate transferring of the authority¹ of AAR assets to NATO ACO Commander in one of the following models, including OPCOM.

4022. Operational Control (OPCON)

1. Specified air refuelling forces may be transferred and OPCON delegated to the nominated ACO Commander in response to a contingency or other long-term requirement that exceeds theatre capabilities. With the transfer of OPCON from the nations, forces involved are "attached" to ACO Commander. ACO Commander will normally exercise OPCON of these forces through Joint Force Commander (JFC). In this relationship, nations are acting as a force provider to NATO.

4023. Tactical Command (TACOM)

1. TACOM is designed to provide control over individual tasks, sorties, or movements. As such, it should be delegated to the lowest level of execution authority. In some circumstances, JFC may delegate TACOM of air refuelling assets and associated support forces. This is warranted when

¹ Transfer of authority must be specified case-by-case.

completion of the mission is dependent on localized TACOM, enemy threat to aircraft or personnel requires localized TACOM, or local C2 elements require TACOM in order to synchronize missions.

403. AIR REFUELING SUPPORT AND AIR REFUELING FORCES

1. Air refuelling support can be given to Joint Force Commanders through either a support relationship, or by transferring AAR forces to the JFC. Typically, Air-to-Air refuelling support for Outside JOA operations is established through a support relationship between nations. For within JOA operations, Air-to-Air refuelling forces are normally attached according to TOA to a JFC.

404. SUPPORT RELATIONSHIP

1. The appropriate OPLAN shall specify the relationship between supported and supporting Commander. The designation of supporting relationships conveys priorities to commanders and staffs planning or executing joint operations. The ACO Commander is responsible for establishing clear command relationships between supported and supporting Commanders. When the supporting Commander cannot fulfil the needs of the supported Commanders, either the supporting or supported Commander will notify the JFC or ACO for resolution.

2. For Air-to-Air refuelling, JFACC assigned assets normally support other Commanders. Certain operations, however, that primarily involve air deployable forces (e.g., humanitarian assistance, disaster relief, uncontested non-combatant evacuation operations, etc.) may require the JFACC/ACC to act as the supported Commander.

3. The establishing directive for a support relationship will normally grant authority to the supported Commander to exercise general direction over the support effort. General direction includes designating and prioritizing objectives, stipulating the timing and duration of the supporting action, and other instructions necessary for coordination and efficiency. The supporting Commander:

- Usually retains OPCON of assigned air refuelling assets and associated support forces.
- Determines the forces, tactics, methods, procedures, and communications that will be employed in providing this support.
- Advises and coordinates with the supported Commander on matters concerning employment and limitations of air refuelling support.
- Assists in planning for the integration of air refuelling support.
- Ascertains the air refuelling needs of the supported force and takes action to fulfil them within existing capabilities, consistent with priorities and requirements of other tasks assigned by the NAC or ACO.

4041. Force Provider

1. The second method of providing Air-to-Air refuelling support to JFCs is through the attaching supporting tanker forces to the supported Commander. This is accomplished by TOA from the nations or delegations to the supported Commander, and will be specified in the OPLAN or other directive from the ACO.

2. The JFC then exercises TACOM of these forces through the JFACC, who integrates these forces into the Joint Combined Task Force Air Component.

4042. Multinational Relationships

1. Air-to-Air refuelling forces must be prepared for multinational military operations; however, differences in allied doctrine, organization, and equipment must be taken into account. Air-to-Air refuelling forces participating in multinational operations will be attached to a CJTF under a JFACC. A JFACC may be designated the Commander of air forces for small-scale operations. Coordination

with allied or coalition partners normally occurs at the JFACC or at the commander, joint task force (CJTF) level.

405. ASSIGNED FORCES

1. The term “assign” is used for units or personnel placed in an organization where such placement is relatively permanent, and/or where that organization controls and administers the units or personnel when performing their primary functions. The majority of NATO Air-to-Air refuelling forces are under national authority and they are committed to NATO under different level of readiness.

406. ATTACHED FORCES

1. Air-to-Air refuelling forces that deploy for temporary periods of time in support of an operation will normally be attached to a CJFACC. When attached to a CJTF, air-refuelling forces will normally fall under the OPCON of the JFC combatant commander, and exercised through the JFACC. Attached forces will remain under the OPCOM of their originating Nation. The NAC and National authorities must agree all forces transfer of authority.

407. PEACETIME CONTROL OF AIR REFUELING FORCES

1. During peacetime, Air-to-Air refuelling forces are controlled by the nations. The functional or Service air component commander normally delegates OPCON of AAR forces to the ACO Commander. The ACO Commander exercises OPCON through JKFC Brunssum or JFC Naples who normally delegates TACOM to the Air Component Commanders (ACCs). Figure 4.1 illustrates peacetime command relationships for controlling Air-to-Air refuelling forces.

2. In the case of Air-to-Air refuelling requirements for training exercises or operational missions not associated with a contingency, nations may approve transfer of Air-to-Air refuelling forces to the proper commander for a specified period of time. These forces are typically attached to the existing air refuelling wing structure and fall under the OPCON of the national commander. If this augmentation occurs frequently, the supported commander should develop and maintain OPLANs to govern these situations.

3. NATO will coordinate, if required, nations Air-to-Air refuelling requirements and offerings.

4071. ACO HQ

1. ACO’s primary planning and coordination element for AAR, the AARE is the central planning element for guidance and coordination of all AAR operations between NATO and Nations. The ACO-AARE provides the flexibility to quickly respond to time-sensitive requirements of NATO forces and allied nations. The ACO-AARE is the single link between nations and NATO operational Air-to-Air refuelling units for ACO.

2. ACO functions are the following:

- Coordinating, when required, between NATO and nations in those AAR operations carried on under national responsibility.
- Giving guidance for operational planning to NATO AAR agencies.

4072. AAR Liaison Officer in JFC Brunssum/JFC Naples, HQ (JFC-AARLO)

1. AAR Liaison officer in the JFC HQ would be the theatre point of contact for AAR related policy and plans within their region. On behalf of or under the direction of the ACO, AARLO would coordinate with their respective AARE at JFACC level to ensure AAR related matters receive the appropriate staffing and support of the JFC.

2. This element is responsible for:
 - Reviewing NATO Force proposals and Capabilities Packages pertaining to AAR matters within their Area of Responsibility/Operations.
 - When necessary, highlighting regional AAR related problems such as exercise funding and participation, interoperability and standardisation.
 - Coordinating on AAR matters with Air to Air refuelling Coordination Cell (AARCC) and AAR agencies of the subordinate commanders and nations within their area of responsibility/operations.

4073. AAR Element in JFACC/ACCs HQ AARE. (JFACC-AARE)

1. AAR Element in JFACC HQ level are the JOA/AOR experts on AAR capabilities and assets, and they would therefore be tasked by the ACO with air-to-air refuelling operational planning.
2. This agency is responsible for:
 - Coordinating/sourcing AAR assets for regional exercises and developing the AAR portion of contingency/operations orders.
 - Initiating and staffing NATO force proposals and Capabilities Packages pertaining to AAR matters within their area of responsibility/operations.
 - Serving as regional POC's in the implementation of AAR interoperability and standardisation developments.
 - Establishing close working relationship with the AARCC and the rest of the AAR agencies within their area of responsibility/operations.

4074. AAR Element in CAOCs. (CAOC-AARE)

1. The AAR element within the CAOCs consist of local experts on the various national AAR capabilities and assets within their area of responsibility/operations. They would therefore be tasked with AAR tactical planning and execution. Specifically.
2. They would be responsible for:
 - Producing the AAR portion of the Air Tasking Order and the tanker SPINS, as well as monitoring AAR current operations.
 - Under JFACC direction they would be responsible for initiating and reviewing NATO Force proposals and Capability Packages pertaining to AAR matters within their area of responsibility/operations.
 - Serving as sub-regional POC's for identifying AAR operational deficiencies and advising the AARCC of any AAR interoperability and standardisation problems through the established command chain.

408. TRANSITION TO CONTINGENCY OPERATIONS

1. During the transition to contingency operations, the North Atlantic Council (NAC) will give the ACO commander a Force Activation Directive. On receipt ACO will send to nations an ACTWARN requiring the forces needed to carry out the operation and the desired level of authority. Nations will meet in a Force Generation Conference; its product will be the Allied Disposition List draft (ADL draft) that states the forces that nations can offer. According to the ADL draft, ACO will send to nations an ACTREQ, asking for the forces and requiring the desired transfer of authority. The response of the nations is the FORCEPREP, message that gives the information about their units. With this information ACO will request NAC activation for the pre-deployment and prepare the Allied Force List and the Allied Disposition List, those lists will be sent to nations for the beginning of operations to be performed under their responsibility. NAC will give ACO the Execution Directive, that marks the beginning of the execution of the OPLAN, ACO will send the nations the Activation

Order Message (ACTORD). On receipt, nations will send the TOA message (ORBATTOA) to ACO, stating the delegation of authority. (See figure 4.2)

2. For JFC, the JFC-AARLO, along with JFACC-AARE, act as the key components in the JFC. These teams provide the JFC the vital Air-to-Air refuelling information needed for him to make decisions during the formulation of a course of action. The JFC-AARLO role then becomes the executor and director of the Air-to-Air refuelling plan. In addition to the course of action formulation, a CJTF command structure starts to be formed.

