NATO STANDARD

ATP-3.3.3.1

AIR-MARITIME COORDINATION PROCEDURES (AMCP)

Edition B, Version 1
DECEMBER 2020

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED TACTICAL PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

15 December 2020

1. The enclosed Allied Tactical Publication ATP-3.3.3.1, Edition B, Version 1, AIR-MARITIME COORDINATION PROCEDURES (AMCP), which has been approved by the nations in the Military Committee Air Standardization Board, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 7185.

2. ATP-3.3.3.1, Edition B, Version 1, is effective upon receipt and supersedes ATP-3.3.3.1, Edition A, Version 1, which shall be destroyed in accordance with the local procedures for destruction of documents.

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4. This publication shall be handled in accordance with C-M(2002)60.

Zoltán GULYÁS
Brigadier General, HUNAF
Director, NATO Standardization Office

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS
1	USA
5	USA
5	FRA
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

[Nation]	[detail of reservation]
USA	Reference para. 2.e., pg. 1-2, it should be noted the USA is not a party to UNCLOS, although the USA considers the navigation and overflight provisions therein as reflective of customary international law. If the following changes are made, the USA will remove this Reservation: "2.e. Rules Of Engagement (ROE). DELETE: Definitions of the maritime environment follow the rules of United Nations Convention on the Law of the Sea (UNCLOS). Nevertheless dimensions of some exclusive economic zones are disputed among nations. ADD: ROE may need to reflect the unique nature of the law of the sea. However, the interpretation of some provisions of the law of the sea, such as the extent of any given Nation's exclusive economic zone, may be in dispute."
USA	Reference para. 5.5.d., pg. 5-4, while the USA recognizes a Nation's right to establish an ADIZ in international airspace adjacent to their territorial airspace, the USA would not consider a declared air defense zone around a maritime force as an ADIZ. If this term is deleted as used in this context, the USA will remove this Reservation.
FRA	France has the following reservation about $5.8.c.(2) Self-Protection Zone (SPZ): to comply with ATP-3.3.5.1, France will authorize penetration of SPZ with positive clearance from the Anti-Air Warfare Commander(AAWC).

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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CHAPTER 1 INTRODUCTION

1.1 PREAMBLE

1. Allied Tactical Publication ATP-3.3.3.1 '*Air-Maritime Coordination Procedures*' (AMCP) is intended as a ready reference for both the air and maritime communities. Although not all encompassing, it provides the user with the most important and commonly used aspects of AMCP[1] when air and naval forces are operating together in the framework of the standing peacetime NATO Integrated Air and Missile Defense (NIAMD) mission and as part of a Combined Joint Task Force (CJTF) supporting a campaign, and adheres to the principles set forward in AJP 3.3.3. '*Allied Joint Doctrine for Air Maritime Coordination*'. It is assessed that some of the content captured in this version of ATP-3.3.3.1 would be more suited to being situated in the parent document, AJP-3.3.3. Where this is the case, it will be clearly stated and the intention is to transfer this detail at the next update cycle for AJP-3.3.3. providing the information remains extant.

2. Although ATP-3.3.3.1 is primarily intended for NATO forces, the procedures are also applicable to operations within the framework of a CJTF in a multinational force of NATO and non-NATO nations.

1.2 AIM

This ATP is intended to primarily provide an orientation reference for both the aviator and the maritime warfare officer when acting cooperatively in support of maritime operations, and should be used in conjunction with the other air maritime focused doctrine. However, it does replicate in some detail air-maritime coordination procedures related doctrine for Anti-Air Warfare (AAW) and Air Power Contributions to Counter-Maritime Operations (APCMO), both of which are considered to be the more readily used doctrine. Although this ATP focuses on air maritime procedures in support of the maritime component operations, it should be noted that air maritime capabilities could equally mutually support the air and land components and Special Operations Forces (SOF).

1.3 ENVIRONMENTAL DIFFERENCES

1. While there are many similarities between air operations over land and sea, important differences exist. The physical properties of the land-sea and air-sea interfaces, some unique undersea properties, and the sheer vastness of the maritime environment, render the sea largely opaque to many sensors. It provides a possible

[1] Procedures in this context is a combination of Tactics, Techniques and Procedures (TTP).

hiding space for any illegal activity or OPFOR operations, e.g. sub-surface missile launches or naval movement and manoeuvre.

2. Surface ships can be detected by a wide range of space or air-based sensors; however, it is often difficult to identify specific vessels as targets with sufficient certainty to engage them, especially if they are not radiating distinctive electromagnetic and acoustic signatures. Additionally, weather conditions can change rapidly, and selected characteristics such as wave height and sea spray may impact visibility and radar or sensor effectiveness of platforms and munitions.

Important differences include:

a. **Lack of visual/terrain references at sea**. The lack of visual references at sea adversely affects not only the ability to navigate but also the ability to quickly orient aircrew to the tactical picture for safety and targeting. The lack of terrain eliminates the capability of low altitude aviation assets to employ terrain masking for threat avoidance. Therefore, these assets will often be within range of a surface ship's weapon systems when attack criteria are achieved. However, lack of terrain is not always a disadvantage as vessels cannot hide behind obstructions. Providing a sensor remains within the radar horizon of its target near 100% tracking can often be achieved.

b. **Target Identification (ID)**. Similarities in ship design, appearance and density of surface traffic require aircrew training tailored to the maritime environment.

c. **Naval vessel mobility**. Surface vessel mobility may negate the effectiveness of GPS-guided weapons. A vessel's mobility coupled with poor weather conditions can increase difficulties in performing visual identification and complicate targeting.

d. **Target discrimination**. The vast majority of maritime vessels are commercial shipping representing every major nation in the world. Their presence in the midst of an emerging tactical picture has fratricide and collateral damage implications.

e. **Rules Of Engagement (ROE).** Definitions of the maritime environment follow the rules of United Nations Convention on the Law of the Sea (UNCLOS). Nevertheless dimensions of some exclusive economic zones are disputed among nations.

f. **Maritime Air Control Authority (MACA**) is that national entity through which the Commander Maritime Air (COMMARAIR) NATO may exercise operational Command and Control (C2) of MARAIR assets or to whom he may delegate Operational Control (OPCON). The MACA is subordinate to, and in the direct chain of command, of the functional commander. The MACA will have an operations centre for the C2 of assigned air assets (Maritime Patrol Aircraft (MPA)/Maritime Patrol Helicopter (MPH)) in support of maritime operations.

g. **Tactical C2**. While the maritime environment contains common tactical C2 such as Forward Air Controller (AIR) (FAC[A]) and Airborne Early Warning (AEW), it also employs tactical C2 unique to the maritime environment such as an Air Coordinator (AC), Aircraft Control Unit (ACU) and MACA.

h. **Composite Warfare Commander** (nomenclature). Maritime forces are scalable in size and capabilities; therefore, a unique naming convention has evolved to oversee and execute warfare functions under the Composite Warfare Commander's structure.

i. **Naval flight operations**. The very nature of naval flight operations is that they are mobile; the large deck aircraft carriers and smaller combatant vessels possess aviation detachments. The location of high-density flight operations is ever changing, requiring constant coordination for safe de-confliction. Additionally, aviation in the naval environment is a particularly challenging evolution when one considers the lack of suitable landing areas, suitable diversions and their mobility (location and pitch/roll). A specific training and regulatory regime must be in place to manage these risks.

j. **Deconfliction**. Air, surface and sub-surface fires are coordinated at the warfare commander level; therefore aircrew should immediately report the location of all enemy aircraft, surface vessels and submarines, when spotted, to the appropriate warfare commander in order to deconflict friendly operations.

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CHAPTER 2 PLANNING

2.1 AIR POWER CONTRIBUTION TO COUNTER MARITIME OPERATIONS (APCMO)

1. APCMO are defined as the air attack missions flown in support of maritime operations extending the application of air power into the high seas or the littoral and its adjacent waters (AJP-3.3B). APCMO are typically flown in support of friendly naval forces, but they may be flown independently when no friendly forces are in the area.

2. APCMO will contribute to two specific maritime warfare areas:

   a. **Anti-Surface Warfare (ASUW),** in order to destroy or neutralize adversary naval surface forces and normally be assigned TACON to the anti-surface warfare commander (ASUWC);

   b. **Anti-Submarine Warfare (ASW),** conducted with the intention of denying the adversary the effective use of submarines and normally be assigned Tactical Control (TACON) to the anti-submarine warfare commander (ASWC).

2.2 CORE JOINT AIR POWER ROLES AND TYPES OF AIR OPERATIONS

1. Additionally, Joint Force Air Component (JFAC) assets may contribute to maritime operations by providing the following core joint air power roles and types of air operations:

   a. **Counter-air**, incrementing the anti-air warfare (AAW) and the overall Air Defense (AD) capabilities embedded within the naval forces;

   b. **Attack.** *Under the role "Attack" there are two types of Counter-surface force operations. One is APCMO, already mentioned in para 2.1 above. The other is Air Power contribution to Counter-Land Operations (APCLO) in support of amphibious ops, close air support (CAS) and/or air interdiction (AI);*

   c. **Air mobility,** supporting naval forces for Air Transport (AT), airborne operations, Aeromedical Evacuation (AE) and acting as force multiplier for the Joint Force Maritime Component Command (JFMCC) organic or non-organic supporting air assets with the provision of air-to-air refuelling (AAR);

   d. **Contribution to Joint Intelligence, Surveillance and Reconnaissance (JISR)** through the JFAC;

   e. **Support to Joint Personnel Recovery (JPR)** through the JFAC.

2.3 MARITIME FORCES CAPABILITIES

Among all the above mentioned roles and types, Counter-Air (CA), both Offensive Counter-Air (OCA) and Defensive Counter-Air (DCA), may have a great impact on maritime operations as well as maritime assets may have a part in CA operations. Therefore, while planning for CA operations, the following maritime forces capabilities must be taken into account in coordination and integration efforts:

a. AAW capabilities (CIWS/PDMS, SR/MR/LR SAM's);
b. (T)BMD capabilities;
c. CA (OCA/DCA), Attack (Strategic Attack, AI, CAS, ASW, ASuW), ISR, JPR, and Electronic Warfare (EW) capabilities (CV- strike group);
d. Radar and EW capabilities;
e. Link capabilities (exchange of the air /maritime picture/data);
f. ISR/NDISR capabilities (organic air assets);
g. Naval Fire Support.

2.4 AIR-MARITIME COORDINATION

1. The cooperative nature of the possible missions that might be assigned to the JFMCC and JFAC in support of joint operations requires employing assets provided by both the component commanders as mutually supporting elements and when operating within the same Joint Operations Area (JOA), increasing the need for closer coordination. Key to this is the establishment of a coordinated multi-domain shared understanding of the JOA and the effective integration of air, sea, space and cyber capabilities.

2. Therefore Air Maritime Coordination (AMC) identifies the C2 structure and the procedures required to:

a. Ensure flight safety;
b. Avoid mutual interference;
c. Minimize potential for fratricide;
d. Avoid duplication of efforts;
e. Improve efficiency and effectiveness.

3. Furthermore, whenever those assets are mutually supporting each other in order to achieve the assigned mission, rather than "coordinate to de-conflict", AMC has to be intended as "coordinate to integrate", regardless of how the supported/supporting relationship between the components is ordered by the Commander Joint Task Force.

4. The assets that might be employed within the framework of AMC are not limited to aircraft and will generally include:

a. Air Defense Unit (ADU)/Theatre Ballistic Missile Defense ((T)BMD) ships;
b. Tactical Data Link (TDL) capable units;
c. Tomahawk Land Attack Missile (TLAM) units;
d. Intelligence, Surveillance and Reconnaissance (ISR) assets;
e. Electronic Warfare (EW) assets;
f. Air Surveillance And Control System (ASACS) assets;
g. Airborne Early Warning and control system aircraft (AEW);
h. Unmanned Aircraft Systems (UAS).

5. The Air Tasking Order (ATO) contains detailed tasking for all pre-planned air missions scheduled to operate within a specific timeframe. It contains information both on missions flown under Tactical Command (TACOM)/Tactical Control (TACON) of the Commander, Joint Force Air Component (COM JFAC) as well as other missions within the JOA. Maritime organic assets should appear on the ATO to enable coordination and minimize the risk of fratricide; however, their appearance on the ATO neither implies any command or tasking authority over them, nor does it restrict Component Commanders' flexibility to respond to changing battlespace dynamics.

2.5 AIR SUPPORT OPERATIONS

Should a component not have, or not have sufficient of the organic air capabilities to support their assigned mission, Commander Joint Force Air Component (COM JFAC) may task available joint air assets based on the COM JTF's air apportionment decision. These aircraft may be assigned to provide support to forces at sea in one of three ways:

a. **Direct Support (DS)**. Aircraft assigned to DS are tasked to support and protect a specific force. TACON of supporting aircraft is delegated to the supported force's Officer in Tactical Command (OTC). While in DS, control is normally exercised through the supported force's aircraft control unit. The radius of direct support operations about the force will be determined by the OTC and will vary according to mission specifics. Note that the OTC is required to inform the tasking authority of the dimensions of his surveillance area and of subsequent changes, emission control policy permitting.

b. **Associated Support (AS)**. Aircraft tasked in AS will operate independently of a specified force or group, but will provide contact information to, receive intelligence from and, if authorized, cooperate and coordinate operations with the supported force. TACON of the aircraft remains with the assigning authority who coordinates tasking and movement of the aircraft in response to the requirements of the supported force OTC. The OTC should be briefed on the amount of support he can expect to receive from the aircraft on AS'.

c. **Area Operations (AQ)**. These operations are conducted in a geographic area and are not directly related to the support of a specific force. They are conducted in areas where adversary forces are known to be, areas through which adversary forces are likely to transit, areas in which friendly forces are planned to operate, or areas within which it is desirable to deny the adversary freedom of action.

2.6 INFORMING THE OTC OF OPERATIONS IN HIS VICINITY

OTCs are to be informed by the appropriate coordinating authority of any aircraft employed on area operations in the vicinity of their force. If a force at sea is to be supported by land-based aircraft in AS or DS, the OTC will be informed by the appropriate coordinating authority of the type and nature of support being provided in response to the support request, using standard Air Support Request (ASR) formats. In the case of ship-borne aircraft support, the OTC of the force providing the support should keep the OTC of the supported force, and, if possible, shore authorities, informed of the flying schedule and intentions using the standard Message Text Formats (MTF).

2.7 SUPPORT OPERATIONS TASKED BY MARITIME AUTHORITIES

Air operations in support of forces at sea outside of direct tactical support, which are controlled by maritime authorities, are normally tasked by standard MTF or the ATO. The tasking authority should stipulate both the form of support of each mission and the specific mission type by promulgating mission designators from Table 2-1.

2.8 MISSION DESIGNATORS

Mission Designators can only be changed by the entity holding Tactical Command (TACOM). Therefore, if an OTC wishes an aircraft to do more than one mission type, it must be stated in the support request message. Note that the supported OTC can modify tasking during a mission.

Form of Air Support Operation (Notes 1 and 4)	Designator
Area Operations	AQ
Associated Support	AS
Direct Support	DS
Mission Types (Notes 1, 3, and 4)	
Air Surveillance	SV
Anti-air Warfare	AD
Anti-surface Operations	SW
Area Search	SA
ASW Operations Designators (Note 2) are specified in ATP-01 Vol 1.	KS
Attack (Surface Targets)	AT
Barrier	BR
Investigate	IN
Mining Operations	MI
Reconnaissance	RE
Screen	SC
Search and Rescue	SR
Search and Shadow: Overt search, Identification, and shadow Overt search, covert identification, and overt shadow Overt search, covert identification, and low shadow Overt search, covert identification, and high shadow Covert search, identification, and low shadow Covert search, identification, and high shadow	 AR CP HR NV SX WZ
Surveillance	SU
Training	TN

Notes:

1. Tasking authorities are to use mission designators to promulgate the form of air support operation and the mission types in all Form GREEN.[2]

2. To be used by tasking authority for all types of ASW operations (i.e., ASW surveillance, air-sub operations, area, AS, or DS operations).

3. Amplification of mission, such as reporting/tracking instructions or attack criteria may be required, e.g., “BR + Report hourly”.

4. These designators may also be used in other message traffic to describe aircraft employment on the various scouting missions are in Section II of this chapter.

Table 2-1: Mission Designators

[2] See APP-11 NATO MESSAGE CATALOGUE

2.9 PLANNING CONSIDERATIONS

1. While planning for mutual air support, among the key principles of operations listed for Allied Joint Combined Operations, the following must be considered:

a. Definition of objectives;
b. Unity of purpose;
c. Sustainment;
d. Economy of effort;
e. Flexibility;
f. Simplicity in plans and orders.

2. At the early stages of the Operational Planning Process (OPP)[3] both the CCs will exchange their initial request for support based on the proposed Military Response Options (MROs) and the possible Courses Of Action (COAs). The reciprocal liaison elements[4] will collect all available information on the forces available and their capabilities and limitations in order to support the development of the JFC OPLAN which will define the assigned mission and the supported-supporting relationship.

3. The supported-supporting relationship between the components will be ordered by COM JTF and stated in the Joint Coordination Order (JCO). Details about the coordination and synchronization between the CC's will then be detailed within the CC's OPLANs/SUPPLANs. Therefore the Air Operations Planning Group (AOPG) and the Maritime Operations Planning Group (MOPG) will each develop, review, update and coordinate the respective air and maritime plans required to successfully conduct any given operation. The AOPG is also responsible for the coordination, synchronization, and integration of all other activities related to the development of JFAC plans, policy and orders. The result will be the Air Operations Directive (AOD). A document that translates higher-level guidance, such as that provided in the JCO, into tactical level air instructions, providing direction and guidance about air operations to the planning and execution branches and therefore forming the basis for the ATO. Throughout this process an intensive and effective use of the component-to-component liaisons has to be ensured.

2.10 JOINT COORDINATION ORDER (JCO)

1. With the beginning of campaign synchronization[5] a Joint Coordination Board (JCB) will be established in order to assist the macro aspects of the Joint Force (JF) activity and effects synchronization, specifically to issue commander's priority guidance across the Components, and to resolve potential areas of conflict. On order from the Com JFC, the JCB assigns execution responsibilities, prioritizes, de-conflicts and synchronizes all aspects of the employment of lethal and non-lethal means.

[3] See AJP-5 and COPD for details on the OPP.
[4] The Liaison and the Coordination Structure is defined in the AJP-3.3(B).
[5] See ACO DIRECTIVE (AD) 80-70 for details on the Campaign Synchronization.

The JFC provides, through the medium of the JCO, further amplification to his Direction and Guidance (D&G) to keep the campaign on track. Therefore JFMCC staff will action the pre-planned ASRs and will make available the organic air and naval assets to support of the joint air campaign, while the JFAC will start building the integrated Air Defense Plan (ADP) and the Airspace Control Plan (ACP).

2. When developing an ADP for the JOA which may involve maritime assets and capabilities, it is important to not only identify the boundary area between the two components, but to develop and exercise a rigid procedure for monitoring air activity operating in vicinity of the geographic boundary between the two, including a plan for coordination between AEW and the sea-based Air Defense Commander (ADC), named Anti-Air Warfare Commander (AAWC), regarding response and commit actions.

3. The pre-planned ASRs[6], the available organic air and maritime assets and the defense plan will feed into the JFC's JCO and will serve as a base for the COM JFAC apportionment recommendation to be ratified and promulgated by the JFC in the same JCO together with the Joint Prioritized Target List (JPTL), the Joint Prioritized Defended Assets List (JPDAL), the Joint Prioritized Critical Assets List (JPCAL) and the Collection Tasking List (CTL).

