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OCTOBER 2021



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MULTINATIONAL TACTICAL PUBLICATION

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PUBLICATION NOTICE

1. MTP-01(H)(1), Volume I, MULTINATIONAL MARITIME TACTICAL INSTRUCTIONS AND PROCEDURES, is effective upon receipt and supersedes MTP-01(G)(1), Volume I.

2. Summary.

a. Chapter 1:

- (1) Updates sector antisubmarine warfare commander definition in article 1205.
- (2) Includes the adoption of the information warfare concept throughout.
- (3) Adds new information warfare operations paragraph to article 1300.

b. Chapter 2:

- (1) Updates Figures 2-1, 2-2, 2-3, and 2-4.
- (2) Deletes article 2140, Operation Awkward.
- (3) Adds Force Marshaller to Table 2-3.
- (4) Adds Table 2-4 to include strike warfare information.
- (5) Adds officer's in tactical command responsibilities and functions to Tables 2-4 and 2-7.
- (6) Incorporates strike warfare commander in the composite warfare commander construct.

c. Chapters 4 through 15 additions, deletions, and updates throughout.

d. Changes definitions in Chapter 15 to align with ATP-08, Volume I, Doctrine for Amphibious Operations.

e. Chapter 20: Adds new Chapter 20, Maritime Information Warfare.

f. Editorial changes throughout.

g. Updates to index and glossary.

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12 October 2021

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Major General, GRC (A)
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GRC	Para 18011/Page18-7: Hellenic Navy will implement IPROMS (Internal Protection Measures) of Chapter 18 (Maritime Force Protection) provided that they comply with national regulations.
USA	The United States does not adhere to the concept of Integrated Operations with respect to the employment of submarines in Coordinated Operations. This submarine operations method is not employed when national or allied submarines work with our Task Groups.

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PREFACE

1. MTP-01, Volume I, Multinational Maritime Tactical Instructions and Procedures, contains tactical principles, procedures, and instructions evolved as a result of experience and exercises to implement operations based on the philosophy supporting the various forms of maritime warfare.

NOT RELEASABLE

Definitions necessary to the understanding of this book will be found in the glossary.

NOT RELEASABLE

2. The procedures for each type of warfare are explained in separate comprehensive chapters. While the construction of the book necessitates that subjects are dealt with separately, it is of the utmost importance to understand that there is interaction between tactical procedures which are intended to counter different types of threat.

3. It is unrealistic to assume that a situation will ever exist in which a force may safely prepare to face a single threat in isolation. It is vital that tactical thought is shaped accordingly, that due account is taken of the need for the coordination of all sensors and weapons to meet the most urgent situation within the shortest possible reaction time, and thus to face any threat with the most effective counter.

PURPOSE

1. The purpose of MTP-01 is to provide doctrine, tactics, instructions, and procedures governing the command, control, and manoeuvring of all maritime units. This publication serves as the cornerstone upon which the Allied Maritime Tactical Library is built. As such, this publication has precedence over other maritime tactical publications should ambiguity or conflict arise.

2. MTP-01 is divided into two volumes. The specific purpose of each volume is as follows:

a. Volume I—Multinational Maritime Tactical Instructions and Procedures, provides doctrine, tactics, instructions, and procedures for the tactical command, control, and manoeuvring of all maritime units. This volume also provides instructions related to the employment of forces in selected aspects of specialized warfare and, in particular, to the safe handling of units operating in close company.

b. Volume II—Multinational Maritime Tactical Signal and Maneuvering Book, provides manoeuvring, standard operational and administrative signals primarily for use between naval ships, and basic manoeuvring instructions.

SCOPE

1. The doctrine and tactics contained in MTP-01 cover all aspects of the command and control of maritime forces in peace and war. The publication provides the instructions and procedures required by a commander to issue orders to fulfil his specified responsibilities and to enable subordinates to understand and comply with these orders. It also gives details of specific duties associated with the execution of tactical tasks.

2. The scope of the individual volumes of MTP-01 is as follows:
- a. Volume I—Contains the doctrine, tactics, instructions, and procedures related to the tactical employment of forces in specialized forms of warfare, and to the safe and effective manoeuvring of maritime units at sea. Volume I is divided into six parts:
 - (1) Part I—General—contains the principal mission, command, and force organization and readiness information required for the effective conduct of maritime operations.
 - (2) Part II—Communications/Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)—contains doctrine, tactics, instructions, and procedures related to the effective conduct of weapon employment and force coordination.
 - (3) Part III—Above Water Warfare—contains doctrine, tactics, instructions, and procedures related to the effective conduct of anti-air warfare, antisurface warfare, and interaction with merchant shipping and safety of navigation management.
 - (4) Part IV—Underwater Warfare—contains doctrine, tactics, instructions, and procedures related to the effective conduct of antisubmarine warfare and naval mine warfare.
 - (5) Part V—Strike/Amphibious Warfare—contains doctrine, tactics, instructions, and procedures related to the effective conduct of strike warfare and amphibious operations.
 - (6) Part VI—Other—contains doctrine, tactics, instructions, and procedures related to the effective conduct of maritime logistics and replenishment at sea, chemical, biological, radiological and nuclear (CBRN), force protection and unmanned systems.
 - b. Contains signals covering all instructions and procedures provided in Volume I.

NOTE

NONMETRIC VALUES ARE ACCURATE. METRIC VALUES ARE ROUNDED OFF TO THE NEAREST METRE. IT IS THEREFORE RECOMMENDED THAT NATIONS CHECK CONVERTED FIGURES FOR CORRECTNESS AND REPORT ANY ERRORS TO THEIR APPROPRIATE NATIONAL AUTHORITY.

CONVENTIONS USED IN THIS PUBLICATION

CHANGE SYMBOLS

Revised text in changes is indicated by a black vertical line in either margin of the page, like the one printed next to this paragraph. The change symbol indicates added or restated information. A change symbol in the margin adjacent to the chapter number and title indicates a new or completely revised chapter.

WARNINGS, CAUTIONS, AND NOTES

The following definitions apply to warnings, cautions, and notes used in this manual:



WARNING

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT MAY RESULT IN INJURY OR DEATH IF NOT CAREFULLY OBSERVED OR FOLLOWED.



CAUTION

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT MAY RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY OBSERVED OR FOLLOWED.

NOTE

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT REQUIRES EMPHASIS.

WORDING

Word usage and intended meaning throughout this publication is as follows:

“Shall” indicates the application of a procedure is mandatory.

“Should” indicates the application of a procedure is recommended.

“May” and “need not” indicates the application of a procedure is optional.

“Will” indicates future time. It never indicates any degree of requirement for application of a procedure.

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PART I General

Chapter 1—Missions, Organization, and
Activities

Chapter 2—Command

Chapter 3—Force Organization/Readiness

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CHAPTER 1 Missions, Organization, and Activities

SECTION I—MISSIONS

1101 Collective Defence at Sea

Collective defence, as embodied in Article 5 of the North Atlantic Treaty, remains of course North Atlantic Treaty Organization's (NATO's) primary goal, and the Alliance's naval assets are an essential part of the broader collective deterrence and defence architecture. Crisis response or limited contingency operations can be a single small-scale, limited-duration operation or a significant part of a major operation of extended duration involving combat. The associated operational and tactical objectives are to protect NATO interests and prevent surprise attack or further conflict. Many of these operations involve a combination of military forces and capabilities in close cooperation with other government agencies, international governmental organizations, and non-governmental organizations. Additionally, a crisis may prompt the requirement for follow-on operations including foreign humanitarian assistance, civil support, non-combatant evacuation operations (NEOs), peace operations, strikes, raids, or recovery operations. Information on international law of the sea related matters, which can be useful to maritime commanders, can be found in AJP-3.1, Allied Joint Doctrine for Maritime Operations.

1102 Maritime Security Operations

NATO also contributes to maritime security through operations aimed at enhancing and enforcing security at sea. NATO has thus taken an increasingly active role in securing maritime flows along vital sea lines of communications (SLOC) and combating illicit activities at sea, thereby moving into the area of maritime law enforcement.

SECTION II—ORGANIZATION

1201 Maritime Components

Since its first major peace-support operation in the Balkans, the tempo and range of NATO operations have increased significantly. NATO forces have been engaged in missions that cover the full spectrum of operations including crisis management and peacekeeping to counter-piracy and humanitarian relief. NATO's robust maritime capability has made significant contributions to Alliance and partner nations by providing maritime security, disaster relief, counter-piracy and other critical operations from the sea. These highly flexible and scalable forces provide a broad spectrum of strategic, operational and tactical options to the joint force commander (JFC) in support of joint and combined civil-military operations.

- a. The Alliance's maritime forces must have a clearly defined command and control (C2) structure in order to be effective and NATO's integrated military command structure. NATO has a single Allied Maritime Command (MARCOM) located in Northwood, United Kingdom. MARCOM reports directly to Allied Command Operations (ACO).
- b. The Alliance also maintains multinational integrated maritime forces, which make up the core of NATO's maritime capability and are permanently available to provide maritime support to Alliance operations. These forces include the two standing NATO maritime groups and the two standing NATO mine countermeasures maritime groups. See Chapter 2 for more detailed information regarding command and control.

1202 Task, Type, and Warfare Organizations

There are three systems, all in force at the same time, for organizing the operational units allocated to various commands.

- a. **Task Organization.** The organization of forces for operational purpose is to provide the necessary flexibility for meeting changing operational requirements while retaining a clear indication of the chain of command. Whenever a task organization is created, the commander shall be named in the order creating it.
- b. **Type Organization.** The organization of units normally of the same type into fleets/flotillas/groups/squadrons, divisions, and subdivisions together with assigned flagships, tenders and aircraft. Type organization is mainly for national administration and logistic purposes.
- c. **Warfare Organization.** The functional organization of forces assigned to conduct tasks within a specific area of maritime warfare: amphibious warfare, anti-air (AAW), antisubmarine warfare (ASW), antisurface warfare (ASUW), information warfare (IW), mine warfare (MW), and strike warfare (STW). Maritime operations are often conducted in dangerous environments and forces must be adequately trained, equipped and familiar with the legal framework and rules of engagement (ROE) for weapons employment as defined by international law regarding armed forces engagement. Chapter 5 provides additional information on ROE and weapons employment.

1203 Task Organization—Task Force Numbers

A fleet commander is allocated a block of whole numbers which he assigns as task force numbers in accordance with (IAW) his needs. Fleet organization into task forces is illustrated in Figure 1-1.

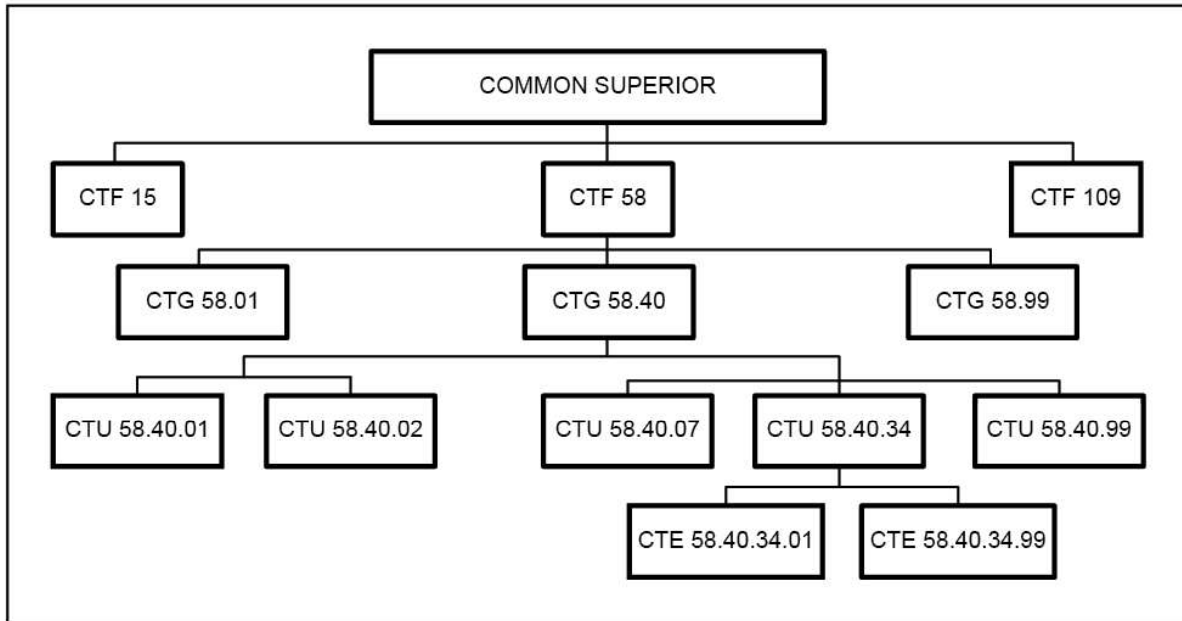


Figure 1-1. Example of Task Organization

1204 Task Organization—Task Designators

A fleet commander allocates units to specific task forces, but leaves to the task force commander and his subordinate commanders the subdivision of the task force (TF) into task groups (TG), task units (TU), and task elements (TE) which comprise his task organization. The system of task designation employed is described below and is illustrated in Figure 1-1.

a. Commander Task Groups (CTG). A task force may be divided into as many as 99 task groups, designated by adding .01 through .99 to the task force number. Commander Task Force (CTF) 58 (the example in Figure 1-1) may comprise CTG 58.01, 58.40, 58.64, and so on, up to and including 58.99. (For simplicity, Figure 1-1 shows only three task groups.) In the series, 58 designates the task force and .01 through .99 designate the task groups.

b. Commander Task Units (CTU). A task group may be divided into as many as 99 task units, designated by adding .01 through .99 to the task group number. In the example in Figure 1-1, task units formed from CTG 58.40 are 58.40.01, 58.40.02, etc.

c. Commander Task Elements (CTE). Task elements subordinate to task units are only organized when the complexity of the task assigned and the size of the force are such as to require an additional echelon of command for the accomplishment of assigned tasks. Subdivision into task elements should be limited to the minimum required for operations. There may be as many as 99 task elements, designated by adding .01 through .99 to the task unit number. In the example in Figure 1-1, task elements formed from CTU 58.40.34 are 58.40.34.01 and 58.40.34.99.

d. Restriction on Subdivision. Subdivision should be limited to the minimum required. A task organization commander may subdivide his units into lower ordered components only.

1205 Changes in Task Organization Assignments

It may sometimes be necessary to assign part or all of one task organization to another temporarily or permanently. Such a change is accomplished by change of operational control (CHOP) when the operational control (OPCON) authority changes. The communications aspect of a change of task designator should be considered. An assignment to another task organization will be one of the following:

a. Short-term Duration. In short-term duration, it will normally be desirable for the force being transferred to retain its existing task organization designation.

b. Longer-term Duration. Where the assignment is of a longer or permanent duration, it is preferable for the assigned force to adopt a designator derived from that component of the task organization which it has joined.

c. Sector Antisubmarine Warfare Commander (SASUWC). Designated by the ASW commander or officer in tactical command (OTC) to command a clearly defined sector within an ASW area of operations which has been split up into smaller subareas. The SASUWC should be suitably qualified and experienced with sufficient connectivity to enable them to exercise command within the allocated sector. A separate ASW coordination and reporting secure net should be established for each sector for supporting units to CHOP in and out. Significant responsibility may be delegated down from the ASW commander and they may amend or amplify the ASW standard operating procedures as necessary. The SASUWC is the lowest responsible command to whom ASW weapons employment as well as establishment and coordination of submarine-generated search areas (SGSAs) within task group areas may be delegated. *Related term(s) antisubmarine warfare, waterspace management.*

SECTION III—ACTIVITIES

1300 General

In a context where threats are increasingly global in nature, the ability to deploy military forces in distant theatres has gained greater prominence. As part of its maritime activities, NATO has put a strong emphasis on developing capabilities that can respond quickly and be deployed wherever necessary. As a result, the demand for maritime forces will continue to grow as NATO engages in more activities to defend against global threats and provide critical support to allies and partners around the world. NATO maritime activities generally fall into the following three areas:

a. Above Water Warfare. Above water warfare is conducted to establish dominance and sea control in the above water environment. See Part III for more detail.

b. Undersea Warfare (USW). USW operations are conducted to establish dominance in the underwater environment, which permits friendly forces to accomplish the full range of potential missions and denies an opposing force the effective use of underwater systems and weapons. It includes offensive and defensive submarine, antisubmarine, and mine warfare operations. Antisubmarine warfare (ASW) operations are conducted with the intention of denying the enemy the effective use of submarines. ASW is a subset of USW. See Part IV for more detail.

c. Information Warfare (IW). Information warfare operations are conducted to enable commanders to fight in an increasingly complex information environment and considers the application of IW across the full spectrum of operations: war fighting, maritime security and defence engagement. Information superiority is the competitive advantage gained through the continuous, directed and adaptive employment of relevant information principles, capabilities and behaviours. It is critical to mission success and treats information as a centre of gravity which can be defended and attacked. It enables the commander to better understand the situation and make decisions quicker and better than their adversary, thus maintaining the tactical initiative. The commander can then shape the information environment to their advantage and to the disadvantage of their adversary. This can increase the commander's freedom of action and manoeuvre whilst limiting the adversaries.

1301 Military Activities From the Sea

a. Maritime Strike Warfare. Maritime strike operations are conducted to accomplish a number of operational objectives including protecting sea lines of communication, denying the enemy commercial and military use of the seas, protecting naval logistic support to deployed battle forces, and establishing maritime power projection. Critical elements of maritime strike warfare include surveillance coordination and surface warfare (SUW), maritime air support (MAS), air interdiction of maritime targets (AIMT), maritime strike coordination and reconnaissance (SCAR), maritime interdiction operations (MIO) support, combat search and rescue (CSAR), and overland strike. See Chapter 14 for more detail.

b. Peacekeeping Operations. Multinational peacekeeping operations are required to maintain peace and security, facilitate free and equitable political processes, protect civilians, assist in the disarmament and demobilization of combatants, protect human rights and assist in restoring the rule of law. NATO maritime forces offer flexible and scalable set of capabilities to conduct and support a wide range of peacekeeping activities. Maritime support to peacekeeping operations will continue to be one of the most significant and challenging activities facing the Alliance for years to come.

c. Non-combatant Evacuation Operations. NEOs are conducted to assist in evacuating noncombatants, nonessential military personnel, selected host-nation citizens, and third country nationals whose lives are in danger from violent activities or natural disaster. NEOs typically involve insertion of a military force, temporary occupation of an objective, and a planned withdrawal upon completion of the mission. NEOs may be conducted in permissive, uncertain and hostile environments. See Chapter 15 for more detail.

d. Counter-piracy Operations. Growing piracy in the maritime domain has negatively affected international commerce, undermined international humanitarian efforts and impacted the safety of navigation in many of the world's most travelled free-trade routes. NATO and partner maritime forces have been helping to deter and disrupt pirate attacks in the region since 2008, protecting vessels and helping to increase the general level of security. NATO's counter-piracy activities are often carried out in coordination with other countries and organizations, such as the European Union and are in full compliance with relevant United Nations (UN) Security Council Resolutions. Not only do these activities provide maritime security in the region, but they also offer regional countries training to develop their own counter-piracy capacities.

e. Maritime Counterterrorism. Under Operation ACTIVE ENDEAVOUR, NATO ships are patrolling the Mediterranean and monitoring shipping to help deter, defend, disrupt and protect against terrorist activity. As the Alliance has refined its counterterrorism role in the intervening years, the tactical and operational experience that NATO has accrued has given the Alliance unparalleled expertise in the deterrence of maritime terrorist activity in the maritime domain. This expertise is relevant to wider international efforts to combat terrorism and, in particular, the proliferation and smuggling of weapons of mass destruction, as well as enhanced cooperation with non-NATO countries and civilian agencies.

f. Antisubmarine Warfare. The submarine still poses a significant threat in the maritime domain, so ASW remains a key to obtaining and maintaining sea control. The ability to neutralize a submarine threat is a critical capability and high priority warfare area for Allied maritime forces. Previously, the emphasis had been largely on deep water operation but this has now switched to littoral operation where ASW is generally more difficult. Like other forms of maritime warfare, successful antisubmarine warfare depends on a mix of sensor and weapon technology, training, and experience. To destroy submarines both the torpedo and mine are used, launched from air, surface and underwater platforms. ASW also involves protecting friendly ships. See Chapter 12 for more detail.

g. Amphibious Operations. Amphibious operations are analogous with a number of other maritime activities including power projection, deterrence, forcible entry from the sea and non-combatant evacuation operations. Amphibious operations involve launching forces and equipment from the sea by a naval and landing force (LF) embarked in ships or craft. Types of amphibious operations include assault, raid, demonstration, withdrawal and amphibious support to other operations. Amphibious forces are highly flexible, scalable and can be tailored to meet a wide range of requirements with the ability to operate in both permissive to hostile environments. See Chapter 15 for more detail.

h. Naval Mine Warfare. Waterborne mines constitute a significant threat to the Alliance and have been employed as offensive or defensive weapons in rivers, lakes, estuaries, seas, and strategic choke-points. Offensive mines are placed in enemy waters, outside harbours and across important shipping routes with the aim of sinking both merchant and military vessels. Defensive minefields safeguard key stretches of coast from enemy ships and submarines, forcing them into more easily defended areas, or keeping them away from sensitive ones. NATO's mine countermeasure capabilities are critical to the collective defence mission and keeping international sea lines of communications, free and open. See ATP-08, Vol. I, Doctrine for Amphibious Operations and Chapter 13 for more detail.

i. Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE). Chemical, biological, radiological, nuclear, and explosive involve taking protective measures in situations in which any of these five hazards are present. To account for high-yield explosive devices, the term CBRNE (E for explosives) is used. CBRN defence consists of CBRN passive protection, contamination avoidance, and CBRN mitigation. Current threats include the proliferation of weapons of mass destruction (WMDs) and their means of delivery. Rapid advances in biological science and technology also continue to increase the bioterrorism threat against NATO forces and its populations. The combined joint CBRN defence task force is one of NATO's key defenses against CBRN events, but also supporting the prevention of WMD proliferation. The maritime environment poses unique challenges for CBRNE defence and requires special training and capabilities to be effective. See Chapter 18 for more detail.

j. Maritime Logistics. NATO's maritime strategy identified the need for greater flexibility in Alliance logistics and on the mobile and multinational character of NATO's forces. Additionally, the increased need for a closer cooperation with non-NATO nations and the requirement to logistically support peacetime support operations have a substantial influence on the development of maritime logistics and replenishment at sea capability. Naval units at sea must consider theater infrastructure and lines of communications including facilities for shore-based support, maritime prepositioning and logistics over the shore operations. Forces afloat must also be concerned with sustainability and the ability to replenish at sea for long transits and blue water operations. See Chapter 16 for more detail.

k. Constabulary Missions. The basic goals of constabulary missions are to defend national sovereignty and when sanctioned to enforce international laws and treaties. When conducted by maritime forces, they require similar military competencies and skills as those needed in other warfare areas, but may also require additional support from international and host nation national authorities.

1302 Maritime Assistance

As populations grow and competition for resources increases, nations have become concerned with preserving the natural environment, safety at sea, and the impact of natural or industrial disaster. Maritime forces are uniquely equipped and structured to provide a rapid and capable first response when such missions arise. Although these missions may be conducted in benign environment, they pose significant challenges and maritime forces must be prepared to respond in these situations. The use of weapons is *a priori* not scheduled, except in force or personal protection. Additionally, maritime assistance operations include:

a. Search and Rescue. Preventing the loss of life and minimizing injury, by rendering assistance to persons in distress in the maritime environment is a high priority for NATO's maritime forces. Naval forces may be tasked to employ search and rescue (SAR) capable aircraft, surface ships, or submarines for search and rescue of personnel in distress on land or at sea. Tasking may include peacetime SAR operations in neutral areas or CSAR to locate and extract personnel from enemy controlled areas during wartime or contingency operations. Effective SAR missions require close coordination between ships, aircraft and associated civil-military assets. Maritime SAR operations include provisions for medical assistance to ships at sea, through the use of military and civilian resources, including cooperating aircraft, vessels and other craft and installations. See ATP-10, Search and Rescue.

b. Humanitarian Assistance/Disaster Response. NATO's maritime forces have robust capabilities and are well-suited for these missions because the expeditionary naval forces can quickly respond when crises arise. Military ships are ideal platforms for providing rapid response with self-contained, multi-mission capabilities; able to operate without reliance on ports and airfields ashore, while bringing the organic medical support, tactical lift, and robust communications needed in the immediate aftermath of a disaster. The expertise in maritime security provides the knowledge and training to operate in some of the most vulnerable littoral regions while providing a stabilizing presence.