4081. Joint Force Commander (JFC) and Joint Air Force Component Commander (JFACC).

1. The most common organizational structure used for a CJTF is the functional structure with component commanders appointed from each Service. The JFACC is responsible for all joint air and space forces/capabilities made available to him by the CJTF. Figure 4.3 shows the relationship.

2. Regardless of the organizational structure used, JFACC will have the responsibility for managing all assigned and attached Air assets. If the CJTF is organized along Service lines the JFACC normally comes from the Service providing the preponderance of air and space assets and the means to control and direct their employment.

3. JFACC will normally exercise TACOM of all air refuelling forces attached to the CJTF.

4. The JFACC has overall responsibility for the conduct of the air campaign and for integrating combat and combat support efforts in support of CJTF objectives. The JFACC is the final authority in resolving differences or conflicts between the combat and combat support efforts.

5. JFACC responsibilities are the following:

- Organize a JFACC staff manned with personnel from each component to reflect the composition of air capabilities/forces controlled by the JFACC.
- Prepare an aerospace estimate of the situation to support the JFC estimate.
- Develop and recommend courses of action to the JFC.
- Develop a joint aerospace strategy and operations plan that states how the JFACC plans to exploit aerospace capabilities to support the JFC objectives.
- Make air apportionment recommendations to the JFC.
- Task, plan, coordinate, and allocate the joint aerospace capabilities/forces made available to the JFACC by direction of the JFC.
- Control execution of current joint aerospace operations to include: Strategic attack and Within JOA air mobility.
- Coordinate PR, Support Outside JOA air movements and, SOF operations with the joint special operations task force/joint force special operations component commander.
- Coordinate with Outside JOA air operations.
- Function as the supported commander for strategic attack.
- Act as airspace control authority (ACA), if so designated
- Act as area air defence commander (AADC), if so designated.
- Perform combat assessment of joint aerospace operations at the operational and tactical levels.
- Conduct joint training, including the training, as directed, of components of other Services in joint operations for which the JFACC has or may be assigned primary responsibility, or for which the Air Force component's facilities and capabilities are suitable.

4082. Combined Aerospace Operations Centre (CAOC)

1. The JFACC requires a robust C2 organization to support the number and intensity of air operations associated with most contingencies. This organization, the CAOC, is composed of divisions with core teams and numerous specialty teams who are responsible for the planning and execution of the JFACC's objective. It is important to note that the JFACC controls combat and combat support forces through the CAOC Director and the Divisions. The JFACC controls AAR forces through the JFACC-AARE. The CAOC director provides direction to the CAOC's Divisions, and has overall responsibility for the aerospace assessment, planning, and execution process. The JFACC-AARE provides direction to the CAOC-AARE and is responsible for coordinating all Air-to-Air refuelling functions and for integrating air refuelling into the air and space assessment, planning, and execution process. The CAOC director is responsible for producing the air tasking order (ATO) and airspace control order (ACO). As such, the CAOC director establishes guidelines, processes and procedures required to produce these documents.

2. The CAOC director is also responsible for organizing the personnel and equipment that will be located in the CAOC. The CAOC-AARE is responsible for providing air refuelling inputs to ATO and ACO development. Personnel of the CAOC-AARE must be expert in the employment of air refuelling to ensure that Air-to-Air refuelling forces are used effectively and efficiently

4083. AARE in the JFACC HQ (JFACC-AARE)

1. The JFACC-AARE should be a staff officer familiar with the JOA/AOR and should have experience in both within JOA and outside JOA Air-to-Air refuelling operations. The JFACC-AARE for a given operation is selected by the ACO, or his designated authority thought the proper ACC, and may be sourced by the theatre Air Force component commander or nominated by the AMC Commander.

2. In this capacity, the JFACC-AARE provides direction for Air-to-Air refuelling missions within the deployed area of operations and is the primary interface for Outside of JOA air refuelling and within JOA operations. The JFACC-AARE is the JFACC's primary advisor for tanker allocation and apportionment decisions and for developing an AAR CONOPs for the JFACC's air campaign plan. The JFACC-AARE ensures that Air-to-Air refuelling assets are used efficiently and effectively in support of both JFACC and JFC objectives.

3. In order to achieve unity of effort, the JFACC-AARE must coordinate with the CAOC director to ensure all Air-to-Air refuelling operations supporting the JFC are fully integrated with the ATO cycle and deconflicted with other air operations. The JFACC-AARE primary agency for this process is the CAOC-AARE.

4084. AARE in the CAOC (CAOC-AARE)

1. The CAOC-AARE plans, coordinates, tasks, and executes the JTF's Air-to-Air refuelling mission. The CAOC-AARE is one of the notional elements of the CAOC, and is related with JFACC-AARE. The CAOC director ensures the CAOC-AARE integrates with the other teams and divisions of the CAOC in the air and space assessment, planning, and execution process. As coordinated by the JFACC-AARE, the CAOC-AAR will task attached within JOA Air-to-Air Refuelling forces through wing and unit command posts when those forces operate from permanent bases or through wing/squadron operations centres if forward deployed.

2. The JFACC-AAR, in conjunction with the CAOC director and JFACC, may adjust the CAOC-AARE organizational structure and distribution of functions to better interface with planning and execution functions in other CAOC divisions in order to meet JFACC requirements.

40841. Outside JOA Air-to-Air Refuelling Operations.

1. The CAOC-AARE reports CAOC Director and JFACC-AARE. It develops all Outside JOA air refuelling missions using JTF-attached aircraft and is responsible for integrating these missions into the ATO and the standard NATO command and control systems. These may include global attack, deployment support, and air bridge missions. This section may also plan tanker missions supporting within JOA airlift requirements in close coordination with the other elements. The CAOC-AARE then executes all AAR planned missions. If changes occur during execution phase, this branch will coordinate with the combat operations division to divert tanker assets or generate standby capability to support new Outside JOA refuelling requirements.

40842. Within JOA Air-to-Air Refuelling Operations.

1. Within JOA Air-to-Air refuelling requirements are derived by the combat plans division and executed by the combat operations division in accordance with JFACC guidance. A within JOA Air-to-Air refuelling plans section collocated with the CAOC-AAR develops combat support Air-to-Air refuelling within the ATO production process. An air refuelling operations branch collocated with the combat operations division executes combat support Air-to-Air refuelling missions published in the ATO. If changes occur during execution, this branch will divert tanker assets or may request standby capability to support new within JOA refuelling requirements after coordination with the other teams.

409. **CONTINGENCY OPERATIONS**

1. Nations will allocate Air-to-Air refuelling assets between national and NATO requirements and priorities. Normally, within JOA Air-to-Air refuelling forces will be transferred to the JFC with OPCON or TACOM delegated to the JFACC and executed through the JFACC-AARE and the CAOC-AARE. Air-to-Air refuelling forces performing Outside JOA operations will normally be executed through the nations and coordinated, if requested by JFC-AARLO and ACO-AARE and JFC-AARLO.

2. When coordination with the Nations is required to conduct Outside JOA Air-to-Air refuelling operations, the ACO-AARE acts to affect all required coordination within the JFC. These relationships are depicted in Figure 4.4.

3. Once attached to an Air Expeditionary Force, Air-to-Air Refuelling forces will normally remain under the OPCON and TACOM of the same Commander for the duration of the contingency. However, a JTF mission will often require Air-to-Air refuelling augmentation by national assets. In some circumstances, a very limited number of national AAR assets could be transferred to the JFC on a short-term, per-sortie basis. The JFACC will exercise TACOM over this force through the JFACC-AARE and CAOC. This procedure can also apply to NATO assigned AAR forces not allocated to the JTF. Figure 4.4. illustrates the command relationships for this short-term transfer.

4091. **Within JOA Air Refuelling Operations**

1. All within JOA airpower operations are planned, tasked, and executed by the CAOC through the aerospace assessment, planning, and execution process. This process relies on an integrated team concept, utilizing individuals from various areas of expertise. This concept breaks down information barriers between CAOC cells by placing experts in integrated teams to accomplish strategy development, operational-level assessment, detailed planning, ATO production, and execution functions. The process is not so rigid that it precludes making real-time changes as circumstances dictate, but rather it is flexible enough to react and respond in dynamic environments. A key advantage of the integrated team concept is that a single leader has oversight over the outputs and processes of each step in the assessment, planning, and execution process.

40911. Assessment.

1. The assessment phase is where commanders conduct operational environment research and develop courses of action. The JFACC-AARE and CAOC-AARE chiefs should continually evaluate air refuelling resource constraints, tanker utilization efficiency, and the overall operational effectiveness of tanker usage. This assessment should provide the basis for further refinement or development of a revised air refuelling CONOPS or for changes in tanker allocation between JOA functions.