4. The JCO normally follows the development of each operational phase, but it might also be issued for defined time periods, hence the CCs shall update their inputs in accordance with the defined battle rhythm.

5. This phase of the planning will be intensively supported by the liaison elements.

2.11 AIR DEFENSE PLAN (ADP)

The Air and Missile Defense Commander (AMDC) will be appointed by the COM JTF and is normally the COM JFAC. The AMDC is the commander with overall responsibility for air and missile defense; normally, the CC with the preponderance of air and missile defense capability and the command, control and communications capability to plan and execute integrated air and missile defense operations. He integrates and coordinates the air and missile defense assets of each force component into a coherent joint ADP. This includes establishing weapons control procedures and measures for all DCA weapon systems and forces, coordination with regional/host nation air and missile defense systems and the exchange of information necessary to support civil defense activities. He applies the principles of air defense to counter hostile air activity, including Theatre Ballistic Missile Defense ((T)BMD), and promulgates and employs common procedures for air defense battle management and the reduction of mutual interference, taking into account any air defense required and organized around maritime and land units. Air defense operations must be integrated

[6] As soon as possible, the Pre-Planned Air Support Requests have to be formalized via AIRSUPREQ IAW APP-11.

with other tactical air operations within the operational area through the ADP. Weapons control procedures and Airspace Control Means (ACM) for all air defense weapon systems and forces must be established. These procedures must facilitate defensive air operations while minimizing the risk of fratricide.

2.12 AIRSPACE CONTROL PLAN (ACP)

The Airspace Control Authority (ACA) is the commander designated to assume overall responsibility for the operation of the airspace control system in a designated airspace control area. He establishes and coordinates an airspace control system that responds to the needs of the COM JTF, provides for integration into the airspace control system of the host nation and coordinates and deconflicts user requirements. In consultation with appropriate components and civilian authorities, he develops the Airspace Control Plan, taking into consideration any coordination required and organized around maritime and land units. He is then responsible for directing the execution of the ACP through the implementation of ACMs and the development and promulgation of the daily Airspace Control Order (ACO) and any special instructions (SPINS) through the Joint Airspace Coordination Center (JACC). All components are required to comply with the ACP. In NATO operations, COM JFAC will normally be designated as the JTF ACA.

2.13 AIR RESOURCES ALLOCATION (RESALLOC)

1. Following the promulgation of the apportionment, the JFAC will translate those percentages in actual air sorties available for the tasking cycle. The JFMCC will notify the JFAC of the number of air sorties available for the joint air campaign (to be allocated to the COM JFAC) and those which will remain allocated to the MCC.

2. The air missions are allocated through the Resources Allocation (RESALLOC) as an annex to the AOD[7].

3. The RESALLOC is processed via automated systems and ideally the JFMCC and the JFAC will use compatible communications and information system (CIS) equipment and a common database for that and the following phases. This will enable the Staff to directly implement maritime air sorties into the common database. The naval assets as well will be listed in the AOD providing the terms of the mutual support and interoperability.

4. This phase of the planning will be supported by the Liaison Elements.

[7] AOD message format IAW APP-11.

2.14 AIR TASKING ORDER

1. Upon release of the AOD, both Staffs will initiate the tactical planning. The Joint Airspace Coordination Centre (JACC) will define the required Airspace Control System (ACS) to support the operation[8] with the Airspace Control Order (ACO)[9], while the JFAC Combat Plans Division (CPD) and the JFMCC Maritime Air Operations Centre (MAOC) will check the provisions of the AOD against the available sorties in the RESALLOC producing initially the Master Air Operations Plan (MAOP) and then developing the ATO. All these 3 products (the ACO, the MAOP and the ATO) are processed via automated systems in order to support the Staffs to directly implement ACMs and air missions into the common database enabling the JFAC to release the ACO and the ATO daily[10].

2. The MAOC will feed the ATO through a Consolidated Maritime Air Input (CMAI)/ATO Feeder which is composed by 3 main blocks:

a. Tasked Missions (organic assets allocated to and tasked by the MCC);
b. Pre-planned AIRSUPREQ (assets organic to the JFAC and/or other CCs[11]);
c. Extra Sorties (sorties not allocated with the RESALLOC, but available for tasking to other CCs).

3. Tasking of the air assets made available by the MCC in support of the Joint Air Campaign will be done by the JFAC taking into account the aircraft limitations driven by the position of the ship launching and recovering the aircraft.

4. The ATO will contain all the missions in support of the joint air campaign and those organic to the other CCs. In a complex environment, the ATO might be not suitable for Telegraphic-Automatic Relay Equipment (TARE) Messages transmission and the MAOC may extract all maritime-relevant information from the ATO and retransmit only this information to the affected maritime units to ease the distribution of the tasking (Maritime ATO Extract).

5. This phase of the planning will be supported by the Coordination Elements.

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[8] See AJP-3.3.5(B)1.
[9] MCC inputs through ACM Requests (ACMREQ) IAW APP-11.
[10] ACO and ATO message formats IAW APP-11.
[11] If the AIRSUPREQ didn't have all the required fields filled, mission details shall be given with the CMAI/ATO Feeder.

6. When air missions are mainly dedicated to maritime operations, MCC, through his MAOC, may be responsible to plan, task and control the joint air operations at sea. In that circumstance, the ATO can be produced by the MAOC, including missions of land and sea-based air assets, with the same planning cycle and using the same automated information systems. In terms of air-maritime integration these activities would be supported by the Air Liaison Elements and the AOCC (M).

2.15 IMMEDIATE AIR REQUESTS

1. The ATO is issued in accordance with the established battle rhythm. Since the operational and tactical situation or other events may change rapidly after the ATO is released, changes to the tasking may occur requiring to change a tasked mission or to task a new one out of the ATO cycle.

2. If this is the case, the JFMCC shall release an AIRSUPREQ with all the mission's details and input the new mission via the automated systems. If needed the tasking agency will either issue an ATO update, (ATO not executed yet) or an Air Tasking Message (ATO in already in the execution phase).

3. All units should be aware of any ATO Change/Air Tasking Message (ATM) that may come from the tasking agency.

2.16 TASKING OF NAVAL ASSETS

The Officer in Tactical Command (OTC) will issue the tasking directives (e.g. the OPGEN and the Directions and Guidance (D&G)) for all the naval assets, including those supporting the joint air campaign. The Composite Warfare Commander (CWC)/Principal Warfare Commanders (PWCs) will amplify those instructions with the pertinent Operational Taskings (OPTASKs) required for the respective mission.

2.17 ADDITIONAL TASKING INFORMATION

Tactical considerations and additional information necessary for the tasking authority, units tasked and units affected by the task, can be gathered from the following:

a. EMCON PLAN – for current emission policy;
b. ROE instructions;
c. OPTASK AIR/DAILY OPTASK AIR-HELO – for carrier and ship based aircraft;
d. SPINS for the specific task.

CHAPTER 3 COMMAND AND CONTROL

3.1 MARITIME COMMAND AND CONTROL

While AJP-3.3.3 deals primarily with generic intercomponancy relationships and liaison requirements, the focus in this ATP deals with the basic C2 relationships within the maritime environment. This should be read in conjunction with AJP-3.3.5 Airspace Control and ATP-3.3.5.1 Airspace Control Procedures. In particular, AJP-3.3.5 Airspace Control has a dedicated Chapter on airspace control in maritime and amphibious operations.

3.2 COM JFAC RESPONSIBILITIES

1. As defined in the AJP-3.3(B), the COM JFAC is the CC with the preponderance of air assets and the capability to plan, task and control joint air operations. COM JFAC plans, integrates, allocates, controls and tasks joint air operations based on the COM JTF's guidance and objectives, in accordance with the air apportionment decision and the authority, command relationships and responsibilities agreed with the other CCs and laid down by COM JTF. The effective use of coordination and liaison elements is therefore essential and a key factor for the success of joint operations. Liaison elements serve as their parent commanders' representative on matters of capabilities and limitations.

2. COM JFAC Authority, command relationships and responsibilities are defined in AJP-3.3(B), but for the purposes of this publication it is important to highlight the following COM JFAC responsibilities:

COM JFAC is responsible for:

- Developing an air operations plan and AOD to best support the COM JTF's objectives in concert with other components;
- Recommending apportionment of the joint air effort to the COM JTF, after consulting with other CCs, by priority that should be devoted to the various air operations for a given period of time;
- Allocating and tasking of air capabilities or forces made available based on the COM JTF's air apportionment;
- Integrating joint air operations with operations of other CCs and forces assigned to or supporting the COM JTF's;
- Performing the duties of the joint force Airspace Control Authority (ACA), unless a separate ACA is designated;
- Performing the duties of the Air and Missile Defense Commander (AMDC), unless a separate AMDC is designated.

Table 3-1: COM JFAC responsibilities

3. The tasking of APCMO and all the other roles and types of air operations in mutual support (no matter if there's the need for coordination or integration of the air and air-maritime assets) has to be done via the ATO and/or pertinent OPTASKs and it has to be carefully planned and coordinated throughout the entire Joint Planning Process in order to maximize strengths against vulnerabilities.

3.3 SUPPORT TO JFAC HQ AFLOAT

1. There may be occasions when a forward-deployed JFAC HQ and AOC, or forward elements of a static JFAC cannot be based ashore and may be required to be established afloat. This is most likely during the initial stages of forcible entry operations, cases where the Alliance may desire to limit the presence of forces ashore or prior to the arrival of a shore-based JFAC HQ and AOC. To support the joint air campaign, forward elements of a JFAC and liaison personnel can be embarked on suitable JFMCC platforms.

2. When a carrier strike group (CSG), with a MAOC on board, is allotted and available to the MCC, or when a MAOC is part of the JFMCC, this gives the MCC the inherent capability to plan, task and control joint air operations, albeit in a limited capacity.

3. Ideally, these operations will be of limited scope and/or short duration, as the ships capable of supporting these operations have limited communications infrastructure, workspace, berthing, and other facilities to host JFAC HQ, AOC and Liaison Officer (LO) personnel.[12]

3.4 SUPPORT TO THE MARITIME COMPONENT COMMANDER

When APCMO is planned in support of the MCC for maritime operations, like a dedicated anti surface or anti-submarine operation, MCC, through his MAOC, may be responsible to plan, task and control the joint air operations at sea. In that circumstance, the ATO can be produced by the MAOC, including missions of land and sea-based air assets. These air operations, in support of a specific maritime operation, may require air-to-air refuelling, offensive and defensive counter air, Command, Control, Communications, Intelligence, Targeting, Acquisition and Reconnaissance (C4ISTAR) and AEW contribution.

[12] MAOC/CSG staff will be supported by the AOCC(M) from the JFACC to assist with the air planning/air operations

3.5 OTC AT SEA

The OTC formulates and promulgates policy for accomplishing the maritime force mission. He may delegate authority for the execution of various activities in some or all of the areas of maritime warfare to a subordinate warfare commander and/or air and helicopter coordinators. It is important to understand that the requirements for air-maritime coordination will often concern more than one area of warfare.

3.6 AIR-MARITIME COORDINATION RESPONSIBILITIES

The OTC is responsible for coordinating all friendly air movement within his area of interest; however, he may delegate some, or all, of his tactical command and tactical control authority to subordinate warfare commanders and/or coordinators. Such delegation does not mean that the OTC relinquishes authority over subordinates; however, when warfare functions are assigned to subordinate commanders it is assumed that the necessary authority for command, control, direction and coordination required for the execution of that function is delegated with it.

3.7 WARFARE COMMANDERS

The four warfare areas that primarily impact air-maritime operations are ASUW, ASW, AAW and Strike warfare (STW). Each will be assigned to an appropriate warfare commander; however, when multiple warfare functions are assigned, the OTC may also designate a Composite Warfare Commander dedicated to the defense of the force and to the coordination of the four Principal Warfare Commanders AAWC, ASWC, ASUWC and STW Commander (STWC). The designation of a Sea Combat Commander (SCC) in charge of ASuW and ASW is an available additional organizational option.

Air-maritime functions that may be delegated to a Composite Warfare Commander:

- Promulgating air coordination policy within the Force Air Coordination Area (FACA);
- Establishing and promulgating aircraft separation and aircraft coordination procedures in the FACA (if not established by civil control authorities);
- Designating the Air Coordinator (AC) and standby AC;
- Establishing and promulgating within the force and to relevant outside authorities the dimensions and location of force air coordination area;
- Formulating and promulgating general employment policy for air resources;
- Designating the Air Resource Element Coordinator (AREC) and Helicopter Element Coordinator (HEC).

Table 3-2: Delegation to warfare commander

3.8 COORDINATORS

1. Coordinators are asset and resource managers who carry out the policies of the OTC and respond to the specific tasking of the warfare commanders. Coordinators may also exercise control of specified assets.

a. **Air coordinator.** The AC exercises coordination within the FACA. The duty for air coordination should be assigned to the unit which has the best combination of suitable electronic aids to aircraft navigation and control, qualified and available air control personnel and the best air picture facilities.

Air-maritime functions <u>normally</u> delegated to the AC:

- Designating ACUs for aircraft not assigned to warfare commanders/coordinators in liaison with the AREC/ HEC.
- Supporting the AAWC in establishing airspace coordination measures, such as special areas or zones for aircraft safety, identification, or prevention of mutual interference.
- Supporting PWCs in establishing joining and control procedures for aircraft, if required.
- Ensuring safe coordination of all aircraft when they are under Task Force (TF)/Task Group (TG) units' tactical control.
- Coordinating air traffic, controlling, and monitoring aircraft movements within the force air coordination area, ensuring altitude separation and traffic control, keeping AAWC and ACUs involved informed.
- Coordinating and monitoring tactical employment of all force aircraft.
- Ensuring that available weather information, including the altimeter pressure setting in hectopascal, is promulgated within the FACA.
- Support the AAWC in coordinating and reporting the movement of friendly aircraft.
- Monitoring aircraft safety and coordination nets in conjunction with the ACU.
- Maintaining up-to-date information on all national and international airspace information and reservations that are likely to affect the force, ensuring adequate clearance and non-violation by the force.
- Promulgating restrictions on flying operations, due to meteorological conditions, keeping the OTC/PWCs informed.
- Supporting the AAWC in resolving conflicts between tactical use of weapons and demands of aircraft safety.

Table 3-3: Delegation to air coordinator

b. **Air resource element coordinator**. The AREC may, under certain circumstances, exercise tactical control for particular aircraft (i.e., for aircraft projecting power ashore), but his primary role remains that of asset allocation and of informing the warfare commander of the status of these assets, the results achieved by them, and the information gained from their sensors.

c. **Helicopter element coordinator.** When two or more ships other than an aircraft carrier are helicopter equipped, a central scheduling authority for flight operations from these ships is useful. In a multi-threat environment, the assets controlled by this coordinator may be in demand by any of the principal warfare commanders. The HEC's functions, therefore, will in many ways parallel those of the AREC, with whom he should coordinate, concerning helicopters. Additional functions are delegated to the HEC for non-CV-based helicopter operations. HEC functions will be delegated by the OTC, generally to the senior commanding officer of helicopter-equipped ships. These coordinating functions will normally not apply to amphibious force and logistic helicopters.

2. Requests for helicopters embarked in other than the CV and amphibious and logistic ships will be direct to the HEC. The OTC must be made aware of helicopter scheduling, tasking, and flight operations in order to be able to resolve potential requirement conflicts. The HEC should promulgate a daily flight schedule.

Functions <u>normally</u> delegated to the AREC/HEC

- Supplying and apportioning air assets in response to warfare commander's requirements, informing them of assets assigned to their tasking.
- Tasking organic aircraft assigned to warfare commanders/coordinators.
- Designating ACUs for aircraft not assigned to warfare commanders/coordinators in liaison with the AC.
- Passing orders and information to aircraft under his control to enable assigned tasks to be carried out.
- Informing warfare commanders/coordinators of results obtained by air assets assigned to their tasking.
- Sending aircraft availability reports.
- Promulgating and updating flight schedules and aircraft readiness.
- Planning and executing war-at-sea air operations when so directed by the ASuWC or OTC and power projection air operations.
- Controlling aircraft operating against land targets (the controlling functions may be delegated to an ACU or Joint Terminal Attack Controller (JTAC).

Table 3-4: Functions delegated to AREC/HEC

a. **Force Track Coordinator – Air (FTC-A**). The AAWC is responsible for maintaining and disseminating the air picture as it is formed by the total of sensor inputs. This duty may be delegated to the FTC-A, who is normally co-located with the AAWC. AAWC is ultimately responsible for identification of all aircraft flying in its area. AC and Force Air defense Identification Zone Coordinator (FADIZ C) are normally responsible for friendly aircraft identification. A clear and shared air picture is essential to achieve this goal and to be able to safely control friendly aircraft, defeat hostile ones and prevent interferences. FTC-A is in charge with this task on all TDL used in the force (mainly L11 & L16). In some publications, this duty is called Track Data Coordinator (TDC) when L16 is the only tactical net.

The FTC-A is responsible for:

- Assisting in preparation of changes to the OPTASK LINK.
- Coordinating Net Control Station (NCS) duty for the Track Supervision Net (TSN).
- Monitoring the exchange of track data and related actions.
- Ensuring the effective flow of data and clarity of the tactical picture.
- Supervising the resolution of interface inconsistencies like dual designations, duplicated tracks, identification conflicts, and category conflicts.
- Transmitting change data orders to resolve environment and/or identity (ID) conflicts when required.
- Co-coordinating changes in Area Of Responsibility AOR(s) for surveillance when the tactical situation changes.
- Co-coordinating the use of data filters.
- Designating Link 11/11B/Link 16) data forwarding units.
- Designating the inter-data link Grid Reference Unit (GRU) and directing inter-data link GRU changes as required.
- Co-coordinating the use and transmission of reference points, lines, and areas.

Table 3-5: FTC-A responsibilities

3.9 EXCHANGE OF TASKING MESSAGES IN THE MARITIME ENVIRONMENT

The details associated with the tasking of land or ship base air assets to support maritime operations is contained within a number of MTF tasking messages as well as the ATO and Special Instructions (SPINS). The following are the main tasking messages used; the majority of which the reader will need to have read and understood if successful support to the maritime component is afforded.

(The messages should be formatted IAW APP-11):

a. OPTASK AAW[13] - detailed AAW instructions by OTC/AAWC/ JFAC as required;

b. OPTASK ASW - detailed ASW instructions by OTC/ASWC as required;

c. OPTASK ASUW - detailed ASUW instructions originated by OTC/ASUWC as required;

d. OPTASK AIR - detailed tasking and instructions for organic aircraft originated by OTC/HEC/AREC/AC If extra details are required to the daily ATO;

e. OPTASK EW - detailed tasking and EW instructions by OTC/Electronic Warfare Coordinator(EWC) as required;

f. OPTASK COMMS - promulgation of Comm Plan and related Instructions by OTC/delegated commander as required;

g. OPTASK LINK - detailed tasking and instructions for link operations by OTC/delegated authority or appropriate shore command or designated unit pre-sailing and as required;

h. OPTASK AMPHIB – essential instructions and information to conduct amphibious operations by Commander Combined Amphibious Task Force (CCATF)/Commander Amphibious Task Force(CATF) as required no later than 72 hours preceding amphibious operations;

i. (T)BMD - detailed (T)BMD instructions by JFAC/OTC/AAWC/CRC must be issued after strict coordination among Air and Land subject matter experts.