Additionally, humanitarian assistance plays a significant role in NATO's theater security cooperation efforts and helps facilitate partner capacity-building, multinational training opportunities and development of key partnerships with multinational partners. Moreover, these events allow maritime forces to operate with non-government organizations and international relief organizations while also providing immensely valuable training for NATO personnel.

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CHAPTER 2 Command

SECTION I—GENERAL

2100 Scope

This section includes definitions for command functions. It is written to specify responsibilities in maritime warfare, to enable commanders to issue orders and instructions to fulfil their responsibilities, and to enable subordinates to understand and comply with the orders and instructions they receive. The duties to execute tactical tasks are not included in this chapter but are incorporated in the relevant chapters.

Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures which are employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of his mission.

Note. Certain AAP-06 definitions that appear in this chapter are expanded to clarify their meaning within the context of maritime command. However, AAP-06 definitions are unchanged and are shown in italics. Other definitions and terms used may not presently be found in AAP-06.

2101 Authority

- a. Person.** An authority is a person vested with the power to make decisions and issue orders.
- b. Individual Power.** Authority is also the individual power to make decisions and issue related orders imposing those decisions—such power may be limited in scope, time, and location.
- c. Responsibility.** Authority automatically confers the responsibility to carry out tasks and report results to the assigning authority.

2102 Command

The authority vested in a member of the armed forces for the direction, coordination, and control of military forces.

The aim of command is to achieve the maximum operational and/or administrative efficiency.

- a. Command Functions.** Exercising command presupposes the existence of a chain of command and a command and control system. Some functions arising from direction, coordination, or control may be delegated to subordinates. This is normally done in large or widely dispersed forces where decentralized decisionmaking is required. However, a centralized command is the most direct way of allowing a commander to make use of his experience and ability.
- b. Direction.** The process of planning, decisionmaking, establishing priorities, formulating policies, and imposing decisions.
- c. Coordination.** The establishment in operations, according to a changing situation, of an orderly correlation in time and place of planned actions in order to achieve the best overall result. In the maritime environment, the term coordination may include certain specified control functions.
- d. Control.** *The authority exercised by a commander over part of the activities of subordinate organizations, or other organizations not normally under his command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated.*

2103 Delegation of Authority

An action by which a commander assigns a part of his authority commensurate with the assigned task to a subordinate commander. While ultimate responsibility cannot be relinquished, delegation of authority carries with it the imposition of a measure of responsibility. The extent of the authority delegated must be clearly stated.

Delegation to a subordinate commander creates a new responsibility for a specific task. Subordinates should be kept aware of the policies and intentions of their superiors, so that they can act accordingly when faced with unexpected circumstances. A subordinate should never await instructions beyond the time for action.

2104 Chain of Command

The succession of commanding officers from a superior to a subordinate through which command is exercised.

A chain of command establishes the interdependencies which exist at various levels between the superior and his subordinates. Command functions may be exercised at any one of these levels. The organization (task, type, or warfare) adopted for the forces employed automatically defines the chains of command.

2105 Command System

A command system is formed by a chain of command and includes the means necessary to distribute orders and collect, evaluate, and disseminate information.

2106 Exercising Command

a. General. Successful accomplishment of any mission entails seven phases:

- (1) Appreciation of the situation.
- (2) Selection of the aim.
- (3) Decision on course of action.
- (4) Development of a plan.
- (5) The operation order.
- (6) Execution.
- (7) Evaluation.

b. Appreciation of the Situation and Decision. A mission should have only one aim from which the commander can derive his tasks and purpose. It is essential that all units participating in the mission understand the aim, so that they may act in accordance with the commander's intentions, even when the tactical situation has changed and it is no longer possible to follow the original operation order.

c. Execution and Evaluation. Command and control of different operations vary widely and depend on mission, composition, and disposition of the force. Documentation for the evaluation of these operations may be drawn from many sources, most significant of which is probably the war diary. The primary purpose of the war diary is to provide a cohesive picture of events which have

occurred, so that higher authorities may study the operation in all its aspects and evaluate the results achieved. Additional documents to clarify or link events, such as copies of relevant messages, should be included as necessary.

2107–2109 Spare

2110 Structure for the Command of Maritime Forces

2111 Full Command

The military authority and responsibility of a commander to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national services. Note: The term “command” as used internationally, implies a lesser degree of authority than when it is used in a purely national sense. It follows that no NATO or coalition commander has full command over the forces that are assigned to him. This is because nations, in assigning forces to NATO, assign only operational command (OPCOM) or operational control.

2112 Operational Command

The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control (TACON) the commander deems necessary. It does not of itself include administrative command or logistical responsibility. Operational command may also be used to denote the forces assigned to a commander.

Operational command of maritime forces also includes retention or assignment of tactical command (TACOM).

NATO commanders receiving operational command or operational control of NATO forces will specify the mission(s) and tasking for these forces and delegate command and control authority as required.

2113 Operational Control

The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned; and to retain or assign tactical control of those units. It does not include the authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control.

Operational control of maritime forces also includes retention or assignment of TACOM.

NOTE

OPERATIONAL CONTROL IS SUBORDINATE TO OPERATIONAL COMMAND AND HAS LIMITED AUTHORITY; ITS MOST IMPORTANT LIMITATION IS ITS INABILITY TO ALLOW REASSIGNMENT OF FORCES.

2114 Change of Operational Control

The date and time (Greenwich Mean Time (GMT)) at which the responsibility for operational control of a force or unit passes from one operational control authority to another.

When it is intended that operational control of a force or unit pass from one operational control authority to another, the operation order should state in explicit terms the manner of execution of CHOP. This may be done in terms of time (GMT), position, or boundary crossing. Subject to the emission

control (EMCON) plan, units executing CHOP should report to both operational control authorities and the authority vested with operational command over the force or unit. When a CHOP occurs, task organization commanders should inform the operational control authority of changes in the composition of their forces and major deviations from their normal capabilities.

2115 Tactical Command

The authority delegated to a commander to assign tasks to forces under his command for the accomplishment of the mission assigned by higher authority.

It involves, therefore, the responsibility for the conduct of the tasks pertaining to the mission; that is, issuing detailed orders and ensuring their correct execution. It also involves responsibility for the general safety of assigned units, although ultimate responsibility remains with the commanding officers. Tactical command of units temporarily attached does not include the authority to give them tasks inconsistent with the mission previously allocated to them.

NOTE

**TACTICAL COMMAND OF FORCES ALSO INCLUDES
RETENTION OR ASSIGNMENT OF TACTICAL CONTROL.**

2116 Officer in Tactical Command

The OTC is the senior officer present eligible to assume command, or the officer to whom he has delegated tactical command.

When a task organization is established, the OTC shall be named in the order creating it. If the OTC is unable to exercise command, the next senior officer present in the task organization will assume and retain command until or unless otherwise ordered. When a task organization has not been established and the higher authority has not selected the OTC, the senior officer present eligible to command will act as the OTC.

The OTC will normally be under the operational control of a higher authority (i.e., fleet commander or area commander). That authority will provide direction which specifies the mission, tasking, and forces assigned to the OTC and will also delegate tactical command and control of those forces to the OTC. That authority may designate himself, the task force/group commander, or another command as appropriate, to be OTC of the constituted force(s) or group(s). The OTC must design his command and control organization to accomplish the assigned mission and effectively defend the force. Article 1202 states that exercising command presupposes the existence of a chain of command. Some functions arising from direction, coordination, or control may be delegated to subordinates.

2117 Tactical Control

The detailed and, usually, local direction and control of movements or manoeuvres necessary to accomplish missions or tasks assigned.

This authority is granted by the authority exercising operational command, operational control, or tactical command to a subordinate commander to assume some function concerning direction, coordination, or control of movements, manoeuvres, and actions relative to a specific task. The officer exercising TACON is also responsible for the safety of the units under his control. Tactical control is usually assigned to a subordinate for a limited period of time to conduct a specific mission or task.

NOTE

**TACTICAL CONTROL IS SUBORDINATE TO TACTICAL
COMMAND.**

2118 Command by Veto

In many aspects of maritime warfare, it is necessary to preplan the actions of a force to an assessed threat and to delegate some command functions to a subordinate. Once such functions are delegated, the subordinate is to take the required action without delay, always keeping the OTC informed of the situation. The OTC retains the power to veto any particular action.

2119 Command of Allied Forces

When Allied task forces of units of two or more nations are formed, the commander shall be named in the order creating them. The commanders of national units joining an Allied task force at sea should not displace the designated Allied commander by virtue of their national seniority or date of commission unless specifically so directed by the senior in the chain of Allied command.

2120 Command of Aircraft

The degree of authority exercised by the OTC over aircraft employed in maritime operations is determined by the type of mission and whether the aircraft are shipborne or land based (see Chapter 6).

a. Aircraft Commander. The aircraft commander is responsible for the efficient execution of the assigned mission and for the command and safety of the aircraft throughout its mission. He shall inform his controlling authority if weather conditions or material failure significantly affects his ability to perform his mission. An aircraft commander retains ultimate responsibility for the safety of his own aircraft.

b. Command of a Flight of Aircraft. The senior aircraft commander of a flight of aircraft or the officer designated exercises tactical command of the flight and is responsible for the efficient execution of the assigned mission.

2121–2129 Spare

2130 Command During Replenishment at Sea

The senior commander of the two forces—the commander of the force to be replenished and the replenishment at sea (RAS) force commander—is the OTC. Although the OTC is responsible for the proper execution of the entire replenishment operation, he should consider the recommendations of the other force commander. If the RAS force commander is the OTC, he should generally respect the desires of the commander of the force to be replenished as to position and time of rendezvous and the general direction of movement during the replenishment. If the commander of the force to be replenished is the OTC, he should carefully consider the RAS force commander's recommendation as to replenishment course and speed.

The message text format (MTF) messages provide the standard format for ordering replenishment.

2131 Method of Execution

MTF involves the use of five standard signals, as follows, all of which should be classified at least Restricted.

a. OPSTAT RASREQ. For use by a combatant ship to signal its requirements, either direct to the supplying ship or to the OTC. In either case, the requirements must be submitted in a timely fashion.

b. Operation Task (OPTASK) RAS. For use by the OTC to promulgate the replenishment programme.

c. OPSTAT RAS. For use by supplying ships to provide customer ships with details of rigs and types of stores that can be delivered from respective transfer stations.

d. OPSTAT UNIT. For use by all ships to promulgate details of transfer stations.

e. OPSTAT CARGO. For use by supplying ships to report cargo remaining to the OTC after an RAS operation and on changing OPCON. Details and examples of these RAS signals are provided in APP-11, NATO Message Catalogue. It should be noted that the use of MTF RAS signals requires that transfer stations should be numbered.

2132 OPTASK RAS: The OTC Promulgating the Replenishment Programme

a. Replenishment Programme. When he has received the ships' requirements, the OTC will arrange and promulgate the replenishment sequence. This should arrive in the ships concerned as soon as possible before the RAS operation to enable the supplying ships to prepare their stores and predump as required. The complete replenishment programme will be passed by signal to all ships. The order and stations to be used for replenishment are all contained in the RASDAT set.

b. Preliminary Movements. When the OTC of the combatant force orders his ships to "Replenish," the ships shown in the signal as being first to replenish are to proceed to the supplying ship. Remaining escorts are to join the screen and heavy units are to proceed to their allocated stations in the formation. Unless otherwise ordered by the OTC, replenishments should then proceed as follows:

- (1) Ships replenishing are to conform to the replenishment sequence laid down without further orders.
- (2) Heavy units are to take up the waiting position automatically when the ship ahead reports that she expects to disengage in 15 minutes, and are to replenish when it is clear to do so.
- (3) Escorts are to proceed as described in paragraph 2132a above, if they have been ordered to relieve at the replenishment unit. If they have been ordered to relieve on station, escorts are to proceed to replenish as soon as they have been relieved in their station, without further signal.

2133 OPSTAT UNIT: Supplying Ship Providing Details of Rigs to Customer Ships

On receipt of the OPTASK RAS or when ordered by the OTC, supplying ships are to provide customer ships concerned with the details of rigs and types of stores to be delivered at each transfer station. This shall be done by using the RASDAT set of the OPSTAT UNIT.

2134 OPSTAT CARGO: Supplying Ship Reporting Cargo

On completion of replenishment, each supplying ship is to report to the officer under whose command the support ships have been placed (and to the replenishment force commander for information) the quantities of cargo types remaining. If the OTC of an RAS operation is to be some other officer, the supplying ship is also to report her cargo to the OTC 48 hours before the RAS operation.

2135 Command in Mine Countermeasures

Self-protection mine countermeasures (MCM) are the responsibility of the OTC or commanding officer. Active MCM are the responsibility of the local commander in own waters and of the advance force commander in amphibious operations. For detailed responsibilities, see Chapter 13.

Table 2-1 lists the C2 levels and associated planning responsibilities for naval mine warfare (NMW).

Table 2-1. Planning Responsibilities for Naval Mine Warfare

LEVEL	NATURE OF C2	PLANS, DIRECTIVES, ORDERS TO BE ISSUED
Nation	Full Command	Deployment Plan
North Atlantic Council (NAC)		(See Note 1) a. Request National Military Authorities for Strategic Military Assessment b. Issue NAC Initiating Directive c. Issue NAC Execution Directive d. Approve Strategic Concept of Operations (CONOPS) e. Approve Strategic Operation Plan (OPLAN)
Maritime Component (MC)		(See Note 1) a. Task the Strategic Command for SACEUR Strategic Assessment (SSA) b. Assess SSA c. Develop Military Response Options (MRO) d. Endorse Strategic CONOPS e. Endorse Strategic OPLAN
Supreme Allied Commander Europe (SACEUR)	OPCOM	(See Note 1) a. Develop SSA b. Develop MRO c. Develop Strategic CONOPS d. Develop Strategic OPLAN e. Approve Operational CONOPS f. Approve Operational OPLAN
Operational Commanders (JFCs/MARCOM)	OPCON	(See Note 1) a. Execute the Operational Appreciation of the Strategic Environment b. Develop Operational CONOPS c. Develop Operational OPLAN
<u>Maritime Component Commander (MCC)</u> or CTG Naval mine countermeasures (NMCM) Forces and Naval Minelaying Forces. OTC NM/L Force	TACOM	OPTASK NMW/OPDIR OPTASK NMW/MLTASK (See Notes 2 & 3)
CTU NMCM Forces, e.g., COMSNMCMG1/2; CTU NM/L Force	TACOM/TACON	OPTASK NMW/OPDIR OPTASK NMW/MLTASK (See Note 3)
Notes: 1. Plans, directives and orders to be issued in accordance with (IAW) NATO Crisis Response Planning Phases 1 to 4. 2. Active NMCM are the responsibility of the high readiness force (HRF) commander in the area of operations (AOO) and of commander amphibious task force (CATF) or the advance force commander in the joint operations area (JOA). 3. Self-protective Measures (passive NMCM) are the responsibility of the OTC and commanding officer(s) of individual units or assets.		

2136–2149 Spare**2150 Command in Submarine Operations**

Traditionally, submarine operations have been conducted independent of aircraft and surface ships, and have required a centralized command system. Improvements in submarine communication capabilities along with refocusing of maritime objectives have brought about much closer cooperation and interoperability of submarines and other maritime forces. Shifting of tactical C2 to an OTC for coordinated operations between submarines and surface and/or air forces is highly desirable in many scenarios. Procedures and requirements of the shifting of tactical C2 are contained in ATP-18, Allied Manual of Submarine Operations. The submarine operating authority (SUBOPAUTH) is the commander who has, as a minimum, OPCON of submarines, and has the authority to delegate tactical command or control. The SUBOPAUTH is normally the submarine force commander. When he is the area submarine commander, the SUBOPAUTH is responsible to the area commander.

2151 NOT RELEASABLE

Figure 2-1—NOT RELEASABLE

2152–2159 Spare

2160 Command in Amphibious Warfare

The commander amphibious task force (CATF), upon the commencement of operations, assumes responsibility for the entire force and for the operation, and is vested with the commensurate authority to ensure success of the operation. The specific means through which CATF exercises this authority during an amphibious operation is set forth in ATP-08 and other relevant amphibious warfare publications. For detailed responsibilities in amphibious warfare, which are complex and involve close cooperation between many agencies, a summary has been included in Chapter 15.

2161 Parallel Chains of Command

The interrelation of naval and landing force tasks during the planning for an execution of amphibious operations requires the establishment of parallel chains of command and corresponding commanders at all levels of the amphibious task force organization. The following fundamental considerations govern the application of such a system of parallel command:

- a. Except during the planning phase, CATF, a naval officer, is responsible for the operation and exercises that degree of authority over the entire force necessary to ensure success of the operation.
- b. The amphibious task force and LF commands are on corresponding level of command with regard to their respective components.
- c. Corresponding commanders are established at each subordinate level of both the amphibious task force and LF elements.
- d. Matters of command which affect only the Navy forces are dealt with by CATF through the naval chain of command.
- e. Matters of command which affect only the LFs are dealt with by the commander landing force (CLF) through the LF chain of command.
- f. Matters of command which affect both the naval force and the LF are dealt with through the corresponding naval and LF chains of command. Commanders at all levels are required to maintain a close and continuous relationship to ensure that, except in emergencies, no commander makes decisions affecting corresponding commanders without consultation. In such cases, the commander making an emergency decision will notify corresponding commanders of his action at the earliest practicable time.

2162 Designation of Commanders

Regardless of the composition of the amphibious task force, CATF is a naval officer designated in the initiating directive. The commander of all troop components within the amphibious task force is CLF and is also designated in the initiating directive. Commanders of subordinate task groups within the amphibious task force, if they have not been named in the initiating directive, are designated by CATF or CLF as appropriate. Should air forces be assigned, their commander, an air force officer, will be designated in the initiating directive.

2163 Relationships During Planning

- a. As directed by higher authority, component commanders of the amphibious task force, at the beginning of the planning phase, report for planning purposes to CATF, who is responsible for the preparation of the overall plan for the amphibious operation. CATF serves as the coordinating authority for the conduct of planning. Matters on which CATF and CLF and commanders of the other forces are unable to agree are referred to their common superior for decision.

b. Since immediate responsibility for the conduct of LF operations ashore is vested in CLF, the planning and execution of the landing and assault are primarily his concern. Participation of other components in the assault consists generally in providing support for the LF. This involves the analysis of LF proposals to determine their feasibility from the standpoint of the remainder of the amphibious task force. The capability of providing the necessary support is a primary factor in evaluating and concurring with proposed LF plans and concepts.

2164 Command During Operations

- a. CATF, upon the commencement of operations, assumes responsibility for the entire force and for the operation, and is vested with the commensurate authority to ensure success of the operation.
- b. The specific means through which CATF exercises this authority is treated in relation to those aspects of the amphibious operations set forth in this and subsequent paragraphs.
- c. CATF exercises his command authority through the commanders of his task organization. The latter, in turn, exercise their authority through their own chains of command.
- d. Within the amphibious objective area (AOA), CATF is given specific command authority as prescribed by the commander having overall authority for the operation. He will exercise control, as prescribed in the initiating directive, over forces not a part of the amphibious task force, when such forces are operating within the amphibious objective area after the arrival of the advance force or the amphibious task force. When such forces are merely passing through the AOA, control will be exercised only to the extent of preventing or minimizing mutual interference.
- e. Subject to the overall authority of CATF, responsibility for the conduct of operations ashore, and for the security of all personnel and installations located within the area of operations (AOO) ashore, is vested in CLF.

2165 Consultation Between Commanders

In the exercise of his command authority, CATF, to the greatest possible extent, obtains and considers the opinion of appropriate commanders, particularly in cases involving a decision requiring the exercise of professional judgment in their operational fields. However, this requirement in no way limits the command authority of CATF.

2166 Consultation Between Corresponding Commanders

No significant decision affecting the plans, disposition, or intentions of a corresponding commander is made without consultation with the commander concerned.

2167 Naval Authority Over Landing Force Units

No Navy commander, other than CATF, exercises authority over, or assumes responsibility for, the operating of landing force units, except where a Navy commander below the amphibious task force level has been designated as commander of a subordinate force composed of Navy and LF units.

2168–2169 Spare

2170 Naval Cooperation and Guidance for Shipping

Naval cooperation and guidance for shipping (NCAGS) is the provision of cooperation, guidance, advice, and assistance to merchant shipping in support of the commander's mission and to enhance the safety and security of merchant ships. NCAGS operates through the full spectrum of operations, from peacetime to crisis, contributing to both the military and economic lines of development and, therefore, must be considered at the early stages of planning. In particular, NCAGS expertise should be incorporated into the staff composition where interaction with civil maritime actors is either anticipated or desired.

Full details of NCAGS structure and associated tactics, techniques, and procedures can be found in ATP-02, Vol. I, Naval Cooperation and Guidance for Shipping (NCAGS) Manual. Chapter 11 of ATP-01, Vol. I provides a general overview of NCAGS and Allied Worldwide Navigational Information System (AWNIS).

2171–2174 Spare

2175 Command of Maritime Interdiction Operations

a. Maritime interdiction operations consist of operations conducted to enforce prohibition on the maritime movement of specified persons or material within a defined geographic area. MIO are normally restricted to the interception and, if necessary, boarding of vessels to verify, redirect, or impound their cargoes in support of the enforcement of economic or military sanctions. Units engaged in MIO normally exercise the right to perform the following:

- (1) Interrogate vessels for reasons other than safe navigation.
- (2) Send armed boarding parties to visit vessels bound to, through, or out of a defined area.
- (3) Examine each ship's papers and cargo.
- (4) Search for evidence of prohibited items.
- (5) Divert vessels failing to comply with the guidelines set forth by the sanctioning body.
- (6) Seize vessels and their cargo that refuse to divert.

b. The maritime interdiction operations commander (MIOC) is the functional commander of all forces assigned to conduct the MIO. The MIOC is responsible for:

- (1) Conducting MIO within the assigned operations area or sector and exercising TACON of all MIO forces within his assigned area.
- (2) Assigning boarding and assisting ships as required.
- (3) Tasking aircraft or other forces as required, to support a particular boarding.
- (4) Assigning units very high frequency (VHF) working channels and night signal colours, to be used for suspect vessel interrogation to prevent mutual interference.
- (5) Maintaining an accurate database of boarded vessels.

c. A sector MIOC is assigned by the MIOC as required to provide C2 when geography prohibits operations in a single geographic area. There may be a need for a number of sector MIO commanders.

d. Responsibilities and functions of the MIOC are found in Table 2-15. Detailed descriptions and procedures for MIO are found in ATP-71, Allied Maritime Interdiction Operations.

2176–2179 Spare

2180 Command During Support Operations

2181 Support Operations

Occasions may arise when one force provides support to another force. The commander ordering

the support will specify the degree, manner, and duration of support which forces provide each other. The supporting force OTC should be provided with the necessary information concerning the situation, and the mission of the force in need of support, at the time when the support is needed. The commander ordering the support will indicate which of the following relationships apply.

a. Situation A. The supporting force is to join and integrate with the other force. The senior officer present, or the officer to whom TACOM is delegated, is to become the OTC of the combined force.

b. Situation B. The supporting force does not integrate. Unless otherwise ordered, the supported commander is to exert the general direction of the supporting effort. In support Situation B, it is critical that the commander ordering the support provides a clear framework of what is expected from the supporting commander, particularly:

- (1) Objective.
- (2) Strength of forces.
- (3) Time, place and duration of the supporting effort.
- (4) Priority of the support mission relative to other missions given to the supporting commander, including the authority, if any, to depart from its support mission in the event of an exceptional opportunity or emergency.

c. Situation C. The supporting force commander has discretion of how best to provide support. This situation may be ordered when, for example:

- (1) There is a requirement for a force to provide simultaneous support to more than one force or to provide support to any number of forces entering a designated area.
- (2) When the majority of ships or aircraft are under the OPCON or TACOM of the supporting commander.

2182 Support Operations, Situation A

The following considerations are applicable under Situation A:

a. Delegation of Tactical Command. The OTC of the overall force may delegate tactical command or control of designated forces to subordinate commanders for the execution of assigned tasks.

b. Tasking of Forces. The overall force OTC will issue tasking directives (e.g., operations general (OPGENs)), specify reporting requirements, establish tactical communication circuits, order overall force dispositions, and issue other direction as required by the situation.

2183 Support Operations, Situation B

Under the conditions of Situation B, the coordination between forces will take the following aspects into account:

- a. The supported commander must be able to participate and comment on the development of the support plan (to be elaborated by the supporting commander and approved by higher authority).
- b. The supported commander should provide as much latitude as possible to the supporting commander in the planning and execution of his support operations.

- c. The supported commander should provide the priorities, timings and desired effects of the operations conducted within his AOO.
- d. Unless otherwise directed, the supporting commander will direct the operational tactics and associated activities of the force allocated for the support mission.