40912. Planning.

1. This phase begins with the commander providing broad planning guidance and objectives and a vision of what will constitute military success in the given contingency. The commander also defines the intent of the operation or campaign and sets priorities. The commander's guidance and objectives will identify broad categories of tasking priorities, planning guidance, procedures, appropriate manoeuvre and movement control, rules of engagement, JOA boundaries, command relationships and supported/supporting roles between commanders. This guidance will also include the air refuelling apportionment decision. Planning is an interactive process. Tasks/targets are nominated to support the commander's objectives and priorities. All potential tasks/targets are developed by cross-functional planning teams, which identify, prioritize, and select specific tasks while considering available resources. In accordance with the commander's objectives and coalition or component requirements, the operations staff will develop the necessary plans to employ capabilities and forces. Air refuelling assets are matched against receiver requirements to ensure all objectives can be met as planned.

2. The final prioritized tasks and targets are then included in a Master Air Attack Plan (MAAP), which forms the foundation of the air tasking order. After the commander approves the MAAP, teams finalize the ATO, special instructions (SPINS), and the ACO. The end product of the planning phase is an ATO, an Air Defence Plan, and a prioritized list of tasks/targets with planned time of execution.

3. One of the most important considerations during the planning phase is the availability of AAR. Tanker availability can have an important impact on allocations for deep strike missions and for the timing and tempo of all airpower operations. When Air-to-Air refuelling capability is limited, combat/combat support planners must work closely with air refuelling planners to ensure accurate and realistic receiver fuel requirements are met, in order to reach the commander's priorities. It is imperative that air refuelling planners provide the best match between tanker capabilities and receiver mission requirements in order to maximize overall mission accomplishment.

40913. Execution.

1. Component and supporting commanders are responsible for executing the ATO as tasked and for recommending changes, as appropriate, given emerging JFC and component requirements. The JFACC will direct execution of the ATO and deconflict all aerospace forces and capabilities made available by the JFC. During execution, the JFACC is the command authority for revising the tasking of joint air capabilities/forces, unless that authority is delegated to subordinate execution control elements. The CAOC is also charged with coordinating and deconflicting changes with the appropriate control agencies or components.

2. Aircraft or other capabilities/forces not apportioned for tasking, but included in the execute order for coordination purposes, such as Outside JOA air refuelling and airlift sorties, will be redirected only with the approval of the respective national authority or designated senior liaison officer. It is essential, however, that all affected authorities, commanders and forces be notified of all redirected missions impacting their execution operations or planning.

3. SHAPE relies on the JFACC, through ACO-AARE, JFC-AARLO and JFACC-AARE, to provide coordination and deconfliction between Outside JOA Air-to-Air refuelling and theatre employment missions. The JFACC-AARE must also ensure that ACO-AARE, JFC-AARLO and aircrews performing Outside JOA air mobility missions are provided the most current copies of the theatre SPINS and ACO. Authority to redirect within JOA air refuelling sorties should be delegated to the CAOC director, as these changes will normally be driven by changes in the receiver's mission.

4092. Outside JOA Air Refuelling Operations

1. Outside JOA Air-to-Air refuelling operations include operations from AOR/JOA or fixed en route locations supporting Outside JOA movements that involve the Air-to-Air refuelling of assets moving between different areas of operations/responsibility. Tankers can provide AAR support for air transport aircraft moving along an air bridge, bombers engaged in Outside JOA global attack missions, or to other tankers escorting deploying fighters. During these operations, Air-to-Air refuelling forces normally remain under the National Command of the proper Commander.

2. The National AOCs normally have execution authority over AAR Outside JOA forces, while the CAOC will normally execute their assigned forces for these types of missions. AAR operations that include tanker movement between areas of operations/responsibility normally involve concurrent action by combat assets that are under the OPCON of the JTF commander, and air forces under the OPCON of National Command. During the transit, National AOCs will normally exercise TACON over the mission until it reaches the boundaries of the JFC's JOA or the geographic commander's AOR. Upon entry into the JOA/AOR, the JFC will assume TACON of those forces in the flight that have been "chopped" to the JTF. In special circumstances, the JFACC can exercise TACON over Outside JOA air to air refuelling assets entering the JOA/AOR when localized control is necessary to complete the mission, to synchronize tanker movements with theatre operations, or when necessary to protect the air refuelling force from enemy threats. TACON of Outside JOA air refuelling assets will be exercised through the National Authorities with appropriate notification to (and approval, if time permits) through National ACCs. The National Authorities will normally direct these forces through the appropriate institutions, organizations and supporting arrangements by nations.

4093. Operations Primarily Involving Air Transport.

1. Throughout the spectrum of operations involving aerospace power, some may only require air transport assets to meet the commander's objectives. Three examples of this are humanitarian assistance, disaster relief, and non-combatant evacuation operations. Combat and combat support assets may only be needed in these operations as a guard against hostile actions, to provide covering fire, or to meet ISR requirements. In this instance, the combat/combat support assets act in a supporting role for the main air transport effort. In operations primarily involving air transport, there may be insufficient combat activity to warrant formation of a full CAOC. In this case, the CAOC would consist primarily of an AMD and sufficient expertise to control all air operations to produce an ATO and to manage the few required combat sorties.

2. This arrangement can also be used in a rapid reaction situation where forces are deployed to a theatre prior to the formation of a CAOC. In operations where a CJTF is not formed and combat/combat support assets are not required, an ACO-AARE and JFACC-AARE may be sufficient to handle the contingency.

410. COMMAND AND CONTROL FOR SPECIFIC AIR REFUELING MISSIONS.

1. Each mission of air refuelling operations introduces unique C2 relationships and problems. Tanker aircrews must be thoroughly versed in the nuances of each of these missions in order to operate effectively in a dynamic wartime environment.

4101. SIOP Support to National Operations

1. Nations are responsible for organizing, training, and equipping tanker and bomber forces for nuclear operations, National Commands oversee the day-to-day operations of these forces. All of these forces have conventional missions supporting NATO in addition to their nuclear role. AAR support for these operations is a national task, although the support of those AAR assets assigned to JFC could be coordinated.

4102. Global Attack Support

1. As the Air Force increases its reliance on NATO AOR/based forces, global attack capabilities and readiness will concurrently increase in importance. Combat and tanker assets may be under the operational control of one commander and may fly through the JOA/AOR of another commander, even though the mission will be conducted by a third commander. Because of this, command relationships and controlling C2 agencies for such missions must be thoroughly explained in the execute order for the mission.

2. Combat forces in the NATO AOR are under the OPCON of their assigned command during peacetime, and may continue that relationship during a global attack mission. Nations and ACO may, however, transfer these forces to the JFC responsible for a contingency, even though those forces remain in the NATO AOR. Known as “reach back”, the JFC can utilize this concept to task assets not located within the JOA/AOR to fly global attack missions in support of the theatre.

3. For missions conducted at the outset of a contingency, or those conducted as a show of force prior to the outbreak of a contingency, tankers must be forward deployed allowing enough time to land and reconstitute prior to supporting the global attack mission. Another option is to use theatre assigned or attached tankers, under the control of the respective theatre commander, to support the mission.

4. The greatest difficulty involved with global attack missions is in providing secure, positive control over the attack force during the Outside JOA transit portion of the mission. Due to the high profiles normally associated with these types of missions, the JFC must be given the ability to stop or divert a global attack mission at any point along the route of flight. Command and control during mission cancellations or diverts is especially important since political sensitivities associated with a conflict can seriously limit the number of areas and nations the attack force can over fly or land at. For these reasons, the designated command and control agency must have a communications system capable of positive control over forces anywhere in the world. This system must be capable of providing secure communications to not give up the element of surprise. In addition, aircrews must thoroughly understand who will be exercising command and control of the mission through every phase and the procedures that will be used to ensure positive control.

5. If tankers are used to escort the global attack force to the JOA/AOR (e.g. fighter-type aircraft), the lead tanker will normally be responsible for the flight during refuelling and the JFACC-AARE or national authorities if there is not a TOA will exercise TACOM over the mission until it reaches the boundaries of the JFC’s JOA or the proper commander’s AOR. Upon entry into the JOA/AOR, the JFC/JFACC will normally assume TACON of forces in the flight that have previously been transferred to the CJTF.

6. If the attack force does not require tanker escort (long-range bomber or airlift aircraft), the JFACC may exercise TACOM over the entire mission provided the CJTF has a communications system capable of ensuring connectivity with the ACO and the attack force for the duration of the flight. JFC AARLO can coordinate and check this capability if the JFACC has not yet been established or does not have the required communications system capability. Tankers providing en route air refuelling support to the attacking force should be under the TACOM of the same control authority as that exercising TACOM over the attack force.

4103. Air Bridge Support

1. Air Bridge usually is a national responsibility, but it also can be a NATO responsibility. In this case, or in the case that NATO support would be required, Air-to-Air Refuelling support along an air bridge is primarily provided to air transport aircraft. Transferred command and control of tankers is also exercised by JFC through the JFACC. Ground elements supporting the tankers must maintain constant coordination with the JFACC to ensure tankers have the most current information on traversing air transport missions. They must ensure that Air-to-Air Refuelling airspace has been approved by appropriate air traffic control organizations. These ground elements provide crucial updates on air transport aircraft status to the ALCE of the CAOC. The ALCE uses this information to integrate the Outside JOA air transport flow with within JOA operations.