[13] Although not a recognized NATO format, US C2 elements may promulgate an OPTASK AIR DEFENSE (AD) in lieu of an OPTASK AAW. Additionally an OPTASK IDENTIFICATION (ID) will likely be produced and will complement PWCs environmental OPTASKs.

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CHAPTER 4 EXECUTION

4.1 INTRODUCTION

This chapter establishes general air coordination and control procedures applicable to a maritime environment to ensure the safety of aircraft throughout. In the maritime environment coordination is carried out by a single authority (within each specified area), in order to guarantee the effective and safe conduct of missions. This chapter covers joining procedures (including XCROWN procedures) and integration into a maritime force. For further detail, in particular air-maritime coordination in support of amphibious operations, the reader should refer to ATP 3.3.5.1 Joint Airspace Control Tactics, Techniques and Procedures. Further detail specifically for amphibious operations can be found in ATP-08, Doctrine for Amphibious Operations.

4.2 AIR COORDINATION

Air coordination comprises the organization, procedures and measures required to prevent mutual air interference between all friendly surface units, all air units and their weapon systems. It involves the safe employment of aircraft and the coordination of airspace with other users.

a. **Responsibility for air coordination in the maritime environment.** When deemed appropriate the ACA will designate the MCC as a Sub-Area Airspace Control Authority (SAACA) responsible for the management of airspace within the area of operations. In turn, certain responsibilities can be delegated from the MCC to an air resource element coordinator AREC or HEC if assigned.

b. **Aircraft Control**. Aircraft control consists of the organization, personnel, policies, procedures and facilities that are required for the control of aircraft. Aircraft can be controlled to various degrees by airborne, land-based or ship-borne controllers. Further detail on the types of aircraft mission control and safety related terms will be discussed in this chapter.

4.3 AIR COORDINATION PROCEDURES

Air coordination procedures are divided in to two categories:

a. Tactical procedures. Tactical procedures to prevent mutual interference between ships and aircraft and their weapon systems to enable the timely engagement of adversary forces within the FACA/Local Air Coordination Area (LACA) whilst allowing safe margins to ensure avoidance of fratricide;

b. Safety procedures. The OTC is responsible for all aircraft embarked in the force at all times, and for land-based aircraft assigned TACON to the force from the time when two-way communications are established with any Aircraft Control Unit in the force. This involves the safe employment of aircraft and coordination with other users of the airspace. The OTC may delegate responsibility for particular aircraft to lower formations when he has established adequate coordination procedures to ensure the safety of all aircraft. Responsibility for the safety, of land-based aircraft ceases when the aircraft is off task and reports switching or leaving frequency. TACON is then automatically relinquished.

4.4 JOINING A MARITIME FORCE/ANTI-AIR WARFARE AREA (AAWA)

1. In a large naval force disposition, the force AAW posture may permit engagement of aircraft attempting to join long before communications have been established or identification has been completed. To minimize the risk of fratricide the OTC is responsible for establishing approach corridors and joining procedures for friendly aircraft to use when joining a force, and ensuring that they are promulgated prior to aircraft take-off. The design profile must take into account the force composition and disposition, and allow for conditions of poor visibility.

2. Aircraft transiting or proceeding to an operating area for associated support and/or area operations may commence their descent before reaching their patrol area (providing they do not infringe on other aircraft areas) and enter the area through a promulgated entry point at an assigned altitude. Where an inbound asset is relieving an on-task assets, the off-going aircraft is required to depart through a promulgated departure point, at an assigned altitude normally lower than that of any inbound aircraft (unless 2-way communication are established to arrange mutual separation). Usually, if 2-way communications have not been established between the on-task aircraft and its inbound relief then the on-task aircraft may leave its assigned altitude 15 minutes after the briefed on-task time.

4.5 APPROACHING A MARITIME FORCE

1. Aircraft approaching a force are required to pass through an entry/exit gate at their promulgated on-task time (if early aircraft are to hold there until their on-task time). The aircraft then flies down an approach corridor at an allocated altitude or flight level, attempting to establish communications with the nominated ACU or the local FADIZ coordinator (XCROWN)[14]. The aircraft must not leave the approach corridor or change height unless identified as friendly by the ACU or the local FADIZ coordinator and cleared to do so.

[14] e.g. REDCROWN

2. If an aircraft reaches the Identification Safety Range (ISR) and has not established communications, or been identified as friendly, it is usually required to hold at the ISR and attempt to establish communications for up to 15 minutes. If unsuccessful, the aircraft is to transit back out through the entry/exit gate to a position that the aircraft commander considers safe. If the aircraft commander considers he can then provide useful support he may elect to carry out an appropriate search plan or Airplan outside the ISR. Alternatively, he may clear the force to a suitable distance, inform his tasking authority that he is unable to join and request further instructions.

4.6 IDENTIFICATION PROCEDURES

It is important that all aircraft tasked to support a force at sea, be positively identified as friendly as they close the force. The FADIZ Coordinator, when activated in the force, is in charge of this clearance and must be contacted on the dedicated frequency. When the aircraft departs from its base or force at sea, its identity is known and the transfer of control and identification/recognition can be completed by radar handover or non-radar handover procedures.

a. Radar handover is used when there is overlapping radar coverage at the transit altitude between the departure air control area and the air control area around the supported force. The controllers provide a positive transfer of control of the aircraft after mutual self-identification.

b. Non-radar handover is used when there is a gap in radar coverage at the transit altitude, when Emission Control (EMCON) denies the use of radar or low observable aircraft cannot be detected and positive handover by controllers is not possible. Aircraft tasked to support a force must use designated self-identification and joining procedures.

4.7 PROCEDURES FOR AIRCRAFT IN TRANSIT[15]

Aircraft commanders are to be briefed before takeoff on action to be taken when contact is gained on enemy contacts while in transit. Briefing shall take the form of transit instructions as follows:

a. **Transit instructions A** (**TRANSALFA**). The aircraft is not to report or investigate enemy contacts. Contacts gained are to be logged and reported after flight. The aircraft is to attempt to adhere to scheduled task times.

[15] Definitions are only extracts, refer to STANAG 1183.

b. **Transit instructions B** (**TRANSBRAVO**). The aircraft is to report enemy contacts to its controlling authority and to the OTC of the supported force. It is not to investigate such contacts and is to continue its briefed mission unless otherwise ordered.

c. **Transit instructions C** (**TRANSCHARLIE**). The aircraft is to attempt identification and report all enemy contacts. Concurrently with the report, the aircraft shall take the following action:

a. Submarine: Track IAW ROE until further orders are received;
b. Surface ships: Shadow until further orders are received;
c. Aircraft: Ascertain and report course and speed.

4.8 SEARCH FOR FRIENDLY FORCE

a. **Not found.** If the force is not found within one hour of the expected time, an encrypted “Not found” message is to be made to the authority ordering the mission. The aircraft may request the OTC to use homing procedure; however, the OTC may not wish to break radio silence to answer the request or to use homing procedure. The aircraft is to continue searching for the force.

b. **Found.** When the force is found, an encrypted “Found” report is to be made only if a “Not found” report has been made previously or if the aircraft has been ordered to make this report. The position of the force is only to be included in a “Found” report when the aircraft commander considers that the estimated position is in error to such an extent that any delay in transmitting this information would adversely affect subsequent operations. The “Found” report, if made, is to be transmitted at least 50 miles from the force. However, once the aircraft is under the tactical control of the OTC, it shall be the OTC’s responsibility, considering his EMCON plan, to determine the range from the force at which the “Found” report shall be sent.

4.9 INDEPENDENT OPERATIONS

Independent operations may be planned and coordinated by the shore headquarters, OTC or air coordinator. Independent operations will be necessary when aircraft are operating remote from a surface force and under shore control, or are cooperating with ships and are beyond surveillance or communications range. An aircraft selects its own speed, altitude, and heading; is responsible for its own navigation and collision

avoidance; and has tactical freedom to accomplish its task. To implement independent operations, the code word SOLO[16] may be used.

4.10 TERMS AND DEFINITIONS

The following terms and definitions are used to describe mission and safety related control when ACUs are tactically controlling aircraft.

a. **Close control**. A form of aircraft mission control in which the aircraft is continuously controlled, for altitude, speed, and heading, to a position from which the mission can be accomplished.

b. **Loose control**. A form of aircraft mission control in which the aircraft commander selects his own speed, altitude, heading, and the appropriate tactics required to accomplish the assigned task. The controlling unit will advise the aircraft of the current tactical picture and will provide further advice if and when available.

c. **Broadcast control**. Broadcast control does not require a controller qualification. It is a form of aircraft mission control used in the absence of full capability or if the tactical situation precludes close or loose control in which tactical/target information is passed to enable the aircraft to accomplish the assigned task. The controlling unit, when possible, provides adequate warnings of hazards, but the aircraft commander(s) is (are) responsible for aircraft navigation and collision avoidance. Two-way communications are not a prerequisite for this type of control.

d. **Positive**. The controlling unit is responsible for taking actions for collision avoidance, such as ordering necessary alterations to heading, speed, and altitude to maintain separation criteria.

e. **Advisory**. The controlling unit will provide adequate warnings of hazards affecting aircraft safety. The aircraft commander is responsible for the aircraft's navigation and collision avoidance.

f. **Procedural control.** A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures.

[16] APP-07 EDF V2; might as well be referred to as "autonomous ops" in air force terminology

4.11 OPERATIONAL USE

These agreed terms and definitions and the operational use of the combinations of the terms listed in Table 4.1 below are based on:

a. The two aspects of tactical control of aircraft, namely the aircraft's mission and the aircraft's safety.

b. The fact that, notwithstanding the safety aspects covered by the set of standard aircraft tactical control terms, the aircraft commander is ultimately responsible for the aircraft's safety. However, this ultimate responsibility of the aircraft's commander does not relieve the controlling unit from taking any conceivable measure within the range of possibilities to ensure the aircraft's safety.

c. The fact that other than broadcast control, "control" means any combination of mission related close/loose and safety related positive/advisory control. A combination is normally required to control an aircraft tactically but in exceptional circumstances the terms close, loose, positive and advisory may be used in isolation.

d. The premise that no further PROWORDs or codewords additional to the combinations listed in Table 4-1 are required to tactically control aircraft.

4.12 INABILITY TO EXERCISE CONTROL

If at any time the ACU cannot meet the requirement for controlling its aircraft, it is to transfer its responsibility to another unit. If this is not possible, the ACU is to decide whether to recall the aircraft or to order it to operate independently.

4.13 CHANGE OF TYPE OF CONTROL

A change from one type of control to another may be ordered by the OTC, the ACU, or may be requested by an aircraft. The type of control is a contract passed between the pilot(s) and the controller. During a mission, type of control may change due to distance, loss of capacities (radar, radio, etc.), or change of weather conditions. In order to avoid any interferences, some separations blocks have to be pre-briefed for all assets. Those blocks are defined into the OPTASK AAW or into the SPINS. When radio contact is lost or in case of IMC, aircraft have to resume their block.

4.14 FACTORS DETERMINING TYPE OF OPERATIONS AND CONTROL

The factors that determine the type of operations and control that can be undertaken are:

a. Operational considerations, such as mission, range, and EMCON;
b. In-flight conditions;
c. Tactical situation;
d. Mutual interference;
e. Capabilities of ACUs and controllers;
f. Equipment status of aircraft involved.

	SAFETY	
MISSION	**POSITIVE**	**ADVISORY**
CLOSE	A form of aircraft mission control in which the aircraft is continuously controlled, for altitude, speed, and heading, to a position from which the mission can be accomplished. The controlling unit is responsible for taking actions for collision avoidance, such as ordering the necessary alterations to heading, speed, and altitude, to maintain separation criteria.	A form of aircraft mission control in which the aircraft is continuously controlled, for altitude, speed, and heading, to a position from which the mission can be accomplished. The controlling unit will provide adequate warnings of hazards affecting aircraft safety. The aircraft commander is responsible for the aircraft's navigation and collision avoidance.
LOOSE	A form of aircraft mission control in which the aircraft commander selects his own speed, altitude, heading, and the appropriate tactics required to accomplish the assigned task. The controlling unit will advise the aircraft of the current tactical picture and will provide further advice if and when available. The controlling unit is responsible for taking actions for collision avoidance, such as ordering the necessary alterations to heading, speed, and altitude, to maintain separation criteria.	A form of aircraft mission control in which the aircraft commander selects his own speed, altitude, heading, and the appropriate tactics required to accomplish the assigned task. The controlling unit will advise the aircraft of the current tactical picture and will provide further advice if and when available. The controlling unit will provide adequate warnings of hazards affecting aircraft safety. The aircraft commander is responsible for the aircraft's navigation and collision avoidance.
BROADCAST	Broadcast control does not require a controller qualification. It is a form of aircraft mission control used in the absence of full capability or if the tactical situation precludes close or loose control in which tactical/target information is passed to enable the aircraft to accomplish the assigned task. The controlling unit, when possible, provides adequate warnings of hazards,	

	but the aircraft commander(s) is (are) responsible for aircraft navigation and collision avoidance. Two-way communications are not a prerequisite for this type of control.
NOTE: Following combinations of terms will normally be used; however, in exceptional circumstances, either column or line labels may be used in isolation: 1. Close — Positive Control; 2. Close — Advisory Control; 3. Loose — Positive Control; 4. Loose — Advisory Control; 5. Broadcast Control	

Table 4-1: Terms used to tactically control aircraft

4.15 SAFETY PROCEDURES FOR MARITIME AIR OPERATIONS.

The following paragraphs describe safety procedure for fixed-wing aircraft and helicopters.

4.16 FIXED-WING AIRCRAFT

1. Safety of aircraft operating in support of a naval force is achieved by planned air coordination consisting of the organization, procedures, and measures required to prevent mutual interference between surface and air units and their weapons systems.

2. The following procedures are to be used by tasking authorities and OTCs for maritime aircraft to ensure the safety of aircraft from takeoff to landing. The ultimate responsibility for the safety of the aircraft rests at all times with the aircraft commander.

a. **Transit separation.** Tasking authorities and air coordination authorities are to arrange separation for aircraft joining and departing a patrol area or a force at sea. This may be done by ordering routes, handover gates, entry/exit gates, ISP, transit and patrol altitude including upper and lower limits in the appropriate messages. This must be coordinated with the appropriate air defense organizations.

b. **Direct support.** Aircraft joining a force for direct support operations are to transit through the entry/exit gate (ISP if promulgated), in the approach corridor to the ISR, at the allocated transit altitude or flight level until identified as friendly and cleared to climb/descend to the patrol area by the Force Marshaller/Nominated Controller/OTC. Aircraft must not leave the approach corridor while closing unless identification has been confirmed by the force. If communication cannot be established with the OTC, the aircraft will transit back towards the entry/exit gate within the corridor and continue operations.

c. **Associated support and area operations.** Aircraft proceeding to an operating area may commence the descent before reaching the patrol area, providing they do not infringe on other aircraft areas. When relieving other aircraft, they are to enter the area through the promulgated entry point at the assigned altitude. The off-going aircraft is to depart through the promulgated departure point, at an assigned altitude normally lower than that of the relieving aircraft. After establishing two-way communication between the aircraft and arranging mutual separation, they may depart the assigned altitudes. If communication has not been established between the aircraft, the relieving aircraft may leave its assigned altitude 15 minutes after the briefed ON TASK time.

d. **Adjacent patrol areas.** Aircraft patrol areas may be ordered with common boundaries, but to prevent mutual interference between adjacent aircraft, a safety zone must be established 15 nm either side of the common boundary. Aircraft intending to prosecute a contact within this safety zone, and prior to entering an area in which another aircraft is operating must, when the situation and EMCON policy permit, broadcast on the briefed frequency their position, altitude, and intentions, including the position of the contact under investigation, and maintain a continuous radar watch for other aircraft. Subject to the EMCON plan in effect, ASW aircraft employed on operations in adjacent areas should be allocated TACAN channels for use in the air-to-air mode to assist in the safe separation of such units. MHQs should allocate Tactical Air Navigation (TACAN) channels to aircraft under their tactical control. Coordination between MHQs and OTCs will normally be necessary to avoid conflict.

NOTE: To use the air-to-air TACAN capability between suitably equipped aircraft, aircraft in adjacent areas should be allocated channels with a difference of 63 between channel numbers (e.g., 18 and 81, or 33 and 96).

4.17 HELICOPTERS

a. **General.** By the nature of their low operating heights when conducting maritime operations helicopters may ditch without warning and should, whenever possible, be kept under constant surveillance by a surface unit. Helicopters in the dip are to be considered ships not under command. When working at close quarters, it is the responsibility of ships to avoid helicopters. Ships should not pass within 500 yards of hovering helicopters, and should pass preferably on the downwind side. To assist in passing, use should be made of the order FREEZE or JUMP, both of which when given to helicopters are mandatory. The order FREEZE should be followed by the order MELT as soon as the situation allows. Fixed-wing aircraft are not to position themselves so that the slipstream strikes a helicopter or causes a helicopter to manoeuvre to avoid the slipstream. If, for some reason, it becomes imperative for the helicopter to

leave the hover before recovering the sonar transducer, an emergency breakdip may be executed by cutting the cable. The aircraft may also attempt a free-stream recovery by leaving the hover with the transducer still streamed; attempting to recover the transducer in flight. In this situation, the aircraft will transmit “Emergency streamer.” Fixed-wing aircraft within 2 nm are to vacate the airspace below 1,000 feet.

b. **Joining procedures for helicopters**

(1) **AIRMOVE[17] messages.** Airmove messages may be used to determine and confirm which agency has tactical control when aircraft are being transferred between ships and shore, and to enable overdue action to be initiated at the earliest opportunity (regardless of aircraft type).

(2) **Transit.** In situations where radar coverage of the forces does not overlap, the transit is to be conducted on the transit control frequency. Other aircraft on this frequency may be used to provide communication relay facilities to simplify the transfer of control of the aircraft to the force marshaller. Attention is drawn to the significance of the establishment of two-way communication in the transfer of operational control.

(3) **Join/Rejoin.** Due to the low altitude of the majority of helicopter operations and the small radar-echoing area of most helicopters, it is unlikely that positive identification/recognition will be achieved at ISRs in excess of 50 nm. However, the slow approach and distinctive emissions associated with many helicopters should greatly assist in identification/recognition after the helicopter has entered the ISR. Helicopters joining or rejoining a force should obtain clearance from the AAW controlling unit to close within ISR. The controlling unit should then order standard identification/recognition procedures in accordance with Article 6417.

c. **Emission Policy**. When a restrictive Emission Policy is in force or when two-way radio communication has not been established, thus precluding a procedural clearance, the OTC/AAWC should consider the adoption of some or all of the following procedures:

(1) Nominating “slot times” at the ISR for returning helicopters.
(2) Ordering specific approach altitudes and speeds for returning helicopters.
(3) Ordering briefed manoeuvres and/or IFF identifications to be performed every 10 minutes while closing, until identified.

[17] See ATP-11 NATO MESSAGE CATALOGUE

4.18 PROMULGATION

Joining procedures, which may vary based on geographic constraints and the composition of the naval task force, will normally be promulgated via either the OPTASK AAW or the ADC DIMS (Daily Intentions Message). Maritime joining procedures will normally also be replicated in the ATO/SPINS to ensure both components are aligned with safety procedures.