2184 Support Operations, Situation C

The following considerations are applicable under Situation C:

- a. General.** Support Situation C differs from Situations A and B in that the missions of the respective forces may be different. When the supporting force commander is ordered to support a particular force under Situation C, the supporting force commander will decide what support can be provided as dictated by the constraints of his assigned mission. Coordination between respective OTCs is required to eliminate mutual interference and enhance conservation of resources.
- b. Location of Operations.** When the support force commander is ordered to support a particular force under the conditions of Situation C, he should decide, in view of the discretion allowed him, whether:
 - (1) To operate in a central location and thus be better placed to meet any expected commitments.
 - (2) To move close to the particular force. Taking into consideration the circumstances above, it may be decided to adopt Situation A or Situation B.
- c. Duration of Support.** The duration of the support is to be decided by the supporting force commander in the absence of orders to the contrary. If the OTC of the force being supported wishes to retain the supporting force beyond this time, approval of appropriate authorities must be obtained.
- d. Support in a Designated Area.** The supporting force commander may be ordered to provide support in a designated area through which a number of forces may be passing. If the forces to be supported are not simultaneously in the same area, the procedures in subparagraph b. may be adopted by the supporting force commander with regard to each force.
- e. Exchange of Information.** In addition to the items in Article 2183, flow of information concerning the measures for the prevention of mutual interference (PMI) can be ensured.

2185–2189 Spare

2190 Other Support Operations

Individual units may be assigned to provide support to forces at sea. This support may be in one of four forms:

a. Integrated Operations. Integrated operations are those operations in which a designated unit provides support to a specific task force/group operating directly under its TACOM and TACON. During integrated operations, the assigning authority retains OPCON.

b. Direct Support. *The support provided by a unit or formation not attached or under command of the supported unit or formation, but required to give priority to the support required by that unit or formation.*

A unit assigned in direct support will operate under the tactical control of the OTC who is being supported. Operational control and tactical command remain with the assigning authority. The direct support unit will report to the designated controlling authority for employment. Control procedures are amplified in subsequent chapters.

c. Associated Support. A unit assigned in associated support operates independently of the supported force, but may be tasked to provide contact information to and receive intelligence from the OTC who is being supported. The designated unit operates under the tactical control of the assigning authority, who coordinates the tasking and movement of the supporting unit in response to the supported OTC's requirements.

d. Area Operations. Area operations are normally conducted in a geographic area, not related to the protection of a specific force. Areas may be related to the protection of maritime forces scheduled to enter the area, or to provide defence in depth to distant forces. Tactical command of units conducting area operations remains with the assigning authority.

2191 Command and Control of Submarines During Strike Operations

When submarines are to be employed launching cruise missiles, TACON will be shifted to a LAC that is responsible for directing the actions of cruise missile platforms in a designated launch area (see Article 2212). The procedures established in Article 12232 and the format in ATP-18 are to be followed to request tasking of submarine firing units. The strike mission is to be identified as the proposed employment, along with proposed shift of TACON to the LAC. The strike planner onboard the LAC should coordinate to ensure water assignments encompass the proposed launch positions. An area proposal must be specified in the support submarine request message to allow the SUBOPAUTH to incorporate this into the waterspace management ALLOCSTAT message for the operation and to address any PMI issues. The mission-specific communications requirement peculiar for the execution of a strike will remain a national responsibility.

2192–2199 Spare

SECTION II—TACTICAL COMMAND AT SEA

2200 Introduction

a. General. The OTC will always be responsible for accomplishing the mission of the force. He may delegate authority for the execution of various activities in some or all of the areas of maritime warfare noted below to designated subordinate warfare commanders and/or coordinators. The three principal areas of maritime warfare are ASUW, ASW, and anti-air warfare (AAW). Requirements for air coordination, electronic warfare (EW) coordination, and surveillance coordination concern more than one area of warfare and so assume particular importance in the devising of a command structure.

b. Development of Command Structure. In the development of a command structure at sea, the OTC must identify the activities that will be required by the assigned task and determine who will be accountable to him for their execution. For the purposes of this book, the following conventions have been adopted for describing the activities in the OTC's chain of command.

(1) Responsibility. The obligation placed upon an individual for correct and timely execution of a task assigned by a superior that cannot be delegated. Responsibility also entails accountability for the exercise of the authority delegated when tasking was assigned. Responsibility cannot be delegated and thus accountability cannot be shifted. When a duty is assigned, the fact that some tasking can be delegated further down the chain will not lessen the obligation of the holder of the intermediate authority to his superior. The term responsibility is also used to describe an activity that is specific to a duty and cannot be delegated further.

(2) Duty. An identified block of related functions within a larger command structure that can be assigned to a single subordinate. Assignment automatically delegates the requisite authority for C2 required to fulfil the tasking. With the delegation of authority comes the inherent responsibility of the subordinate to the assigning superior for execution of the task in accordance with known orders and procedures. The list of duties is contained in the Duty Table (ATP-01, Vol. II, Allied Maritime Tactical Signal and Maneuvering Book, Table D), for signalling purposes.

(3) Function. A defined activity which may be delegated to subordinates through specific assignment or as part of a duty within the force command structure. Functions are listed in Tables 2-2 through 2-16 and are grouped by warfare area. When any function is delegated, it is assumed that the necessary authority for command, control, direction or coordination required for the execution of that function has also been delegated.

2201 Command of Large Forces

A fundamental component of command effectiveness is the ability of the commander and commanded units to communicate. This is particularly so in the case of large or dispersed forces; if there are inadequacies in the communications capabilities of individual units, these must be identified and assessed before a disposition is ordered. There will thus be occasions when the communications capability of a force will impact upon the OTC's concept of operations.

2202 Delegation of Command Functions

a. Considerations. A centralized command is the most direct way of allowing the OTC to make use of his experience and ability. However, circumstances and command facilities can make delegation necessary. Some factors are:

- (1) Mission.
- (2) The threat.

- (3) Need for quick action or reaction.
- (4) Necessity to carry out many actions in different places at the same time.
- (5) Practical inability of the OTC to exercise all functions because of excessive workload or the requirements of some actions for specific knowledge of facilities.
- (6) Lack of appropriate display and communications facilities.
- (7) Force size and composition.

2203–2204 Spare

2205 Command and Control Options

The OTC is always responsible for formulating and promulgating policy. Other OTC functions, including warfare functions, may, based on factors stated in Article 2202, be delegated to subordinates within the constraints of the ROE in force and stated policy. For the five principal warfare areas, the OTC has the following options:

- a. The OTC retains command in the principal areas of warfare by retaining all the warfare functions.
- b. The OTC delegates to one subordinate commander one or more warfare functions.
- c. The OTC delegates to more than one subordinate commander several warfare functions.
- d. The OTC delegates to subordinates within geographic areas (or sectors) warfare functions relevant to that area, but may retain any part of the overall function for himself. This form of delegation can be used by a principal warfare commander as well, if so assigned.
- e. A special form of delegation as described in item b. is that the OTC of a large force may allocate all his warfare functions for the defence of a force to a composite warfare commander (CWC) while retaining overall responsibility for the mission. The CWC may, in turn, delegate some or all warfare functions as described above.

NOTE

ITEM A. DESCRIBES CENTRALIZED COMMAND WHILE OPTIONS IN ITEMS B. THROUGH E. ALL DESCRIBE FORMS OF DECENTRALIZED COMMAND.

2206 Responsibilities

a. OTC's Responsibilities. The OTC has overall responsibility for accomplishing the mission of the force and for executing defence. The OTC's policy and procedure for succession of command authority as well as designation of the standby OTC should be specified in advance of the operation in the OTC's orders. The OTC shall specify the chain of command between himself and, when designated, the CWC, principal warfare commanders, coordinators, supporting commanders, and the forces under their tactical command and/or control. This may be done by task number designation or by stipulating which task groups, units, or elements are designated for each commander. The detailed OTC's responsibilities for mission execution and defence of the force are listed in Table 2-2, those for a convoy operation in Table 2-12, mine warfare in Table 2-14, force protection in harbour in Table 2-16, strike warfare in Table 2-4, and information warfare in Table 2-7. The OTC's responsibilities cannot be delegated.

b. Principal Warfare Area Responsibilities. In exercising his responsibilities, the OTC must consider both the threat to the force and the units which he has available to counter the threat. However, no single threat may be considered in isolation; consequently, no tactic to counter a specific threat may be employed without considering its effect on the security of the force from other threats which may subsequently materialize. The OTC's detailed functions are found in Tables 2-2 through 2-16. There are two categories reflected in the tables:

- (1) Those functions of the OTC which may be delegated to a CWC.
- (2) Those functions which may be delegated to warfare commanders, coordinators, or others to control assets and take action necessary to execute the promulgated policy.

c. Coordination Responsibilities.

(1) Air Coordination. The OTC is responsible for coordinating all friendly air movement within his area of interest (AOI). As he will not always know the position and intention of all friendly units, he must exercise coordination partly by procedural means. The detailed functions of the OTC for air coordination are to be found in Table 2-9 and are explained in Chapter 6, Section I. They may be delegated to an air coordinator (AC).

(2) Electronic and Acoustic Warfare (EAW) Coordination. The OTC is responsible for determining and promulgating force EAW policies with the advice from his information warfare commander (IWC), if an IWC is established. Details of responsibilities and functions are to be found in Tables 2-2 and 2-9 and are explained in Chapter 8. EW functions may be delegated to the electronic warfare coordinator (EWC) through the IWC if established. Guidance on the application of acoustic warfare (AW) is to be found in ATP-28, Volume I, Allied Antisubmarine Warfare Manual—Tactics and Procedures.

(3) Surveillance. The OTC is responsible for establishing the surveillance areas for each area of maritime warfare within the overall guidelines of the general picture compilation plan. Details of responsibilities and functions are to be found in Tables 2-2 through 2-5 and are explained in Chapter 6. Functions may be delegated to warfare commanders.

(4) Mine Warfare Coordination. The OTC is responsible for formulating and promulgating MW policy. Detailed responsibilities and functions are found in Table 2-14. Mine warfare functions may be delegated to a designated naval mine warfare coordinator (NMWC), as indicated in the table.

(5) Tactical Data Link (TDL) Coordination. Tactical data links are now multi-link networks. Being in a joint operation, with joint structure and component commanders or in a purely maritime one, it is necessary to have a specific cell dedicated to link management. For maritime forces, this cell data link manager/interface control officer (DLM/ICO) is called a maritime interface control officer (MICO). In a joint operation, MICO is in charge of coordination with joint interface control officer (JICO). In a maritime operation MICO is responsible for multi-link network in the force. MICO is to be kept by the OTC or delegated to a principal warfare commander (PWC).

d. The Convoy Responsibilities of the OTC. The OTC is responsible for the safe and timely arrival of the convoy. Detailed responsibilities and functions are found in Table 2-12 and are explained in Chapter 10.

(1) Mercantile Convoy. The OTC of the escorting ships is not altered when a more senior naval officer is present in a naval ship designated as part of the convoy and not part of the escort.

(2) Military Convoy. The senior naval officer of the ships in convoy and escorting ships will designate the OTC of the combined force IAW Article 2116.

(3) When a Support Force Is in Situation A. (See Article 2182.) When the OTC of the support force is senior to the OTC of a mercantile convoy, he should consider allowing the OTC of the convoy to remain in tactical command. This maintains continuity of command and the previous close liaison between the OTC of the convoy and the convoy commodore.

(4) Unescorted Convoy. In the absence of a warship escort, the convoy commodore is to command the convoy.

e. OTC's Functions for Departure and Entry Operations.

The functions of the OTC are found in Table 2-13 and are explained in Chapter 3.

2207–2209 Spare

2210 Delegation of Authority

The OTC may retain tactical command and tactical control authority or he may delegate some of that authority to subordinate commanders and coordinators. Such delegation does not mean that the OTC relinquishes authority over subordinates. It does mean that the subordinate is given some or all of that same authority over forces assigned to him by the OTC. If the OTC elects to designate a CWC and/or warfare commander/coordinators, he may delegate tactical command authority required to carry out assigned tasks to them by using the Duty Table (ATP-01, Vol. II, Table D) and Tables 2-2 through 2-16 of this chapter.

2211 Delegation Considerations

a. General. The following general considerations are provided for selection and location of warfare commanders:

- (1) Availability of interoperable data link and access to required displays.
- (2) Sufficiency and interoperability of communications equipment.
- (3) Availability of sufficient skilled personnel and state of training (staff augmentation if necessary).
- (4) Living/working space available in units.
- (5) No undue limitations imposed by radiation hazards (RADHAZ) restrictions.
- (6) Level of tension/state of hostilities.
- (7) Threat assessment.
- (8) Area of operations and disposition required.
- (9) Emission policy (EP) including need for silence on unique emitters.
- (10) Compatibility of unit force weapons and sensors employment with proposed warfare command functions.
- (11) The desirability of delegating all functions in a single warfare area to a single subordinate.

b. Specific Anti-air Warfare Commander Considerations.

- (1) Easy access to EW information.
- (2) Possibility of using airborne early warning (AEW) aircraft as sector or standby AAWC¹.

c. Specific Antisubmarine Warfare Commander (ASWC) Considerations.

- (1) Availability of communication systems and space required for coordination with submarines and the SUBOPAETH. (Staff augmentation will normally be required.)
- (2) Availability of air ASW expertise.
- (3) Requirement for specialized oceanographic expertise.

d. Specific Antisurface Warfare Commander (ASUWC)¹ Considerations.

- (1) Access to aircrew postmission debriefs.
- (2) Access to AEW and strike warfare expertise.
- (3) Access to adequate targeting data.

e. Specific Information Warfare Commander Considerations.

- (1) The ability to closely coordinate with CWC assets configured for EW operations, and directs battlespace awareness, ship signals exploitation space, EW module, and other supporting IW elements of the force;
- (2) The ability to direct the IW planning process and to support IW combat operation monitoring and assessment at the tactical, operational and strategic level of war;
- (3) The alternate IWC should be assigned to a commander not already assigned warfare or functional group command responsibilities that has access to SI circuitry and possesses a firm understanding of IW.

f. Authority and Responsibility. In deciding what degree of control is to be delegated, and when, the OTC must observe one cardinal principle: *To operate effectively, each unit and command must know in detail its obligation to the OTC, warfare commanders and coordinators, and other units.* To achieve this, it is essential that the OTC clearly specifies the chain of command. Although control of different force weapons systems in a single ship may be delegated to different warfare commanders, only one commander may exercise control over the movements of an individual unit at any one time. Should it be necessary to change tactical control to meet specific circumstances, the OTC must clearly specify under what circumstances and when such change is to take place. Should another commander wish to move a unit to better carry out duties in a warfare field, he must do so through the commander having tactical control of that ship or unit, as specified in the task organization, with the OTC or CWC adjudicating any differences.

2212 Warfare Commander and Coordinator Responsibilities**a. General.**

(1) Composite Warfare Commander. That officer to whom the OTC has assigned all his authority and delegated functions for the overall direction and control of the defence of his force.

¹ **Note:** When referring to the composite warfare commander structure, the USA now refers to the anti-air warfare commander (AAWC) as the air and missile defence commander (AMDC) and used AMD not AAW. USA also refers to the ASUWC as the surface warfare commander (SUWC) effectively dropping the “anti.”

(2) Principal Warfare Commanders. Subordinate to the OTC/CWC are four principal warfare commanders: AAWC, ASUWC, ASWC, and IWC. The warfare commanders are responsible for collecting and disseminating information and in certain situations are delegated authority to respond to threats with assigned assets.

(a) The warfare commanders, when so authorized, may autonomously initiate action. Attention is drawn to Article 2118, “Command by Veto.” The CWC also has power of veto within his area of responsibility (AOR).

(b) In addition, commanders may be assigned authority for the deployment of force (long-range) weapons systems and sensors, in accordance with the warfare organization, by means of duty/function tables, regardless of the commander exercising tactical control of the unit.

(3) Functional Groups. The OTC may form temporary or permanent functional groups within the overall task organization. These groups would have specific stated functions, such as operational deception (OPDEC), underway replenishment, screening duties, etc.

(4) Functional Call Signs. Warfare commanders and coordinators may be allocated a two-letter call sign related to their respective command or coordination functions. This convention allows a clear picture of the command and control organization and provides a quick and easy reference to be used by warfare commanders for intercommunications. See Article 4123b.

b. Delegation to Principal Warfare Commanders. The AAWC, ASUWC, ASWC, and IWC will be responsible for the collection of information in their particular areas and the dissemination to the OTC and force of evaluated information in those areas. Warfare commanders will maintain continuous liaison with each other to ensure timely flow of mutually supporting information and avoid mutual interference. Subsequent sections and Tables 2-3 through 2-16 deal with specific functions of the warfare commanders and specific amounts of authority delegated to them in particular environments. Some warships have weapons systems which have effective ranges that extend beyond the local area in which the ship is operating. Since warfare commanders are normally assigned authority to employ these weapons, this may cause situations in which one commander has tactical control of a ship and another has control of that ship’s force weapons systems. If firing the weapon does not interfere with the tasking of the ship, there is generally no problem. However, if significant manoeuvring is required, coordination between the appropriate warfare commanders is vital in prosecuting the threat. A temporary shift of tactical control might be required but command and control should remain clear. Disagreement between the warfare commanders should be resolved by the OTC (or CWC if designated).

c. Delegation to the Screen Commander (SC). The SC is a functional commander who will normally control movements for the ships in the inner screen in accordance with guidance received from the warfare commanders. The functions of the SC are contained in Table 2-8.

d. Delegation to Coordinators. Coordinators are asset and resource managers. They 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.

(1) The Electronic Warfare Coordinator. The EWC is the principal advisor to the OTC or IWC, if designated, in all matters pertaining to the employment and exploitation of the electromagnetic and acoustic spectrum. Accordingly, he has broad responsibilities, which impact upon task group planning as well as the management and control of all active and passive weapons, sensors, and electronic communications equipment which operate in or target the electromagnetic spectrum/environment, to include: electronic warfare support measures (ESM), electronic countermeasures (ECM), electronic protective measures (EPM), EMCON, OPDEC, operations security (OPSEC), signals intelligence (SIGINT) (communications intelligence

(COMINT)/electronic intelligence (ELINT)), and signal security (SIGSEC) (communications security (COMSEC)/electronic security (ELSEC)). The extent to which the EWC exercises actual control over assets is scenario dependent and should be clearly stated by the IWC per the OTC's direction and understood by the principal warfare commanders. The EWC's planning and management responsibilities encompass several areas. The EWC's functions are found in Table 2-11. In addition:

- (a) The EWC must ensure that force assets are employed to support the requirements of the OTC through the IWC who will coordinate with the other principal warfare commanders. Coordination between the IWC and the other principal warfare commanders is vital to ensure that all assets with ESM, ECM, and EPM capabilities are managed effectively.
- (b) The 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 IWC's emission policy. The principal warfare commanders and the commanding officers must operate force emitters within the effective EMCON plan. The principal warfare commanders and commanding officers have the authority to break EMCON as per Article 8210. They must, however, notify the EWC of his actions.
- (c) The EWC through the IWC must ensure that the force deception plan and assets are employed in a manner through the IWC which facilitates the mission and policy of the OTC.
- (d) The EWC through the IWC must ensure that cryptologic assets, both organic and nonorganic, are employed in a manner which facilitates responsiveness to the AAW, ASW, ASUW, and IW information needs of the OTC.

(2) The Air Coordinator. The AC exercises coordination within the force air coordination area. The duty for air coordination should be assigned to the unit which has the greatest number of electronic aids to aircraft navigation and control, the largest number of experienced air control personnel, and the best air picture facilities. This duty may be collocated with the AAWC, air resource element coordinator (AREC), helicopter element coordinator (HEC), or ASWC.

(3) Fleet Air Defence Identification Zone (FADIZ) Coordinator (FADIZ C). The FADIZ C is a highly capable (surveillance, communications, and weapons systems) surface air defence unit and is stationed along the threat axis to identify and deconflict aircraft entering into and departing airspace designated as FADIZ by the AAWC. Functions of the FADIZ C are detailed in Tables 2-9 and 2-10 and amplified in Chapter 6.

(4) The Air Resource Element Coordinator. The AREC is a resource manager. He 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. Particular functions of the AREC are detailed in Table 2-10 and amplified in Chapter 6.

(5) The Helicopter Element Coordinator (HEC). When two or more ships other than a CV are helicopter equipped, a central scheduling authority for flight operations from these ships is useful. In a multithreat 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 found in Table 2-10 can be 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. 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.

(6) The Submarine Operations Coordinating Authority.

NOT RELEASABLE

(a) through (c)—NOT RELEASABLE

(7) Local Warfare Coordinator. When two or more units are in company, a local warfare coordinator may be designated. The local warfare coordinator has the following functions:

(a) Direction Functions:

- i. Delegating, as appropriate, specified functions to other units in his local group.
- ii. Establishing watch zones for units in his group.
- iii. Broadcasting the local picture to units of the group on the local coordination net.

(b) Coordination Functions. Correlating and evaluating reports from units in company and, where appropriate, relaying this information to the OTC/CWC or warfare commander.

(c) Control Functions. The local warfare coordinator controls the local coordination net.

(8) The Naval Mine Warfare Coordinator. (See note.) The NMWC is the principal advisor to the OTC on matters pertaining to NMW. He is responsible for coordinating the laying of minefields in support of the OTC and the efforts of supporting NMCM forces, which are usually not under the direct command or control of the OTC/CWC. Specific functions of the NMWC may include the MCM and mining functions listed in Table 2-14:

Note. The NMW coordinator could be the NMW commander and would fulfil both functions.

- (a) Employment of tactical mining against targets of opportunity, using force assets.

- (b) Coordination with appropriate commanders for the laying of tactical minefields and the execution of mining plans.
- (c) Tasking of MCM forces assigned to the tactical command of the OTC/CWC.
- (d) Coordination with appropriate local commanders for response to enemy mining of choke points, safe havens, or operating areas, and for the execution of MCM plans.
- (e) Maintaining and disseminating a plot of relevant MW information to the force.

(9) and (10)—NOT RELEASABLE

(11) Force Protection Coordinator. The force protection coordinator (FPC), established at the functional commander level, should be designated in particular circumstances in which the lack of command and control capabilities to exercise some of the MFP functions at warfare command level (e.g., units proceeding independently or in groups to harbour/anchorage, inshore transits in the absence of the OTC...), thus allowing more effective command and control of MFP aspects of operations.

e. Sea Combat Commander. Within an OTC's area of operations, sea control is the broad functional integration of ASW and ASUW disciplines necessary for sea control to the extent and duration necessary for mission fulfilment. The sea combat commander (SCC) is an additional organizational option available to the OTC in forming a CWC structure.

(1) An SCC executes the combined duties of ASWC and ASUWC. His duties may also include any of the following:

- (a) Screen commander.
- (b) Helicopter element coordinator.
- (c) Naval mine warfare coordinator.
- (d) Submarine operations coordinating authority.
- (e) Maritime interdiction operations commander (see ATP-71).

(2) The SCC concept is most appropriate for a medium-size force and smaller operating in a low-to-moderate threat environment, where the full focus of a warfare commander's efforts does not need to be concentrated singularly on a critical warfare area. It offers advantages over the traditional CWC arrangements by:

- (a) Simplifying and streamlining C2 in a compressed littoral battlespace.
- (b) Improving maritime situational awareness.
- (c) Increased efficiency by placing the responsibility for integrating ASW and ASUW search planning, asset allocation, and tactical direction under a single commander.

(3) The CWC may delegate to the SCC the authority necessary to plan SC operations, to establish SC policy, and to control assigned assets to implement the SC plan. The CWC retains ultimate authority with the option of command by negation. The timing and extent to which the control of forces is delegated depend upon the actual political, strategic, and tactical situation. The principal duties and responsibilities of the SCC are listed in the duty tables associated with the functions or subareas assigned (Tables 2-2 through 2-16). In addition to the subareas of ASUW and ASW, other functions that may be assigned to the SCC include HEC, NMWC, SC, SOCA, and MIOC. For further guidance on the SCC's principal duties and responsibilities, see the articles related to the subareas assigned to the SCC.

(4) The SCC and alternate SCC (if designated) report to the OTC/CWC using the applicable call signs for one of the primary warfare duties assigned (i.e., ASWC or ASUWC) as specified in the OPGEN.

f. Sector Warfare Commanders. If the tactical situation dictates that a principal warfare area be divided into sectors, a sector warfare commander may be designated. Within his sector, a sector warfare commander will be subject to the overriding authority (veto) of the OTC/CWC or parent PWC, but is otherwise vested with most of the prerogatives and responsibilities of a PWC. Sector warfare commanders have the following functions:

(1) Direction Functions.