4104. Deployment Support

1. Deployment support can be complex due to the critical nature of wartime aerial deployments. To ensure expeditious deployment in such circumstances, command relationships, controlling agencies and coordination procedures must be clearly understood by all those involved in the deployment.

2. Since deployment support is essentially a combined joint operation, coordination and transferred control of the deployment missions should normally reside with the ACO. For deployments of long-range combat or combat support aircraft, TACON of those assets may remain with the JFACC in the JOA. Airspace constraints, enemy threats, or synchronization of the local air traffic flow may make it more advantageous to transfer control of the deploying force and their accompanying tankers to the JFC upon entry into the JOA.

3. In the opening days of a contingency, getting combat and combat support forces deployed to the theatre is one of the Air Force's top priorities. It is extremely important that all required agencies, organizations, and procedures are in place prior to the start of open conflict. Therefore, anticipated processes and procedures used in wartime should be the same as those used for the peacetime deployment of forces.

4105. JOA air operations Support.

1 The salient principle with regard to command and control of AAR forces supporting JOA air operations is that to be effective, airmen must control these assets. Whether limited by ramp space, air refuelling airspace, or by sheer numbers, any major conflict will likely be limited in the number of tanker assets that can be utilized for theatre support. The assets that are available must therefore be used as efficiently as possible. Augmentation of CAOC-AARE could be necessary to get the desired efficiency.

4106. Special Operations Support.

1. JFC can include a joint special operations component, which exercises OPCON over SOF forces assigned or attached to the theatre. The joint force special operations component commander will provide a special operations liaison element to the JFACC to coordinate all SOF missions within the AOR.

411. OTHER AIR REFUELLING MISSIONS

4111. Emergency Air Refuelling

1. The JFACC-AARE should develop an emergency Air-to Air refuelling plan to be published in the SPINS and ACO. If available, C2 assets should be utilized to coordinate emergency Air-to-Air refuelling in time-critical situations. Emergency Air-to Air refuelling for Outside JOA operations are

highly situation dependent. In extreme emergencies, Air-to-Air refuelling can be arranged by unit command posts with the assistance of local air traffic control authorities.

4112. Airlift

1. Command and control of air transport forces is accomplished using the guidelines listed above. An exception to this occurs when tankers perform dual role missions. When performing air transport and air refuelling on the same sortie the, Air-to-Air refuelling portion will normally take precedence, since the air transport portion often occurs as a result of the deployment of the air refuelling assets. Another exception can occur when tanker aircraft perform aero-medical evacuation. In either eventuality priority of tasking will be decided by either the JFACC or National Commander depending on the specific circumstances at the time.

2. Aero-medical evacuation sorties are controlled through the JFACC, and coordinated for the Medical/Sanitary Logistic Element of the CJTF and national sanitary elements. These centres normally establish an Aero-medical Evacuation Control Centre (AECC) within the CAOC to coordinate air transport support for AE, and to integrate AE missions with other within JOA operations.

CHAPTER FIVE

PLANNING AND SUPPORT CONSIDERATIONS PRIMACY OF THE OBJECTIVES

501. GENERAL.

1. The judicious use of tankers requires attention to several planning and support issues, which are fundamental to efficient and effective Air-to-Air refuelling operations. Thoroughly addressing these issues will allow maximum utilization of Air-to-Air refuelling assets and will minimize the number of unsupported user requests. These issues impact tanker employment all the way from the allocation and apportionment stage through final execution.

2. The objective is the first consideration in the use of any military asset. Directing military operations toward a defined and attainable objective contributes to strategic, operational, or tactical aims. In application, this principle refers to unity of effort. Success in military operations demands that all efforts be directed toward the achievement of common aims. A clear military strategy provides focus for defining campaign or operation objectives. At the operational level, campaign or operation objectives determine military priorities. Air-to-Air Refuelling is tasked against missions supporting the entire spectrum of national, strategic military, and theatre objectives.

3. Tankers attached to a JTF and supporting within JOA missions will primarily support JFC objectives. Tankers however, must be made available to support all objectives based on the highest priority. For example, commanders may have to pull tankers off of support of within JOA missions to support Outside JOA missions of higher priority, or missions developed under national responsibility, or vice versa. Providing assets to support the different levels of objectives, strategic, operational, or tactical, is accomplished through allocation and apportionment. As the Air-to-Air refuelling expert in the JOA/AOR, and the *'designated coordinating authority for Air-to-Air refuelling with all agencies both internal and external to the JTF'* JFACC AARE should be the JFACC's primary advisor for all apportionment and allocation decisions affecting air refuelling.

502. FORCE APPORTIONMENT AND ALLOCATION

5021. Apportioned Forces

1. Force apportionment refers to the distribution of resources for planning purposes. Air apportionment refers to the determination and assignment of the total expected air effort by percentage and/or by priority that should be devoted to the various air operations and/or geographic areas for a given period of time. During contingencies, the wide ranges of air refuelling missions require different apportionment considerations at strategic and operational planning levels and those operations executed under national responsibility or NATO responsibility.

50211. Peacetime Apportionment.

1. During peacetime, air refuelling support is apportioned to ACO based on training and exercise requirements, and anticipated operational missions not associated with contingencies. Fiscal limitations could force nations to closely monitor tanker availability and aircrew training status to ensure training requirements are met. It also forces NATO and nations to make maximum use of all air refuelling support provided during peacetime.

50212. Contingency Apportionment.

1. Competing priorities can significantly limit the amount of AAR support available. This competition occurs at the strategic level where other contingencies or conflicts also require AAR forces and at the operational level between NATO and nations where different airpower functions compete for limited tanker support. At the strategic level, Nations apportion forces based on the

advice of the ACO and JFC. Included in this apportionment is the number of assets provided to the JFC for within JOA support AAR operations, as well as the percent of effort, or overall sorties, the supporting Commander will provide to the supported Commander for Outside JOA support Air-to-Air refuelling operations. Apportionment decisions are most important when two or more contingencies compete for limited air refuelling assets. Nations should consider overall end-state objectives, status of each conflict, and the ability to swing tankers from one conflict to another. While the total air to air refuelling capability is based on force apportionments that meet the requirements according to items stated NATO Defence Planning, Air-to-Air refuelling capability for lesser conflicts may be less when forces are not mobilized.

2. At the operational level, JFC and JFACC apportion Air-to-Air refuelling sorties among the different airpower functions involved in a campaign. If Within JOA air refuelling capabilities are not able to meet all the requirements, apportionment provides general guidance to planners in the form of number or percentage of sorties that should be dedicated to specific functions. Apportionment of air refuelling sorties should roughly follow the apportionment of combat and combat support sorties. As a campaign is fought, the JFACC will continually adjust sortie apportionment based on progress made toward the end-state objectives. The JFACC will also make adjustments to the apportionment based on advice from the CAOC director and JFACC-AAR on the best use of tanker assets.

5022. Allocated Forces.

1. Force allocation is the distribution of limited resources among competing requirements. At the strategic level, it consists of providing a set level of effort through a support relationship, or transferring a given force to the JFC for attachment to its subordinate or joint task force. At the operational level, it consists of translating the JFACC's air apportionment decision into total numbers of sorties, by aircraft type, available for each operation or task. Just as in force apportionment, force allocation procedures differ between peacetime and contingencies, and at the strategic and operational levels.

50221. Peacetime Allocation.

1. It is a national responsibility; usually peacetime allocation of air refuelling assets is based on force apportionment for training and is regulated by the Nations. Air-to-Air refuelling forces must be equally responsive to all requirements. ACO may ask ACCs with assigned or attached tankers to provide Air-to-Air refuelling support to missions within exercises.

50222. Contingency Allocation.

1. At the strategic level, contingency force allocation refers to the number of assets or missions actually provided to support operations, either through a support relationship or through force transfer. At the tactical level, allocation refers to the actual percentage of missions assigned against a specific airpower function. Tankers are devoted to a contingency based on commitments already made for nations Air-to-Air refuelling support elsewhere. In the case of more than one major operation, the decision is extremely difficult because there will not be enough tankers in the NATO assigned forces to support a total air effort in all the areas for the entire length of a conflict. A solution to this dilemma is that most war plans call for tanker assets to "swing" from one operation to another based on the most pressing needs. Typically, Air-to-Air refuelling requirements peak during the transition from the deployment/build-up stage to the sustainment/employment stage. As the first supported conflict transitions into the sustainment/employment phase, excess air refuelling capabilities can swing to the other theatre. While this concept is premised on more than one major operation, it is just as applicable whenever Air-to-Air refuelling assets are limited.

2. While the ACO must allocate forces to separate contingencies, he must also allocate forces within a contingency. Of the total air refuelling capability allocated to a given contingency, a portion of that capability must be allocated to the deployment effort and another portion must be allocated to

the employment effort. The portion allocated to the deployment effort will normally remain under the OPCON of nations; ACO will provide coordination, if required, to air bridge and deployment support. The portion allocated to the employment effort will normally correspond to the JFC and be attached to the appropriate JFACC.