4.19 LOW-ALTITUDE RULES (FIXED-WING AIRCRAFT AND HELICOPTERS)

a. **Flying of helicopters.** Aircraft approaching a force are to assume that helicopters are flying unless otherwise informed. The appropriate ACU is to inform aircraft on joining, of the state of helicopter flying, and subsequently of any changes.

b. **Standard maritime helo rules.**[18] Unless otherwise ordered, or overriding tactical considerations dictate, the following rules apply when fixed-wing aircraft and helicopters[19] are operating in proximity (in the order of 10 miles):

(1) Maximum altitude for ASW helicopters — 400 feet.
(2) Minimum altitude for fixed-wing aircraft at night or when visibility is 3 nm or less—700 feet (except for aircraft in the carrier approach and landing patterns). When a fixed-wing aircraft is required to operate below 700 feet, all helicopters and fixed-wing aircraft in the area are to be placed under positive control whenever practical. However, in many situations, placing helicopters under positive control and fixed-wing aircraft under advisory control will satisfy flight safety requirements without restricting visibility.
(3) Minimum altitude for fixed-wing aircraft by day when flight visibility is greater than 3 nm—l00 feet.
(4) Unless aircraft are cooperating and are on the same frequency, or can see each other, the following minimum lateral or vertical separation is to be arranged:
(5) In the case of a fixed-wing aircraft and a helicopter: 1,500 yards lateral or 300 feet vertical.

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[18] Standard ACM procedures: Slow moving air traffic (GS of 200 KTS or below) should normally operate below the Coordination Level (CL) and fast moving air traffic should normally operate above it. Normally the height of the CL will be 500ft AGL up to the IFF Off line. Beyond the IFF Off line the CL will be 150ft AGL. CLs will automatically become effective upon implementation of the ACP and any changes will be noted in the ACO. If there are special or differing procedures they have to be stated in the SPINS.

[19] Different aircraft types may have release to service issues which prevent them from using the criteria laid down (eg Typhoon Increased Vertical Separation). This should be clearly articulated in the OPSTUNIT'.

(6) In the case of two fixed-wing aircraft: 3 miles lateral or 500 feet vertical.
(7) In the case of two helicopters: 1,500 yards lateral or 300 feet vertical.
(8) Fixed-wing aircraft or helicopters conducting VECTAC or MADVEC procedures may overfly a helicopter in the dip or hover position, but are to maintain a minimum vertical separation of 200 feet.

Notes:
1. When operating with an aircraft towing a Magnetic Anomaly Detector (MAD), the above limitations shall be strictly obeyed. The towed MAD sensor body and cable can trail as much as 120 feet below the aircraft.
2. When aircraft or helicopters are dropping sonobuoys, a lateral separation of 1,500 yards must always be enforced to ensure the safety of aircraft operating at lower altitudes.
3. It is imperative that a force QNH be established by the AC and updated regularly to ensure aircraft separation within the force.

4.20 LATERAL AND VERTICAL SEPARATION

1. **General.** Unless otherwise ordered, such as during tactical manoeuvres, the following rules apply when fixed-wing aircraft and helicopters are operating within force-controlled airspace at levels above 2,000 feet in Instrument Meteorological Conditions (IMC). Either lateral or vertical separation shall be provided. These restrictions do not apply to tactical manoeuvres, such as intercepts or rendezvous. Aircraft not in close formation should be separated as follows:

a. Lateral separation:
   i. At least 3 nm when aircraft are within 40 nm of the control radar.
   ii. At least 5 nm when aircraft are beyond 40 nm of the control radar.

b. Vertical separation:
   i. Helicopters shall be separated by 500 feet.
   ii. Fixed-wing aircraft shall be separated by 1,000 feet.
   iii. Helicopters shall be separated from fixed-wing aircraft by 1,000 feet applied between the bands.

   The vertical allocation of airspace should be promulgated by the AC for all aircraft operating within the FACA. The transition altitude is 5,000 feet unless otherwise ordered. (See ICAO procedures.) Airspace is primarily allocated by task (ASW/AEW/ASUW/CAP, etc.) and type (fixed wing (FW) or rotary wing (RW)). Within the individual altitude/flight level (FL) allocation, further separation may be required to deconflict aircraft of the same task/type. Units operating within the same altitude/FL band must be on a common frequency to permit coordination of standard vertical or lateral separation between units.

2. Air force procedures might differ from the announced criteria's. In any case a close coordination has to be assured and diverging procedures have to be announced in the SPINs.

a. **Infringements in conflict.** On occasions in conflicts, units may urgently require to operate in other than their own allocated airspace, e.g., in order to prosecute a target. On such occasions it may be necessary to infringe another unit's airspace before separation can be arranged. The infringing unit should consider broadcasting its intention on "Guard" and the tactical frequency in use for the area being infringed. Additionally the unit should call when re-established at its originally allocated altitude/FL.

b. **Overlapping FACAs.** Where FACAs overlap, the senior OTC is responsible for the overall coordination of the mix of aircraft and tasking within the combined area.

c. **Use of lights by ships and aircraft.** During a night ASW action and/or when operating close to aircraft, the tactical situation as well as safety-of-flight considerations may dictate the use of the 360 degree red masthead light(s). If this use is directed by the OTC, the following meanings apply:

(1) Steady red light(s) — Obstruction warning.

(2) Flashing red light(s) — Ship is in sonar contact and is attacking. (A light that shows a single flash at regular intervals, the duration of light always being less than the duration of darkness, but which shows more than 30 flashes per minute).

(3) Occulting red light(s)—Identification light when required for control of aircraft. (A light that is totally eclipsed at regular intervals, the duration of light always being greater than the duration of darkness and the minimum exposure at light being 3 seconds). A rotating green, amber or blue beacon may sometimes be used for this purpose.

Note:
It is often difficult for an aircraft to distinguish between occulting and flashing lights. The appropriate safety warning must therefore always be given prior to carrying out an attack even when the use of the flashing masthead light(s) is authorized.

d. IMC vertical separation plan. An example of a multi-force IMC vertical separation plan based on semi-circular IFR cruising levels is at Table 4-2 below.

Altitude/Flight Level	Aircraft
FL290+	FW AEW
FL270-290	FW ASUW
FL250-260	AAR Tanker
FL220-240	CAP
FL200-210	FW AEW
FL170-190	CAP
FL140-160	MPA (high)
FL120-130	FW ASUW
FL100-110	CAP (low)
FL 80-90	RW AEW
FL 55-70	VS/MPA (low) see note 1
5000	Transition Altitude
2000-4000	RW AEW/ASW (passive), ASuW
700-1500	MPA (low)
400	RW ASW
0-300	Dippers
Notes:	
1. Barometric pressures below 983 mb will reduce separation between MPA and RW/ASW (passive)	
2. ASW helos in the 0-400 feet allocation should be on same ASW frequency	
3. If quadrantal FLs are required the separation plan must be amended to commence FL allotments at 500 feet below the semi-circular plan e.g., CAP (low) becomes FL 95-105	
4. Dedicated communications relay aircraft will require airspace to be allocated by the AC.	

Table 4-2: Example of a IMC vertical separation plan (published in SPINS for operations)

4.21 TACTICAL PROCEDURES

Tactical procedures are required to prevent tactical mutual interference between ships and aircraft and their weapon systems, and in particular to:

a. Ensure the timely engagement of adversary forces.
b. Ensure that all the force's weapons can be employed effectively within the FACA and LACAs.
c. Prevent unnecessary reaction to unidentified forces.
d. Provide a safe margin of separation whenever necessary between individual friendly forces and their weapons.

4.22 SAFETY PROCEDURES RESPONSIBILITIES

The ultimate responsibility for the safety of an aircraft rests at all times with the aircraft commander. However, the OTC's Responsibility for Aircraft Safety is:

a. The OTC is responsible for all aircraft embarked in the force at all times, and for land-based aircraft assigned TACON to the force from the time when two-way communications are established with any ACU in the force. This involves the safe employment of aircraft and coordination with other users of the airspace.

b. The OTC/AREC/HEC may delegate responsibility for particular aircraft to lower formations when he has established adequate coordination procedures to ensure the safety of all aircraft.

c. Responsibility for the safety, of land-based aircraft ceases when the aircraft is off task and reports switching or leaving frequency. TACON is than automatically relinquished.

4.23 AIRCRAFT EMERGENCIES

The emergency communication procedures used will be in accordance with the procedures contained in ICAO documentation.

CHAPTER 5 AIR AND MISSILE DEFENSE AND COORDINATED AIR SEA PROCEDURES

5.1 INTRODUCTION

Land based air and missile defense assets, for example aircraft, radars, C2 and weapon systems, may form part of the integrated land/maritime air and missile defense system. Individual aircraft or systems may require integration into the AAW area where knowledge of the terminology and functions connected with the various elements of this system are required.

5.2 ANTI-AIR WARFARE VS DEFENSIVE COUNTER-AIR

1. Aviators use the joint air terms ‘counter-air’ and the sub-sets OCA (including Suppression of Enemy Air Defense (SEAD)) and DCA; however, naval warfare commanders use the term anti-air warfare (AAW) to describe the measures taken to defend a maritime force against attack by airborne weapons launched by aircraft, ships, submarines and land-based sites. AAW comprises all means to counter air and missile threats.

2. The terms air warfare, counter-air and control of the air are synonymous. All refer to the friendly air, surface, or sub-surface systems designed to destroy, disrupt, delay or deceive the enemy air and/or missile threat before or after launch. It also includes measures taken to minimize the effects of hostile air action using cover, concealment, dispersion, deception (including electronic) and mobility.

3. Terms “defensive counter air”, “air defense” and “anti-air warfare” are synonymous and consist of all active and passive air defense operations to detect, identify, intercept and destroy or negate adversary air and missile forces attempting to attack or penetrate friendly battle space or to nullify or reduce the effectiveness of such attacks should they escape destruction.

4. Missile Defense (MD) is part of Air Defense (AD).

5.3 AIR DEFENSE COORDINATION

Close coordination between all components will be necessary to permit effective use of all available, mostly limited resources and the deconfliction of air operations. The OTC and ADC must coordinate their AD requirements and plans. The coordinated plans may be supplemented by regional AD coordination agreements, which may also affect airspace control. The result of the coordination of AD tasking is reflected in the ADP and further detailed in the AOD, ATO, OPTASK AAW and SPINS. Component requirements for airspace will be coordinated by the ACA and published in the ACO.

5.4 AIR DEFENSE PLAN AND ASSET INTEGRATION

1. The maritime contribution to AMD is fundamental to the success of joint air and missile defense operations. The promulgation of an ADP is meant to functionally integrate the Maritime Component's AMD capabilities into the JFAC's structure for the standing peacetime NIAMD mission; provisions are made by a Standing Defense Plan (SDP) and related SUPPLANS.

2. There is no standard format for the ADP in Joint Operations, but using the format of the Standing Defense Plan (SDP) will be beneficial for a smooth transition from peacetime to crisis or armed conflict. Table 5-1 depicts the structure of a typical ADP.

Main body
1. Situation 2. Mission 3. Execution 4. Service Support 5. Command and Control
Annexes
A. Concept of Operations B. Task Organization and Command Relationship E. Authorized Use of Force F. Maritime Operations G. Land Operations H. Air Operations P. Electronic Warfare Q. Communications and Information Systems YY. Definitions ZZ. Distribution

Table 5-1: Typical structure of an ADP

3. NATO AD is a joint activity: it will typically be conducted in a joint environment and all the forces assigned to NATO for the specific mission of AD should be fully interoperable. Sixty percent of SACEUR's AOR for NATO AD is airspace above the sea; therefore close coordination between the NATO Integrated Air and Missile Defense System (NATINAMDS) and maritime forces is required to prevent fratricide, to provide mutual AD support, and to make best use of available AD assets. To achieve optimum mutual support and to avoid mutual interference between land-based and maritime AMD forces, careful planning and co-ordination is necessary. Well-established and practiced procedures such as the Coordinated Air Sea Procedures for AD (provide the necessary interoperability to establish and maintain a joint AMD umbrella within a defined area.

4. The peacetime C2 structure of the assigned AD/AP Forces is defined within the Standing Defense Plan and the SUPPLAN D. In order to be responsive to all situations and contingencies TACON of assigned forces may be delegated to the subordinate units through the use of Tactical Battle Management Functions (TBMF). TBMFs are defined in AIRCOMs extant SUPPLAN D (refer to the current version of both documents for all classified definitions and instructions).

5.5 TERMS AND EXPRESSIONS FREQUENTLY USED

a. **Anti-Air Warfare Area (AAWA).** This area is promulgated by the OTC/AAWC after coordinating with the ADC. It is kept under constant surveillance and any air threat within it is opposed. To ensure that ship and shore AD capabilities are coordinated effectively, the integration of the AAWA must be constantly reviewed, taking into account the following factors:

(1) The coverage of ship and shore radars.
(2) The altitude and direction of the air threat.
(3) The units' control capability.
(4) The availability of Airborne Command and Control (e.g. AWACS) and/or radar picket ships.
(5) Surface-to-Air Missile (SAM) and fighter capability, and the coordination of AD aircraft with sea and ground-based[20] Missile Engagement Zones (MEZs).
(6) The effect of an adversary's jamming on ship/shore radars and communications.
(7) The ADP.

b. **Departure location**. The location from which the supporting aircraft departs, including an airfield, a carrier, or another ship.

c. **Maritime related airspace control measures**. The OTC retains overall responsibility for Airspace Control (ASC) within his operational area; however, he normally delegates responsibility for the detailed planning and implementation to the AAWC and the air coordinator, who may be combined in the same unit. Tactical execution of ACMs within the FACA is usually the responsibility of the AAWC in accordance with the ACP.

d. **Air Defense Identification Zone (ADIZ**). An ADIZ or FADIZ is airspace established around a maritime force in which the identification, location and control of aircraft is required. It allows for all friendly aircraft operating in, or transiting through, a maritime area of responsibility to be classified,

[20] Surface Based Air Defense (SBAD).

identified and monitored. The ADIZ is controlled by the ACU of an AD-capable warship referred to by the callsign 'REDCROWN'. Within amphibious operations the controlling agency is known as 'GREENCROWN'.[21]

e. **Force air coordination area.** A FACA is established around a maritime force to prevent mutual interference between all friendly surface and air units, and their weapon systems. Normally, the FACA coincides with a force AAW area or the area of ASW direct support, whichever is the greater. The size and shape of the area will usually be prescribed by the OTC and will depend upon the limits to which TACON of joint air assets can be exercised. If two or more FACAs overlap, the senior OTC is responsible for overall coordination. When the force is dispersed into separate groups or units, it may be necessary to establish LACAs (local air coordination area) around each group or unit. The LACAs may be promulgated by the OTC or CWC, but this function will normally be delegated.

f. **Identification safety range.** The ISR in maritime operations is the minimum range to which an aircraft may close an assumed friendly force without having been positively identified to ensure that the force does not mistake the aircraft for hostile. It should not be confused with the various self-defense safety ranges that aircraft are advised to use when approaching/investigating unknown contacts. The ISR normally encompasses the force MEZ if zone AAW coordination is being used. In larger dispositions this may not always be possible. In any case, the ISR must be easily located by aircraft supporting a force. As with entry/exit gates, ISR relative to ZZ (ZZ is the formation centre) or QQ (QQ is the centre of the front of the formation) will be difficult to locate accurately when EMCON, large dispositions, and longer ranges are considered. Normally, ISRs should be established relative to the promulgated Position and intended Movement (PIM) rather than the position of the force (ZZ or QQ) whose disposition about the PIM is dynamic. It is usually, but not exclusively, used in 'blue waters' and promulgated in the ACO or SPINS where appropriate.

g. **The identification safety point.** The ISP marks the point at which joint air assets must attempt establish 2-way communications with the surface force and commence identification procedures.

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[21]. Each sector FADIZ C is IAW ATP-1G Vol 1 identified with a unique proword and callsign e.g. MAPLECROWN, BLUECROWN etc.

h. **Hand over gate.** The hand over gate generally is the point at which the control of the aircraft, if radar handover is used, changes from one controller to another. The handover gate position is determined by agreement between the shore ADC and the OTC. The handover gate marks the point at which control of the aircraft changes from an air force C2 entity to a maritime-based ACU.

i. **Marshalling gate.** This is the point to which aircraft fly for air traffic control purposes prior to commencing an outbound transit or after completing an inbound transit before landing. Marshalling gates will always be within radar coverage of the designated controller (for example airfield/CRC /carrier/ force marshaller) and will be defined geographically or relative to the force. The gate is a position clear of enemy units, and suitably located for transit from supporting air departure positions.

j. **Entry/Exit gate.** The entry/exit gate is the point to which an aircraft will proceed to commence the transit inbound or outbound from an airfield or force at sea. It should be suitably located to make the transit of the supporting aircraft as short as possible and clear of enemy units. Gates are promulgated as fixed geographic positions. Since many aircraft radars cannot detect and identify a surface force at 150 nm, the gate should be promulgated as a range and bearing from Position of Intended Movement of the designated maritime force High Value Unit (HVU). The entry/exit gate is 5 nm in radius (10 nm in diameter) from the surface to 25,000 feet Above Mean Sea Level (AMSL) and reserved as an MPA climb/descent zone to and from assigned altitudes. The gate will be the only point of entry and departure for aircraft. Altitudes, as specified in RAINFORM GREEN, ATO or SPINS and OPTASK AAW should be at or near the upper limit of the gate in order to enable rapid and positive identification by the force and ensure 2-way communications.

k. **Maritime missile engagement zone.** A maritime MEZ may be defined geographically, or by sector boundaries, with minimum and/or maximum threat weapons release ranges. More often, MEZs are established around Med-Range and Long-Range SAM (surface-to-air missile) ships. When ships are operating in close proximity, the MEZ is centred on a nominated ship, which is usually the high HVU. Where ships are more widely dispersed but still operating as a composite task force, each MEZ may overlap, with overall coordination resting with the AAWC. In MEZ, targets are to be engaged by ships' missiles, in accordance with weapons control status/orders. Friendly aircraft must not penetrate the MEZ unless positive clearance obtained from AAWC.

A silent SAM MEZ may be established 'up threat'. Within the silent SAM MEZ, the SAM ship remains covert, but ready to engage air and missile threats, receiving an air picture via data-links. Ship Weapon Control Status (WCS)[22] is automatically WEAPONS FREE.

l. **Crossover Zone (COZ).** A COZ defines the airspace boundary between a Fighter Engagement Zone (FEZ) and maritime MEZ. An AD aircraft may enter the COZ when in hot pursuit in order to complete an interception; however, a COZ should only be utilised when there is good communication between AD aircraft and the appropriate maritime ACU.

m. **Missile arc**. A missile arc describes an area subtending 10 degrees (or as ordered by the OTC) centred on a target bearing out to the maximum range of a ship's SAM system. It is automatically established when an engagement order has been issued assigning a target to an SAM-equipped warship and all friendly aircraft are required to vacate the area on declaration of WCS 'weapons free' in that area.

n. **Safety sector.** A Safety Sector (SAFES) is a sector within which aircraft are safe from attack by friendly fighter or weapons. They are established in order to facilitate the safe approach or departure of aircraft from the maritime force. Sectors are defined and numbered by the AAWC, in coordination with the ACA and ADC, and are normally dormant until activated.

o. **Ship Control Zone (SCZ).** A SCZ is an area activated around a ship to safeguard organic aircraft operations. The SCZ must not be entered by other aircraft without permission. The radius and altitude for the zone is dependent on ship and aircraft type; however, typical SCZ default values for fixed-wing aircraft are a circle 5 nautical miles (nm) in radius, extending from the surface to 2,500 feet (ft) AMSL. The control zone for rotary-wing aircraft is a circle 2 nm in radius, extending from the surface to 500 ft AMSL.