- (a) Designating local warfare coordinators.
- (b) Delegating, as appropriate, specified functions to other units in his sector.
- (c) Assigning aircraft to appropriate units for control.
- (d) Initiating action against a threat, if no action has been initiated by other units in his sector.
- (e) Exercising overriding authority (veto) over all actions initiated by other units in his sector.

(2) Coordination Functions.

- (a) Resolving with other sector warfare commanders problems of coordination on or near the borderlines between sectors, to ensure the efficient change of reporting responsibility and to avoid mutual interference.
- (b) Coordinating the effective employment of aircraft and missiles within his sector.

(3) Control Function. Controlling the communication nets within his sector and warfare area.

(4) Additional Duties.

- (a) Requesting the launch of land-based alert aircraft if no carrier is allocated to his sector.
- (b) Keeping the OTC/CWC or parent PWC informed of evaluated threats, and of the location of friendly units that could be mistaken as hostile.
- (c) Issuing situation reports (SITREPs) for the benefit of the units in his sector.

g. Asset Control and Coordination.

(1) Picket Ships, Towed Array Ships, or Other Ships. Picket ships, towed array ships, or other ships operating at a considerable distance from the main body will normally operate under the tactical control of a warfare commander. As previously set forth, force AAW weapons systems may be tasked by the AAWC and force ASUW weapons systems by the ASUWC, even though the ship is under the tactical control of another commander. A ship's stationing should be coordinated to consider the requirements of all warfare commanders. Because tasking of a ship's weapons by one warfare commander may interfere with its primary tasking, such action must be preceded by prior concurrence of the warfare commander having tactical control. If required, tactical control may be temporarily passed to another commander (e.g., two Harpoon-equipped towed array ships could be directed to form a surface action group (SAG) and temporarily operate under the tactical control of the surface action group commander (SAGC)).

(2) Ships in the Inner Screen. Ships in the inner screen will normally operate under the tactical control of the SC, with that authority delegated to him by the OTC/CWC. The ships' inner screen positions will be assigned by the SC in accordance with the OTC's or warfare commanders' requirements. These ships, like those in paragraph (1), may possess ASUW capabilities and the ASUWC may, if assigned authority to do so, direct the SC to detach units as a SAG, but not before getting prior concurrence of the ASWC, AAWC, or CWC, as appropriate. To simplify coordination, the SC should also, whenever possible, be the ASWC. However, as noted previously, in large dispositions there may be several SCs or none, depending upon force disposition.

(3) Rescue Destroyer. During flight operations, the unit designated as rescue destroyer should be under the tactical control of the CV's commanding officer and not be removed from the rescue station without his consent. Rescue destroyers, like all other surface units, may be tasked by the AAWC for emergency AAW support, and by the ASUWC and ASWC for "in-place" firings.

(4) Submarines. Submarines operating with a task group will conduct operations as directed by the OTC/CWC (or subordinate commander delegated TACON) or, in the case of associated and area operations, the SUBOPAUTH. When conducting support operations or integrated operations, the submarine is to communicate directly with the SOCA regarding coordination of tactical operations and the exchange of intelligence and targeting information.

h. Delegation to Commanders of Functional Groups.

(1) The OTC may designate commanders of functional groups, such as deception groups, underway replenishment groups, etc. This commander will be implicitly responsible for all local warfare functions within his group. He may delegate these functions to units under his control; in this case, the unit executing those functions may be designated a local warfare coordinator. The group commander reports action taken, contact information, etc., to the OTC and/or warfare commander, as appropriate.

(2) The following is a list of the most commonly used titles (see the glossary for definitions and indicated chapters for additional information):

- (a) Screen commander.
- (b) Search and attack unit (SAU) commander, see Chapter 12.
- (c) Surface action group commander, see Chapter 9.
- (d) Helicopter action group (HAG) commander, see Chapter 9.
- (e) Main body group commander.
- (f) Underway replenishment group (URG) commander.
- (g) Deception group (DCG) commander (including missile traps and wolf traps).
- (h) Maritime interdiction operations commander, see ATP-71.

i. Delegation to Control Units. To carry out control functions, it is necessary to perform specialized duties, which are generally delegated and distributed among the various units in the force. A complete list of such duties is contained in the Duty Table (ATP-01, Vol. II, Table D).

2213 Promulgation of Duties and Delegation of Functions

- The term “duty” is used to define warfare commander/coordinator and other functional assignments. ATP-01, Vol. II, Table D, lists all duties. Certain duty assignments may be promulgated by appropriate commanders.
- The term “functions” refers to the actions and tasking listed in Tables 2-2 through 2-16. These functions will be delegated by the OTC, CWC, and other commanders as appropriate to the command structure/force needs.
- Figure 2-2 depicts levels of C2 within the OTC’s warfare organization. Figures 2-3 and 2-4 provide examples of the command structure incorporating duty and warfare function assignments.

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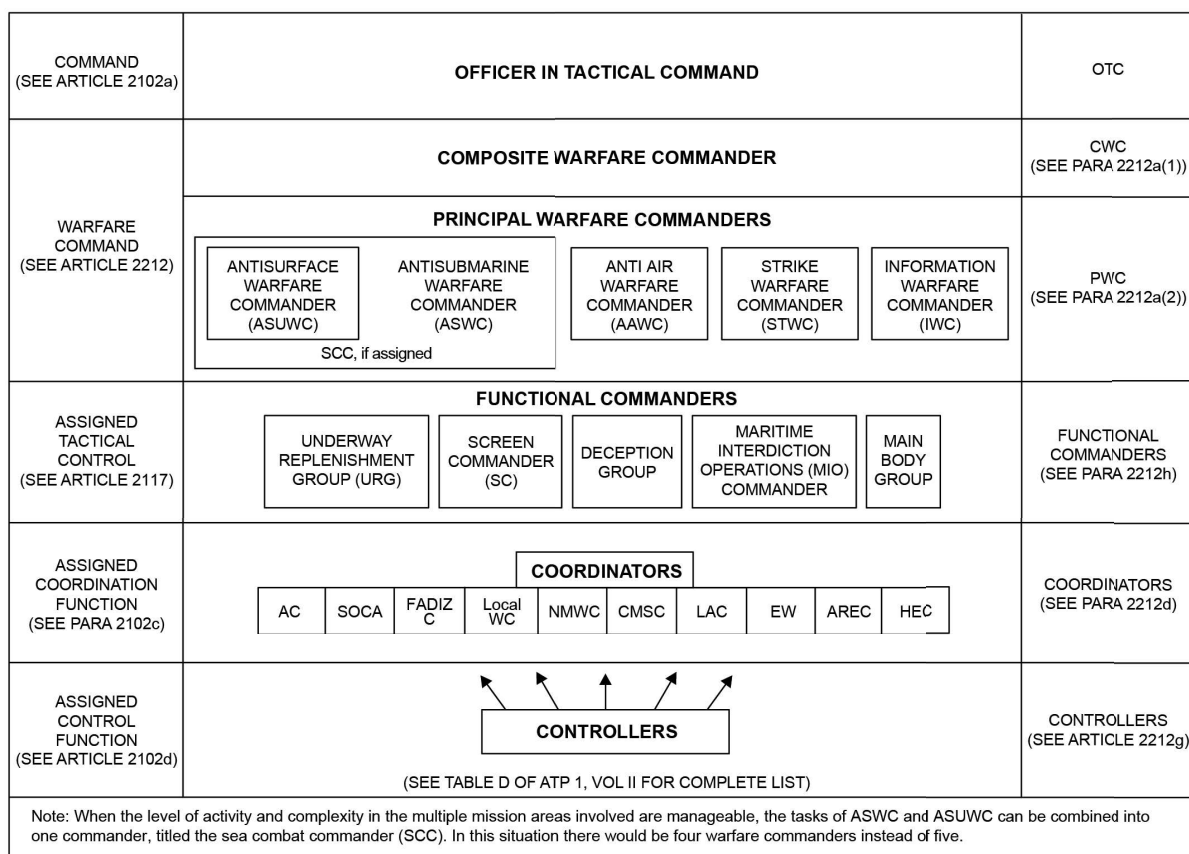


Figure 2-2. Levels of Command and Control Within the Officer in Tactical Command’s Warfare Organization

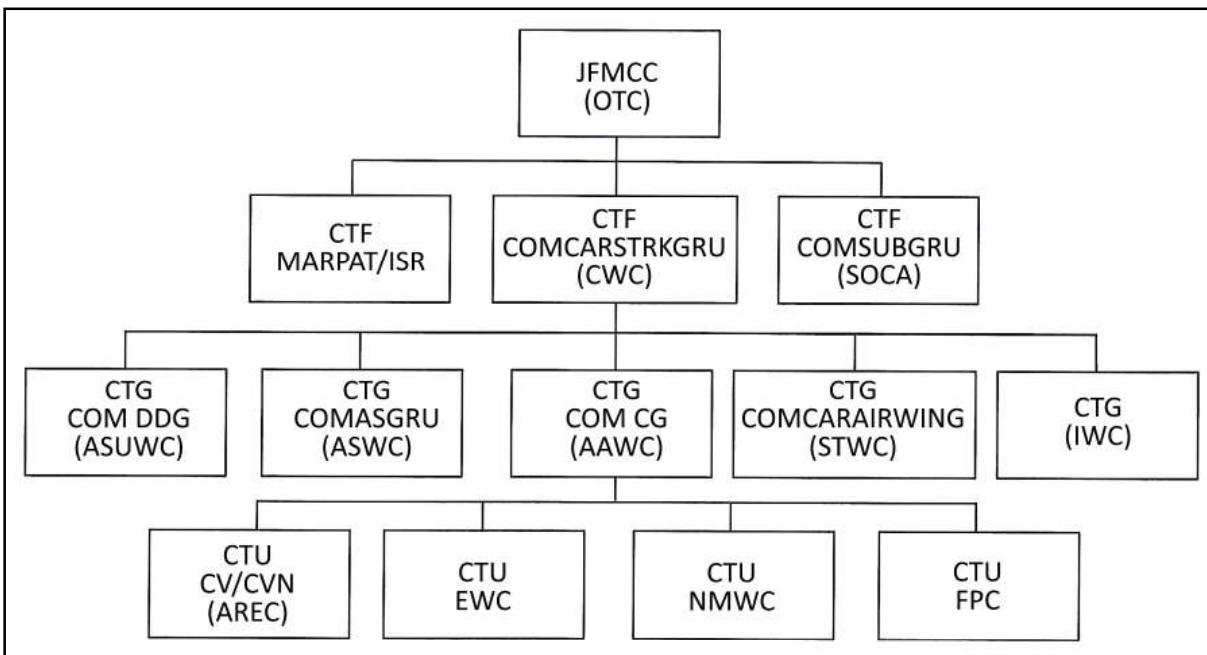


Figure 2-3. Example of Warfare Command and Coordination Incorporated in a Task Organization

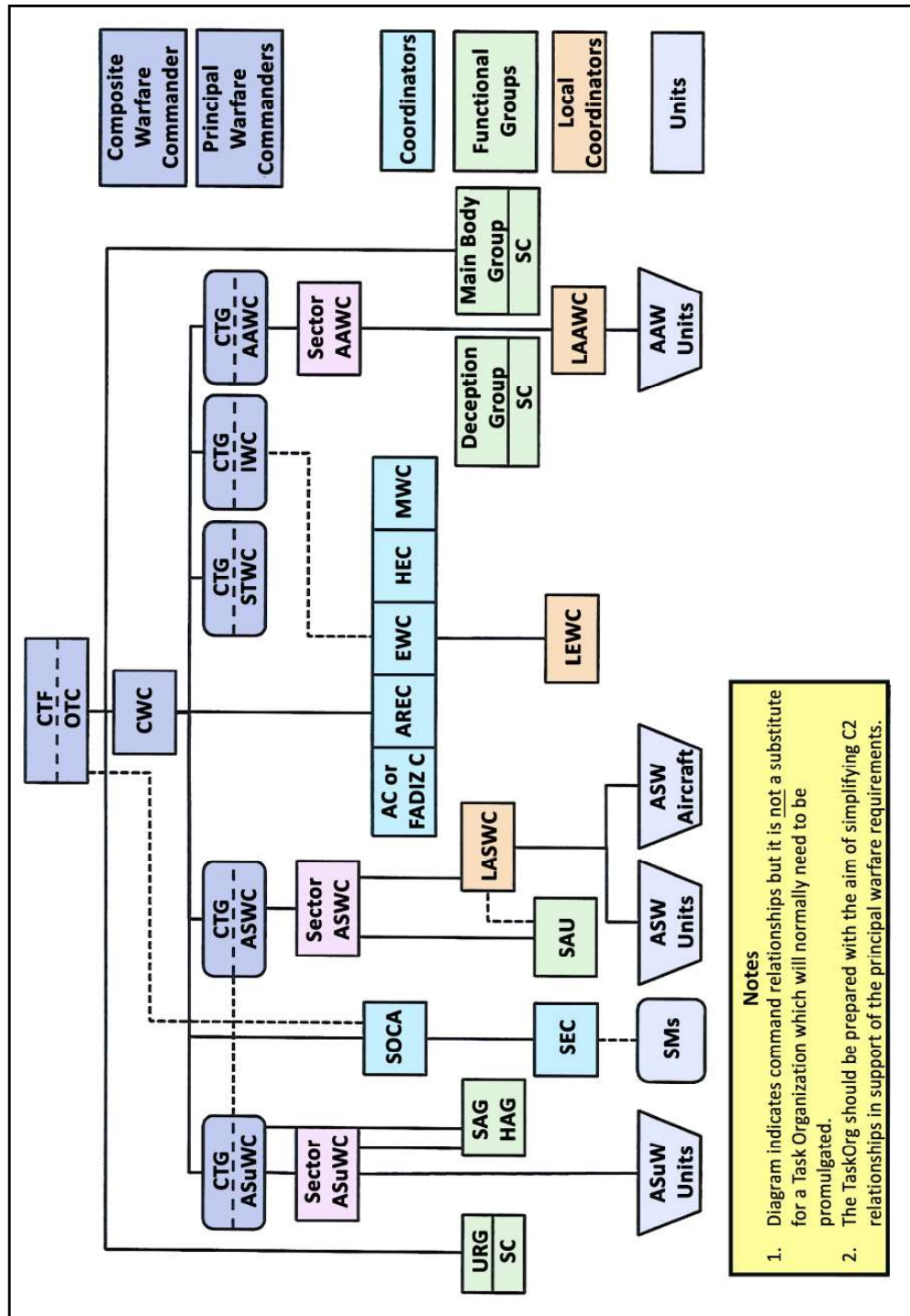


Figure 2-4. Example of Assigned Command and Coordinated Functions in a Force Using a Composite Warfare Commander

Table 2-2. OTC's Responsibilities and Functions (Sheet 1 of 3)

NO.	RESPONSIBILITIES
	OTC'S RESPONSIBILITIES (which <u>cannot</u> be delegated)
101	Promulgating policies and plans to accomplish the mission set forth by higher authority, providing a description of his intentions to his subordinate commanders.
102	Directing and monitoring operations.
103	Establishing command, control and communications policy, promulgating warfare command assignments, and establishing the force task organization if not already established by higher authority.
104	Establishing the degree of authority delegated, specifying command functions assigned to each PWC and SCC (if assigned).
105	Establishing and (with the assistance of appropriate warfare commanders and coordinators) promulgating policies for force: (a) Picture compilation plan. (b) Electronic and acoustic emission, including EMCON and emission security (EMSEC). (c) Radar frequency plans. (d) Electromagnetic compatibility (EMC). (e) Force protection planning. (f) Formulate and promulgate IRC plans. (g) Formulate guidance for decoy/jamming operations. (h) Formulate and promulgate the force EW guidance (to include ES, EP, and EA).
106	Promulgating a force communications plan (<u>COMPLAN</u>) (with the assistance of appropriate warfare commanders and coordinators), including alternate plans, designating circuits and frequencies and establishing guard requirements and circuit priorities.
107	During periods of tension, requesting the <u>ROE</u> appropriate to his mission from higher authority.
108	NOT RELEASABLE
109	Planning and coordinating logistics requirements.
110	Responsibilities specific to convoy operations as given in Table 2-12.
111	NOT RELEASABLE
112	NOT RELEASABLE
113	NOT RELEASABLE
114	NOT RELEASABLE
115	NOT RELEASABLE
116	Ordering security alert states.
117	Establishing the force protection level.
118 to 119	SPARE

Table 2-2. OTC's Responsibilities and Functions (Sheet 2 of 3)

NO.	FUNCTIONS
	Functions which <u>may</u> be delegated to a warfare commander/coordinator.
120	Promulgating the policy for operational/tactical deception.
121	Formulating and promulgating the policy for planned responses.
122	NOT RELEASABLE
123	Formulating and promulgating general safety policy for assigned units, including policy for aircraft/units joining the force.
124	Providing air, surface, and subsurface units as available to appropriate PWCs, coordinating their respective efforts and, when necessary, resolving conflicting requirements.
125	Requesting assignments of such <u>external assets</u> as may be required.
126	Designating position and intended movement (<u>PIM</u>), disposition and force surveillance areas, and manoeuvring the force.
127	With other appropriate commanders, arranging for coordination of air, surface, and subsurface surveillance with other friendly forces operating within or adjacent to the force surveillance area.
128	Specifying desired search efforts outside the established force surveillance area, requesting additional assets as necessary.
129	Specifying reference systems for air/surface/submarine contact reporting.
130	From all information available obtained from external sources and/or PWCs, resolving any existing conflict, and constructing, displaying, and passing to the force a composite picture of the tactical situation.
131	Evaluating information to establish probability areas/sectors for air, surface, and subsurface threats.
132	Ordering <u>degrees of readiness</u> .
133	<u>Informing SUBOPAUTH</u> of task force/group intentions and movements.
134	NOT RELEASABLE
135	NOT RELEASABLE
136	NOT RELEASABLE
137	NOT RELEASABLE
138	NOT RELEASABLE

Table 2-2. OTC's Responsibilities and Functions (Sheet 3 of 3)

NO.	FUNCTIONS
139	NOT RELEASABLE
140	NOT RELEASABLE
141	NOT RELEASABLE
142	NOT RELEASABLE
143	NOT RELEASABLE
144	NOT RELEASABLE
145	NOT RELEASABLE
146 to 199	SPARE
NOTE	
Standby OTC will be prepared to assume the duties of the OTC.	

Table 2-3. OTC's Functions in AAW (Sheet 1 of 2)

NO.	FUNCTIONS
Functions which <u>may</u> be delegated to a CWC.	
220	Formulating and promulgating general AAW plans and, when necessary, specific guidance to the force.
221	Promulgating EW policy as it affects AAW.
222	Formulating and promulgating policy on <u>planned responses</u> in AAW.
223	Ordering <u>AAW degrees of readiness</u> .
224	Stating requirements for nonorganic air support for AAW and forwarding related requests. This may include requirements for wider AAW-related tasks (e.g., offensive counter-air operations in support of AAW) as an input to the joint coordination board through a maritime liaison element.
225	<u>Designating the AAWC</u> and standby AAWC. Where a joint air defence commander (ADC) has been established, this function will be coordinated with the ADC.
226	Establishing and promulgating the <u>air surveillance area</u> . Where a joint airspace control authority (ACA) has been established, this function will be coordinated with that authority.
227	Assigning air and surface AAW units to AAWC for detection/localization/identification (ID)/recognition and reporting air contacts.
228	Designating task groups/task unit (TU)/units that will be allocated to individual coordinated air/sea procedures (CASP) categories.
229	Nominating regional air defence commanders (RADC) when directed by the ADC.
230	Liaising with the joint ACA regarding airspace management procedures and forwarding related airspace management requests.
231 to 239	SPARE
The following functions are normally delegated to the AAWC but <u>may</u> be retained by the OTC/CWC.	
240	Developing and implementing the air surveillance and defence plan.
241	Dividing the AAW area into sectors, if required.
242	Designating sector AAWCs (SAAWCs) and/or local anti-air warfare coordinators (LAAWCs) as required, inner defence zone coordinator (IDZC), and outer defence zone coordinator (ODZC).
243	Designating force track coordinator air (<u>FTC-A</u>).
244	Designating link management units.
245	Establishing the requirements for shipborne/organic AAW air support and forwarding requests to AREC/HEC.
246	Assigning stations sectors and/or patrolling areas and designating control units (AEWCU or CAPCU) for AAW aircraft, keeping AC informed.
247	Establishing and promulgating the identification safety range (<u>ISR</u>) and safety sectors for all friendly aircraft and any special areas or zones established for aircraft safety and identification or to prevent mutual interference, in coordination with AC.

Table 2-3. OTC's Functions in AAW (Sheet 2 of 2)

NO.	FUNCTIONS
248	Establishing joining control procedures for AAW aircraft, keeping the AC informed.
249	Promulgating <u>ID criteria</u> , required <u>recognition levels</u> , and required recognition <u>confidence levels</u> .
250	Issuing <u>criteria for weapon release</u> and expenditure (a matrix if applicable).
251	NOT RELEASABLE
252	Exercising tactical control, including stationing and manoeuvring of assigned surface AAW units in accordance with the OTC's policies and plans.
253	Coordinating and controlling air surveillance.
254	Coordinating and controlling use of all force <u>sensors in AAW</u> .
255	Designating and disseminating (as appropriate) all reported contacts and using all available information to maintain a complete air plot of the surveillance area.
256	Coordinating movements of friendly aircraft with the air surveillance area, in cooperation with the AC.
257	Issuing periodic <u>AAW SITREPs</u> (when required by the tactical situation) and other reports, including situation summaries (SITSUMs) and daily AAWC intentions message.
258	Controlling AAW nets, especially with respect to procedural integrity and security in reporting communications security (COMSEC). The AAWC may in turn assign some of this responsibility to sector AAWCs and/or FTC-A.
259	Coordinating with land-based air defence authorities.
260	Issuing <u>threat warnings</u> (air).
261	Issuing <u>weapon restriction orders</u> .
262	Coordinating and controlling employment of all force anti-air weapons and resolving conflicts between tactical use of weapons and demands of aircraft safety.
263	Coordinating and ordering the launching and stationing of alert AAW aircraft.
264	Directing the employment of <u>force CHAFF</u> resources for AAW.
265	Exercising command by <u>veto</u> over all AAW actions, initiated by other units of the force.
266	NOT RELEASABLE
267	Providing assets as available to assist other commanders in prosecution of the threat.
268	Designating FADIZ C and force marshaller.
269 to 299	SPARE

Table 2-4. OTC's Functions in Strike Warfare

NO.	FUNCTIONS
	Functions which may be delegated to a CWC.
320	Formulate and promulgate general STW plans and, when necessary, specific guidance to the force.
321	State requirements for nonorganic air support for STW and forwarding of related requests.
322	Designate STW commander (STWC) and alternate.
323	Assign surface ships and aircraft to STW.
324	Establish tactical intelligence, environmental reconnaissance, and surveillance requirements to support strike missions in conjunction with organic intelligence support.
325 to 339	SPARE
	The following functions are normally delegated to the STWC but may be retained by the OTC/CWC.
340	Establish the requirement for organic STW air support and forward requests to AREC/HEC.
341	Issue criteria for weapon release and expenditure (a matrix if possible).
342	Coordinate and control the employment of all STW weapons.
343	Establish joining and control procedures for STW aircraft; keep the AAWC and ACA informed in accordance with the AAWC's directives.
344	Submit timely and accurate mission reports.
345	Assist CWC formulation of general STW plans and, when necessary, specific guidance to the force.
346	Identify requirements for nonorganic STW air support to CWC.
347	Recommend an alternate STWC to CWC.
348	Request assignment of ships, submarines, and aircraft from CWC.
349	Assist CWC establishment of tactical intelligence, environmental reconnaissance, and surveillance requirements to support strike missions in conjunction with organic intelligence support.
350 to 399	SPARE

Table 2-5. OTC's Functions in ASUW (Sheet 1 of 2)

NO.	FUNCTIONS
Functions which <u>may</u> be delegated to a CWC.	
420	Formulating and promulgating ASUW plans and, when necessary, specific guidance to the force.
421	Promulgating EW policy as it affects ASUW.
422	Formulating and promulgating policy for <u>planned responses</u> in ASUW.
423	Ordering ASUW <u>degrees of readiness</u> .
424	Stating requirements for <u>nonorganic</u> air support for ASUW, forwarding related requests.
425	Designating the <u>ASUWC</u> and standby ASUWC.
426	Establishing and promulgating the <u>surface surveillance area</u> .
427	Assigning units to ASUWC for detection/localization/ID/recognition and reporting surface contacts.
428 to 439	SPARE
The following functions are <u>normally delegated</u> to the ASUWC but <u>may be retained</u> by the OTC/CWC.	
440	Developing and implementing the surface surveillance plan.
441	Dividing the ASUW area into sectors, if required.
442	Designating sector ASUWCs (SASUWCs).
443	Designating a force track coordinator surface (<u>FTC-S</u>).
444	Establishing the requirement for organic ASUW air support and forwarding requests to AREC/HEC.
445	Assigning sectors and/or patrol areas and designating control units for ASUW aircraft, keeping AC informed.
446	In accordance with the AAWC's directives (see Function 247), establishing joining and control procedures for ASUW aircraft, keeping the AAWC and AC informed.
447	<u>Promulgating ID criteria, required recognition levels, and required recognition confidence levels.</u>
448	Issuing <u>criteria for weapon release</u> and expenditure (a matrix if applicable).
449	Exercising tactical control, including stationing and manoeuvring of assigned surface ASUW units, in accordance with the OTC's policy and plans.
450	Coordinating and controlling surface surveillance.
451	Coordinating and controlling use of all force sensors in ASUW.