3. The final consideration in making allocation decisions is the number and type of assets to be used. This entails matching the right air refuelling capabilities against accurately forecasted air refuelling requirements. Once receiver requirements are known, planners can match Air-to-Air refuelling assets against those requirements. The most important consideration is to ensure that allocations are based on capabilities and not sheer numbers. Different tanker weapon systems possess different capabilities. Within a weapon system, modifications that may only be installed on a few aircraft may dictate a particular force mix, which includes that model airframe. Four key factors for planners to consider in this step are:

- a. Boom versus Drogue. If planned operations will include a significant number of receivers requiring probe-and-drogue type refuelling intermixed with receivers requiring boom-type refuelling, planners should consider using tankers capable of both types of refuelling on the same mission.
- b. Total Offload verses tankers in the air. Planners must consider whether planned operations will emphasize total offload capability for only a few receivers or a rapid refuelling capability for multiple receivers. If total offload capability is more important (such as for heavy receivers), fewer numbers of tankers with larger fuel loads should be planned. If the mission emphasis is on frequent, rapid refuelling to multiple receivers (such as multiple fighter strike packages), it may be more effective to use a larger numbers of tankers maximizing the number of available 'booms in the air.'
- c. Utilization Rate (UTE) and Length of Activity. Planned utilization, or UTE rate, and length of planned activity will impact both the number of aircraft allocated and crew ratio that must be used to accomplish the mission. Air refuelling aircraft can support high UTE rates for short periods, but extended periods of high UTE rates should be avoided by adding aircraft and aircrews. High rates of activity for long periods drive the need for more aircraft and support personnel. Similarly, high UTE rates drive the need for higher crew-to-aircraft ratios; the additional aircrews allow time off for recuperation.
- d. Special Operations. If SOF AAR is planned, Air-to-Air refuelling planners must ensure aircraft capable to support SOF operations, and crews trained in those operations, are available.
- e. Daily Allocation. At the operational level, force allocation consists of translating the JFACC's air apportionment decisions into total numbers of air refuelling sorties, by aircraft type, available for each operation or task. Air refuelling assets are matched against receivers in the ATO based on the JFACC's apportionment guidance but tempered by changing conditions. At this level, the most important decisions are those that place tanker aircraft types against receiver requirements.

4. Air-to-Air refuelling capability can be optimized without increasing the number or size of tanker aircraft by carefully matching tanker aircraft types against receiver mission requirements. This may involve greater use of refuelable reliability tankers, assigning individual tankers to multiple receivers or receiver sets, and ensuring receiver air refuelling requests accurately reflect their mission requirements. The considerations for daily allocation decisions are much the same as for contingency allocations as discussed above. When developing daily air refuelling allocations, planners must consider boom versus drogue requirements, emphasis on total offload versus booms in the air, UTE rate, and SOF requirements.

503. GENERAL PLANNING AND SUPPORT CONSIDERATIONS.

1. Planning and support for Air-to-Air refuelling operations are largely dependent on the specific mode of operation tasked and any forecast ancillary missions. However, there are several general planning and support considerations that must be addressed for all tanker operations.

5031. Basing

1. Normally, tankers will operate out of established military bases or mature civilian airfields. At these locations, operations may require some augmentation for staff functions, command and control, aircraft maintenance and servicing, base operating support, and force protection. At other times, however, military Air-to-Air refuelling missions will operate out of austere forward locations. These austere locations will have minimal support personnel, facilities, and equipment, and will require significant augmentation. Military Air-to-Air refuelling airframes and equipment should be chosen for their ability to function in austere locations with large fuel loads.

2. When selecting an airfield for tanker deployments, there are four primary factors that must be considered: beddown capacity, ground threats and security (discussed under threat management, this chapter), location with respect to the enemy, and host-nation support.

a. Bed down capacity.. The chart below lists some of the individual factors that can determine the number of base assets. Many of these limitations, however, can be overcome through augmentation by tanker airlift control elements (TALCEs) or by deploying units themselves through the ITUD concept. Factors influencing are the following:

- | | |
|-------------------------------|-------------------------|
| - Parking Ramp | - POL |
| - Armoury | - Communications |
| - Fuel Trucks. | - Classified Storage |
| - Runway | - Aircraft Oxygen/Equip |
| - Messing | - Diplomatic Clearance |
| - Fuel Transfer Sys. | - Fire Protection |
| - Taxiway | - Maintenance Personnel |
| - Ops Buildings | - Transportation |
| - Servicing Personnel. | - Fuel Storage |
| - Airfield Restrictions. | - Maintenance Equipment |
| - Medical Servicing Equipment | - Billeting |
| - Navaids/Approaches | - Fuel Pits |
| - Force Protection | - Spare Parts |

b. Geographic Location. Planners must also consider enemy airborne threats when choosing tanker-operating bases. Because of the tanker's extended range, they can often perform their mission even when based beyond the effective range of enemy aerospace forces. When possible, tankers should be based outside this range, and should operate beyond the range of enemy fighters when friendly air superiority has not been established. This is especially important during the initial phase of a campaign.

c. Host-Nation Support. Deployed air refuelling operations will always rely, at least to a certain extent, on host-nation support. The most important consideration is an assessment of what host-nation support can reasonably be expected. Shortfalls in host-nation support can be supplemented through the integral tanker unit deployment process. If this assessment is not done well, either the unit will not have adequate support to conduct operations when it arrives, or valuable lift space will be wasted on cargo already available at the deployed location. A critical aspect is amount of fuel available, either stored or delivered. Deploying forces can not supplant fuel available.

5032. Integral Tanker Unit Deployment (ITUD)

1. Although Air refuelling forces should deploy as integral units (There are several advantages to integral unit deployments. Commanders are familiar with the capabilities, strengths, and weaknesses of deployed personnel. Also personnel bring established working relationships and processes with them). Units are assured of having desired supplies, equipment, and personnel since they are all sourced from the same unit. And finally, integral unit moves relieve the airlift system somewhat, since tanker aircraft can carry some of their support with them when they deploy. ITUDs improve tanker utilization and provide more flexible and dependable response to global requirements. The ITUD support capabilities are the following:

- Civil Engineering
- Transportation
- Services
- Historian
- Aircraft
- POL
- Public Affairs
- Intelligence
- Personnel
- Communications
- Chaplain
- Staff Judge Advocate
- Contracting
- Airfield Operations
- Weather
- Financial Mgmt
- Information Mgmt
- Security and Force Protection

50321. Units.

1. There is not a basic organization in NATO for providing AAR support to Outside and within JOA Air-to-Air refuelling resources. AAR employment concepts, however, usually will not be based on complete unit deployments. Therefore, Air-to-Air refuelling forces must be able to deploy small support units or augmentation assets, to support NATO military forces during periods of increased activity. As defined here, a unit could be as small as a flight with its flight commander. AAR assets will normally deploy with a command element and squadron commander, operations officer, or flight commander.

50322. Tasking.

1. Air Forces tasking is accomplished using standard unit type codes with appropriate paring and tailoring. AAR forces must be able to provide their full complement of aircraft to meet tasked operational requirements and to deploy designated air refuelling forces to support Air-to-Air refuelling operations worldwide.

5033. **Airspace and Air Traffic Control**

1. The requirement to provide Air-to-Air refuelling services in several wide areas in a combined operations environment means tanker crews must be thoroughly trained in International Civil Aviation Organization (ICAO) procedures and capable of operating under host nation air traffic control rules. Many countries have specific restrictions on AAR operations conducted within their sovereign airspace. AAR airframes must be equipped with communications and other avionics capabilities required by national and international air traffic control regulations. The need for properly equipped aircraft will gain even greater significance as civil authorities implement new separation standards and air traffic management procedures associated with the communication, navigation, surveillance/air traffic management (CNS/ ATM) concept. Failure to properly equip aircraft could result in significant mission impacts due to exclusion from airspace.

50331. Operations in International Airspace/Territorial Airspace.

1. Military aircraft entering another nation to conduct NATO operations must have the approval of the foreign government to enter their airspace, except when exercising the right of transit passage or archipelagic sea-lanes passage. Failure to obtain appropriate clearances can result in the aircraft being denied access, which can preclude successful mission accomplishment. Failure to obtain proper clearances can also result in international incidents extremely embarrassing to NATO and NATO nations.

2. Tanker planners should be concerned with two types of airspace: international airspace and territorial airspace. International airspace includes all airspace seaward of a coastal state's territorial seas. International air space is open to aircraft of all nations, although only civil aircraft may be subject to ICAO controls and procedures. State aircraft (which include military aircraft and other state operated aircraft) may operate in such areas free of interference or control by the coastal state. Territorial airspace includes airspace above territorial seas, archipelagic waters, inland waters, and land territory, subject to rights of transit passage and archipelagic sea-lanes passage. Territorial airspace is sovereign airspace and consent of the diplomatic clearance is required for flights within territorial airspace by state aircraft, except when transiting over international straits or exercising the right of archipelagic sea lanes passage. Because of this, it is imperative that sufficient information be provided and reviewed far enough in advance to allow compliance with applicable national and international requirements.