(1) An aircraft carrier's SCZ will normally be 2,500' and 10nm in radius and extend out to 30nm at higher altitudes behind the recovery ship in an arc within 30 degrees of the marshal course for fixed wing aircraft recovery. An L-class amphibious assault ship will normally have an SCZ of 5nm in radius up to 2,500'.

(2) Note that aircraft carriers may promulgate exclusion zones of considerably greater size depending on the intensity of their flying

[22] IAW ATP-31, Naval units use Weapon Control Status Free, Tight and Safe. Other SBAD units will use, IAW AAP-06 and SUPPLAN D, the Weapon Control Status Weapons Free, Tight and Hold. In Joint Operations, it must be clearly stated, which WCS are to be used.

operations, thus it is necessary to confirm SCZ sizes in appropriate signal traffic or with the force marshaller.

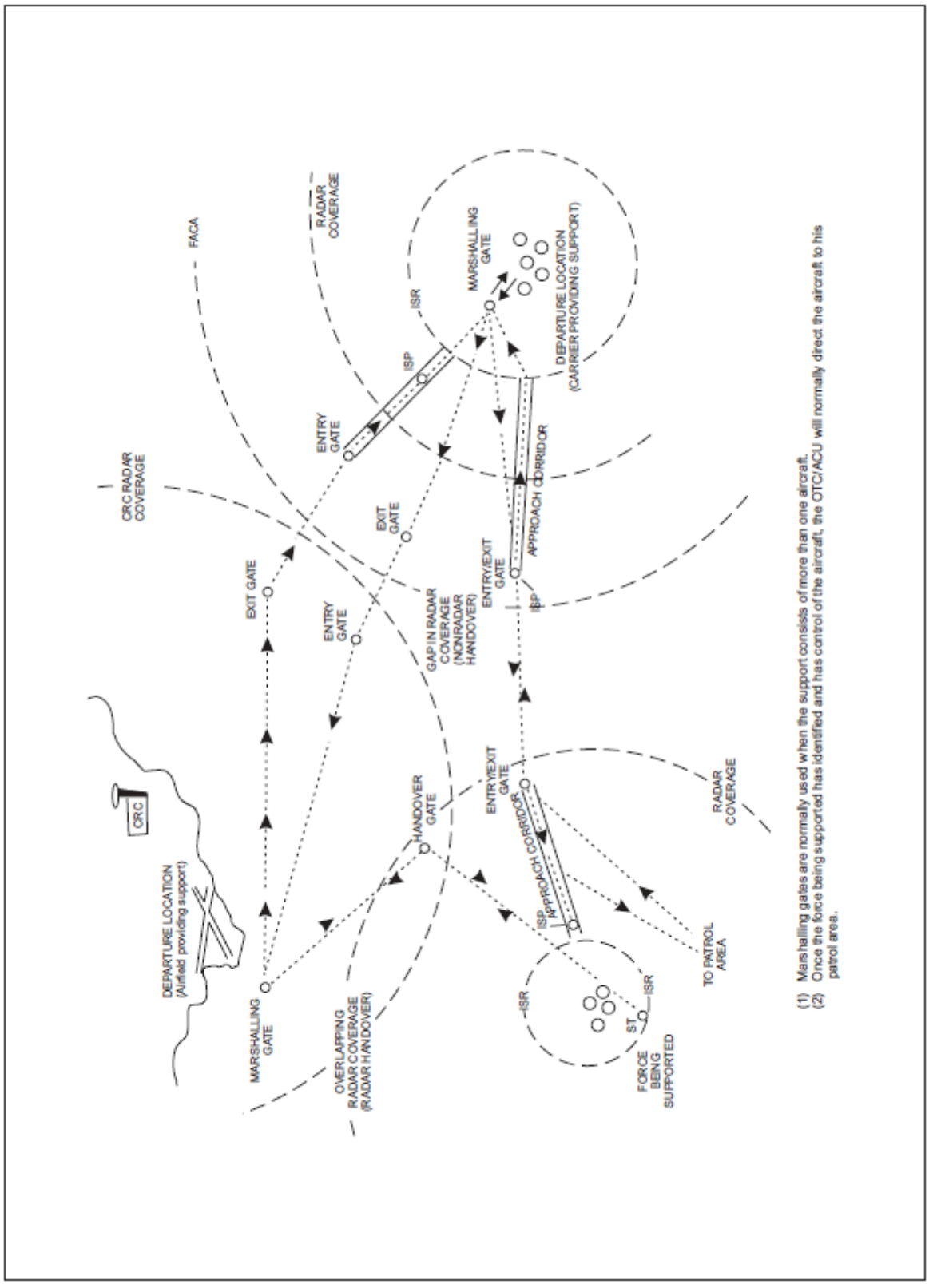

Figure 5-1: Maritime airspace control means

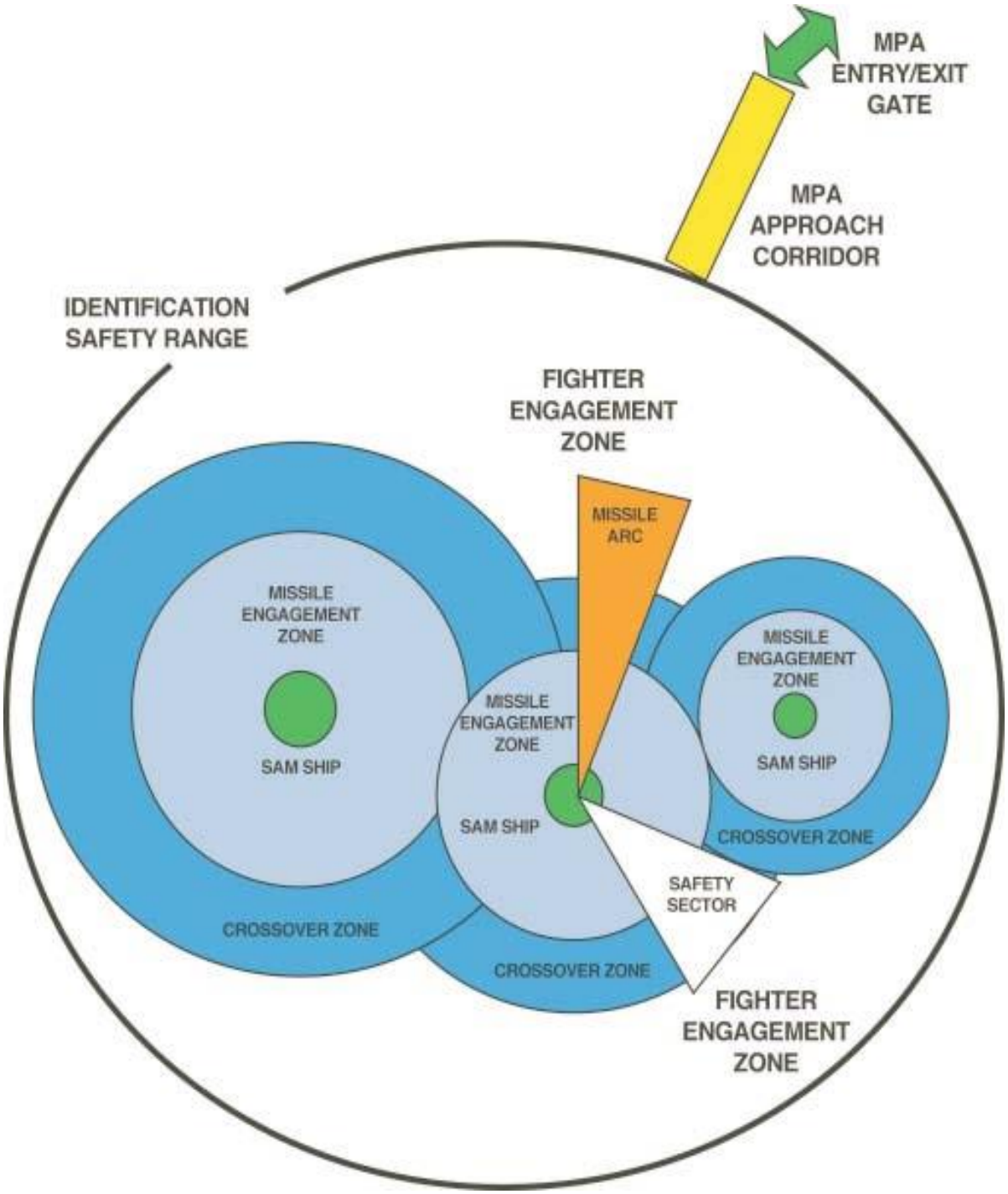

Figure 5-2: Maritime zone coordination

p. **Force Defense Areas (FDA).** The following force defense areas are established by the OTC within an Air Defense Area (ADA):

(1) **Surveillance area**: Aerospace, airspace, surface and subsurface areas under systemic observation of own force sensors to detect any object, event or occurrence of possible military concern.

(2) **Classification, Identification and Engagement Area (CIEA):** The area within the surveillance area and surrounding the vital area(s) in which all objects must be classified, identified, monitored, and the ability maintain to escort, cover, or engage.

(3) **Vital Area (VA):** The designated area around each mission essential unit(s), force(s), installation(s) or location(s) to be defended by the force. The outer limit of the vital area is normally equal to or greater than the threat weapons release range of opposition forces.

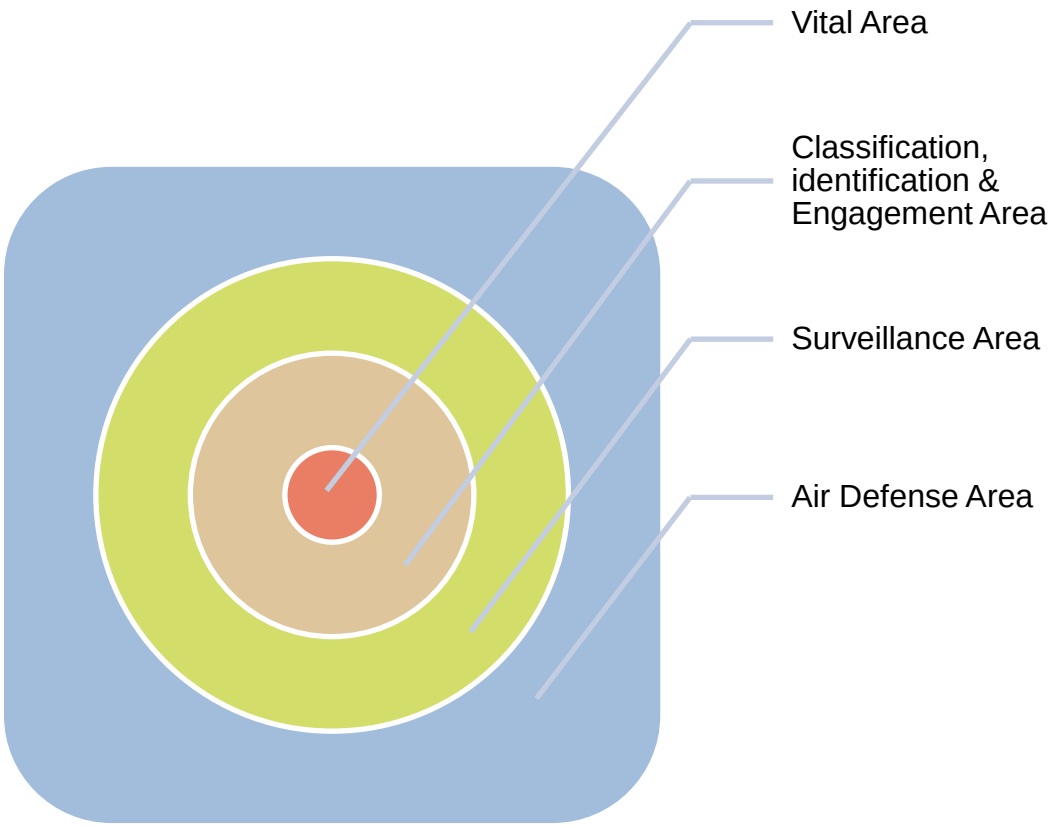

Figure 5-3: The force defense areas

5.6 IDENTIFICATION CRITERIA

1. The identification process includes the assignment of one of the six standard identities to a detected contact (hostile, suspect, unknown, neutral, assumed friend, friend). The assignment of a standard identity will be executed by the appropriate or designated authority, based upon the available data (mostly localization and/or recognition data) and a set of rules (identification criteria), laid down by the appropriate authority informed by the approved ROE relating to Positive Identification. The following list, which is not exhaustive, is intended to give examples of identification methods and criteria that can be used by the OTC or delegated authority.[23]

> **Note**: A HOSTILE ID does not necessarily imply clearance to engage as this is related to ROEs and a function of the Weapons Control State.

2. **Visual** (including electro-optics):

   a. Contact positively identified
   b. Contact identified but not positively
   c. Opening of fire (guns, missiles ...)
   d. Wrong reply to a visual identification signal
   e. No reply to a visual identification signal
   f. Ship or aircraft showing no lights

3. **Electronic:**

   a. Contact(s) less than 10 (or n) degrees from a communications intercept bearing (or at an intersection of two bearings)
   b. Contact(s) less than 10 (or n) degrees from a bearing (or at an intersection of two bearings) of a radar or other electronic transmission
   c. Contact(s) less than 10 degrees from a jamming bearing
   d. Contacts not responding to an IFF/SIF interrogation
   e. Contacts giving wrong reply to an IFF/SIF interrogation
   f. Electronic emission identified as that of a missile guidance system
   g. Electronic emission corresponding to a fire control radar trained towards
   h. Electronic emission with changing characteristics (frequency, scan, (PRF))
   i. Airborne radar transmissions associated with data link transmission
   j. LINK 16 Data exchange[24]
   k. Imaging radars

[23] For further details see AIRCOM's SUPLAN D 11013D, Annex H, App 1 Tab A and STANAG 1241 Ed 5
[24] See ACP160 tor the use of IFF

4. **Acoustic:**

   a. Contact with acoustic emissions
   b. Passive sonar intercept of a unit
   c. Passive buoy intercept of a unit

5. **Behaviour:**

   a. Contact in a position predicted by enemy or intelligence reports
   b. Contact originating from a specific point of origin
   c. Contact closes within a specific range
   d. Contact closes from an expected direction
   e. Contact proceeds at excessive speed
   f. Contact operating airborne vehicles
   g. Contact correlates with known PIM, patrol area, or flight plan of own units
   h. Contact shows hostile intent
   i. Contact shows hostile act
   j. Change of speed greater than 5 knots

5.7 WEAPON COORDINATION

1. **Purpose.** The purpose of weapon coordination is to ensure that all weapon systems are used in such a way that:

   a. All targets designated by the AAWC as hostile are engaged when target engagement authority has been granted.
   b. Weapon effectiveness is maximized.
   c. Mutual interference is minimized.
   d. The safety of friendly and neutral aircraft is maximized.

5.8 METHODS OF WEAPON COORDINATION

Weapon coordination may be carried out by area, zone or joint procedures.[25]

   a. **Area coordination**. Under area coordination, AD aircraft, SAMs, Electronic Countermeasures (ECM) and other weapon systems are employed in the same airspace. The AAWC resolves any conflict by controlling engagements with Weapon Control Status, Target Engagement Messages (TEMs) and Weapon Control Orders (WCO). AAW units report their actions by using TEMs which are listed in para 514 of this chapter.

[25] See ATP-01 Vol.I EDG V1 page 10-7 for more details.

a. **Zone coordination**[26] (Figure 5-4). In zone coordination, AD aircraft and SAMs are employed in separated zones of airspace, delineated by sector, altitude and range from an origin as appropriate.

(1) Normally, safety sectors and three types of zone; MEZ, COZ and FEZ are established within the JOA. They are promulgated by the AAWC, after coordination with the ADC. AD aircraft may also operate in a Fighter Area of Responsibility (FAOR) assigned to them by an AOC with the mission to provide defense to maritime units.[27] When operating adjacent to/in an AOC's AD area, FAOR planning must be coordinated between the AOC and AAWC. The location and shape/size of the zones will depend on weapon characteristics, availability of aircraft, expenditure of missiles and disposition of units. They may extend from ground or sea level to any altitude or from one altitude to another.

(2) ECM may be employed in all zones.

b. **Joint coordination**. Weapons coordination is made in the dedicated area, but friendly assets, ships or aircraft are protected by a Protection Zone (PZ) around each of them. Outside of these zones, area coordination principles apply. Three types of zones are established:

(1) Joint Engagement Zone (JEZ): zone inside which coordination rules apply. SPZ and APZ are excluded from JEZ. A JEZ can also be defined as a geographical area.

(2) Self-Protection Zone (SPZ): a self-defense missile zone centred on friendly surface units. The size depends on the individual weapon system and is defined in the OPTASK AAW. A codeword is used to activate or deactivate these zones. Friendly aircraft are not authorised to enter the SPZ.

(3) Asset protection zone (APZ): a three dimensional bubble surrounding friendly aircraft. Its size is defined in OPTASK AAW. Engagement of a target within APZ is not authorised, unless ordered by the AAWC.

[26] Zone coordination is the best practicable method of weapon coordination when the adversary poses an effective ECM threat.
[27] Size and manning is described in AIRCOM Manual 80-6 dated 16 JUL 2016 para 6-3

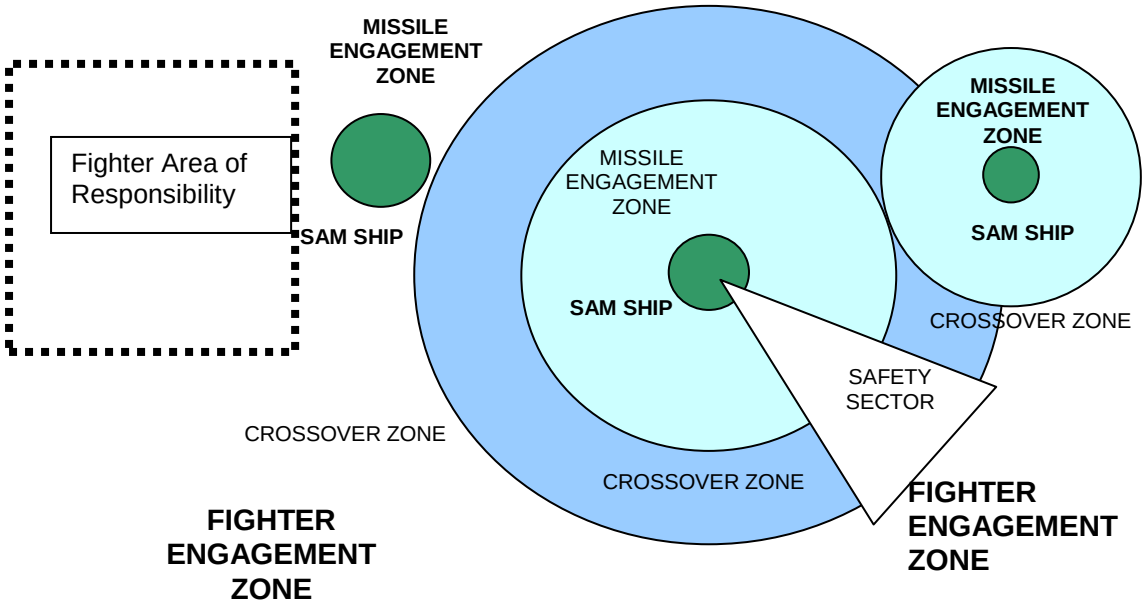

Figure 5-4: Example of zone coordination

5.9 CHOICE OF WEAPON COORDINATION METHOD

The use of Area Coordination is only recommended when:

a. The air and surface picture is coordinated and widely understood.

b. Voice and data communications are adequate for the mission.

c. AAW coordination is of a high standard.