Table 2-5. OTC's Functions in ASUW (Sheet 2 of 2)

NO.	FUNCTIONS
452	Designating and disseminating (as appropriate) all reported contacts using all available information to maintain a complete surface plot of the surveillance area.
453	Issuing periodic <u>ASUW SITREPs</u> (when required by the tactical situation) and other reports, including SITSUMs.
454	Controlling ASUW nets, especially with respect to procedural integrity and security in reporting (COMSEC). The ASUWC may in turn assign some of this responsibility to sector ASUWCs and/or FTC-S.
455	Issuing <u>threat warnings</u> (SURFACE).
456	Coordinating and controlling employment of all force antisurface weapons.
457	Ordering aircraft launched and tasking aircraft attacks to counter hostile surface contacts (ASUWC establishes aircraft alert requirements, OTC retains alert launch authorization until specifically delegated).
458	Directing the employment of <u>force CHAFF</u> resources in ASUW.
459	Forming and detaching <u>SAGs and HAGs</u> or, in the event, directing screen commander in dispatching SAGs/HAGs, liaising with other PWCs as required.
460	Providing assets as available to assist other commanders in prosecution of the threat.
461	Issuing <u>weapon restrictions and orders</u> .
462 to 499	SPARE

Table 2-6. OTC's Functions in ASW (Sheet 1 of 2)

NO.	FUNCTIONS
Functions which <u>may</u> be delegated to a CWC.	
520	Formulating and promulgating ASW plans and, when necessary, specific guidance to the force.
521	Formulating and promulgating EW policy as it affects ASW.
522	Formulating and promulgating acoustic EP.
523	Formulating and promulgating acoustic deception policy, including the use of acoustic decoys.
524	Formulating and promulgating policy on <u>planned responses</u> in ASW.
525	Ordering ASW <u>degrees of readiness</u> .
526	Stating requirements for <u>nonorganic</u> air support for ASW and forwarding related requests.
527	Designating the <u>ASWC</u> and standby ASWC.
528	Establishing and promulgating the subsurface <u>surveillance area</u> .
529	Assigning air, surface, and subsurface ASW units to ASWC for detection/localization/ID/recognition and reporting subsurface contacts.
530	NOT RELEASABLE
531 to 539	SPARE
The following functions are normally delegated to the ASWC but may be retained by the OTC/CWC.	
540	Developing and implementing the subsurface surveillance plan.
541	Dividing the ASW area into sectors, if required.
542	Designating sector ASWCs (SASWCs) and local antisubmarine warfare coordinators (LASWCs), as required.
543	Designating a force track coordinator subsurface (<u>FTC-SS</u>).
544	Implementing the acoustic part of the EMCON plan.
545	Establishing the requirements for organic ASW air support and forwarding requests to AREC/HEC.
546	Assigning sectors and/or patrol areas and designating control units for ASW aircraft, keeping the AAWC and the AC informed.
547	In accordance with AAWC direction (see Function 247), establishing joining and control procedures for ASW aircraft, keeping the AAWC and AC informed.
548	<u>Promulgating ID criteria, required recognition levels, and required recognition confidence levels.</u>
549	Issuing <u>criteria for weapon release</u> and expenditure (a matrix if applicable).

Table 2-6. OTC's Functions in ASW (Sheet 2 of 2)

NO.	FUNCTIONS
550	In accordance with OTC/CWC directives (see Function 423), ordering measures to evade submarines, including tactical torpedo countermeasures (TCMs) (consequential manoeuvring will normally be ordered by the screen commander).
551	Issuing specific instructions to all friendly units to prevent mutual interference between submarines in support, towed array surface ships, and all other friendly units.
552	Exercising tactical control, including stationing and manoeuvring of assigned surface ASW units, subsurface ASW units (for submarines conducting direct support or integrated operations), and aircraft whose primary mission is ASW.
553	Coordinating and controlling subsurface surveillance.
554	Coordinating and controlling employment of <u>all force ASW weapons and sensors</u> , NOT RELEASABLE
555	Evaluating information and promulgating classification in the force when more than one ASW unit is reporting and classifying a contact.
556	Designating and disseminating (as appropriate) all reported contacts and using all available information to maintain a complete subsurface plot of the surveillance area.
557	NOT RELEASABLE
558	Issuing periodic <u>ASW SITREPs</u> (when required by the tactical situation) and other reports, including SITSUMs.
559	Controlling ASW nets especially with respect to procedural integrity and security in reporting (COMSEC). The ASWC may in turn assign some of these functions to SASWCs and/or FTC-SS.
560	Issuing <u>threat warnings</u> (SUBSURFACE).
561	NOT RELEASABLE
562	Ordering the launch and employment of alert aircraft to counter the submarine threat.
563	Coordinating contact prosecution, including coordination with the SC.
564	Forming and detaching <u>SAUs</u> , or, in the event, directing the screen commander to dispatch SAUs, liaising with other PWCs, as required.
565	Providing assets as available to assist other commanders in prosecution of the threat.
566	NOT RELEASABLE
567	Directing employment of force decoys according to the policy formulated by the OTC/CWC.
568	Promulgating plans to conduct acoustic deception in accordance with the policy formulated by the OTC/CWC.
569 to 599	SPARE

Table 2-7. OTC's Responsibilities and Functions in IW (Sheet 1 of 2)

NO.	FUNCTIONS
600	Formulate and promulgate, with the advice from the IWC, the force EW guidance (to include ES, EP, and EA).
601	Formulate and promulgate, with the advice from the IWC, IRC plans (to include OPSEC).
602	Formulate guidance, with the advice from the IWC, for decoy/jamming operations.
603	Formulate, with the advice from the IWC, the IW aspects of anti-intruder guidance, in peacetime or tension periods.
604	Designate the IWC and, with the advice of the IWC, alternate IWC.
605	Order, with the advice from the IWC, EMCON plan in force and changes in response to the tactical situation.
606	Establish, with the advice from the IWC, COMSEC monitoring plan and designate on each net a warfare commander, coordinator, or unit COMSEC monitor.
607 to 610	SPARE
Functions are normally delegated to the IWC but may be retained by the OTC/CWC:	
611	Formulating and promulgation of the OPTASK COMMS.
612	Assist OTC or CWC in force planning and integration.
613	Recommend force plans to OTC or CWC to meet JFC/JFMCC objectives.
614	Assist OTC or CWC in ensuring force reflects numbered fleet/JFMCC/JFC communication synchronization and tasks and objectives.
615	Assist OTC or CWC in force DCO to include planning, integration, monitoring, and protecting information systems against both internal and external threats.
616	Assisting OTC or CWC in force IW planning and integration.
617	Assisting OTC or CWC in force EW planning and integration.
618	Coordinating and controlling force ES assets and disseminating ES information within the force.
619	Coordinating and controlling force EA assets. Stating requirements for nonorganic air assets for Naval Strikes and forwarding request to the OTC.
620	Recommending force information operations condition and Rivercity profile to OTC or CWC.
621	Assisting OTC or CWC in force OPSEC planning and integration.
622	Recommending force force deception plans to OTC or CWC.
623	Promulgate plans to conduct electronic deception according to the policy formulated by the OTC or CWC.
624	Recommending force PSYOP plans to OTC or CWC.
625	Assisting OTC or CWC in ensuring force reflects numbered fleet/JFMCC/JFC strategic communications and maritime influence goals.

Table 2-7. OTC's Responsibilities and Functions in IW (Sheet 2 of 2)

NO.	FUNCTIONS
626	Liaising with other warfare commanders to ensure IW is effectively integrated into daily operations.
627	Recommending IW PPRs to the OTC or CWC.
628	Recommending alternate IWC to CWC.
629	Recommending the force EMCON policy to OTC, including in responding to changes in the tactical situation. This includes coordinating with ASWC to manage acoustic emissions.
630	Assisting OTC or CWC to establish a COMSEC monitoring plan.
631	Formulating and promulgating, as radio/radio footprint management, the force afloat electromagnetic spectrum operations program.
632	Coordinating with ACA, AREC, and HEC for support aircraft.
633	With Cryptological Resource Coordinator (CRC), coordinating and directing employment of ES and cryptologic sensor equipment in support of force tactical intelligence requirements.
634	Directing the employment of force deception resources.
635	Developing, coordinating, and practicing preplanned responses for countersurveillance, counterinfluence, and countertargeting.
636	Integrating real time ES contact reports with indications and warnings to recommend force defensive measures and readiness conditions to OTC or CWC.
637	Monitoring force actions to ensure they remain aligned with previously directed strategic communications policy and objectives.
638	Integrate indications and warning and special communications for BMD with the BMDC.
639	Assist OTC or CWC with nonlethal fires into the targeting cycle.
640	Assist the Strike Warfare Commander with the required intelligence to support ingress/egress and within the target area.
641	Assisting OTC or CWC in force cyber operations to include planning, integration, monitoring, and protecting information systems against both internal and external threats.
642	Assisting OTC or CWC in Tactical Datalink (TDL) management.
643	OTC/IWC (if designated) develop and release OPTASK COMMS, OPTASK METOC, and OPTASK INTEL.
644 to 659	SPARE

Table 2-8. OTC's Functions in Screening Operations

NO.	FUNCTIONS
Functions which may be delegated to a CWC or functional commander.	
720	Designating the screen commander(s) (SCs) (in a small force he may also be the ASWC) and the standby SC.
721	Assigning to the SCs units to be employed in the inner screen(s).
722	Establishing the area in which the SC(s) accomplish(es) assigned duties.
723 to 739	SPARE
The following functions are normally delegated to the screen commander(s) but may be retained by the OTC/CWC.	
740	In accordance with guidance provided by the OTC and/or PWCs, establishing the type of inner screen best suited to the existing environmental conditions, forces assigned, and other factors.
741	Arranging inner screen design with the PWCs if separate from SC, to ensure compatibility with the overall employment.
742	Acting as LASWC for inner screen.
743	Assigning necessary subsidiary duties to units assigned (plane guard, bathythermograph guard ships).
744	Stationing and employing ASW aircraft within the AOR and designating control units, keeping the AAWC and the AC informed.
745	Ordering TCMs for use by units assigned in accordance with direction from ASWC.
746	Promulgating actions to be taken when submarine/surface contact is gained by a screen unit within the AOR.
747	Promulgating the screen and screening stations to units assigned.
748	Exercising tactical control, including stationing and manoeuvring, of units assigned within the AOR.
749	Coordinating contact prosecution in conjunction with the ASWC.
750	Dispatching SAUs when directed by OTC/ASWC and SAGs/HAGs when directed by OTC/ASUWC and adjusting the screen accordingly.
751 to 799	SPARE

Table 2-9. OTC's Functions in Air Coordination

NO.	FUNCTIONS
Functions which may be delegated to a CWC.	
820	Promulgating air coordination policy.
821	Establishing (when this is not established by civil control authorities) and promulgating aircraft separation and aircraft coordination procedures in the force air coordination area (FACA).
822	Designating the AC and standby AC.
823	Establishing and promulgating within the force and to relevant outside authorities the dimensions and location of FACA.
824 to 839	SPARE
The following functions are normally delegated to the air coordinator but may be retained by the OTC.	
840	Designating aircraft control units (ACUs) for aircraft not assigned to warfare commanders/coordinators in liaison with the AREC and HEC.
841	Supporting the AAWC in establishing airspace coordination measures, such as special areas or zones for aircraft safety, ID, or prevention of mutual interference.
842	Supporting PWCs in establishing joining and control procedures for aircraft, if required.
843	Ensuring safe coordination of all aircraft when they are under task force (TF)/TG units' tactical control.
844	Coordinating air traffic, controlling, and monitoring aircraft movements within the FACA ensuring altitude separation and traffic control, keeping AAWC and ACUs involved informed. (Conducted by FADIZ C when activated.)
845	Coordinating and monitoring tactical employment of all force aircraft.
846	Ensuring that available weather information, including the altimeter pressure setting in millibars and inches, is promulgated within the FACA.
847	Support the AAWC in coordinating and reporting the movement of friendly aircraft. (Conducted by FADIZ C when activated.)
848	Monitoring aircraft safety and coordination nets in conjunction with the ACU. (Conducted by FADIZ C when activated.)
849	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.
850	Promulgating restrictions on flying operations due to meteorological conditions, keeping the OTC/PWCs informed.
851	Supporting the AAWC in resolving conflicts between tactical use of weapons and demands of aircraft safety. (Conducted by FADIZ C when activated.)
852	Establishing the local air coordination areas (LACAS)
852 to 899	SPARE

Table 2-10. OTC's Functions in Air Resource Coordination

NO.	FUNCTIONS
	Functions which may be delegated to a CWC.
920	Formulating and promulgating general employment policy for air resources.
921	Designating the AREC and HEC.
922 to 939	SPARE
	The following functions are normally delegated to the AREC/HEC, as appropriate, but may be retained by the OTC.
940	Supplying and apportioning air assets in response to warfare commander's requirements, informing them of assets assigned to their tasking.
941	Tasking organic aircraft assigned to warfare commanders/coordinators.
942	Designating ACUs for aircraft not assigned to warfare commanders/coordinators in liaison with the AC.
943	Passing orders and information to aircraft under his control to enable assigned tasks to be carried out. (Could be conducted by FADIZ C.)
944	Informing warfare commanders/coordinators of results obtained by air assets assigned to their tasking. (Could be conducted by FADIZ C.)
945	Sending aircraft availability reports. (Could be conducted by FADIZ C.)
946	Promulgating and updating flight schedules and aircraft readiness.
947	Planning and executing war-at-sea air operations when so directed by the ASUWC or OTC and power projection air operations.
948	Controlling aircraft operating against land targets (the controlling functions may be delegated to an ACU or FAC).
949 to 999	SPARE

Table 2-11. OTC's Functions in Electronic and Acoustic Warfare (Sheet 1 of 2)

NO.	FUNCTIONS
Functions which may be delegated to a CWC.	
1020	Formulating and promulgating the force EAW policy.
1021	Formulating and promulgating the EW aspects of deception policy.
1022	Formulating policy for decoy/jamming operations.
1023	In peacetime or tension periods, formulating the EW aspects of anti-intruder policy.
1024	Designating the EWC and standby EWC.
1025	Ordering EMCON plan in force and changes in response to the tactical situation.
1026	Establishing COMSEC monitoring plan and designating on each net a PWC, coordinator, or unit COMSEC monitor (e.g., AAWC is COMSEC monitor on AAWC net).
1027 to 1039	SPARE
The following functions are normally delegated to the EWC but may be retained by the OTC/CWC or IWC.	
1040	Formulating and promulgating force EMC plan/radar frequency (RADFREQ) plan.
1041	Assigning electric warfare support measures (ESM) duties and ESM guards as appropriate.
1042	In accordance with the OTC's direction and guidance from the IWC, formulating and promulgating force EMCON plans.
1043	Establishing tactical cryptologic information requirements and means of dissemination.
1044	Allocating, disposing, and tasking ESM, ECM, and EPM resources to ensure that threat and target emissions are covered.
1045	Issuing the list of threat and target emitters and electronic order of battle (EOB).
1046	Tasking available units, including ESM- and ECM-capable aircraft, to detect and report emitter contacts (EWC establishes alert requirements; OTC retains alert reaction authorization until specifically delegated).
1047	SPARE
1048	Coordinating employment of ESM and cryptologic sensor equipment in support of the OTC's and warfare commanders' tactical intelligence requirements.
1049	Collecting, evaluating, and classifying ESM and reporting evaluated information gained to the OTC and appropriate warfare commanders (to include bearings from jammed radars when appropriate).
1050	Issuing EW SITREPs and SITSUMs as directed by the IWC in conjunction with the warfare commanders.

Table 2-11. OTC's Functions in Electronic and Acoustic Warfare (Sheet 2 of 2)

NO.	FUNCTIONS
1051	Controlling and monitoring EW nets and force EMC plan/RADFREQ plan and ensuring compliance with the EMCON plan and ELSEC policy. (ASWC monitors acoustic portions of EMCON plan.)
1052	Directing employment of force decoy and CHAFF resources in conjunction with the warfare commanders.
1053	Exercising control of EW reactions to a threat, including planned responses.
1054	Allocating force racket numbers.
1055	Coordinating employment of active jamming and electronic neutralization devices according to the policy formulated by the OTC/CWC.
1056	Promulgating plans to conduct electronic deception according to the policy formulated by the OTC/CWC.
1057 to 1099	SPARE

Table 2-12. OTC's Responsibilities and Functions in Convoy Operations

NO.	RESPONSIBILITIES AND FUNCTIONS
	OTC's RESPONSIBILITIES (which cannot be delegated)
1101	Formulate and promulgate policy for the defence of the convoy against all threats.
1102	Establish close liaison with the convoy commodore for safe navigation of the convoy and instruct him to order emergency turns.
1103	When required, designate appropriate warfare and functional commanders, including screen commander(s).
1104	Detail the EP for both escorts and convoy.
1105 to 1139	SPARE
	Functions which may be delegated to appropriate commanders.
1140	Advising the convoy commodore and the OIC shipping cooperation point (SCP) of the optimum convoy disposition.
1141	Stationing of escorts and establishing intership spacing within the convoy.
1142	Establishing and controlling communications.
1143	Ordering evasive alterations of course.
1144	Keeping the NCAGS commander informed (EP permitting) of: (a) Convoy's position, course, and speed. (b) Estimated time of arrival (ETA) at designated point. NOT RELEASABLE (c) Inability to adhere to route, comply with diversion, or reach a rendezvous within 1 hour of the appointed time. (d) Intended rendezvous and route when the convoy is scattered. (e) Time of detaching sections from the convoy, and whether they are escorted. (f) Names of escorts and merchant ships assigned to the convoy but not present on sailing. (g) Failure of escorts to meet the convoy within 8 hours of the appointed time. (h) Names of escorts detached if they are not expected to rendezvous within 24 hours. (i) Enemy reports. (j) Intercepts of D/F bearings of enemy emissions that provide the first indication of an enemy's presence. (k) Requests for replenishment within a rendezvous. (l) Ships sunk or damaged and aircraft lost. (m) Operational defects suffered by ships when advance knowledge will materially assist shore authorities. (n) Weather conditions.
1145 to 1199	SPARE

Table 2-13. OTC's Functions in Departure and Entry Operations

NO.	FUNCTIONS
Functions which may be delegated to the CWC or a warfare commander.	
1240	Promulgating departure or entry operation plan, ordering the time the plan is to be executed, and specifying whether a departure or entry screen is to be formed.
1241	For operations: (a) Ordering the time that the initial search is to commence. (b) Promulgating zero hour to the force and local authorities. (c) through (g) NOT RELEASABLE.
1242	Informing the force of the support by shore-based forces.
1243	Allocating forces for the initial search on departure operations.
1244	Informing the screen commander of the cruising formation to be formed and the type of screen required on passing a designated point. NOT RELEASABLE.
1245	Defining the area to be searched during the initial search and establishing, if required, the grid reference position.
1246 to 1299	SPARE

Table 2-14. OTC's Responsibilities and Functions in Mine Warfare

NO.	RESPONSIBILITIES AND FUNCTIONS
	OTC's RESPONSIBILITIES (which cannot be delegated)
1320	Formulate and promulgate the force NMW policy.
1321	Where appropriate designate the force NMWC.
1322 to 1339	SPARE
	Functions which may be delegated to NMW commanders/NMW coordinators.
	MCM FUNCTIONS
1340	Acting as tasking authority IAW ATP-06 for NMCM forces assigned to the OTC.
1341	Coordinating the efforts of supporting NMCM forces.
1342	Coordinating with appropriate commanders for response to enemy mining.
1343	Coordinating with appropriate commanders for the execution of NMCM plans.
1344	Requesting appropriate subarea commander to issue subarea navigation warnings resulting from NMCM operations.
1345 to 1369	SPARE
	MINING FUNCTIONS
1370	Coordinating the laying of minefields in support of the force.
1371	Planning and conducting tactical mining operations by assigned forces against targets of opportunity.
1372	Coordinating with appropriate commanders for the laying of tactical minefields.
1373	Coordinating with appropriate commanders for the execution of mining plans.
1374	Requesting appropriate area commander to issue subarea navigation warnings for minefields.
1375 to 1399	SPARE

Table 2-15. OTC's Functions in MIO (Sheet 1 of 2)

NO.	FUNCTIONS
Functions which may be delegated to a CWC.	
1420	Formulating and promulgating general MIO plans and, when necessary, specific guidance to the force.
1421	Formulating and promulgating EP as it affects MIO.
1422	Formulating and promulgating policy for planned responses in MIO.
1423	Ordering MIO degrees of readiness.
1424	Stating requirements for nonorganic air support for MIO and forwarding requests.
1425	Designating MIOC and alternate.
1426	Establishing and promulgating the MIO area of operations.
1427	Assigning units to MIO for detection/localization/ID/recognition and reporting surface contacts.
1428	Establishing tactical intelligence, environmental reconnaissance, and surveillance requirements to support MIO in conjunction with organic intelligence support.
1429 to 1439	SPARE
The following functions are normally delegated to the MIO commander but may be retained by the OTC/CWC.	
1440	Developing and implementing the MIO surveillance plan.
1441	Dividing the MIO area into sectors, if required.
1442	Designating sector MIOCs and on-scene commanders, as required.
1443	Maintaining an accurate database of vessels previously challenged and/or boarded and disseminating that information to MIO forces.
1444	Establishing the requirement for organic air support and forwarding requests to AREC/HEC.
1445	Assigning sectors and/or patrol areas and designating control units for aircraft, keeping AAWC and AC informed.
1446	In accordance with the AAWC's directives (see Function 247), establishing joining and control procedures for MIO aircraft, keeping the AAWC and AC informed.
1447	Identifying suspect vessels and prioritising targets for query and possible visit, board, search, and seizure (VBSS).
1448	Authorizing boardings and assigning the on-scene commander, and boarding and assisting ships as required.

Table 2-15. OTC's Functions in MIO (Sheet 2 of 2)

NO.	FUNCTIONS
1449	Directing diversion of suspect vessels and assigning escort vessels.
1450	Issuing criteria for levels of force to be employed (a matrix if applicable).
1451	Determining when tracking and monitoring of a suspect vessel is no longer required.
1452	Exercising TACON, including stationing and manoeuvring of assigned surface MIO units, in accordance with the OTC's policy and plans.
1453	Coordinating and controlling MIO surveillance.
1454	Coordinating and controlling use of all force sensors in MIO.
1455	Designating and disseminating (as appropriate) all reported contacts using all available information to maintain a complete surface plot of the surveillance area.
1456	Issuing periodic MIO SITREPs (when required by the tactical situation) and other reports, including SITSUMs.
1457	Controlling MIO nets, especially with respect to procedural integrity and security in reporting (COMSEC). The MIOC may in turn assign some of this responsibility to a sector MIOC.
1458	Developing an MIO COMPLAN to include assigning units VHF working channels and night signal colours to be used for suspect vessel interrogation, to prevent mutual interference.
1459	Ordering allocated aircraft launched and tasking aircraft employment against suspect vessels.
1460	Providing assets as available to assist other commanders in the prosecution of threats to the MIO force and other friendly forces.