50332. Altitude Reservation (ALTRV).

1. Most Outside JOA Air-to-Air refuelling operations require an ALTRV to reserve AAR airspace. ALTRVs must be submitted in accordance with rules of the ICAO in international airspace and with the ICAO and the host nation rules when conducted over territorial airspace. Aircrews must ensure that ALTRV approval is received prior to conducting Air-to-Air refuelling operations. ALTRVs do not relieve aircrews of the requirement to obtain diplomatic clearances or to file flight plans.

50332. Air Refuelling Airspace.

1. Most within JOA air refuelling is conducted in airspace specifically designated for air refuelling. For peacetime operations, Air-to-Air refuelling airspace is published in flight information publications with boundaries, altitudes, and communications frequencies agreed to by the air traffic control authorities. During a contingency, AAR airspace close to the enemy will change frequently, and its altitudes and communications frequencies will be classified to avoid predictability. Routing to and from the air refuelling airspace will also change in response to changes in the air campaign and enemy threats to friendly forces. This information will be published in the daily and weekly SPINS and ACO, and must be followed carefully to avoid conflicts with other within JOA operations.

5034. **Communications Capabilities and Emissions Control**

1. AAR operations are highly dependent on both air-to-air and air-to-ground communications. Throughout air refuelling operations, tankers must be able to communicate with their receivers, AWACS controllers, local air traffic control, and other tankers in formation. Mission requirements normally dictate that tankers maintain positive contact on these frequencies simultaneously. Combat or politically sensitive missions will often require both the tanker and receiver to exercise emissions control (EMCON) procedures. These procedures minimize an aircraft's transmission of electronic signals (communication and navigation) in order to reduce the amount of information other forces can gather. Use of EMCON entails bringing two aircraft together, in the same airspace, while using limited communication and navigation capability. To be successful in refuelling under EMCON conditions, standardized procedures are developed, the procedures must be regularly exercised, and both tanker and receiver aircrews must be thoroughly briefed on the procedures to be used prior to each mission.

5035. **Conditions**

1. AAR forces and their receivers must be capable of conducting AAR operations during periods of darkness and under adverse weather conditions. Depending upon the operation, this may require precision navigation equipment and night-vision capability.

5306. **Operations in a Nuclear, Biological, Chemical or Radiation (NBCR) Environment**

1. Operating in an environment contaminated by NBCR weapons requires specialized aircraft equipment plus intensive aircrew and ground crew training. Planners at all levels of command must account for the possibility of operations in an NBCR environment. Aircrews are most likely to be exposed to biological, radiological or chemical weapons effects when transiting or operating out of bases within the theatre of operations. Exposure to nuclear effects (radioactive contamination, blast effects, electro-magnetic pulse, flash blindness, heat, and nuclear dust clouds) is likely to occur during some kind of missions.

504. **FORCE MANAGEMENT**

5041. **Scheduling**

1. Aircrew availability rather than aircraft availability most often limit mission scheduling, though both must be accounted for in the scheduling process.

50411. Aircraft.

1. Aircraft scheduling is a function of utilization rates, which drive required maintenance schedules, and indirectly impact reliability rates. While tanker aircraft can be regenerated in a relatively short period of time, high utilization rates will require more frequent periodic maintenance. Reliability rates for tankers are typically very good, but decrease over time with high UTE rates. Another consideration for scheduling aircraft is the requirement for unique equipment for special operations or simultaneous boom and drogue-type refuelling.

50412. Aircrew.

1. Tanker units are currently manned at a rate of crews per aircraft, but it can change in the case of deployment, depending on the nature of the operation. Aircrews are normally scheduled as integral crews but staff members can make up shortfalls when available due to aircrew illness. Aircrew scheduling is also driven by the amount of mission preparation that must be done by the crew, sortie duration, crew composition and crew specialization requirements. At high operating tempos, aircrew members can also face monthly flying hour maximums, which will further limit their availability.

50413. Some references for aircraft and aircrew utilization Outside JOA Air-to-Air refuelling.

- An aircraft flown continuously on Outside JOA air refuelling missions averaging 12 hours per sortie can fly 9.9 missions in a week.
- With a 1.27 crew ratio, the aircrew assigned to that aircraft can fly 7.6 sorties.
- In this case aircrew capabilities equal aircraft capabilities at a 1.65 crew ratio.

50414. Some references for aircraft and aircrew utilization within JOA Air-to-Air refuelling.

- An aircraft flown continuously on within JOA air refuelling missions, averaging 4 hours per sortie, can fly 19.4 missions in a week.
- With a 1.27 crew ratio, the aircrew assigned to that aircraft can fly 15.2 sorties.
- In this case aircrew capabilities equal aircraft capabilities at a 1.62 crew ratio.

50415. Spare Concept.

1. When scheduling aircraft and aircrews, planners must also consider the concept of operations for providing spares to the daily flying schedule. Using the rolling spare concept (each aircrew and aircraft sparing the sortie immediately ahead of it in the schedule), no additional aircraft or crews are required, but the additional time required to accomplish this will decrease the number of sorties each aircraft and crew can fly in a given period of time. With a dedicated spare, only one aircraft and crew are used at a time, but they should not be used for any other duty. Receiver requirements may dictate the need for multiple spare aircraft and aircrews.

50416. Sortie/Mission Generation.

1. Generating air refuelling sorties and missions requires a cooperative effort on the part of both operations and maintenance personnel. Operations planners must be kept continually aware of aircraft status, especially when an aircraft will be non-mission capable for extended periods of time. Likewise, maintenance planners must be kept continually aware of forecast OPTEMPO changes and must work with operations planners to determine optimum times for periodic aircraft maintenance.

5042. Execution

1. Commanders must exercise positive control over all AAR assets whenever they are airborne to avoid wasting AAR capacity. Because of their extended loiter capacity, airborne tankers can be redirected in flight whenever their primary mission is cancelled or changed. To accomplish this, ground elements must maintain accurate flight following of air refuelling aircraft and be able to contact those aircraft anywhere along their route of flight. This can normally be accomplished by the JFACC and CAOC, though mission requirements may dictate that an AWACS or ground control intercept facility control the tanker during the air refuelling portion of the mission. EMCON requirements may complicate this positive control. Control requirements, procedures, and frequencies must be thoroughly explained in the SPINS portion of the ATO to ensure coordination between aircrews and ground control personnel.

5043. Departure and Recovery

1. Aircraft are most vulnerable to enemy action when transitioning to and from their base and this problem is exacerbated by Tanker aircraft's inherent lack of manoeuvrability, particularly at these stages of a flight. Varied and indirect departures and approaches to the airfield to minimize susceptibility to ground launched weapons may be required. At the same time, these procedures must provide rapid launch and recovery for large numbers of aircraft while still allowing adequate air traffic separation. Operations planners, tactics experts, and air traffic control personnel must work in close concert to develop launch and recovery procedures that meet these important requirements.

505. OPERATIONAL PLANNING AND SUPPORT CONSIDERATIONS

1. Commanders must make every effort to minimize aircraft and aircrew losses. One of the most effective means of doing this is by controlling the risks crews must face in accomplishing the mission. One technique for risk management is the use of the Operational Risk Management (ORM), a logic-based, common sense approach to making calculated decisions on human, materiel, and environmental factors before, during, and after Air Forces operations. It enables commanders to maximize operational capabilities and minimize risks by applying a simple, systematic process appropriate for all personnel and Air Force functions. ORM should be viewed as a process or

philosophy to help commanders at all levels assess risk and control measures in order to optimize decisions.

5051. Mission Development

1. All successful air operations begin with thoughtful and careful planning on the ground. Capitalizing on airpower's distinct attributes is meaningless without an overall strategy, combined with strict attention to detail during mission development.

50511. Outside JOA Operations.

1. Mission development for Outside JOA operations will vary for each mode of operation. Planning considerations for global attack will vary for every attack option. Close coordination between tanker and receiver planners during mission development is critical to the success of Outside JOA Air-to-Air Refuelling operations.

50512. Within JOA Operations.

1. Mission development for within JOA operations is much more predictable due to its cyclical and deliberate nature. Once the MAAP is approved by the JFACC, the Combat Plans section of the CAOC continues detailed preparations for the CAOC on the ATO, SPINS and the ACO. AAR airspace will be posted in the ACO while frequencies and procedures will be posted in the SPINS. These two items allow Air-to-Air refuelling personnel to plan and execute all air refuelling missions tasked in the ATO. The ATO, ACO, and SPINS provide operational and tactical direction at appropriate levels of detail. The level of detail should be explicit when forces operate from different bases, or when joint or multinational missions are tasked. Less detail is required when missions are tasked to a single Service component or base.

50513. Receiver Requirements

1. Receiver requirements dictate how much fuel will be offloaded, where the refuelling will take place, and when the rendezvous will occur. The receiver aircraft's performance characteristics will dictate air refuelling speed, altitude, and allowable manoeuvring during the refuelling. The receiver's mission may also dictate special tactics, EMCON requirements, or specialized equipment to achieve desired effects. Whenever possible, the tanker aircrew must ascertain the receiver's requirements prior to takeoff to preclude distracting and unsafe conditions in the air.