5.10 PROMULGATION OF WEAPON COORDINATION

a. It is the responsibility of the AAWC to ensure that the forces involved are aware of the method of coordination in use.

b. It is the responsibility of the ADC to ensure that joint air assets involved are aware of the method of coordination in use.

c. Procedural transmissions will enable the AAWC to establish, change or give warning of a change of Weapon Coordination method.

5.11 MISSILE ENGAGEMENT ZONE

The following MEZs may be established:

a. **Standard MEZ**. A MEZ may be established around a SAM ship. Under WCS "WEAPONS FREE", the ship is automatically cleared to fire at any target penetrating the MEZ (not withstanding ROE) unless known to be friendly, or unless otherwise directed by the AAWC. Special features are:

(1) Friendly aircraft must not penetrate the MEZ unless positive clearance has been obtained from the AAWC[28].

(2) A change of status of a MEZ must be agreed between the AAWC and the respective Air C2 unit (e.g. CRC/AOC/AEW). The status and size of a maritime MEZ should be part of the CASP agreement between the OTC/AAWC and AOC. Regardless of whether or not CASP are being conducted, MEZ information should be detailed in the OPTASK AAW, ACO and ATO.

b. **Silent SAM MEZ**. When covert long-range/medium-range SAM ships are stationed up-threat, a SILENT SAM MEZ may be established, which has significant differences from the MEZ previously described. The key factors for ships operating a SILENT SAM MEZ are as follows:

(1) Ships remain covert, receiving the air picture via data links.
(2) Ship weapon control status is automatically "WEAPONS FREE".
(3) The OPTASK AAW, ACO and ATO, will contain details of MEZ size, position and timing.
(4) No safety sectors are established.
(5) No friendly aircraft are allowed in the SILENT SAM MEZ, except for AEW/ASW/ASUW aircraft that are required to operate in the SILENT SAM MEZ providing the following criteria are met:

i. SAM ships must be alerted to the mission, the aircraft must be continuously tracked, and their position transmitted on data link;

ii. An accurate gridlock between the data link reporting unit and SAM ship is maintained.

[28] The correct use of Identification and Recognition Procedures is vital. Further information can be found in: ATP-1; ATO; SPINS and ACP.

5.12 FIGHTER ENGAGEMENT ZONE (FEZ)

Fighter aircraft have freedom of action within a FEZ to identify and engage air targets in accordance with ROEs in force. If the AAWC wishes to engage a particular target in the FEZ with a long range SAM, he is to issue an engagement order assigning the target to a SAM system, ensuring that the fighter controlling agency is so advised. When this order has been issued, a missile arc is automatically established. (see page 5-8).

5.13 EMPLOYMENT OF MARITIME POINT DEFENSE WEAPONS

Because of their limited range, guns and maritime point defense missiles are not regarded as area AAW weapons. For the benefit of those ships, a local coordination net (voice net) can be established by the local anti-air warfare Coordinator (LAAWC), if activated, to compile and promulgate the local air picture to specifically enable ships to identify friendly aircraft and targets. The net is used to repeat threat warnings, ZIPPO[29] calls and engagement restrictions.

5.14 EMISSION CONTROL

The Electronic Warfare Coordinator (EWC) is the principal manager of the electromagnetic and acoustic spectrums. The EWC will formulate, promulgate, control and monitor the EMCON plan based upon the OTC's emission policy. The EWC must also exercise control of emissions from aircraft engaged in direct support operations, so that all emission control policies can be coordinated. For the majority of the time, aircraft will have unrestricted use of radar, communications and other electromagnetic emission to carry out their missions effectively. However, there may be occasions when it is necessary to restrict the use of certain emitters in pursuance of the overall force plan.

5.15 TARGET ENGAGEMENT MESSAGES

TEMs are used between AAW units to report on the progress of the air battle, but are not required for self-defense weapons. The following is a selection of TEMs (the full list can be found in APP-1).

a. **Weapons assignment report**. This report should be made to the AAWC as soon as possible after the target has been detected, preferably as part of the initial report. A change in assignment must also be reported. The proword "TAKING" indicates that an assignment has been made. For example: "This is (callsign) TAKING HOSTILE 1234 with STATION 2."

[29] See ATP-01 Vol.I EDG V1 page 10-11 for more details.

b. **HOSTILE (Track Number) BIRD TARGET**. Used by the AAWC to designate a target to be engaged by missiles.

c. **HOSTILE (Track Number) CAP TARGET**. Used by the AAWC to indicate that a target is a primary target for the Combat Air Patrol (CAP) (CAP voice call may be specified).

d. **BIRDS AFFIRM HOSTILE (Track Number)**. Used by missile ships to indicate that missile radars are locked on to a particular target and that the target will pass within missile intercept range.

e. **BIRDS AWAY HOSTILE (Track Number)**. Used by missile ships to indicate that missiles have been fired.

f. **BIRDS NEGAT HOSTILE (Track Number)**. Used by missile ships to indicate that it is not possible to fire at a designated target (i.e. missile directors not locked on, or engaged on other targets, or targets did not come within missile range).

5.16 BREVITY WORDS

The brevity words governing AD aircraft readiness states, MEZ operations and other associated AD missions in the maritime environment are detailed in APP-07 and AIRCOM Manual 80-6.

5.17 AIRCRAFT CONTROL UNIT

Aircraft on direct support are under the TACON of the OTC, who in turn, normally delegates that function to an ACU (Chapter 4, para 402).

5.18 CONDUCT OF OPERATIONS

a. **Planning considerations.** The main considerations in planning AD missions include, but are not limited to:

(1) The EW threat.[30]
(2) The air threat.
(3) AD assets availability.
(4) The distance from fighter airfield/aircraft carrier to the CAP station or desired engagement zone.

[30] EW threat will affect own forces ability for surveillance, targeting, communication and coordination and should be considered when planning the AD mission.

(5) Location of non-friendly shipping along the route of flight and in the mission area.
(6) Surveillance and weapon capability of opposing ships in the area.
(7) Friendly air missions in the area.
(8) Location of friendly ships in the area, with special attention to airspace around aviation capable ships.
(9) Warning available.
(10) Distance to the nearest suitable recovery base and/or suitable configured airborne tanker, if applicable.
(11) EMCON policy.
(12) Weather.
(13) Geography.
(14) Force disposition and formations.[31]
(15) Mutual interference.

b. **Fighter alert and readiness states**. The states of alert/readiness are defined as the maximum specified time in which AD aircraft can become airborne. It is promulgated by the word "ALERT/READINESS" followed by the time in minutes, in the ATO/OPTASK AAW.

c. **Scrambling**.[32] Scramble authority will be designated in the ATO/OPTASK AAW. The scrambling authority might issue an airborne order for preplanned missions.

d. **Mission control**. The AD missions may be conducted under control of a ship-borne, land-based or airborne controller. Autonomous operations may be permitted when no control agency is available or when the EW environment prevents control.

e. **CAP stationing**. When planning the position of a CAP, the following points should be considered:

(1) The capability and direction of the threat and the expected type of attack.
(2) The capability and location of aircraft control units.
(3) The location of MEZs.
(4) Availability/location of tanker aircraft.
(5) Fighter performance, including weapon load, combat radius, endurance and sensor/data link capability.
(6) Weather conditions.
(7) The expected altitude and direction of the attack.
(8) Weapon characteristics and availability.

[31] See ATP-31 (ch.7, section IV).
[32] The order for an aircraft to take off as quickly as possible.

(9) The size of the sector (based on the centre of formation, known as ZZ) covered by a fighter decreases as the distance from the main body increases.
(10) The stationing of a CAP at long range from the fighter airfield or aircraft carrier reduces overall fighter availability through loss of time in transit and the need for frequent replacement, unless extended sortie time is available through air-to-air refuelling.
(11) Radar and communications coverage may limit the range at which control can be exercised.
(12) Availability of organic and non-organic AEW or AWACS aircraft.
(13) Stationing of AEW, AWACS and tanker aircraft supporting the CAP.[33]

5.19 COORDINATED AIR SEA PROCEDURES FOR AIR AND MISSILE DEFENSE

CASP provide a structure for coordinating AMD or AAW operations when warships are operating in or adjacent to a JOA. Warships are to report their individual CASP categories and then may operate under one of three CASP control statuses. This permits them to contribute, to varying degrees, to the joint AMD battle and to coordinate their AAW operations with land-based aircraft and/or weapon systems.

5.20 GENERAL PRINCIPLES

In times of crisis and conflict, maritime units afloat may operate beneath high intensity, friendly air traffic in areas of an adversary's air threat. When operating in or adjacent to a JOA, maritime forces will comply with (regional) airspace control procedures and with air defense plans. Ships with a (T)BMD capability ((T)BMD radar and/or upper layer/lower layer interceptors) may be able to contribute to (T)BMD by providing early warning, cueing and/or by engaging adversary ballistic missiles. Ships with an AD capability (Air surveillance radar , Electronic warfare Support Measures (ESM), Medium Range (MR)/Long Range (LR) SAMs, link capability and/or fighter control capability) may be able to contribute to AD by providing early warning (radar and ESM) and by engaging adversary aircraft with AD aircraft and SAMs. AMD commanders should employ shore-based SAM batteries and AD aircraft to defend maritime forces within the JOA where this can be achieved without prejudice to the primary mission. Therefore, there is a requirement for procedures to coordinate maritime AAW operations with shore-based AD to ensure that:

[33] ATP-31

a. Adversary air and missile threat are efficiently countered.

b. AEW aircraft may be tasked to support more than one component simultaneously when appropriate.

c. Employment of ISR platforms is coordinated between components.

d. Maritime protection is enhanced by land-based assets.

e. AAW early warning to the responsible air C2 unit is increased by ships' sensor inputs.

f. AAW early warning enhancement for the common operational picture by maritime sensors.

5.21 COMMAND AND CONTROL

In general, the JFMCC and JFAC (or equivalent Headquarters) coordinate the application of CASP. AOCs are responsible for the compilation and dissemination of the Recognized Air Picture (RAP) and may be tasked with promulgating Weapon Control Status (WCS), WCOs and TEMs. When good Command, Control and Communications (C3) exist, Area Coordination should be used in preference to Zone Coordination. Irrespective of any promulgated ROE, WCS, WCOs or TEMs in force, ships retain the right of self-defense at all times.

5.22 CASP UNIT CATEGORIES (CASPCAT)

1. Depending on unit's capabilities, manning and ammunition status units reports individual CASPCATs. The four main categories are subdivided into more detailed and capability depending subcategories.

CAT I **BMD Interceptor**. (T)BMD capable warships able to assist in compiling the missile defense picture and able to engage ballistic missiles.

CAT S **BMD Sensor**. (T)BMD capable warships able to assist in early warning/cueing without the weapon to engage ballistic missiles.

CAT A **AD-Ship**. Warships with Long Range 3D Air Surveillance Radar and MR/LR AAW Weapon[34].

CAT N **Non-AD-Ship.** Warships not belonging to aforementioned categories.

[34] Carrier borne Air Defense Fighters to be considered MR/LR AAW Weapons

2. Depending on additional capabilities units to be subcategorized according to Table 5-2.

CASP Unit Category	BMD Weapon	BMD Capable Radar	MR/LR AAW Weapon	LR Radar	AD aircraft Control capability	TDL	Possible CASP CONSTAT
I1	X	X	X	X	X	X	A, T, M
I2	X	X	X	X		X	A, T, M
I3	X	X		X	X	X	A, T, M
I4	X	X		X		X	A, T, M
S1		X	X	X	X	X	A, T, M
S2		X	X	X		X	A, T, M
S3		X		X	X	X	A, T, M
S4		X		X		X	A, T, M
A1			X	X	X	X	A, M
A2			X	X		X	A, M
N1				X	X	X	A, M
N2				X		X	A, M
N3						X	M
N4							M

Examples: USS Stout with SM3, SM2 and FC reports CASPCAT I1
HNLMS De Ruyter with SM 2 without FC reports CASPCAT A2
HNoMS Fridtjof Nansen with FC reports CASPCAT N3

Table 5-2: CASP UNIT Category

5.23 CASP CONTROL STATUS (CASPCONSTAT)

Ships' primary tasking, capability and area of operation will determine the CASP control status that may be allocated. CASP control statuses are as follows:

A TACON for AD tasking

Ships operating under CASP Control Status A are allocated to the shore-based ADC for AD duties as their primary task. If CASP Control Status A status is ordered, the MCC will delegate TACON to the COM JFAC who may, in turn, delegate this TACON to the AMDC. OPCON and the responsibility for logistic support will always remain with the MCC. The primary task of a CASP Control Status A ship will be to assist the respective AOC in compiling the RAP. Additional tasks, as directed by the AMDC or AOC Commander, may include fighter control and engagement of adversary aircraft.

T TACON for (T)BMD tasking

Ships operating under CASP Control Status T are allocated to the shore-based (regional) AMDC for (T)BMD duties as their primary task. If CASP Control Status T status is ordered, the MCC will delegate TACON to the COM JFC who may, in turn, delegate this TACON to the AMDC. OPCON and the responsibility for logistic support will always remain with the MCC. The primary task of a CASP Control Status T ship will be to assist the respective AMDC in compiling the missile defense picture.
Additional tasks, as directed by the AMDC, may include engagement of adversary ballistic missiles.

M TACON for maritime tasking.

CASP Control Status M is the standard status for maritime units; TACON is usually delegated to an OTC to achieve the respective maritime mission, nevertheless units capable may assist the respective AOC in compiling the RAP if the maritime mission permits. If operating inside a JOA the use of their LR/MR SAMs or allocated CAP against targets that do not pose an immediate threat to the ship or units being supported will be coordinated with the respective AOC.

Remark: In a maritime heavy Small Joint Operation (SJO) the AMDC may be subordinate to the MCC vice the COM JFAC. In this case TACON for units in CASPCONSTAT A or T remains with the MCC and will be delegated directly to the maritime AMDC or to the CTG/AAWC responsible for the overall AMD mission.

5.24 PLANNING THE EXECUTION OF CASP

The ADC is responsible for the AD of a designated area. Therefore, the OPGEN/OPTASKs of the OTC/AAWC will require coordination with the joint ADP. The OTC/AAWC will coordinate the OPTASK AAW with the AD tasking reflected in the ATO. However, the OTC/AAWC may still issue amplifying instructions for the execution of the primary tasking and the execution of air defense of the TG. See Table 5-3

Agency	Action
OTC/AAWC/ UNIT	Report individual or consolidated CASP unit category via CASPCATREP
MCC	Informs the JFAC of planned maritime activity within the AD area and proposes the CASP Control Status of available units.
JFAC	Agrees the CASP Control Status and includes it in the AOD. Requests ships with appropriate CASP unit category from the MCC in order to support the air mission and augment the RAP.
MCC	Orders the CASP Control Status to the OTC/AAWC and other appropriate units via CASPORDER.
OTC/AAWC/ UNIT	Report CASP coordination requirements to AMDC/AOC.
AMDC/AOC	Coordinates the CASP requirements with the OTC/AAWC/UNIT and resolves possible conflicts between the OTC/AAWC requirements and the AMDC/AOC plan. Sends regular CASP Status Reports. Table 5-4 provides a checklist of items to be coordinated.
AMDC	Issues/amends ADP.
AOC	Updates OPTASKs/ATO.
OTC/AAWC	Issue updates to the standing OPTASKs, based on the ADP/OPTASKs of the AMDC/AOC.

Table 5-3: Responsibilities for CASP coordination

5.25 CASP COORDINATION ITEMS

The AMDC/AOC Commander coordinates AD activities in the JOA with the OTC/AAWC as indicated in the planning schedule. The OTC/AAWC must therefore state the requirements for the AD of his units to the AMDC/AOC Commander. If a conflict between the AMDC/AOC and OTC/AAWC exists, the AMDC/AOC must negotiate the AD arrangements with the OTC/AAWC. Table 5.4 provides a checklist of items to be coordinated.

Coordination Item	Specific Item
Recognized Air Picture	- Size of the Airspace Surveillance Area (ASA). - Responsibility/authority to assign identities in a specific area. - Identification Criteria (IDCRIT). - Airspace Coordination Measures. - Responsibilities of the FTC-A.
Weapon Allocation	- Type of weapon coordination in force. - Size and positioning of MEZ/FEZ/FAOR. - Target priorities against non-self-defense targets and ROE. - Weapon Release Criteria.
EW Coordination	- EMCON Policy. - EW order of battle. - Mutual Interference (MUTINT). - See AJP-3.6 and relevant OPTASKS for more detail.
Information Exchange Connectivity	- JAAWSC – frequencies. - Battle management frequencies. - AUTOCAT/MIDDLEMAN frequencies. - Force Marshaller/Fighter control frequencies. - Encryption capabilities. - Connectivity between different data link systems/sites (SSSB). - Link duties and responsibilities (Standing OPTASK LINK). - Compatibility identities in different link-capable units (ID-Matrix). - Track management policy/allocation.
AEW (Associated) Support	- ASA. - Link services (Link 11/16; HF/UF simulcast). - Coordination frequencies (AAW/Link 11 Coord/TG Command). - Communication facilities (RATT relay/ AUTOCAT/ MIDDLEMAN). - Orbit area(s). - Comms and Link joining procedures.

Table 5-4: Minimum Checklist of CASP Coordination Items

5.26 DUTIES OF MARITIME FORCE TRACK COORDINATOR-AIR (FTC-A) [35]

The OTC is responsible for establishing the local maritime data link. This duty is normally delegated to the AAWC, who is also usually the FTC-A. The FTC-A is

[35] See ATP-01 page 6-21.

responsible for compiling the force air picture, managing the data link and for issuing Air Threat warnings.

5.27 AEW COORDINATION

AEW TACON authority may be with the AMDC, which retains the FTC-A function for air tracks. However, there will always be a FTC-A afloat, who is responsible for the Force AAW picture. Coordination between the AEW TACON authority, the Ship-Shore-Ship Buffer (SSSB) TACON authority, AEW aircraft and FTC-A is essential.

5.28 CHANGES TO CASP UNIT CATEGORIES

CASPCAT may be changed because ships are unable to fulfil the appropriate criteria. This may be the result of equipment malfunction/damage, loss of key personnel (e.g. FC) or weapon expenditure. When CASP A ships' SAMs have been reduced to 50%, the CASP category is to be reconsidered by the COM JFAC/MCC and ADC. The same applies to CASP T ships and their BMD weapons.

5.29 CASP RESPONSIBILITIES

The responsibilities of key units operating CASP are as described in:

a. Table 5.5 – Air and Missile Defense Commander/AOC Commander;

b. Table 5.6 – OTC/Ship CO.