Table 2-16. OTC's Responsibilities and Functions in Force Protection in Harbour (Sheet 1 of 2)

NO.	RESPONSIBILITIES AND FUNCTIONS
	OTC'S RESPONSIBILITIES (Which cannot be delegated)
1520	Establish the degree of authority delegated, specifying command functions assigned to the force protection coordinator (FPC).
1521	Disseminate relevant available intelligence and indications and warnings through INTSUMs.
1522	Assigning air and surface units to the FPC for conducting force protection (FP) operations.
1523 to 1539	SPARE
	Functions which may be delegated to the CWC.
1540	Formulating and promulgating general FP plans, and, when necessary, specific guidance to the force.
1541	Developing and implementing the force tasking regarding FP through a dedicated structured/formatted message designated OPERATIONAL TASKING FORCE PROTECTION IN HARBOUR (acronym OPTASK FP HARBOUR)
1542	Designating the FPC.
1543	Promulgating EW policy as it affects FP.
1544	Formulating and promulgating policies on pre-planned responses in FP.
1545	Issuing criteria for weapon release and expenditure.
1546	Ordering FP levels.
1547	Stating requirements for non-organic air support for FP operations forwarding related requests.
1548	Establishing and promulgating the surveillance area, warning area and escorting area.
1549 to 1559	SPARE
	The following functions are normally delegated to the FPC, but may be retained by the OTC/CWC.
1560	Designating unit to host and establishing the Force Protection Operations Centre (FPOC).
1561	Establishing the requirement for organic FP air support and forwarding requests to AREC/HEC.
1562	Assigning sector and/or patrol areas and designating control units for FP aircraft, keeping the AC informed.
1563	In accordance with the AAWC's directives, establishing joining and control procedures for FP aircraft, keeping the AAWC and AC informed.
1564	Establishing, implementing, and cancelling FP pre-planned reactions.
1565	Exercising TACON, including station and manoeuvring of assigned surface FP units in accordance with OTC's policies and plans.
1566	Coordinating and controlling FP activities within the escorting area, surveillance area and warning area.
1567	Coordinating and controlling use of all sensors in FP.

Table 2-16. OTC's Responsibilities and Functions in Force Protection in Harbour (Sheet 2 of 2)

NO.	FUNCTIONS
1568	Designating and disseminating, as appropriate, all reported contacts and using all available information to maintain a complete all-environment plot of the surveillance area.
1569	Issuing periodic FP SITREPs (when required by the tactical situation) and other reports, including SITSUMs and daily FPC intentions message.
1570	Control dedicated FP nets, especially with respect to procedural integrity and security in reporting COMSEC.
1571	At the tactical level, issue the threat warning for the force, or unit acting independently in a designated theatre of operations (TOO).
1572	Ordering aircraft launched and tasking aircraft attacks to counter hostile contacts (FPC establishes aircraft alert requirements, OTC retains alert launch authorization until specifically designated).
1573	Direct SC to divert Marine expeditionary unit (MEU)/high-value unit (HVU), liaising with other PWCs as required.
1574	Providing assets as available to assist other commanders in prosecution of the threat.
1575 to 1599	SPARE

2220 Tasking Methods

a. The OTC and other maritime commanders have at their disposal different means of tasking the forces under their command. Primary methods of tasking assets are as follows:

- (1) Signal message; see Article 2221.
- (2) Tactical signals (ATP-01, Vol. II—Table D, Duty, with Governing Group BV).

b. The use of networked systems is becoming more prevalent and e-mail, chat rooms and web pages are now commonly being used for passing tactical and operational information, reports, and instructions. The OTC should establish the policy on passing legitimate orders over these networks.

c. The use of locally produced or free text message should be avoided for the following reasons:

- (1) Understanding loose language in free text message can be open to misinterpretation and lacks the rigor that has been applied to the layout of formatted messages and may therefore result in vital information being accidentally omitted.
- (2) Messages with no formatting or locally produced formats cannot be automated, requiring intervention in all messages, distracting staff from the operational planning and execution of tasks.

2221 NATO Message Text Formats—Purpose and Method of Use

a. NATO message text consists of standardized messages that are both man- and machine-readable. The formats of these messages are laid out in the NATO Message Catalogue ([APP-11](#)) and are generally referred to as MTF messages.

b. Purpose. MTF messages may be used:

- (1) To convey operational instructions or intentions.
- (2) To pass operational information to tactical commanders at sea.
- (3) To pass operational information between component commanders and subordinate units.
- (4) To report operational information between commanders and from subordinate to higher formations.
- (5) To notify organizations of impending and actual operations of units engaged in maritime warfare.

c. Method of Use. MTF messages are to be used as shown in Table 2-17. Detailed instructions of the structures and method of completion are contained in APP-11. Some of these messages have not yet been incorporated into FORMETS and their structures are found in Chapter 6 of APP-11. Relevant Allied publications should be consulted for direction on content to be included.

d. Ships and aircraft joining a force should be in receipt of all relevant messages pertaining to the operation in sufficient time before joining a force, to allow the commander and operational staff to make sufficient plans and provisions that they can join the force without further orders.

Note. Structured messages that have yet to be incorporated into FORMETS are indicated by italics in Table 2-17.

2222 Message Formats Used in Maritime Operations

a. Purpose. Allied tactical air messages consist of standardized message forms and are used to:

- (1) Convey operational instructions or intentions from commanders to subordinates.
- (2) Pass operational information to tactical commanders at sea.
- (3) Report operational information and intelligence between commanders and from subordinates to higher authorities.
- (4) Notify air defence organizations of impending and actual movements of aircraft engaged in maritime operations.

b. Message Formats. Message formats, with examples, are contained in APP-11.

2223 Tactical Data Link Systems

Tactical data links can be used by the OTC to make real-time amendments to tactical instructions, C2 arrangements, and threat warning levels. These systems have an inherent capability for exercising tactical coordination using contact reporting messages, weapons and platform status messages, and command messages. Amplifying information can be found in ADatP 11, ADatP 16, ADatP 22, and ADatP 33.

2224–2229 Spare

Table 2-17. Message Formats Used in Maritime Operations (Sheet 1 of 12)

GENERAL				
MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
OPGEN	Promulgates general matters of policy, instructions and aspects common to all forms of warfare. Using the guidance contained in the OPGEN, principal warfare commanders, functional commanders and coordinators can prepare detailed plans and tasking for promulgating by OPTASK and other appropriate messages.	OTC	Action: All TF/TG units under the command of the OTC, cooperating and supporting forces. Info: OTC of other forces operating in close proximity. Superior authority.	As required, ensuring that sufficient time is given to delegated principal and functional commanders to formulate their plans and issue appropriate tasking messages.
ORBATTOASEA	Used to transfer operational command and/or control from one authority to another.	OPCOM/ OPCON	Action: OPCOM/OPCON relinquishing and assuming command. Units being transferred.	As required prior to change of OPCOM/OPCON.
STATUS REPORTING				
OPSTAT UNIT	Informs the OTC, other authorities and cooperating units, as appropriate, with operational and detailed information about the capabilities of a unit.	Unit	Action: OTC. Info: All TG units.	1. Before sailing. 2. 48 hours before joining a force. 3. On major change of unit data not reported in daily reports.
NAVOPDEF	Informs the chain of command of restrictions on the operational capability of units, the intentions for repair and to initiate repair assistance or advice as appropriate.	Unit	Action: OTC Info: Second line support units.	1. On initial discovery of defect. 2. Major change in status of defect. 3. Defect rectification.
OPSTAT DEFECT	Provide information regarding operational defects and how they affect the operational capabilities of the unit, or to report changes to this information.	Unit	Action: OTC	As required by OTC/national authority.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 2 of 12)

INFO DISSEMINATION				
MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
OPTASK LINK	Promulgates detailed tasking and instructions regarding the operation of tactical data links (TDL).	OTC/delegated TDL manager	Action: All TF/TG units with an active or passive tactical data link capability. Cooperating and supporting forces. Info: OTC of other forces operating in close proximity. Superior authority.	As required.
OPTASK COMMS	Promulgates the communications plan in force related instructions.	OTC/IWC	Action: All TF/TG units under the command of the OTC, cooperating and supporting forces. Info: OTC of other forces operating in close proximity. Superior authority.	As required.
OPTASK INTEL	Promulgates detailed policy, direction and guidance, tasking and instructions for all aspects of intelligence support including the implementation of the CCIRM process.	OTC/IWC	Units, supporting commanders.	As required.
OPTASK IM	Provides dynamic Information Management (IM) issues pertinent to Internet Protocol (IP) networking in the maritime environment.	CTG	Action: Units Info: Subordinate Commands	As required.
FREQMAN	Used to request/allocate frequencies for exercises and operations.	CTG	commander task force (CTF)	1. At least 90 days before exercise.
MSGCORRCANX	Used to cancel a message(s) and/or to correct the information in a previously transmitted message(s).	As original message	As original Message	As required.
ROUTCHANG	Promulgate changes to the Routing Indicators used by task organizations, adding and deleting signal message addresses (SMAs) and provide changes to routing information for existing SMAs.	Routing Authority	All units	As required.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 3 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
ROUTSTAT	States the activation and deactivation times of high grade message routes.	Routing Authority	All affected units	As required.
TEMPSMA	Used to promulgate the activation period of temporary Signal Message Addresses (SMA) and related information.	Routing Authority	All units	As required.
SITUATIONAL AWARENESS				
LOCATOR	Reports surface, subsurface, air, mines, or special interest units operating in the maritime environment.	Unit	Action: OTC, PWC. Info: All units.	As required.
NAVPOSREP	Report the location and/or intended movement of own military and auxiliary vessels and the location of other military organizations.	Unit	Action: OTC/sea area commander.	As required.
NAVSITREP	Report specific events, changes in location and movement, changes in readiness, or changes in major equipment status of maritime forces.	Unit	Action: OTC, PWC.	As ordered by OTC.
NAVSITSUM	Periodic summary of friendly forces giving details of their command, control, task organization, location and planned movements.	Sea area commander	Action: Units operating in area. Info: Commanders of adjacent sea areas.	Periodically.
OPTASK RMP	Tasking of recognized maritime picture (RMP) assets.	OTC	Units, supporting commanders.	As required.
RMPSITSUM	Periodic report the location of surface and/or subsurface contacts and/or the overlay details of a specified geographical area, comprising the RMP.	Sea area commander	Action: Units operating in area. Info: Commanders of adjacent sea areas.	Periodically.
MERSITREP	Merchant shipping situation report.	MCC	All Units	As required.
MERSITSUM	Merchant shipping situation summary.	MCC	All Units	Daily.
SAILNOTE	Report of merchant vessel(s) movements.	NCAGSLO	MCC	As required.
COI LIST	Consolidated list of vessels that are of specific interest.	MCC	Action: All supporting units	Weekly.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 4 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
OPTASK METOC	Detailed tasking and instructions for all aspects of meteorological and oceanographic support.	OTC, CWC	Units, supporting commanders.	As required.
INFORMATION WARFARE				
OPTASK EW	Promulgates detailed tasking and instructions for the conduct of electronic warfare.	OTC/IWC/EWC	Action: All units in TG. Info: supporting forces.	As required by OTC.
JAMWARN	Warning about intended jamming operations.	OTC/IWC/EWC	Action: All units in TG. Info: Supporting forces, adjacent forces/authorities that may be affected.	12 hours before planned jamming activity.
SATVULREP	Promulgates periods of vulnerability to satellite reconnaissance and to prescribe countermeasures to satellite surveillance.	Area commander/OTC	All concerned.	As required by OTC/EWC.
AIR WARFARE				
OPTASK AAW	Promulgates detailed tasking and instructions for all aspects of anti-air warfare and provide safety and coordination information for shore based aircraft joining the force.	OTC/AAWC/ADC	Action: All TF/TG units, cooperating and supporting forces including air stations, combined air operations centre (CAOCs) and control and reporting centre (CRCs). Info: OTC of other forces operating in close proximity. Superior authority.	As required by the OTC.
OPSTAT CASP	Provides coordinating information for AD or AAW operations when an AD capable warship is operating in, or adjacent to, a joint operations area (JOA).	Any maritime unit allocated to CASP tasking	Action: Cooperating shore based AD assets. Info: Air component commander.	48 hours before commencing CASP tasking.
STRIKE WARFARE				
OPTASK STW				
SURFACE WARFARE				
OPTASK ASUW	Promulgates detailed tasking and instructions for the conduct of anti-surface warfare.	OTC/ASUW commander	Action: All TF/TG units, cooperating and supporting forces including air stations. Info: OTC of other forces operating in close proximity. Superior authority.	As required by the OTC.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 5 of 12)

MARITIME INTERDICTION OPERATIONS				
MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
MOVEREP	Provides information related to the movement of naval units.	OTC/UNIT	Action: Area commander. Info: Units likely to be encountered during passage.	As required. Ideally, at least 24 hours prior to movement or IAW local orders.
OPTASK MIO	Promulgate detailed tasking and instructions for all aspects of Maritime Interdiction Operations.	MIO commander	Action: All MIO Units Info: All supporting Units	As required.
MIO REPORT	Periodic and staged reports during the approach, boarding and post boarding phases of a MIO operation.	Unit Conducting Boarding	Action: MIO commander	As required. Note: different sections required at each stage of boarding. Consolidated message using all sections required after Action.
MIO BOARDING STATUS	Provides updates to the MIO Commander or other higher authority about the progress of the boarding operation.	Unit Conducting Boarding	Action: MIO commander	On significant event, or not more than 2 hours.
MIO CLEARANCE	Orders the MIO commanders intention in response to a MIO Report.	MIO commander	Action: Boarding unit	As required.
HAILED REPORT	A list of the vessels that they have contacted during a period of MIO.	Units	Action: MIO commander	Daily at 2300.
UNDERSEA WARFARE				
OPTASK ASW	Promulgates detailed tasking and instructions for all aspects of ASW.	OTC/ASWC	Action: All TF/TG units, cooperating and supporting forces including air stations. Info: OTC of other forces operating in close proximity. Superior authority.	As required by the OTC.
UW OBJECT NOTE	Provides information to appropriate authorities on a unit's intention for streaming or deploying a sonic or other underwater device.	SUBOPAUTH, OTC/SOCA, Unit intending to deploy underwater device.	Action: Submarine movement advisory authority (SMAA). See AHP-06 to identify area sponsors.	48 hours prior to intended deployment or as required by local orders.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 6 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
<u>WSM ALLOCSTAT</u>	Promulgates waterspace management information to minimise mutual interference between submarines and ASW forces.	SUBOPAUTH	Action: Submarines, ASW units, supporting maritime patrol aircraft (MPA) bases.	24 hours prior to intended activation or as required by local orders.
<u>WSM REQ</u>	Request for antisubmarine warfare areas for water space management.	OTC, ASWC, Unit	Action: SUBOPAUTH.	48 hours prior to intended activation or as required by local orders.
SUBMARINE OPERATIONS				
OPSTAT READINESS	Information exchange between SUBOPAUTH's prior to TACON being transferred.	SUBOPAUTH (relinquishing)	Action: SUBOPAUTH (gaining/assuming)	At least 48 hrs before transfer of TACON.
BARNSTORM	Primary method for submarine operations authority to pass all major operational control, safety and communication instructions to submarines on exercise of patrol.	SUBOPAUTH	Action: Submarines, SOCA/OTC, ASWC, and other units as appropriate.	As required.
GRASSHOPPER EXECUTE	Promulgate the execution of operation GRASSHOPPER. It can only be ordered by the SUBOPAUTH.	SUBOPAUTH	Action: Submarines, OTC/SOCA, ASWC and other units as appropriate.	See Chapter 6.
GRASSHOPPER REQUEST	Used to request execution of operation GRASSHOPPER from the SUBOPAUTH	OTC or ASWC	Action: SUBOPAUTH.	As required but before the MEADOW will be active.
INTENDCHOP	Signal when one or more submarines will change OPCON.	SUBOPAUTH (relinquishing OPCON)	Action: SUBOPAUTH (gaining/assuming OPCON), submarine, others as required.	As soon as possible.
RELINQTAC	Report details outstanding before relinquishment of TACOM/TACON by the OTC/ SOCA.	OTC/SOCA or ASWC	Action: SUBOPAUTH, submarine, others as appropriate.	As appropriate.
SUBCHOP	Provides SUBOPAUTH's and other affected commanders with all information relevant to change of OPCON of submarines being chopped.	SUBOPAUTH (relinquishing)	Action: Gaining/ assuming and affected SUBOPAUTHs, OTC, SOCA, submarine.	As appropriate.
SUBDANGER	Promulgates intended operations or actions hazardous to submarines.	SUBOPAUTH	Action: SMAA, other force commanders as appropriate. See AHP-06 to identify area sponsors.	At least 48 hours before start day time.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 7 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
SUBFORCEREP	Provides a means for the SOCA to rapidly convey near term, perishable tactical coordination information and intelligence to a support submarine on local tactical nets. This message is a supplement and not a replacement for the support Submarine Force Summary used to pass more detailed information to SUBOPAETH for broadcast relay to support submarines.	OTC/SOCA, ASWC	Action: Submarine, SUBOPAETH.	Should be kept ready for transmission at all times and updated just prior to scheduled tactical communications with the support submarine.
SUBFORSUM	Updates the SUBOPAETH and submarines on TG operations, intentions, assessments, and coordination requirements. This is a serialized message and is the preferred method for passing traffic containing tactical coordination and intelligence information.	OTC/SOCA, ASWC	Action: SUBOPAETH, supporting submarines, others as appropriate.	1. At least every 24 hours. 2. When new submarine joins.
SUBNOI	Promulgates underwater (subsurface) interference area information.	SUBOPAETH	Action: SMAA, other authority as appropriate. See AHP-06.	As appropriate.
SUBNOTE REQ	Request to order and inform about the movement of a submarine.	Submarine, OTC/SOCA	Action: SUBOPAETH, SMAA, OTC/SOCA, submarine.	More than 48 hours before estimated time of departure (ETD).
SUBNOTE	Orders and informs about the movement of a submarine.	SUBOPAETH	Action: SMAA, all affected submarines, other authorities as appropriate. See Table 2-1 of AHP-06 Vol. I.	At least 48 hours before ETD.
SUBNOTE CHANGE REQ	Requests an order about a change in the movement of a submarine.	Submarine, OTC/SOCA	Action: SUBOPAETH, SMAA, OTC/SOCA, submarine.	As soon as details are known.
SUBSUPREQ	Requests submarine support for specific employment option, warfare mission area and time period.	OTC/SOCA or ASWC	Action: SUBOPAETH, others as appropriate.	As soon as possible.
SUBNOTE CHANGE	Orders and informs changes in the movement of a submarine.	SUBOPAETH	Action: OTC, submarine and others as appropriate.	As required.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 8 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
SUBSITREP	The primary reporting means for the submarine to convey information back to the submarine tasking authority.	Unit	Action: SUBOPAUTH	As required.
SUBTASK	Assign a submarine to the supported force/group.	SUBOPAUTH	Action: OTC, submarine and others as appropriate.	As required.
MINE WARFARE				
OPTASK NMW	Promulgate detailed tasks, instructions and/or information for all aspects of naval mine warfare.	OTC/NMWC	Action: Units Info: Supporting units	As required.
OPREP NMW	Operational report on naval mine warfare operations and the areas impacted by present or future naval mine warfare operations.	Units	Action: NMWC	As directed.
		NMWC	Action: OTC	
<u>OPTASK LEADTHROUGH</u>	Passes information to MCM Tasking Authorities about ETA and Composition of a convoy/naval force which has to pass a certain channel.	NATO Shipping Centre (NSC)	Action: MCM Tasking Authority	At least 36 hours before ETA at transit RV.
<u>LEADTHROUGH ORDER</u>	Pass information to MCM authorities about ETA and composition of a convoy/naval force which has to pass a certain channel.	OTC Transiting Units	Action: MCM Commander	12 hours before transit.
<u>TRANSIT INSTRUCTIONS</u>	Instructions issued by an OTC of MCM forces with the aim to pass necessary information for execution of a lead through operation to a naval force, convoy or independent unit	MCM commander	Action: Transiting Units	12 hours before transit.
AVIATION				
OPTASK AIR	Promulgates detailed tasking and instructions for all organic aircraft.	OTC/AREC/HEC	Action: All units operating or controlling aircraft. Functional commanders employing tasked aircraft. Units with an AD capability. Info: ACC/land component commander (LCC) when operating close to their AOA.	Daily by 2000Z or as directed by the OTC.
OPSTAT HELO	Provides operational, technical information and restrictions about embarked or assigned helicopters.	HELO equipped Units	Action: OTC/AREC/HEC Info: Units with an Aircraft Control capability.	1. 48 hours before embarking. 2. One minute after OPSTAT UNIT. 3. On major change of aircraft data/status.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 9 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
CROSSDECKREQ	A request for NATO cross deck operations to transfer capable aircraft to or from a maritime platform.	Unit	Action: Cross deck receiving platform, AREC/HEC. Info: OTC.	48 hours prior to intended activation or as required by local orders.
CROSSDECKRESP	The response for a request for NATO cross deck operations to transfer capable aircraft to or from a maritime platform.	Cross deck receiving platform	Action: CROSSDECKREQ originator, AREC/HEC. Info: OTC.	24 hours prior to intended activation or as required by local orders.
MPA JOIN	Passes updated information on the tactical situation, pertinent information from the various OPTASK messages and amplifying information on the mission to a supporting Maritime Patrol Aircraft prior to take off.	ACU	Action: MPA base	To be received at least 4 hours before takeoff.
		ACU	Action: MPA in Transit	When in ultrahigh frequency (UHF) range if update required.
PURPLE	Used to provide a comprehensive summary of the activities of a mission or event.	MPA	Action: PWC Info: OTC, TG units.	Within 24 hours of landing.
GREEN	Tasks maritime patrol or surveillance and ASW units when an air tasking order (ATO) has not been issued.	MPA tasking authority	Action: ASUWC, ASWC, AAWC, Force Marshal, aircraft control authorities. Info: Cooperating forces.	24 hours prior to mission.
REPLENISHMENT AT SEA				
OPSTAT CARGO	A report of the status and quantity of major cargo types and waste reception capacity remaining.	RAS supply ship	Action: Logistics coordinator, OTC, URG commander.	1. 48 hours prior to changing OPCON or RAS operations. 2. On completion of each replenishment operation. 3. After replenishment operations or significant change in holdings.
OPSTAT RAS	Provides customer ships with details of rigs, waste reception facilities and types of stores that can be delivered from respective transfer stations.	RAS supply ship	Action: OTC, logistics coordinator, TG units.	1. 48 hours prior to joining force. 2. As required. 3. To new units joining force.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 10 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
OPSTAT RASREQ	Details the replenishment requirements of a customer. It is sent directly to the supplying ships concerned by independent ships and to the OTC by ships within a force.	Unit (customer ship)	Action: Supplying unit Info: OTC/logistics coordinator. Supplying unit.	24 hours prior to replenishment/ as required by the logistics coordinator.
OPTASK RAS	Promulgates the replenishment programme.	OTC/logistics coordinator	Action: Supplying ships, receiving ships. ASWC, ASUWC.	12 hours prior to replenishment.
AMPHIBIOUS WARFARE				
OPTASK AMPHIB	Provide detailed tasking instructions to units regarding the execution of an amphibious operation.	OTC/ amphibious commander	Action: All TF/TG units, cooperating and supporting forces. Info: LCC, ACC, OTC of other forces operating in close proximity.	As required by the OTC.
PCS INTENTIONS	Provides detailed instructions to amphibious units concerning the conduct of the surface assault portion of an amphibious operation.	OTC/CATF	Action: All TF/TG units, cooperating and supporting forces. Info: LCC, ACC, OTC of other forces operating in close proximity.	As required by the OTC.
OTHER OPERATIONAL TASKING				
OPTASK FP HARBOUR	Promulgates guidance and instructions regarding Force Protection for all naval forces within a harbour or anchorage.	OTC/local area commander	Action: All units in harbour	1. 24 hours before ETA. 2. As required by threat.
OPTASK NCAGS	Promulgates detailed tasking and instructions for all aspects of shipping operations. See ATP-02	NCAGS commander	Action: All concerned.	As required.
OPTASK AWNIS	Used to promulgate detailed arrangements for the dissemination of classified maritime safety information and the forwarding of information to the World-wide Navigational Warning Service for release by unclassified means.	Safety of Navigation Information Centre	Action: All TF/TG units within the area, cooperating and supporting forces. Info: OTC of other forces operating in close proximity.	As required.
DIVING OPERATIONS				
OPTASK DIVE	Report planned and/or ongoing diving operations when diving operations are prepared in waters under command of the local area commander.	OTC/local area commander	Action: Tasked unit. Info: Units in vicinity of diving operations.	As required.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 11 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
DIVNOTE	Gives notice to the local area commander before commencing diving operations in waters under their control and for the local diving authorities to reply with chamber location/medical facility details.	Unit	Action: Local Area Commander	4 hours before diving.
DIVEACC	Informs other formations or to call for immediate medical assistance and/or evacuation of a casualty in the event of a diving accident.	Unit	Action: OTC Supporting units MCC	As required.
LOGISTICS				
OPTASK LOG FLC	Promulgates the force logistic coordinator's (FLC) logistic directives, duty assignments and other essential instructions to execute afloat logistic support for forces assigned. See ALP-4.1, Multinational Maritime Force Logistics	FLC/group logistic coordinator (GLC)	Action: All units in TG, OTC.	As required by OTC.
LOGSITREPMAR	Provides the logistical status of an individual unit.	Unit	Action: OTC/FLC	Daily.
OPTASK LOG MNLC	Promulgates the multinational logistic commander's (MNLC) directives, duty assignments, and other essential instructions and information to execute logistic support for the multinational maritime force. This message is the primary method for coordinating logistic matters ashore. See ALP-4.1	MNLC	Action: OTC, host nation authorities. TG units.	As required.
REPAIR DIR	Specifies who will provide services, describes technical assistance requirements and directs Action necessary to effect repairs.	Repair coordinator	Action: Unit(s) tasked to provide repair services Info: Unit to be repaired	As required.
EMREQ REQ	Requests the transfer of the necessary spare parts to correct defects affecting the operational readiness of a unit by exploiting the combined resources of the multinational maritime force (MNMF).	Requesting Unit	Action: Materiel control officer (MATCONOF) Info: Units	As required.
EMREQ REP	Used to respond positively to an EMREQ REQ indicating that the required parts are being held and can be redeployed as spare parts to correct defects affecting the operational readiness of a unit.	Tasked Unit	Action: MATCONOF	As required.