506. THREAT MANAGEMENT

1. Friendly and enemy forces view Air-to-Air refuelling platforms as a high value asset. When tankers are lost, the ability to strike deeper into enemy territory with overwhelming force can be significantly degraded. Air refuelling forces can become a prime target for both ground and airborne attack systems.

5061. Ground Threats and Force Protection

1. The post-cold war period has been characterized by a significant shift in the mission of the Air Force and an increased exposure of its resources to the worldwide terrorist/enemy threat. Previous incidents and attempts have shown that potential opponents are more unpredictable and assets and facilities are more at risk to terrorist/enemy attack. Additionally, there has been an increase in the availability of high technology weapons and weapons of mass destruction.

2. Together, these factors have multiplied the threat to forces on the ground and brought to light the need for enhanced force protection measures. Expeditionary AAR forces that are poised to respond to global tasking require protection capable of accompanying them with equal speed.

3. Commanders are responsible for protecting their people and the war fighting resources necessary to win any type of conflict. Force protection includes Security Forces providing safe and secure operating locations for personnel and resources. To protect weapon systems and airfields, Security Forces must be able to detect and respond to a wide variety of threats ranging from unauthorized entry to an overt attack. Security forces must maintain rapidly deployable force modules to support contingency operations at all tanker deployment locations. National agencies and intelligence sections of JFC and JFACC must identify, investigate, and neutralize espionage, terrorism, fraud, and other major criminal activities targeting NATO air resources. Threat information provides commanders with threat assessments, which enables them to develop countermeasures in deployed areas and adjust operations accordingly. Therefore, agencies advisors should arrive with the initial deployment of tanker personnel.

5062. Threats While Airborne

1. The primary threat to tanker flight operations is surface-to-air threats during the ingress and egress phase. Bed down locations for operations should be closely scrutinized when developing basing priorities. Planners need to formulate considerations based on threat analysis, airfield environment, national cultures, and OPTEMPO at each base. Locations should be chosen to allow security forces the capability to easily defend approach and departure corridors.

2. At altitude, AAR assets may be vulnerable to enemy aircraft, surface-to-air missiles, and anti-aircraft fire. Their best defence against these threats is always avoidance. AAR tracks should be positioned outside the effective range of enemy aerospace forces. Operational considerations may dictate that tankers operate within this range, but defensive tactics must be pre-planned, along with preferred escape routes and safe areas. Close coordination with AWACS and other surface and airborne threat sensors will provide crews with real time changes in threat status and threat warnings.

5063. Tanker Threat Warning and Defensive Capabilities

1. Air forces are increasingly tasked to perform missions in hazardous situations, both in war and most recently during military operations other than war (MOOTW). Given the varied regional contingencies tankers will be involved in, and the wide range of anti-aircraft weapons tankers will be exposed to, planners cannot guarantee air refuellers will not operate in high threat environments. Tankers usually have not been equipped with threat warning or self-defence equipment. Instead, planners attempted to reduce the risk through threat avoidance tactics, combat air patrol by fighter aircraft, and suppression of enemy air defence systems by ground attack aircraft. In many cases, especially during certain types of MOOTW, it may not be politically viable to have fighter protection. The lack of defensive countermeasures therefore, may restrict AAR aircraft to only permissive environments. This restriction can significantly inhibit air refuelling forces' force enablement and force multiplication roles and reduce their flexibility to support national policy across the range of military operations or require acceptance of greater risk.

506. SUMMARY

Detailed planning and support considerations can become extremely complex. For any given contingency, commanders and planners must consider planning and support factors, operational factors, possible alternate operational modes and ancillary missions. Flexibility, combined with careful planning, is critical to ensuring optimal utilization of air refuelling assets in support of strategic objectives.