CASPCONSTAT A	CASPCONSTAT T	CASPCONSTAT M
Order the geographical station of the ship, keeping the MCC/COM JFAC informed.	Order the geographical station of the ship, keeping the MCC/COM JFAC informed.	
Establish a MEZ as required, including any restrictions, if zone coordination is being used.	Establish a MEZ as required, including any restrictions.	Negotiate restrictions to the ship's MEZ if Zone Coordination is in force.
Allocate AD aircraft as required for ship control.		
Allocate weapons (fighter or MR/LR SAMs) to targets.	Allocate weapons to targets.	Coordinate weapon allocation (fighter and SAMs) with the ship.
Disseminate the RAP.		
Inform the ship of ROE in force for AMDC/AOC and shore-based AD aircraft and ensure suitable ROE for ASW and ASUW.	Inform the ship of ROE in force for AMDC/AOC and shore-based AD aircraft and ensure suitable ROE for ASW and ASUW.	If using Zone Coordination, determine, with the ship, the need for a ship's MEZ and, if

		appropriate, negotiate MEZ restrictions
Keep the ship informed of the conduct of the air battle in the ship's area of interest.	Keep the ship informed of the conduct of the air battle in the ship's area of interest.	
Monitor ship weapon expenditure closely and report to the COM JFAC and MCC when SAM quantities are reduced to 50%.	Monitor ship weapon expenditure closely and report to the COM JFAC and MCC when (T)BMD quantities are reduced to 50%.	
Liaise with the ship to establish an appropriate emission policy.	Liaise with the ship to establish an appropriate emission policy.	
Provide Air Raid Warnings		

Table 5-5: Air and Missile Defense Commander/Commander Air C2 Tasks and Responsibilities

CASPCONSTAT T	CASPCONSTAT A	CASPCONSTAT M
Maintain the ordered station.	Maintain the ordered station.	Pass up to date PIM data to the AMDC/AOC.
Establish and maintain a command and control (C2) net ((T)BMD Net) with the controlling AMDC/AOC.	Establish and maintain a command and control (C2) net and JAAWSC with the controlling AOC.	Establish and maintain JAAWSC with the AMDC/AOC to exchange/ receive the RAP.
		Establish and maintain C2 when possible.
Contribute to the (T)BMD Picture.	Contribute to the RAP by all means available, including ESM.	
Engage hostile TBM tracks that are allocated by the controlling AMDC/AOC.	Engage hostile air tracks that are allocated by the controlling AOC/CRC/CRP.	Engage hostile aircraft, including those declared hostile by the ADC/AOC, to defend the maritime force. Coordinate where possible with the ADC/AOC.
		Coordinate with the ADC/AOC the engagement of those air tracks that do not pose an immediate threat to the maritime force.
	Control AD aircraft as ordered.	Advise the ADC/AOC if fighter control can be carried out without detriment to the primary task. Control AD aircraft if allocated.

Keep the AMDC/AOC informed of (T)BMD weapon availability.	Keep the ADC/AOC informed of: a. The fuel and weapon state of AD aircraft under the ship's control. b. Fighter Controller and weapon availability.	
Join the appropriate Data Link Net(s).	Join the appropriate Data Link Net(s).	If not detrimental to the primary task, join the appropriate data link net(s) (active or passive).
	Implement the ordered emission policy by an appropriate EMCON plan.	
	Request suitable ROE especially for ASW and ASUW.	

Table 5-6: OTC/Ship CO Tasks and Responsibilities

5.30 ROE

It is of the utmost importance for successful military operations that ROE are consistent for all forces operating in the same area. Detailed arrangements for coordination between adjacent air defense areas are to be made by the appropriate commanders. These commanders may, however, delegate their authority for the application of these procedures to subordinate AD commanders (e.g. AAWC) and may issue further detailed directives in order to meet their particular requirements. Such directives are to be forwarded to other appropriate commanders for information.
MC 0362 contains definitive guidance on the issues of ROE.

5.31 RIGHT OF SELF-DEFENSE

Units have an inherent right of self-defense at all times. Friendly aircraft should exercise caution when approaching any maritime unit when communications have not been established.

5.32 LOSS OF COMMUNICATION – FALLBACK PROCEDURES

1. The ADP should provide guidance on procedures for the event of loss of two-way communications. The OTC/AAWC will coordinate details of appropriate alternative procedures with the AOC.

2. The AOC/OTC are to amplify the above instructions in the OPTASKS AAW/BMD/ATO Special Instructions (SPINS).

5.33 AIRCRAFT CARRIER (CV)/AD COORDINATION

The presence of a CV without a Coordinated Air Defense Area (CADA, see ATP-31/ATP-40) will require a high degree of coordination between the JFMCC and the JFAC (AJP-3.3.3, Chapter 4) to determine the following:

a. The CV's organic flying requirement;

b. The amount of land-based AD effort available;

c. Methods of eliminating mutual interference.

5.34 HIGH BOY – LOW BOY PROCEDURES[36]

1. Derived from an ASW background this procedure describes the cooperation and coordination between two Intelligence, Surveillance, Reconnaissance (ISR) aircraft in the same area in different altitude bands (e.g. AWACS and MPA), one acting as High boy and the other acting as Low boy.

2. The intention is to resolve ambiguities in the surface picture by correlating the picture of an ISR asset flying at high altitude with a picture of an ISR asset flying at lower altitude. Correlating these pictures can reduce the number of surface contacts requiring special identification (e.g. visual/imagery) significantly. This again allows for an optimization in flight path, area coverage and/or endurance of the MPA.

3. The use of a Low Boy asset can provide Positive Identification (PID) of a target or vessel of interest through closer inspection up to and including the hull name, which can be invaluable in maritime security operations.

4. In order not to negate mentioned advantages and based on mission capability and complexity of an MPA it is recommendable to task missions separately and carry out High boy – Low boy procedures on a voluntary or opportunity based level only.

5. A similar cooperation is also possible between an AWACS or MPA operating at higher altitude and an UAV operating at a lower altitude. Closer forms of cooperation and control could be beneficial in this setup.

6. Mission essential information i.e. check-in and working frequencies, Link-settings, altitudes, etc. need to be included in the ATO.

[36] This procedure has been described as "Double Eagle" in national and coaltion SOPs

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ANNEX A - COMMUNICATION

A.1 PURPOSE

This chapter describes the processes of information exchange associated with the Air-Maritime mission, including the CASPCATREP and CASPORDER.

A.2 COMMS COMPONENTS

1. Significant communication components that support the exchange of information for Air-Maritime purposes are as follows:

a. **Maritime Air Request and liaison (MAR) net.** For air-maritime Coordination MAR is used for handover of control, warning of attacks, requests for fighter assistance and information of fighters dispatched between AAWC and Air C2 units/commands. It may be over SATCOM, HF or IP Chat.

b. **Joint Anti-Air Warfare Shore Coordination (JAAWSC) ne**t. The JAAWSC net normally carries the following types of traffic:

(1) Selective cross-telling of the air picture.
(2) Execution messages for all missions.
(3) Immediate requests for all missions and replies to such requests.

2. Inter-controller AAW coordination will include launch, recovery and employment of carrier and shore-based assets; target allocation messages; fighter/SAM engagements; fighter/tanker weapon/fuel states; short notice changes to force EMCON and OPTASK AAW; other ship/shore dialogue necessary for AAW coordination; transfer of aircraft; Airmove Arrival and Departure of shore-based aircraft allocated to OTC's TACON; handover gates in force and Force PIM.

3. **Cross-Tell.** Whenever a significant maritime force with an air defense capability is operating within, or adjacent to, a JOA, a Cross-Tell circuit should be made available for activation by mutual agreement between the JFMCC and the JFAC/ADC. Though such links can be arranged, the OTC/AAWC and the ADC/JFAC will need to closely coordinate their requirements for data exchange. Examples are contained within APP-1. Control is exercised by the shore-controlling agency using the appropriate brevity words from APP-7.

4. **The CASPCATREP.** This message primarily provides detailed information from ship/CTG to JFMCC/JFAC regarding the capabilities of ships operating under CASP, secondarily it serves as a method to request JAAWSC. Full details of the CASPCATREP are contained at para A114.

5. **The CASPORDER.** The CASPORDER is a non-standardized message from the MCC to the OTC/AAWC and other appropriate units involved ordering the agreed CASP Control Status to subordinate units. Apart from the formal order to assume a certain CASPCONSTAT it should at least provide contact information of the applicable AOC if CASPCONSTAT A or T is ordered.

6. **Multilink.** The Air-Maritime Coordination requires the exchange of tactical information between the involved participants on a near-real-time basis. Link 11, Link 11B, Link 16 and Link 22 comprise the Basic Multi-Link interface with Link 1 and ATDL-1 included in the Extended Multi-Link Interface. Multi-Link operations will normally be conducted at the operational command level and below. The overall commander will normally delegate the authority for management of the multi-link interface, through the appropriate tactical commander, to the DLM/ICO. For further details about multi-link operations see ATDLP-7.33.

7. **JREAP.** Joint Range Extension Protocol is designed to provide a Beyond Line of Sight (BLoS) capability that allows the exchange of TDL information without the need of a relay. This capability is provided through the use of multiple media paths to include SATCOM, secure voice lines and TCP/IP networks. JREAP supports LINK 16/22 messages.

8. **C2 systems (Integrated Command and Control Software for Air Operations (ICC), Air Command and Control System (ACCS), J-CHAT).** The employment of C2 systems especially designed for air operations needs to be considered when designing the communication architecture for Air Maritime Coordination. Additionally, the use of J-CHAT may substitute MAR-NET in certain operations.

A.3 VOICE REPORTS

Formats for voice reports are iaw APP-1.

A.4 CALL SIGNS

The JFAC will promulgate relevant ship and aircraft callsigns in the ATO/OPTASK COMMS. Specific air defense call signs of the warships are indicated in the OPTASK AAW.

A.5 TRACK NUMBERS

Once a track has been initiated on the Cross-Tell net it will retain its original track number regardless of the agency currently passing information on that track.

A.6 STANDARD TRACK IDENTITIES AND MODIFYING DESCRIPTIONS

The standard track identities are iaw STANAG 1241.

A.7 RULES FOR ASSIGNMENT OF IDENTIFICATION

Within a JOA, the AOC will publish the identification criteria (IDCRIT). Prior to operations, IDCRIT should be coordinated between the ADC and the OTC/AAWC, in order to ensure a safe set of criteria for all involved.

A.8 HF SILENCE

At times it may be necessary for the AAWC to maintain HF silence. During such periods it is essential that cross-telling to the AAWC should continue without acknowledgement from the AAWC. The following procedures will apply:

a. When HF silence has been imposed prior to the maritime force entering a JOA, shore-to-ship cross-telling will begin when the force is expected to enter the ADA.

b. When a period of HF silence is to be imposed once the maritime force has entered a JOA, the AAWC should, if possible, inform the appropriate JFAC immediately before the start of such a period. A suitable codeword should be used meaning: “Continue cross-telling without awaiting acknowledgement from me until further notice”.

c. During periods of HF silence, when no air threat is present, the JFAC will transmit a negative report every five minutes. Additionally, a formal call-up message should be transmitted every 30 minutes to enable the AAWC to keep his receivers tuned.

A.9 ELECTRONIC WARFARE CONSIDERATIONS AND REPORTING

When planning communication and information exchange associated with the Air-Maritime mission it is essential to consider the EW threat and possible interference (friendly and other actors) that could lead to degraded or loss of communication. This

includes possible degradation to satellite communication and systems that are dependent on common Position, Navigation and Timing (PNT) information.
Terminology for EW reports is laid down in APP-1.

A.10 AIRBORNE RADIO RELAY CONSIDERATIONS

The requirement to counter the threat to maritime forces by operating at long ranges from ships or shore-based control agencies has meant that aircraft (e.g. AEW, AAR platforms and UAVs) spend an increasing amount of time out of, or close to the limit of direct radio contact. If satellite communication capability is not available, communication difficulties can often be resolved by using aircraft at medium or high level to relay messages either manually, using MIDDLEMAN procedures, or by utilizing Automatic Radio Relay (AUTOCAT) equipment. MIDDLEMAN procedures can be performed by any aircraft equipped with radio receivers and transmitters appropriate for the task, and is a simple efficient means for relaying short messages. AUTOCAT equipment is fitted to relatively few specialized aircraft and is for the most part capable of operating in the VHF, UHF or HF bands. Some aircraft for example are equipped to enable a non-HF equipped aircraft to communicate with a remote HF station via the relay aircraft. Tactical considerations for airborne radio relay procedures are:

a. An aid to covertness by allowing ships and aircraft to communicate over relatively short-range circuits under conditions requiring HF silence.

b. Reducing the vulnerability of ship-shore circuits to adversary ESM and ECM by choosing HF frequencies with limited propagation characteristics.

c. Sustaining the JAAWSC net under conditions of poor HF propagation.

A.11 PLANNING CONSIDERATIONS

When planning and requesting AUTOCAT, the following factors should be considered:

a. Two different frequencies must be used, and it must be stated which frequency is to be used for the Up-link, and which for the Down-link; the shore authority should normally nominate the Down-link frequency if it is to go ashore. The call-sign of the station involved in the Down-link should also be given.

b. Frequency limitations must be complied with and, where HF is involved, the use of frequency prediction charts can do much to avoid abortive links. When selecting frequencies, it should be remembered that any

interference, fading or noise will be retransmitted and possibly aggravated during AUTOCAT operations.

c. Where HF is involved, the mode of retransmission should be stated. The Single Sideband (SSB) frequency given should be the suppressed carrier frequency (always a whole number of kHz) and, unless otherwise stated, Upper Sideband (USB) will be used.

A.12 TASKING AND CONTROL

AUTOCAT aircraft are tasked by the ATO. OPCON of AUTOCAT-equipped aircraft is exercised by the air tasking agency, which may delegate TACON to other authorities as required. It is important for aircraft selected for airborne radio relay to be capable of remaining in the vicinity of the forces concerned for as long as possible.

A.13 AUTOCAT LIMITATIONS

The major limitations of AUTOCAT are:

a. If cut-outs in communication are experienced during AUTOCAT it should be assumed that the aircraft is turning;

b. When there are EMCON restrictions within a force, the control ship must inform whether HF transmissions are permitted or not. Where a link involving HF is requested that has not been pre-briefed, the request is to be authorized;

c. Aircraft HF antennae can be inefficient when tuned below 3.5 MHz Hence it will not always be possible to use optimum HF frequencies for the prevailing atmospheric conditions and/or time of the day, particularly at ranges of less than approximately 500nm from the shore station;

d. UHF-to-HF relay can prove more difficult to achieve than UHF-to-UHF;

e. UHF-to-UHF links between ships can usually be reliably achieved although it can take a long time to net a large group of ships because of the requirement to set different frequencies on the transmitter and the receiver;

f. Because in UHF-UHF relays it is necessary to use separate ship and aircraft transmit frequencies, ships fitted with UHF transceivers are unable both to receive and transmit a UHF-UHF AUTOCAT link on the same equipment. Therefore they have to use two transceivers to be netted into the UHF voice circuit being relayed;

g. Transmissions on HF by most tanker aircraft may not be permitted when AAR is taking place or by other AUTOCAT capable platforms (such as AEW aircraft) while they themselves are receiving AAR;

h. Consideration must be given to the operational impact on airborne platforms when tasking them to conduct AUTOCAT. AUTOCAT uses up a number of radios on the tasked platform which are unavailable for other use. This can place limitations on an airborne C2 platform such as AWACS.

A.14 CASPCATREP[37]

a. **UNIT CASPCATREP.** Message format to report single units CASPCAT and request NADGE support:

FROM (UNIT)
TO (MCC, COM JFAC, AOC)
INFO (CTG, CRC)
SUBJ CASPCATREP
REF LATEST OPTASK AAW/LINK FROM CAOC HELD BY CTG/UNIT

[37] The given signal formats are structured messages as an interim solution and will be changed to formatted messages after being implemented into APP 11

A	**PERIOD**	PERIOD (FROM/TO) DURING WHICH THE UNIT IS AVAILABLE FOR CASP
B	**UNIT DETAILS**	
	UNITID	1. SHIPS NAME 2. NATO SHIP DESIGNATOR
	CASPCAT	UNITS CASPCAT
	BMDDAT	1. NUMBER AND TYPES OF BMD WEAPONS (UPPER TIER) 2. NUMBER AND TYPES OF BMD WEAPONS (LOWER TIER) 3. BMD CAPABLE RADAR YES/NO
	ADDAT	1. NUMBER AND GRADE OF AIRCRAFT CONTROLLERS 2. NUMBER AND TYPE OF SAMS 3. NUMBER AND TYPE OF AIRCRAFT EMBARKED 4. LR 3D AIR SURVEILLANCE RADAR YES/NO
	LINKDAT	1. L11 YES/NO 2. L16 YES/NO 3. L22 YES/NO 4. JREAP A/B/C YES/NO 5. JNETWORKS HELD 6. JCRYPT HELD 7. SPECINFO
C	**CONDUCT**	1. PIM 2. GENERAL DESCRIPTION OF UNITS ACTIVITY DURING PERIOD 3. UNIT THAT HOLDS DUTIES: AAWC, FTC-A, FM, AAWACU, DNCS
D	**JAAWSC REQUEST**	1. PERIOD FOR WHICH ACTIVATION OF JAAWSC IS REQUESTED 2. NAVAL UNIT THAT WILL EXECUTE CROSS-TELL 3. NAVAL UNITS CALL SIGN 4. NADGE SITE THAT UNIT WISHES TO CROSS-TELL WITH 5. INSTRUCTIONS AND PROCEDURES THAT ARE REQUESTED
E	**LINK REQUEST**	
	LINK 11	1. L11 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGN 5. REQUESTED LINK DUTIES 6. REQUESTED NETSPEED

		7. REQUESTED NET OPERATIONS MODE 8. REQUESTED DATACOMMS (HF OR UHF) 9. REQUESTED VOICECOORDCOMMS (HF OR UHF) 10. REQUESTED TRACKBLOCK SIZE 11. REQUESTED REF POINT/GRID ORIGIN
	LINK 16	1. L16 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGN 5. REQUESTED LINK DUTIES 6. REQUESTED NETWORK TO BE USED 7. REQUESTED CRYPTO TO BE USED
	LINK 22	1. L22 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGN 5. REQUESTED LINK DUTIES
F	**SPECINFO**	

b. **CONSOLIDATED CASPCATREP**

Message format to report CASPCAT of multiple units of TG and request NADGE support:

FROM (CTG OR AAWC)
TO (MCC, COM JFAC, AOC)
INFO (CRC, UNITS)
NATO CONFIDENTIAL
SIC
SUBJ CONSOLIDATED CASPCATREP
EXER/OPER
REF LATEST OPTASK AAW/LINK FROM CAOC HELD BY CTG/UNITS

A	**PERIOD**	PERIOD (FROM/TO) DURING WHICH THE UNITS ARE AVAILABLE FOR CASP
B	**UNIT DETAILS**	
B1	UNITID (1st unit)	1. SHIPS NAME 2. NATO SHIP DESIGNATOR
	CASPCAT	UNITS CASPCAT
	BMDDAT	1. NUMBER AND TYPES OF BMD WEAPONS (UPPER LAYER)

		2. NUMBER AND TYPES OF BMD WEAPONS (LOWER LAYER) 3. BMD CAPABLE RADAR YES/NO
	ADDAT	1. NUMBER AND GRADE OF AIRCRAFT CONTROLLERS 2. NUMBER AND TYPE OF SAMS 3. NUMBER AND TYPE OF AIRCRAFT EMBARKED 4. LR 3D AIR SURVEILLANCE RADAR YES/NO
	LINKDAT	1. L11 YES/NO 2. L16 YES/NO 3. L22 YES/NO 4. JREAP A/B/C YES/NO 5. JNETWORKS HELD 6. JCRYPT HELD 7. SPECINFO
B2	UNITID (2nd unit)	1. SHIPS NAME 2. NATO SHIP DESIGNATOR
	CASPCAT	UNITS CASPCAT
	BMDDAT	1. NUMBER AND TYPES OF BMD WEAPONS (UPPER TIER) 2. NUMBER AND TYPES OF BMD WEAPONS (LOWER TIER) 3. BMD CAPABLE RADAR YES/NO
	ADDAT	1. NUMBER AND GRADE OF AIRCRAFT CONTROLLERS 2. NUMBER AND TYPE OF SAMS 3. NUMBER AND TYPE OF AIRCRAFT EMBARKED 4. LR 3D AIR SURVEILLANCE RADAR YES/NO
	LINKDAT	1. L11 YES/NO 2. L16 YES/NO 3. L22 YES/NO 4. JREAP A/B/C YES/NO 5. JNETWORKS HELD 6. JCRYPT HELD 7. SPECINFO
Bn	UNITID (nth Unit)	(repeat PARA Bn as necessary)
C	**CONDUCT**	1. PIM 2. GENERAL DESCRIPTION OF UNITS ACTIVITY DURING PERIOD 3. UNIT THAT HOLDS DUTIES: AAWC, FTC-A, FM, AAWACU, DNCS
D	**JAAWSC REQUEST**	1. PERIOD FOR WHICH ACTIVATION OF JAAWSC IS REQUESTED 2. NAVAL UNIT THAT WILL EXECUTE CROSS-TELL 3. NAVAL UNITS CALL SIGN

		4. NADGE SITE THAT UNIT WISHES TO CROSS-TELL WITH 5. INSTRUCTIONS AND PROCEDURES THAT ARE REQUESTED
E	**LINK REQUEST**	
	LINK 11	1. L11 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGNS 5. REQUESTED LINK DUTIES 6. REQUESTED NETSPEED 7. REQUESTED NET OPERATIONS MODE 8. REQUESTED DATACOMMS (HF OR UHF) 9. REQUESTED VOICECOORDCOMMS (HF OR UHF) 10. REQUESTED TRACKBLOCK SIZE
	LINK 16	1. L16 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGN 5. REQUESTED LINK DUTIES 6. REQUESTED REF POINT/GRID ORIGIN 7. REQUESTED NETWORK TO BE USED 8. REQUESTED CRYPTO TO BE USED
	LINK 22	1. L22 REQUESTED YES/NO 2. PERIOD FOR WHICH UNITS REQUEST LINK OPERATIONS 3. NAVAL UNITS THAT WILL EXECUTE LINK OPERATIONS 4. NAVAL UNITS CALL SIGN 5. REQUESTED LINK DUTIES
F	**SPECINFO**	

ANNEX B TO
ATP-3.3.3.1

ANNEX B - LEXICON

1. This document predominantly uses those terms and descriptions defined in NATO Capstone and Keystone Doctrine. However, there are some subjects for which ATP-3.3.3.1 is the source document and as such, uses some terminology deriving from AAP-06.