Table 2-17. Message Formats Used in Maritime Operations (Sheet 12 of 12)

MESSAGE	PURPOSE	ORIGINATOR	ADDRESSEES	OCCASION
EMREQ DEL	Provides a means for the MATCONOF to direct a holding unit, which has previously sent an EMREQ REP, to supply the necessary spare parts to a unit, which sent the initial EMREQ REQ, to correct defects affecting the operational readiness.	MATCONOF	Action: Holding Unit Info: Receiving Unit	As required.
LALC REPORT	Report on logistic airlift requirements for the movement of spare parts and technical assistance within the task force or task group. The message is intended to cover a time period of 24hrs.	LALC	Action: HEC	1. 1600Z. Note: Must arrive with HEC in time for OPTASK AIR planning.
EVACREQ	Request for personnel casualty evacuation.	Unit with Casualty	Action: OTC Info: HEC	As required.
MEDCASREPTRACK	Initial information about unit personnel casualties and tracking personnel casualties along the evacuation route.	Units	Action: FLC	As required.

CHAPTER 3 Force Organization/Readiness

SECTION I—RAPID AMENDMENT OF TACTICS AND PROCEDURES

3100 General

It is recognized that in actual operations during wartime some tactics will prove more or less effective than others and, in certain crucial cases, it is essential that a clearly defined method for rapidly changing or perhaps cancelling a current tactic or procedure should exist.

3110 Procedure

a. Proposed Tactical (PROTAC) Amendment Message. Any operational unit observing significant failure in the use of a NATO tactic is to report the fact to the OTC by message. The message should take the form of a PROTAC amendment message IAW APP-11, designed to:

- (1) Improve the effectiveness of a currently unsatisfactory tactic, or
- (2) Replace an unsatisfactory tactic with a more effective one, or
- (3) Cancel an ineffective tactic.

b. OTCs Receiving a PROTAC Message Should:

- (1) Where it improves the safety or operational efficiency of their force and is of immediate operational concern:
 - (a) Implement the PROTAC immediately for their own forces
 - (b) Forward it by message to the major subordinate commander (MSC) for action
 - (c) Send information copies to appropriate authorities, including, where applicable, the commanders of adjacent areas/forces.

OR

- (2) Where it is not of immediate operational concern, forward the PROTAC to the area MSC by message.

OR

- (3) Where the PROTAC is found to be invalid, cancel it by means of a message to the originating unit.

c. Corrected Tactical (CORTAC) Procedure Message. MSCs or delegated headquarters (HQs) receiving a PROTAC message are to act as coordinating agency for implementing the change to, or cancellation of, a tactic throughout their area. As controlling agencies, MSCs or delegated HQs shall, if they approve the content of a PROTAC, promulgate a CORTAC procedure message IAW APP-11, to all appropriate forces in their area, with an action copy to their strategic commander.

SECTION II—POSITION AND MOVEMENT

3200 Position/Reference Systems

- a. Position can be expressed by any of the following means:
 - (1) Latitude and longitude. Latitude is expressed before longitude (e.g., 14° N 47° W).
 - (2) World Geographic Reference System (Georef).
 - (3) Grids—universal transverse Mercator (UTM), Cartesian coordinate grid (CCG), military grid reference system (MGRS), or other grid promulgated by an appropriate commander.
 - (4) Bearing and distance in miles, or bearing and range in hundreds of yards.
 - (5) Station occupied (e.g., Station 3).
 - (6) Quick reference system (QRS).
- b. The position may be further defined by an accuracy suffix and/or an altitude or depth indication.

3201 World Geographic Reference System

a. Georef is not a true grid; it is merely a convenient means of expressing latitude and longitude for the purposes of rapid plotting and reporting. Georef may be used whenever a UTM or CCG grid is not suitable; it shall not be used for naval gunfire support, close fire support, direct air support, or in any other application where positional information must be reported with accuracy. The system is intended primarily for inter-Allied use in air operations and in air aspects of anti-air warfare operations.

b. Description. Georef is based on a division of the globe into 24 longitudinal zones of 15 degrees each, lettered from A through Z (omitting I and O) eastward from the 180th meridian; and 12 latitudinal zones of 15 degrees each, lettered from A through M (omitting I) northward from the South Pole. See Figure 3-1.

- (1) While relatively few charts have Georef overprints, the lettering system can easily be added on existing charts by labeling the zones accordingly. Labeled in this manner, any basic 15-degree area can be located by first reading right to the desired alphabetical column, and then up to the desired alphabetical row. The reference symbol for any 15-degree area in the world consists of only two letters.

-EXAMPLE-

MK indicates a 15-degree rectangular area with its SW corner at latitude 45° N, longitude 15° W.

- (2) Each 15-degree area is further divided by 15-lettered degree units eastward, and 15-lettered degree units northward, using in each direction the letters from A through Q (omitting I and O).

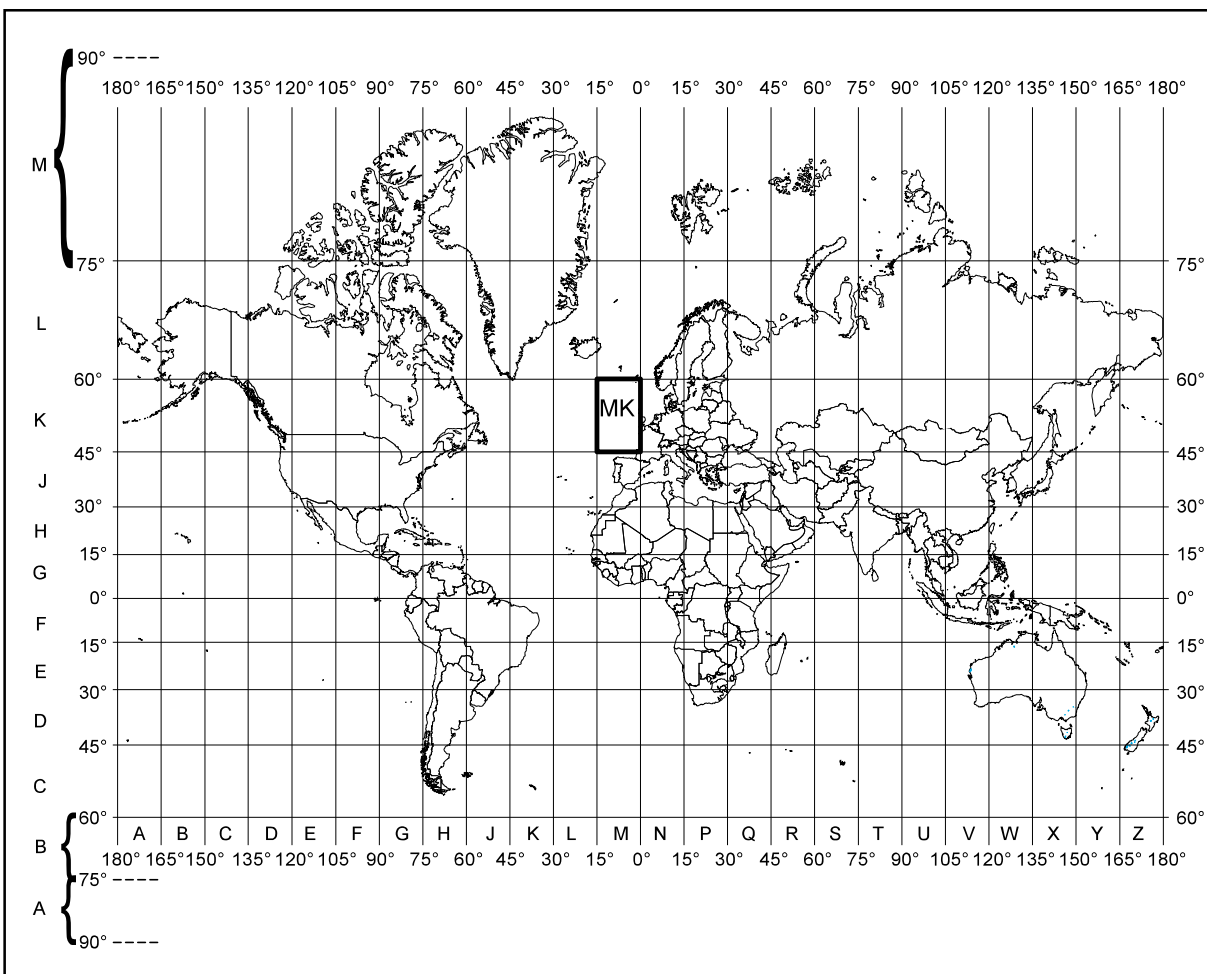


Figure 3-1. Sample Georef Chart

A 1-degree area can be located by the right-up process, and the two-letter designator listed immediately after the two-letter designator for the 15-degree area. The reference symbol for any 1-degree area consists of only four letters.

-EXAMPLE-

GJPJ indicates a 1-degree area with its SW corner at latitude 38° N, longitude 77° W.

(3) Each 1-degree area is divided into sixty 1-minute units eastward and sixty 1-minute units northward. These 1-minute units are designated by numbers, reading right-up from the SW corner of each 1-degree area. A Georef report composed of four letters and four numerals is all that is required to locate any 1-minute area in the world.

-EXAMPLE-

WGAN 5630 indicates a 1-minute area with its SW corner at latitude 12°30' N, longitude 120°56' E.

(4) Further accuracy, if desired, can be obtained by reporting each 1-minute unit in tenths (or hundredths) of a minute eastward and northward. This requires a six (or eight) numeral reference. For example, WGAN 56503060 indicates a point at latitude 12°30'36" N, longitude 120°56'30" E. (Note that numerical position references will always have an even number of digits, in which the first half will indicate the right direction and the second half will indicate the up direction.) The 15 degree designator may be omitted from reports, but care must be taken to ensure that the omission will not cause ambiguity. For example, NG 1720 identifies a location on the western side of Leipzig and NG 1720 (in UTM grid) identifies an aerodrome south of Skrydstrup in Denmark.

c. Size of Rectangle. To designate the size of any rectangular area, the standard Georef coordinates are used to indicate the SW corner of the area followed by the letter S (denoting length of sides) and by digits giving the eastward and northward dimensions of the area in nautical miles. The digits are separated by the letter X.

-EXAMPLE-

GJQJ 0207S6X6 indicates a rectangle with 6-mile sides and its SW corner at latitude 38°07' N, longitude 75°58' W.

d. Size of Circle. To designate the size of a circular area, the standard Georef coordinates for the centre of the circle are followed by the letter R (denoting radius) and by digits giving the nautical mile radius of the circle.

-EXAMPLE-

EDBL 2743R12 indicates a circle with a 12-mile radius with its centre at latitude 34°17' S, longitude 118°33' W.

e. Altitude. To designate altitude, the standard Georef coordinates for the geographic location of the aircraft are followed by the letter H (denoting height) and by two digits giving altitude in units of thousands of feet.

-EXAMPLE-

VFKC 1509H15 indicates aircraft at 15,000 feet at latitude 12°51' S, longitude 114°15' E.

3202 Universal Transverse Mercator Grid

The UTM grid (the Army square grid) is used for naval bombardment purposes and for other purposes where applicable. When using this grid, the MGRS will be used in communications between ground forces and other forces jointly engaged; specifically when air forces including naval aviation are acting in close air support of ground forces, and when landing force operations are supported by all supporting forces. In such operations, latitude and longitude will be used when use of MGRS is impractical.

3203 Cartesian Coordinate Grid

The CCG is designed for limited security, rapid reporting of geographic positions in a system compatible with tactical data systems. Grid positions are reported using X and Y coordinates in relation to the grid origin (centre). This grid origin is based on a geographic reference point, and contact positions are measured in units east/west (X axis) followed by units north/south (Y axis). The unit of distance is known as the data mile (2,000 yards). The four quadrants of the grid, reading clockwise from the northwest, are each identified by a colour—red, white, blue, and green (see Figure 3-2).

a. Establishing the Grid. The grid origin is established by the OTC. Selection of the grid origin at a position containing whole or half degrees of latitude or longitude will result in a less secure grid and should be avoided when possible.

b. Method of Reporting. In reporting a position, the quadrant is first identified by colour. Position relative to grid origin is then reported by transmitting the number of miles along the X axis as a three-figure group, followed by the number of miles along the Y axis as a three-figure group. The X and Y coordinates are separated by the word “TACK.”

3204 Antisubmarine Warfare Grid

An ASW grid is designed to provide area commanders and ASW forces a common grid to facilitate ASW operations. This grid incorporates areas sized and oriented to provide reasonable probability of detection by sensors, to allow target pursuit and attack, and to accommodate topographical and environmental conditions.

3205 Bearing and Distance

a. When Reporting Bearing and Distance in Miles, the order of reporting will be: bearing in degrees from reference point—the reference point—distance in miles. The nautical mile (2,000 yards) is the unit of distance. All bearings are reporting as true unless otherwise specified.

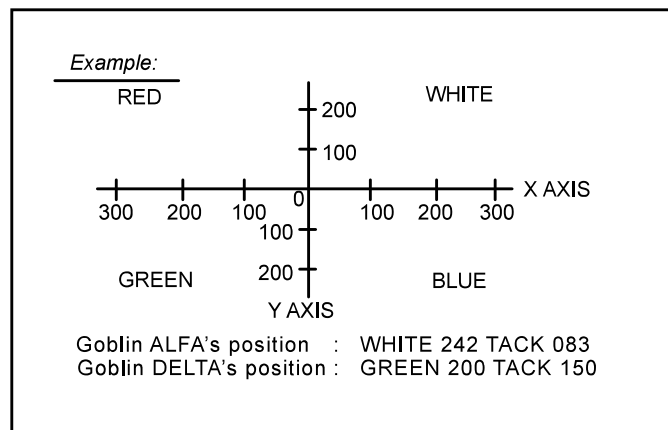


Figure 3-2. Sample Cartesian Coordinate Grid

-EXAMPLES-

(1) From a point on the earth's surface given in specific double letters or a code name:

125KK45
140 Point Holly 50

(2) From a point of land or a navigational mark:

112 Hatteras 12
237 Finisterre 21

(3) From a standard position in the force:

310ZZ7

(4) From a ship of own force, using the call sign of the ship:

273 HOT-SHOT 12

b. When Reporting Bearing and Range in Hundreds of Yards, the order of reporting is the same as that for bearing and distance, except that the word "RANGE" must be spoken (reports in RANGE should normally be limited to less than 10,000 yards).

-EXAMPLES-

(1) From a standard position, range 9,500 yards:

165 TT RANGE 95

(2) From a sonobuoy, range 1,700 yards:

230 KINGPIN RANGE 17

3206 Quick Reference System

a. Purpose. The QRS is designed for rapid exchange of positions and tactical information between units operating in coastal waters (e.g., a fjord environment). The QRS is suitable for exchange of combat information, disposition of own forces, area allocation, aircraft control, enemy update, reconnaissance operations, SITREPs, etc.

(1) The QRS sheet is a see-through plastic overlay in A-4 format (21.0 cm x 29.7 cm) with 176 numbered squares. An example of the overlay is provided in Figure 3-3.

b. Establishing the QRS. Any chart may be chosen, but all participants must use the same scale. Upper left and upper right corners are given by geographic positions. If the overlay is north-south oriented, only the upper left corner position should be given. When more than one QRS is in use, each overlay is identified as QRS ALFA, QRS BRAVO, etc.

NOTE: Reprint the overlay locally on transparent plastic at same size as template.

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33
34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72	73	74	75	76	77
78	79	80	81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120	121
122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143
144	145	146	147	148	149	150	151	152	153	154
155	156	157	158	159	160	161	162	163	164	165
166	167	168	169	170	171	172	173	174	175	176

Figure 3-3. Quick Reference System (QRS) Overlay

INTENTIONALLY BLANK

c. Ordering the QRS. The geographic positions of the QRS overlays should be signalled by the OTC well in advance by an OPGEN, OPTASK, etc. Information should contain:

- (1) Chart number and scale.
- (2) QRS identifier (when more than one overlay).
- (3) Upper left corner position (and upper right corner position if not north-south oriented).
- (4) Period.

-EXAMPLE-

GENTEXT/REPORTING INSTRUCTIONS/QRS/NORWEGIAN CHART
 322/1:200000/QRS ALFA/7025.0N-1800.0E/23100-UFN/QRSBRAVO/
 7025.0N-1906.2E/231600-232000/QRS CHARLIE/7020.0N-2010.0E/
 7031.4N-2106.1E/232000-240200//

d. Procedures. Normal raid-reporting procedures are used, but position is reported as a numbered square. The square number may be passed in NUCO. If it is necessary to specify position within a square, add direction from square centre (see example 2). When aircraft and helicopters are participating, brevity words in APP-07, Joint Brevity Words apply:

-EXAMPLES-

- (1) Contact report:

SMUGGLER 2634 - SQUARE 27 BRAVO - TRACKING SOUTH - SPEED
 20 - TIME 1645Z

- (2) Movement report:

NA22 DESIG SQUARE 35 WEST - M CORPEN 045 - TACK 30

- (3) Command message:

TA88 - 11 DESIG SQUARE 31 ALFA

3207 Position/Bearing Accuracy Suffixes

To indicate the probable accuracy of a position or bearing, an accuracy suffix may be added. These suffixes are particularly important when reporting an area of probability derived from two or more passive bearings. The suffixes are:

a. Position:

Within a 2-mile radius—XRAY

Within a 10-mile radius—YANKEE

Outside a 10-mile radius—ZULU

From NAVSTAR global positioning system (GPS) unit—GOLF PAPA

NOTE

THERE IS NO APPRECIABLE ERROR UNLESS OTHERWISE STATED.

b. ESM bearings:

Within 2 degrees—ALFA

Within 5 degrees—BRAVO

Within 10 degrees—CHARLIE

Outside 10 degrees—DELTA

NOTES

1. BEARING ACCURACIES ARE CHARLIE, UNLESS OTHERWISE STATED.

2. THE WORD “CLASS” IS INSERTED BEFORE A, B, C, AND D.

3208 Altitude or Depth

When reporting positions, it may be appropriate to include an altitude or depth report.

a. Altitude. If an accurate altitude of any air track cannot be determined, estimated altitude is to be reported using the appropriate APP-07 brevity code words (i.e., VERY LOW, LOW, MEDIUM, HIGH).

(1) Friendly Air Tracks. The altitude of friendly aircraft can be reported using the words ANGELS (in thousands of feet; e.g., ANGELS 1 DECIMAL 5 is 1,500 feet) or HEIGHT (in feet, e.g., HEIGHT 400 is 400 feet) or using the International Civil Aviation Organization (ICAO) term FLIGHT LEVEL (e.g., FLIGHT LEVEL 250 is 25,000 feet).

(2) Other Air Tracks. The altitude of other air tracks can be reported using the word ALTITUDE (in hundreds of feet; e.g., ALTITUDE 151 is 15,100 feet) or using the ICAO term FLIGHT LEVEL.

NOTE

FLIGHT LEVEL IS ONLY TO BE USED WHEN ALTITUDE IS REPORTED BY THE AIRCRAFT (SECONDARY SURVEILLANCE RADAR, IDENTIFICATION, FRIEND OR FOE (IFF), OR VOICE).

b. Depth. If an accurate depth of a submerged track cannot be determined, an estimated depth may be reported using the appropriate APP-07 brevity code words (i.e., SHALLOW, DEEP), or if an accurate depth can be determined, it may be reported as DEVILS (in tens of feet; e.g., DEVILS 30 is 300 feet).

NOTE

NATO PUBLICATIONS ARE IN THE PROCESS OF BEING AMENDED TO THE FOLLOWING STANDARD UNITS OF MEASUREMENT:

1. RANGE—YARDS.
2. DISTANCE—NAUTICAL MILES.
3. ALTITUDE—FEET.
4. DEPTH OF ALL OBJECTS IN WATER, INCLUDING BOTTOM DEPTH AND THERMAL FEATURES, IN METRES WITH FEET OR FATHOMS (AS APPROPRIATE) IN BRACKETS USING CONVERSION OF 1 METRE = 3.28 FEET AND ROUNDED OFF TO THE NEAREST METRE WHEN EXACT FIGURES ARE REQUIRED. WHEN USING ONLY APPROXIMATE FIGURES THE CONVERSION MAY BE ROUNDED OFF ACCORDINGLY (E.G.,: 250 FM SHOULD BE ROUNDED OFF TO 450 M RATHER THAN 457 M).
5. THICKNESS OF ICE—CENTIMETRES AND/OR METRES.
6. TEMPERATURES—DEGREES CELSIUS.

THE STANDARD UNITS ABOVE ARE NOT TO BE CONFUSED WITH THE CODE WORDS RANGE AND ALTITUDE. FOR SAFETY PURPOSES DURING THE TRANSITION PERIOD, THE DEPTH OF ALL OBJECTS WILL BE IN METRES FOLLOWED BY FEET OR FATHOMS IN BRACKETS.

3209 Checksum Digits

- a. To avoid confusion caused by error in transmission, checksum digits may be used in structured and free text messages, and where available in formatted messages for positions, courses, speeds, and times. Checksum digits may also be used for ranges, frequencies, etc.
- b. To derive the checksum digit, the numbers in the position, course, speed, or time are to be added together and the total put after the appropriate element. Only the last figure of the summation is to be used; that is, if the total comes to "19," only the "9" is used.

-EXAMPLES-

- (1) Position—5004N9 15642W8. (The 9 and 8 are the checksum digits.)
- (2) Course—225T9 degrees true or 225M9 degrees magnetic. (The 9 is the checksum digit.)
- (3) Speed—15KT6. (The 6 is the checksum digit.)
- (4) Time—281030Z4. (The 4 is the checksum digit.)

3210 Standard Positions/Reference Points/Position Reporting

The standard positions in the force are:

- a. QQ—The centre of the front of the main body or convoy when not in circular formation.
- b. TT—Originator's present position.
- c. XX—The standard position established by the OTC on which a search, enemy reporting and so forth is to be based.
- d. YY—Addressee's present position.
- e. ZZ—The centre of the force.

NOTE

WHENEVER POSSIBLE, XX SHOULD BE COINCIDENTAL WITH THE DATA LINK REFERENCE POINT (DLRP).

3211 Data Link Reference Point (Only Link 11)

- a. The DLRP is the common point from which all positional information on data link is derived. The DLRP is established by the MICO, in a geographic position, before commencing link operations, but may be changed for operational and/or security reasons. In principle, the DLRP should be the same position as the CCG origin, thus ensuring that picture compilation is derived from using the same origin by tactical data system (TDS) and non-TDS units when cooperating.
- b. The force track coordinator(s) (FTCs) is (are) responsible for an accurate tactical (data link) picture and for raid reporting within the force or in a sector, using voice compilation nets. The grid reference unit (GRU) is responsible to the MICO for maintaining the accurate position of the DLRP and the CCG origin. The GRU holds by definition the correct position of the DLRP and/or grid origin.
- c. **Establishing the DLRP.** Although more than one DLRP can be established for consecutive periods and/or for geographic areas, only *one* DLRP per data link should be effective during a certain period. The geographic positions of DLRPs and the times of change are to be established well in advance by the MICO through means of operational order (OPORD), OPGEN, etc.
- d. **Initiating the DLRP.** When commencing link operations, all participating units (PUs) insert the DLRP in their TDS. On completion, the GRU executes a grid lock.
- e. **Maintaining the DLRP.** The accurate position of the DLRP is maintained by the GRU. When necessary, the GRU executes a grid lock check to assist in updating PUs.
- f. **Changing the DLRP.** Changing the DLRP causes disruption of the tactical picture for a short period and should therefore only be executed when the tactical situation permits. On completion of changing the DLRP and when all PUs have entered the DLRP in their TDS, the GRU executes a grid lock. Non-TDS-fitted ships are to shift the CCG accordingly.