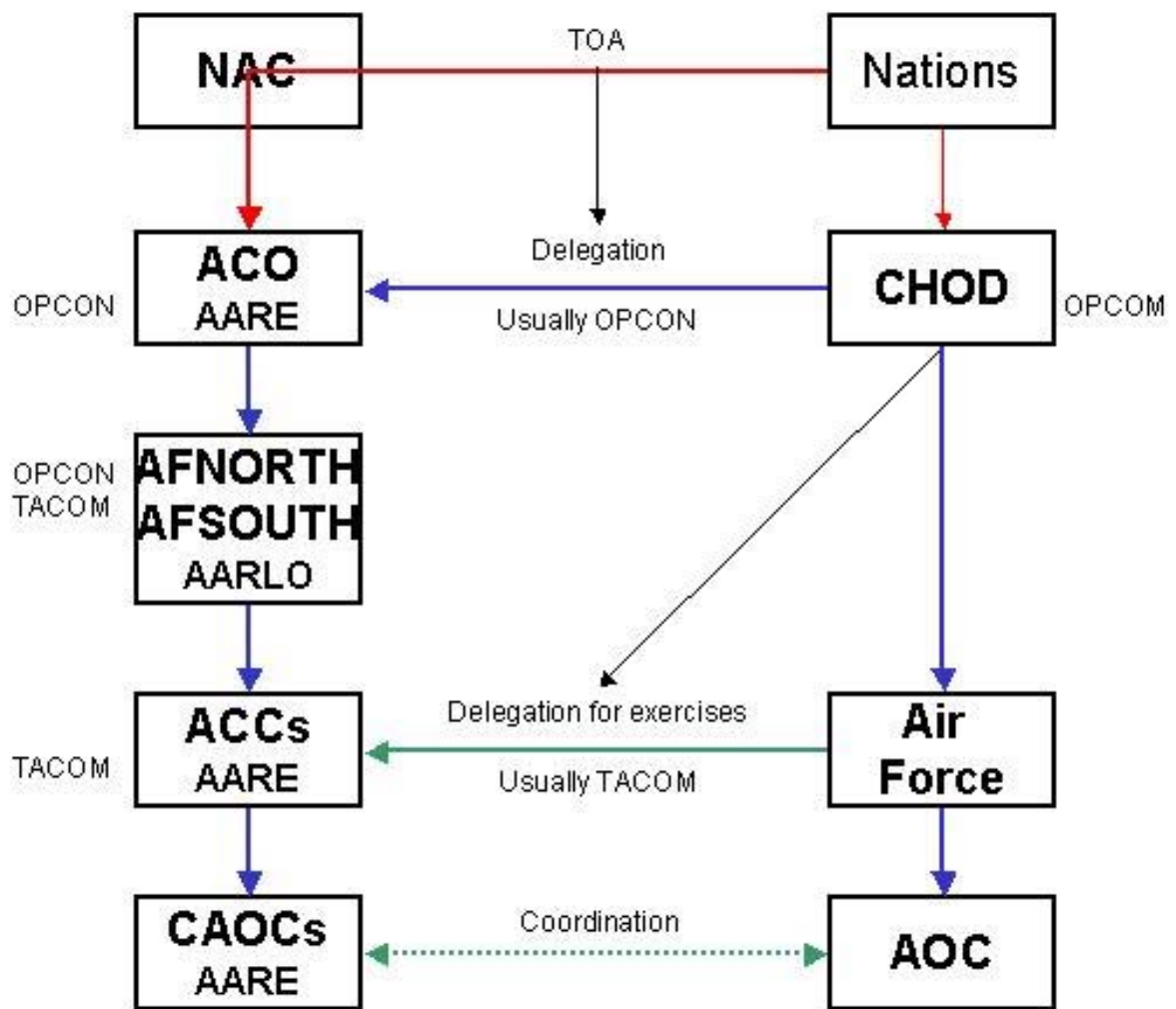


Figure 4.1
Peace time Command & Control structure of AAR forces

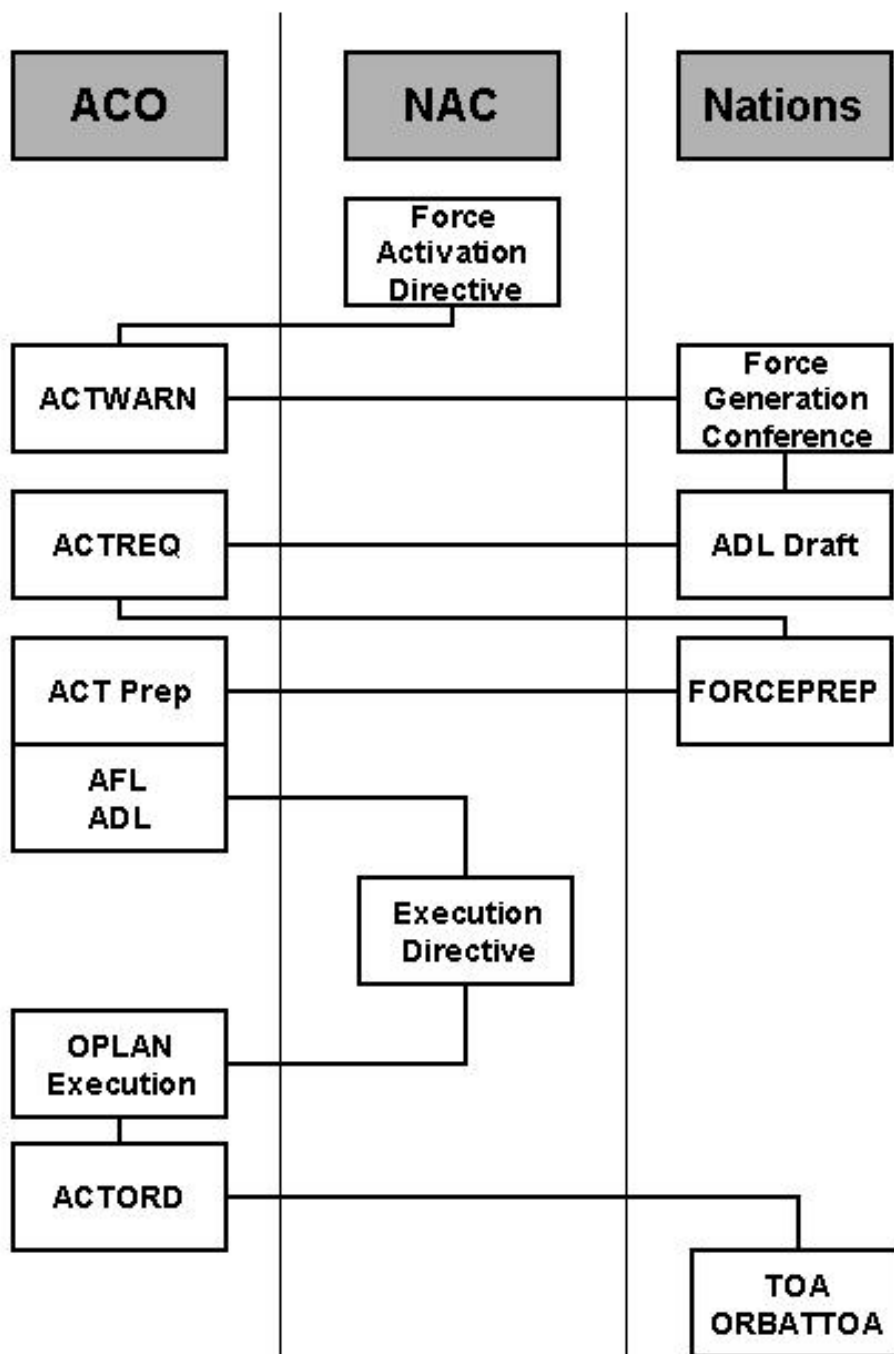


Figure 4.2
NATO process Transition to contingency Operations

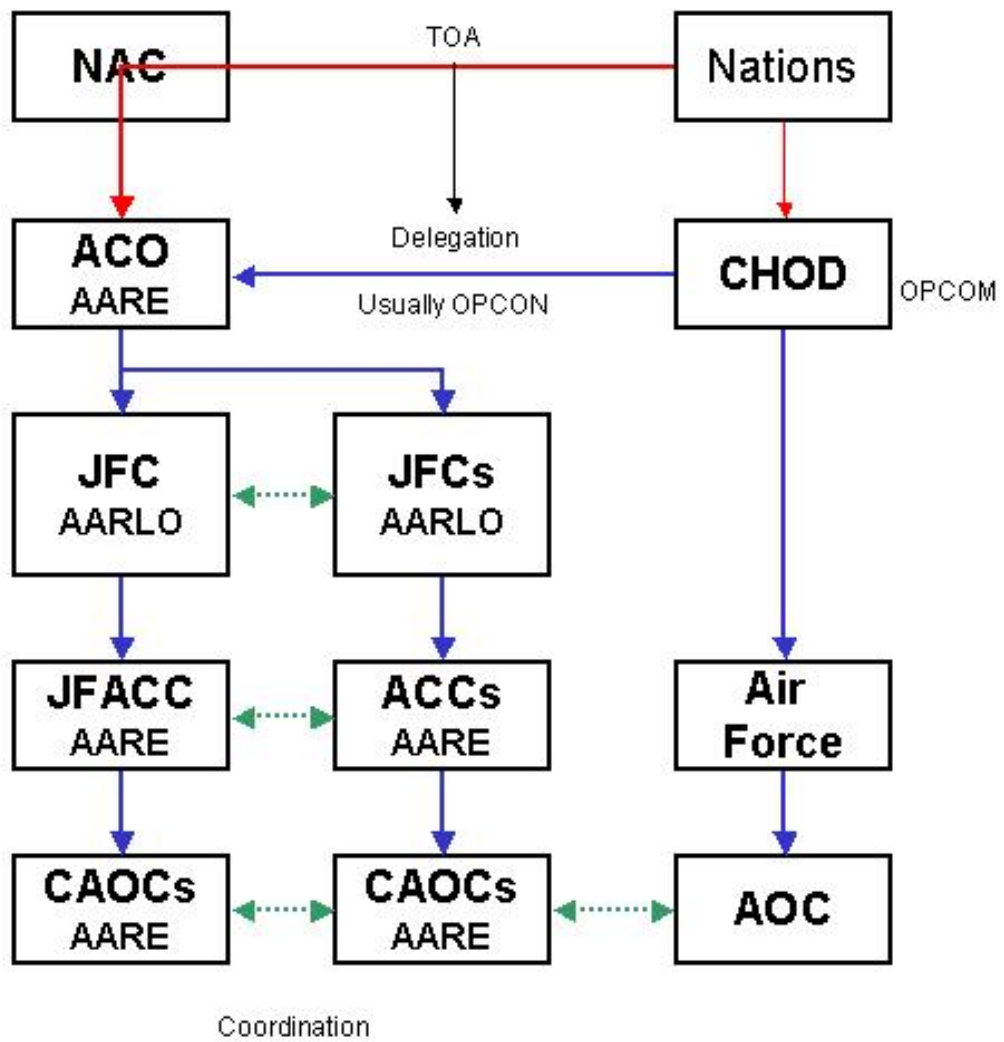


Figure 4.3
Transition to Contingency Command & Control structure of AAR forces

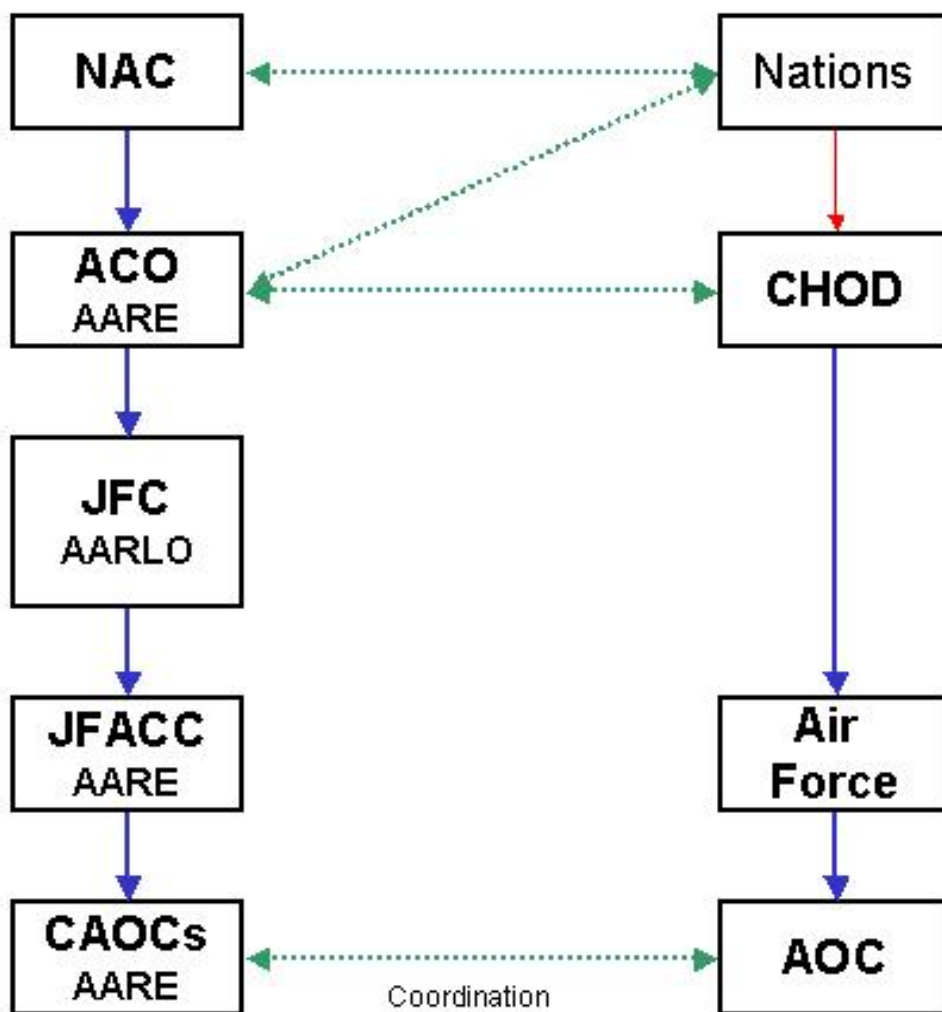


Figure 4.4
Contingency Command & Control structure of AAR forces