2. The following generic terms are used in addition to those detailed in AJP-3.3.3 (or replicated from AJP 3.3.3 if custodian decides this is the most appropriate course of action):

a. **Air-Maritime coordination** (AMC**)** is referred to in the parent document AJP-3.3.3 as the cooperative nature of missions employing Allied non-organic air Allied Air Command (AIRCOM) assets and organic[38] maritime air (Allied Maritime Command (MARCOM)) as mutually supporting elements. However, AMC is not bounded solely to aircraft and could equally include other types of maritime platforms or air assets such as Control and Reporting Centres (CRC). In order to take this into account, in this version of ATP-3.3.3.1 AMC is defined as the cooperative air and maritime activity in support of either joint, air or maritime objectives. Some NATO members are exploiting nationally the corporative nature of air and maritime assets and are brigading this work under Air Maritime Integration (AMI). Although AMI will be defined differently by different nations, in essence it's the combination of actions and processes that enable a shared understanding of air and maritime TTPs, capabilities and limitations in order to increase operational effectiveness. Air-Maritime Coordination should not be confused with Air Coordination (AC), with AC being the prevention of air interference between all friendly naval surface units, all air units and their weapon systems. (AC is discussed in detail in Chapter 5.)

b. **Maritime air** assets refers to all land or sea based, fixed-wing or rotary-wing, manned or unmanned air assets that ordinarily support maritime forces and operations but may be used to support other components.

c. The **Commander Joint Force Air Component (COM JFAC)** is normally the commander with the preponderance of air assets and the capability to plan, task and control joint air operations. The COM JFAC plans, integrates, allocates, controls and tasks joint air operations based on the JFC's guidance and objectives, in accordance with the air

[38] In this context, organic assets are those that originate from within a MaritimeTask Group.

apportionment decision and the authority, command relationships and responsibilities laid down by the JFC. For most operations this will be either the static HQ AIRCOM of the NATO Command Structure (NCS) or a JFAC established by COM AIRCOM specifically for an operation.

d. The **Maritime Component Commander (MCC)** is the component responsible for the maritime aspects of the JFC's mission. The MCC coordinates operations with other components, ensures unity of effort, and establishes liaison accordingly. The MCC will ensure that land and sea-based maritime air assets are integrated into JFC's operations. The MCC staff can be either the static HQ MARCOM of the NCS or a maritime component designated by SACEUR for a specific operation (land based or embarked).

e. An **Air operations centre (AOC)** is an establishment within the JFAC organization with responsibilities, among others, to plan, coordinate and direct air component operations. For joint operations, an AOC can be established as part of the JFAC at the static HQ AIRCOM, at one of the Combined Air Operations Centres (CAOC) of the NCS or forward deployed as a small element of the JFAC, as determined by the operational requirements.

f. A **Maritime air operations centre (MAOC)** is the planning and execution element for maritime air operations. It is subordinate to the MCC and can task organic air assets in direct support of the MCC. The MAOC is responsible for providing the ATO inputs to the JFAC battle staff (Combat Plans Division) and to plan, coordinate, execute, monitor, and assess the maritime air portion of maritime operations. Depending on circumstance, the MAOC may be responsible to plan, task and control the joint air operations and to produce the ATO. A MAOC can be established within the static MARCOM HQ, within an existing national NATO Force Structure organization ashore or with the task force afloat, as determined by operational requirements.

g. An **Air Operations Coordination Centre (Maritime) (AOCC(M))** provides an air entity, functionally subordinate to the JFAC, collocated with and an integral part of a maritime task force. The AOCC(M) provides air expertise and integrates the liaison and coordination functions relating to air operations, including, but not limited to APCMO, coordination of air defense assets such as mobile integrated air defense units, coordinated air space procedures, and airspace control. The AOCC(M) should be established and manned at the request of the MCC when required for JFAC/JFMCC air asset integration. The AOCC(M) is an air entity that, when established during operations and exercises, is functionally subordinate to a MAOC or JFAC HQ and located within naval formations.

h. An **Air liaison element (ALE)** is an air entity staff under the command of COM JFAC located within the JFMCC. The ALE provides the means for effective component-to-component liaison and is the primary conduit for information flow between the component commands.

i. A **Maritime liaison element (MLE)** staff serves as both the MCC's primary representative to the JFAC and the maritime counterpart of the JFAC battle staff. The overall role of the MLE is to integrate the maritime plan with that of the JFAC, thereby ensuring an effective and efficient joint execution of the JFC's campaign plan.

ACRONYMS AND ABBREVIATIONS

AAR	Air-to-Air Refuelling
AAW	Anti-Air Warfare
AAWA	Anti-Air Warfare Area
AAWC	Anti-Air Warfare Commander
ABCC/ABM	Airborne C2/Battlespace Management
AC	Air Coordinator
ACA	Airspace Control authority
ACC	Air Component Command
ACCS	Air Command and Control System
ACM	Airspace Control Means
ACO	Airspace Control Order
ACP	Airspace Control Plan
ACS	Airspace Control System
ACU	Aircraft Control Unit
AD	Air Defense
ADA	Air Defense Area
ADC	Air Defense Commander
ADU	Air Defense Unit
ADIZ	Air Defense Identification Zone
ADP	Air Defense Plan
AE	Aeromedical Evacuation
AEW	Airborne Early Warning
AI	Air Interdiction
AIRSUPREQ	Air Support Request
ALE	Air Liaison Element
AM	Aerial Mining
AMC	Air Maritime Coordination
AMCP	Air Maritime Coordination Procedures
AMD	Air and Missile Defense
AMDC	Air and Missile Defense Commander
AMI	Air Maritime Integration
AOCC(M)	Air Operations Coordination Centre (Maritime)
AOC	Air Operations Centre

AOD	Air Operations Directive
AOOAOPG	Area of Operations Air operations planning group
AOR	Area Of Responsibility
AP	Air Policing
APCLO	Air Power Contribution to Counter Land Operations
APCMO	Air Power Contribution to Counter Maritime Operations
APZ	Asset Protection Zone
AQ	Area Operations
AREC	Air Resource Element Coordinator
AS	Air Support
ASA	Airspace Surveillance Area
ASACS	Air Surveillance And Control System
ASC	Airspace Control
ASR	Air Support Request
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
AT	Air Transport
ATM	Air Tasking Message
ATO	Air Tasking Order
AUTOCAT	Automatic Radio Relay
AWACS	Airborne Early Warning And Control System
BLOS	Beyond Line Of Sight
BMD	Ballistic Missile Defense
C2	Command and Control
C3	Command, Control and Communications
CA	Counter Air
CADA	Coordinated Air Defense Area
CAOC	Combined Air Operations Centre
CAP	Combat Air Patrol
CAS	Close Air Support
CASP	Coordinated Air Sea Procedures
CASPCAT	CASP Category
CASPCATREP	CASP Category Report
CASPCONSTAT	CASP Control Status
CATF	Combined Amphibious Task Force
CCATF	Commander Combined Amphibious Task Force
CIEA	Classification, Identification and Engagement Area
CIS	Communications and Information System
CL	Coordination Level
CJTF	Combined Joint Task Force
CMAI	Consolidated Maritime Air Input
COA	Course of Action
COM JFAC	Commander Joint Force Air Component
COZ	Crossover Zone

CPD	Combat Plans Division
CSG	Carrier Strike Group
CRC	Control and Reporting Centre
CTL	Collection Tasking List
CV	Aircraft Carrier
CWC	Composite Warfare Commander
D&G	Direction and Guidance
DCA	Defensive Counter Air
DIMS	Daily Intention Message
DS	Direct Support
ECM	Electronic Countermeasures
EMCON	Emission Control
ESM	Electronic Warfare Support Measures
EW	Electronic Warfare
EWC	Electronic Warfare Coordinator
FACA	Force Air Coordination Area
FAC(A)	Forward Air Controller (Air)
FADIZ	Force Air Defense Identification Zone
FAOR	Fighter Area of Responsibility
FDA	Force Defense Area
FEZ	Fighter Engagement Zone
FL	Flight Level
FTC-A	Force Track Coordinator-Air
FW	Fixed Wing
GRU	Grid Reference Unit
HEC	Helicopter Element Coordinator
HVU	High Value Unit
ICAO	International Civil Aviation Organization
ID	Target Identification
IDCRIT	Identification Criteria
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Condition
ISP	Identification Safety Point
ISR	Identification Safety Range
ISR	Intelligence Surveillance Reconnaissance
JACC	Joint Airspace Coordination Centre
JAAWSC	Joint Anti-Air Warfare Shore Coordination
JCO	Joint Coordination Order
JEZ	Joint Engagement Zone

JFAC	Joint Force Air Component
JFC	Joint Force Command
JFMCC	Joint Force Maritime Component Command
JISR	Joint Intelligence, Surveillance and Reconnaissance
JOA	Joint Operations Area
JPCAL	Joint Prioritized Critical Assets List
JPR	Joint Personnel Recovery
JPDAL	Joint Prioritized Defended Assets List
JPTL	Joint Prioritized Target List
JREAP	Joint Range Extension Protocol
JTAC	Joint Terminal Attack Controller
LACA	Local Air Coordination Area
LAAWC	Local Anti-Air Warfare Coordinator
LO	Liaison Officer
LR	Long Range
MACA	Maritime Air Control Authority
MAOC	Maritime Air Operation Centre
MAOP	Master Air Operation Plan
MAR Net	Maritime Air Request and Liaison Net
MCC	Maritime Component Commander
MCM	Mine Counter Measures
MEZ	Missile Engagement Zone
MLE	Maritime Liaison Element
MOPG	Maritime Operational Planning Group
MPA	Maritime Patrol Aircraft
MPH	Maritime Patrol Helicopter
MR	Medium Range
MRO	Military Response Options
MSL	Mean Sea Level
MTF	Message Text Format
MUTINT	Mutual Interference
NAEW	NATO Airborne Early Warning
NATINAMDS	NATO Integrated Air and Missile Defense System
NCS	NATO Command Structure
NCS	Net Control Station
NIAMD	NATO Integrated Air and Missile Defense
OCA	Offensive Counter Air
OPCON	Operational Control
OPP	Operational Planning Process
OPTASK	Operational Tasking
OTC	Officer in Tactical Command

PIM	Position and Intended Movement
PNT	Position Navigation and Timing
PWC	Principle Warfare Commander
RAP	Recognized Air Picture
RESALLOC	Air Resources Allocation
ROE	Rules of Engagement
RW	Rotary Wing
SAACA	Sub-Area Airspace Control Authority
SAFES	Safety Sector
SAM	Surface-to-Air Missile
SBAD	Surface Based Air Defense
SCC	Sea Combat Commander
SCZ	Ship Control Zone
SDP	Standing Defense Plan
SEAD	Suppression of Enemy Air Defense
SJO	Small Joint Operation
SOF	Special Operations Forces
SPINS	Special Instructions
SPZ	Self-Protection Zone
SSB	Single Sideband
SSSB	Ship-Shore-Ship Buffer
STW	Strike Warfare
TACAN	Tactical Air Navigation
TACOM	Tactical Command
TACON	Tactical Control
(T)BMD	Theatre Ballistic Missile Defense
TBMF	Tactical Battle Management Functions
TDC	Track Data Coordinator
TDL	Tactical Data Link
TEM	Target Engagement Message
TF	Task Force
TG	Task Group
TLAM	Tomahawk Land Attack Missile
TSN	Track Supervision Network
TTP	Tactics Techniques and Procedures
UAS	Unmanned Aircraft Systems
UNCLOS	United Nations Convention on the Law of the Sea
USB	Upper Sideband
VA	Vital Area
WCO	Weapon Control Order

WCS	Weapon Control Status
WEA	Weapons Effects Analysis
WEZ	Weapon Engagement Zone

ANNEX C - RELATED DOCUMENTS

a. Allied Administrative Publication (AAP-6), NATO Glossary of Terms and Definitions (English and French)

b. AAP-15, NATO Glossary of Abbreviations Used in NATO Documents and Publications

c. Allied Joint Publication (AJP-3.1), Allied Joint Maritime Operations

d. AJP-3.3, Allied Joint Doctrine for Air and Space Operations

e. AJP-3.6, Allied Joint Electronic Warfare Doctrine

f. APP-1, Allied Maritime Voice Reporting Procedures

g. APP-7, Joint Brevity Words Publication

h. APP-11, NATO Message Catalogue

i. ATP-1 Vol I, Allied Maritime Tactical Instructions and Procedures

j. ATP-6 Vol I, Naval Mine Warfare Principles

k. ATP-6 Vol II, Naval Mine Countermeasures Operations, Planning and Evaluation

l. ATP-8 Vol I, Doctrine for Amphibious Operations

m. ATP-10, Search and Rescue

n. ATP-24 Vol I, Naval Mine Counter-measures Tactics and Execution

o. ATP-24 Vol II, Naval Mining and Minelaying – Planning and Evaluation, Tactics and Execution

p. ATP-28, Allied Anti-Submarine Warfare Manual

q. ATP-29, NATO Maritime Equipment Capabilities and Data

r. ATP-31, NATO Above Water Warfare Manual

s. AJP-3.3.1, Allied Joint Doctrine for Counter-Air Operations

t. AJP-3.3.5, Allied Joint Doctrine for Airspace Control

u. MC 389, MC Directive for the Military Implementation of the Alliance's CJTF Concept

v. AIRCOM Manual 80-6 Tactical Employment of Air Power

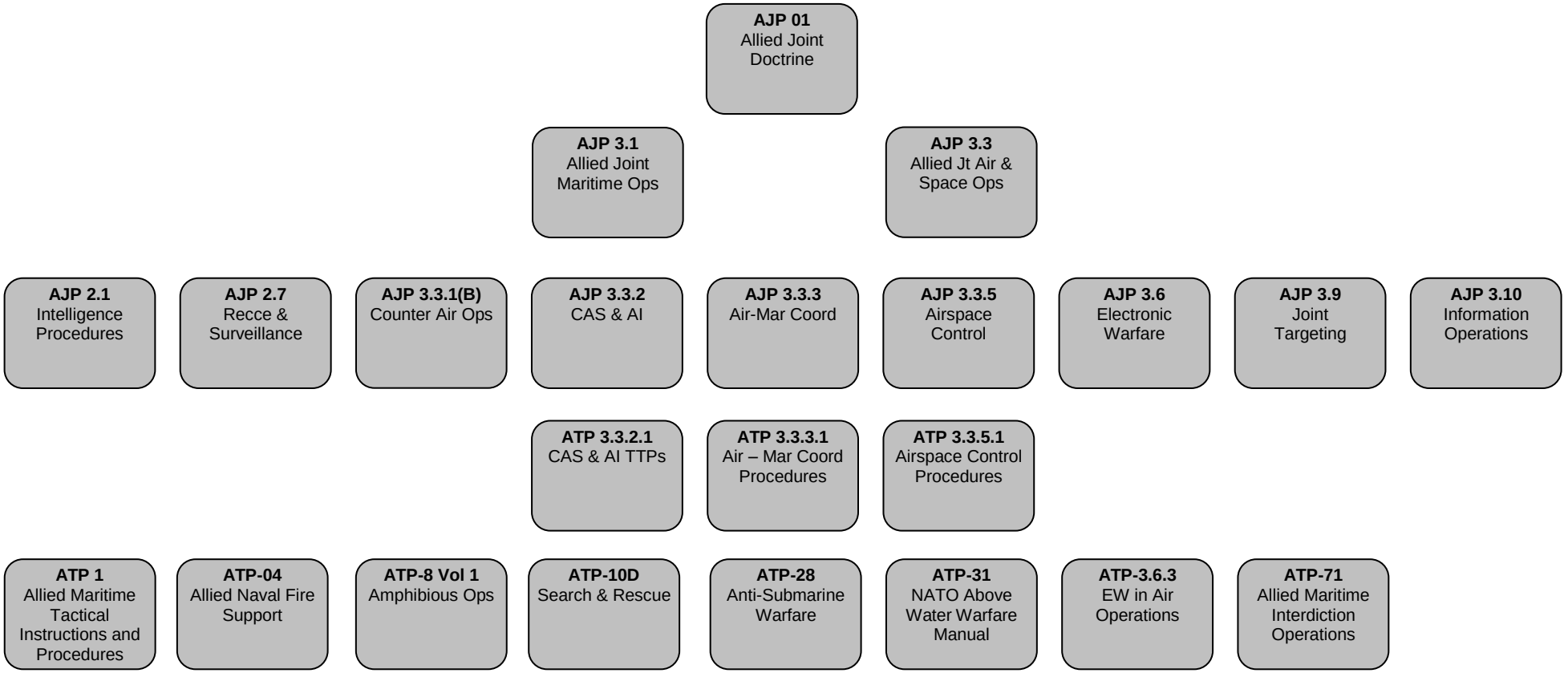
w. ACP160 (E) IFF Operational Procedures

x. ATP-3.6.3, EW in Air Operations

y. ATDLP-7.33 Multi-Link Standard Operating Procedures for Tactical Data Systems Employing Link 11, Link 11B, Link 16, IJMS, Link 22 and JREAP'

ANNEX C TO
ATP-3.3.3.1

ALLIED DOCTRINE PUBLICATION RELATED TO AIR-MARITIME COORDINATION



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