3212 Helicopter Reference Point

In order to facilitate position reports from and to helicopters, a helicopter reference point (HRP) may be established. Several types of helicopters are equipped with tactical navigation systems optimized for passing positional information as a bearing and range from a reference point. The HRP can also be used for updating the helicopter's navigation system. With the use of an HRP, position reports can be passed in the clear, enabling ships and helicopters to process information quickly.

a. Establishing the HRP. The HRP is a geographically fixed position issued by either the AC in an OPTASK AIR or the helicopter control unit (HCU) prior to a mission. Due to navigation system design, the HRP should be as close to possible to the area in which the helicopter will operate. Preferably targets or contacts to be reported should not be outside 50 nm of the HRP. When an operation requires more than one HRP, subsequent points can be established and designated with a suffix (e.g., HRP ALFA, HRP BRAVO) or a code word. For transits, more than one HRP can be established by the AC or HCU for a limited period of time.

b. Position Reports To and From Helicopters. The HRP can be used to pass geographic position information, such as an air plan search origin ("DATUM 315 HRP 5 DECIMAL 5"), or as the common reference when using method B2 in accordance with Table 9-2. When the helicopter initiates a "Request update," navigation updates may be passed using the "Standby, mark" procedure.

3213 NOT RELEASABLE

3214 Ship as Anchoring Reference

When a ship is ordered to anchor with reference to another ship, the reference ship is to identify herself to the incoming ship.

a. Providing Identification.

- (1) By day, her visual call sign is to be used.
- (2) At night, she is to show a white light as high on the foremast as possible. This is in addition to normal anchor lights.
- (3) At darken ship, directional lights are to be used.

b. Providing Other Data.

- (1) If at single anchor, she is to signal the bearing and distance of her anchor from her foremast.
- (2) If moored with two anchors, she is to signal the direction of the ship's head and the line of direction between her anchors.

3215 Routes and Reference Points

Routes and reference points are established for the purpose of facilitating control of surface, air, and subsurface traffic so as to reduce interference between forces making passage in the same area. Routes and reference points are established by commanders in chief and such other commanders as may be specifically designated. Common routes and reference points should be promulgated when necessary in order to ensure understanding between forces operating in adjacent areas. Information concerning common routes and reference points should be disseminated to forces about to enter or leave an area as well as to appropriate commands in adjacent areas. When no conflict with established routes and reference points would result, commanders subordinate to those mentioned above may promulgate additional routes and reference points for the temporary use of their own forces.

3216 NOT RELEASABLE**3217 Reporting and Exchanging Data on Positions**

a. Navigational Danger. Ships sighting or detecting land are to report immediately if the formation may be running into navigational danger or if the position thus obtained differs materially from that based on the OTC's reference position.

b. Doubt of Position. Ships should exchange data on navigational positions if there is any doubt of their positions, especially when approaching land or after a period in which a fix has not been obtained. Large ships should also assist small ships and craft by passing their own positions to them.

c. Position Reports. All large ships and the screen commander(s) will make position reports to the OTC at 1200 (or 15 minutes after noon position) or when called for. The method by which the position was determined will be indicated. Position reported will be the formation centre.

d. Movement Reporting System. When it is required on a need-to-know basis that information be exchanged between commanders, individual ships (less submarines) or formations are to report in peace, and may be directed to report in war, their positions, routing, changes thereto, and intended CHOP by means of movement reports (MOVREPs). These MOVREPs may also include other intentions (see Allied Communications Publication (ACP)-176, NATO Supplements). Additional details are contained in APP-11.

3218–3219 Spare

3220 Course and Speed

a. Ships are ordered to proceed by course and speed. In formations, the Guide is ordered to proceed at the signalled speed on the signalled course. Signalled speed is attained by using the normal number of revolutions for the ordered speed and adjusting as necessary for foul bottom and damage; signalled course requires correction of the compass course for gyro error or variation and deviation.

When evasive steering, such as zigzagging, is ordered, a base course and a base speed are to be ordered. Subsequent course alterations do not change the base course unless the change is specifically signalled.

b. Ships may also be ordered to proceed at a specific speed, such as maximum speed, operational speed, stationing speed, normal speed, or steerageway. When no stationing speed has been ordered, operational speed is to be substituted for stationing speed in the description of certain manoeuvres. Normal speed should be previously established if its use is expected to be required by the type or unit commander. Speeds may also be ordered with reference to specific equipment performance requirements, such as optimum or maximum sonar speed, or with reference to the requirements of specific operations, such as replenishment speed.

3221 Course and Speed Made Good

a. It is necessary to distinguish clearly between signalled (or base) course and signalled (or base) speed and:

- (1) Course and speed made good through the water (CSW).
- (2) Course and speed made good over the ground.

b. CSW includes the effect of weather on course made good through the water and speed made good through the water, but not the effect of current or tidal stream. Course and speed made good over the ground includes the effect of current or tidal stream on course made good over the ground and speed made good over the ground. It is course and speed made good over the ground that is normally used when routing ships; in this case, the speed component is indicated as speed of advance (SOA).

3222 Position and Intended Movement

a. Purpose. The OTC establishes position and intended movement (PIM) to assist the return of aircraft, to aid outlying surface units in maintaining station, to keep adjacent commands informed of his intentions, and for rendezvous purposes. It is particularly important to keep all units in a dispersed formation informed of PIM.

b. Signal. The OTC shall signal PIM as follows: position—time of position—course—speed—period in hours (if required) for which course and speed are in force. If, during the period, several changes of course and speed will be in effect, course, speed, and period in force should be repeated as necessary for each change. The OTC shall signal PIM to detached units, or those about to be detached, which are scheduled to rejoin later, in sufficient time to permit these units to take suitable action. PIM is normally signalled one hour prior to flight operations. EMCON permitting, the OTC must advise his area commander and maritime headquarters (MHQ) of the force's PIM.

c. PIM of Independent Unit. Commanders of units acting independently may establish their own PIMs.

d. When Position of Force Differs From PIM. After PIM has been issued, unforeseen circumstances may cause the position of the force to differ from PIM. For example, a new operational requirement or a shift in the wind may affect the course and/or speed made good by a carrier force. Under such circumstances, the OTC will issue a new PIM.

e. Task Group PIM. Signalling the PIM assists aircraft and ships to return to the force after operating beyond visibility distance. Ordinarily PIM is signalled by the OTC at least one hour before aircraft are launched. As soon as it is known, PIM is to be promulgated for flight planning purposes; in any case, it must be furnished to pilots before takeoff.

3223 Endurance

Endurance is normally the hours fuel will last at indicated speed.

3224–3229 Spare

3230 Arrival and Departure

3231 Reporting Time of Arrival

The local authority is to be previously informed of the ETA of the unit wishing to enter harbour. Ships should not enter harbour until permission is granted.

3232 Entry Intervals

The number and types of the ships entering harbour may be such that the situation is complex. In this event, signals are provided to specify the sequence in which units are to enter and whether the units are to be separated by time or distance intervals. To allow time for berthing, these intervals should normally be greater than those for the same ships when leaving harbour.

3233 Anchoring in Formation

When ships are to anchor in formation they will be conducted to the anchorage by the formation commander. Accurate station-keeping is particularly necessary.

3234 Berth Numbers

Ships proceeding independently to assigned berths, or shifting berths in a harbour or anchorage where berths have been established, are to hoist the numbers of the berths to which they are proceeding. When proceeding to berths in formation, berth numbers are not to be hoisted unless ordered by the unit commander.

3235–3239 Spare

SECTION III—EVASIVE STEERING

3300 Scope

This section describes antisubmarine evasion and torpedo countermeasures for main body, convoy, and screen units as well as anti-fast patrol boat manoeuvres against a missile- or torpedo-firing boat (FPB).

NOT RELEASABLE.

3301 General Instructions

a. Main Body or Convoy. The main body or convoy will normally carry out evasive steering.

NOT RELEASABLE.

The screen should be fully informed about the type and/or plan of evasive steering in order to be able to adjust patrolling.

3321 NOT RELEASABLE

This page—NOT RELEASABLE

SECTION IV—FORMATIONS

3400 Scope

Formations consist of single or multiple-line formations. A disposition is a combination of two or more formations. Both formations and dispositions may be formed by linear or circular methods. Instructions for the use of formations and dispositions as well as details of Line Formations 1–12, Disposition 2W and Disposition 4W can be found in ATP-01 Vol. II.

SECTION V—DISPOSITIONS

3520 NOT RELEASABLE

Table 3-1—NOT RELEASABLE

SECTION VI—SCREENS

3600 Purpose

The purpose of a screen is to protect a main body or convoy. It may be designed to provide protection against aircraft, missiles, submarines, or surface forces. In a multithreat environment, due consideration must therefore be given to the assessment of threat priorities and the advanced warning which can be obtained by the force. Since the threat can change during an operation, continuous reassessment of the situation is necessary to maintain the efficiency of the screen. Since present weapons and sensors demand defence in depth, screens should be adequately dispersed, thus increasing the enemy's problem in recognizing and attacking the main target. Additional details and instructions for screening can be found in respective warfare area publications.

3610 Types of Screen

a. Sector Screen. Sectors are chosen to exploit the individual equipment capabilities of various screen units and to provide flexibility and defence in depth. Sectors are defined by true bearings and distances from screen centre. Screen units patrol assigned sectors; the amount of patrolling and the size of the sector depend on the speed advantage of the screen unit over the main body or convoy. Random manoeuvring in sectors has the advantage of disguising the disposition of the force and thus poses an additional recognition problem to an enemy.

b. Helicopter Windline Screen. A helicopter screen is provided for a carrier temporarily during flight operations, relative to the carrier's track into the wind.

c. Departure Screen. When the main body is large, forming up may require considerable time, and it may be desirable to wait for the moment when the main body is in formation to order screen units to their appointed station in the cruising screen. In this case, a departure screen is to be ordered to protect the main body while it is forming up. When the main body is small, it may not be necessary to form a departure screen.

d. Entry Screen. The purpose of the entry screen is the protection of the main body as it passes through the area immediately to seaward of the swept channel, particularly during the period it is changing formation prior to entering the swept channel. When the main body is large, an entry screen using the same procedure as for a departure screen should be ordered by the OTC.

3611 Screen Selection and Design

Selection and design of the screen are based upon the OTC's appreciation of the situation. The OTC should consider the following:

NOT RELEASABLE.

- a. The mission.
- b. The situation.
 - (1) The threat:
 - (a) Enemy forces (surface, subsurface, air, or combined).
 - (b) Enemy capabilities (sensors, weapons, standoff capability, nuclear warheads, jammers).
 - (c) Enemy's possible courses of action.

- (2) Characteristics of the area of operations:
 - (a) Distances (to own and enemy bases, to own and enemy supporting forces).
 - (b) Oceanographic factors (water depth, marine life, wrecks, sonar conditions, and currents).
 - (c) Meteorological factors (visibility, sea state, radar conditions, wind direction and speed).
- (3) Own forces:
 - (a) Screen units (number and types, radar, EW, sonar, weapons, communications replenishment requirements).
 - (b) Main body or convoy (composition, size and spacing, speed, manoeuvrability, defensive capabilities).
 - (c) Support forces (pickets, aircraft, surface forces, submarines, auxiliaries).
- c. Opposing courses of action.
 - (1) Enemy's overall specific objectives.
 - (2) Own courses of action.

3612 NOT RELEASABLE

3613–3619 Spare**3620 Description of Screens****3621 Sector Screen**

a. Description. The centre is ZZ or QQ, unless otherwise ordered. Sectors are allocated by indicating sector boundaries and sector depth (separated by a tack) followed by the call sign of the unit assigned to that sector.

(1) Sector Boundaries are ordered by a group of four numerals. First two numerals indicate the true bearing of the left boundary in tens of degrees; the second two numerals indicate the true bearing of the right boundary in tens of degrees.

(2) Sector Depth is also ordered by a group of four numerals. First two numerals indicate the inner limit and the second two the outer limit of the sector in thousands of yards from the screen centre.

-EXAMPLE-

SCREEN K–ZZ–0307–0510 c/s DD 4

Meaning: DD 4 is allocated a sector 030° to 070° true, depth 5,000 to 10,000 yards from ZZ.

(3) Increments of 5° or 500 yards are ordered by using ANS.

-EXAMPLE-

SCREEN K–ZZ–20 ANS 33 ANS–02 ANS 07 c/s DD 6

Meaning: DD 6 is allocated a sector 205° to 335° true, depth 2,500 to 7,000 yards from ZZ.

b. Stationing a Main Body or Military Convoy. Ships of a main body or military convoy may be stationed by the sector method, but the fact that they are a part of the main body or military convoy must be made clear to the force. Ships stationed by this method carry out random movements within their sectors.

c. NOT RELEASABLE.

3622 Spare

Figure 3-4—NOT RELEASABLE

3623 Helicopter Windline Screen

Available helicopters are ordered to sectors, stations, or patrol lines ahead of a carrier launching or recovering aircraft. The break-dip position is to be at least 5,000 yards from the carrier at all times. A helicopter windline screen may be ordered by using either the sector method or by stationing the helicopter(s) relative to the carrier.

3624 Departure and Entry Screens

- a. When the departure/entry screen is ordered, units proceed independently to the sectors or areas assigned and then patrol at random within them. More than one unit may be allocated to a single sector or area, in which case, the screen commander is to specify the unit that is to coordinate their patrol. Sufficient time should be allowed so that screening ships do not proceed at a speed higher than optimum sonar speed and are able to employ tactical countermeasures while taking up their cruising stations.

In the case of departure operations, the screen commander should order the cruising screen to be formed so that the screening units are in their cruising stations as the Guide passes Point O. (See Article 3213.)

- b. Departure/entry screens may be ordered by any method convenient to the particular geographic location; for example, the sector method (see Figure 3-5).

c. Sector Departure/Entry Screens.

(1) Description. Units are allocated patrol sectors for which they are responsible, using the sector method of ordering with the screen centre given as a geographic position. Screen centre is usually best placed on Point X or along the line X-O.

(2) Method of Ordering.

- (a) Form departure/entry screen sector.
- (b) Screen centre.
- (c) Sector allocations.

(3) EXAMPLE. An example is given in Figure 3-5.

d. Grid Departure/Entry Screens.

(1) Description. Ships are allocated patrol areas for which they are responsible, the boundaries of these areas being specified by the use of CCG preferably locked to a prominent geographic feature.

(2) Method of Ordering.

- (a) Form departure/entry screen.
- (b) Grid reference position. (The grid position of point X must also be specified.)

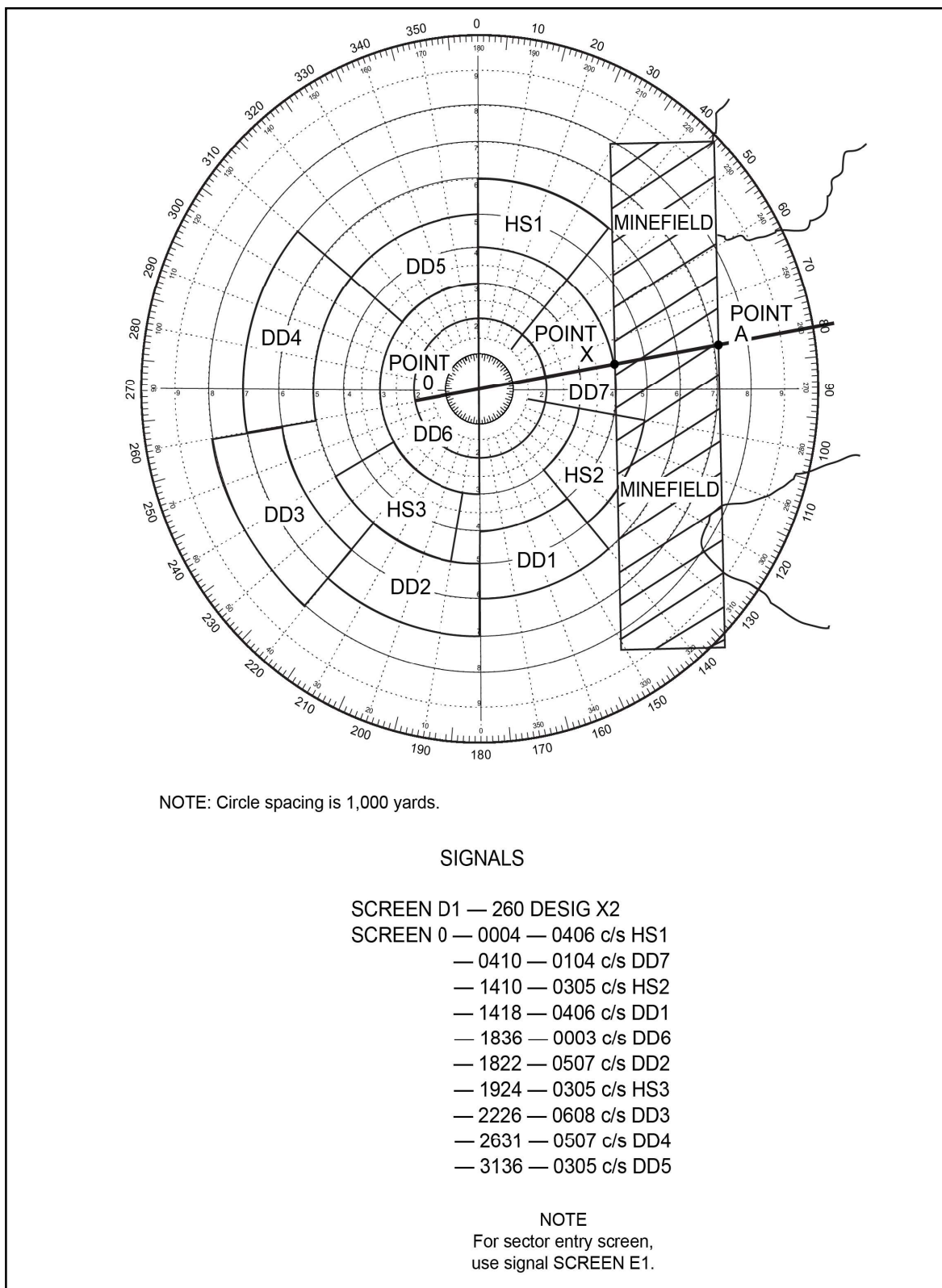


Figure 3-5. Example of Sector Departure/Entry Screen

(c) Area allocations. Areas are designated by the grid reference indicating the southwest corner of each patrol area. Patrol areas are to be three miles square unless otherwise ordered. If a larger area is ordered, the grid reference is to be followed by a two-figure group, the first figure indicating the east-west dimension and the second figure the north-south dimension in miles. Patrol areas may be overlapped.

(3) **EXAMPLE.** An example is given in Figure 3-6.

3625 Screen for Damaged Ships

The sector method should be used for ordering screens for damaged ships. If the speed of a damaged ship is low, screen units should be allocated large sectors in order to provide an all-around protection and so that they can use adequate tactical countermeasures for their own defence.

3626–3629 Spare

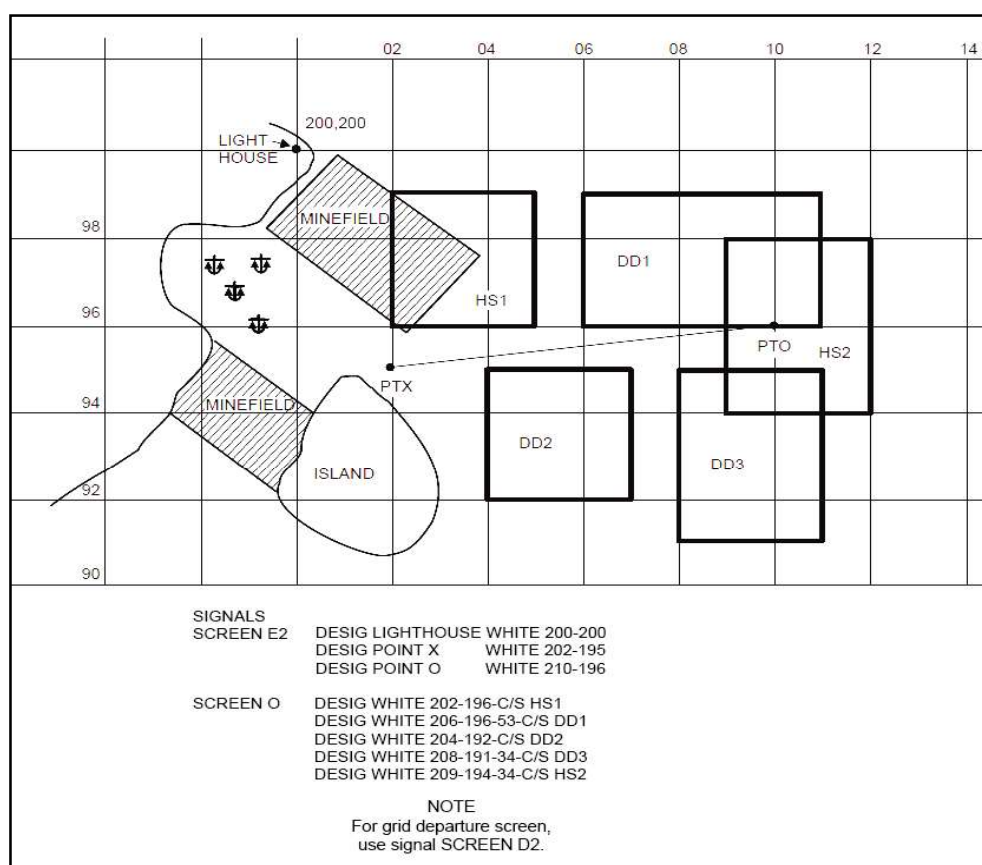


Figure 3-6. Example of Grid Departure/Entry Screen

3630 Manoeuvring with a Sector Screen

a. Conduct of Ship Screen Units. Units are to patrol widely throughout their sectors and, when a subsurface threat exists, to choose that speed which makes for the best use of sonar in the conditions prevailing. Units should take account of the movement of adjacent screen units in order to avoid undue gaps. For safety reasons, a unit is not to close nearer than 500 yards to the boundary separating its sector from one occupied by another unit.

b. Conduct of Helicopter Screen Units. Helicopters are to dip randomly throughout their sectors. They may mark-dip in advance of their sectors but must break dip within it. Helicopters operating under tactical direction should manoeuvre to cover adjacent helicopter sectors left temporarily vacant. For safety reasons, a helicopter must break dip if it closes within 500 yards of a sector boundary common to an adjacent occupied sector.

c. Alteration of Course. If the base course of the main body or convoy is altered, screen units continue to patrol their sectors.

d. Screening a Carrier During Flight Operations. The conduct of screen units depends on the method used for carrier flight operations (see Chapter 6):

- (1) If Method A is used, the rules in subparagraph c above apply.
- (2) If Method B is used, screen units are to patrol their sectors in the upwind direction.
- (3) If Method C is used, screen units should anticipate a turn into the wind by moving upwind in their sectors.

e. Adjusting the Screen. To adjust the screen, units may be ordered to shift their sector boundaries or to change the depth of their sector. If the tactical requirements are not met by adjusting, the screen must be reordered.

(1) Shifting Sector Boundaries. Units are ordered to shift their sector clockwise or counterclockwise by a specified number of tens of degrees. Such shifts should be at least 10 degrees and must not exceed 90 degrees. Caution must be exercised to ensure that large shifts do not result in screen units hindering the main body and a reduction in screen protection for an excessive period of time.

(2) Changing Depth of Sector. When the situation requires a rapid change of the screen, units may be ordered to change the inner and outer limits of their sector in the direction of or away from the screen centre by a specified number of thousands of yards. Such changes should not be less than 1,000 yards.

(3) Main Body or Convoy. Ships of the main body or convoy that are stationed by the sector method may be manoeuvred by the OTC the same way as screen units.

3631 Spare

3632 Instructions for Convoy Screens

General instructions for ordering and conduct of screens are contained in earlier articles in this section. Specific responsibilities of convoy screen ships follow:

a. Maintaining Convoy Discipline. Screen ships are to assist the convoy commodore in maintaining convoy discipline by reporting ships that make smoke, show lights, lose station, make unauthorized use of radio, pump bilges, or dump refuse. They are to use initiative and warn merchant ships directly when immediate action is necessary, informing the OTC and convoy commodore of the action taken.

b. Maintaining Convoy Formation. Screen ships are to make every effort to keep ships in their proper stations. The OTC may order a screen ship to escort one or more scattered ships; he may also remedy poor station-keeping by ordering screen ships to lead the flank columns of the convoy until individual merchant ships have regained station. OTCs must report merchant ship casualties by a merchant casualty report.

c. Action When Ship Is Damaged. A screen ship on observing that a ship has been damaged is immediately to report the occurrence and the cause, if known, to the OTC, and at night, if possible, is to fire two white rockets. It must not be assumed that the OTC is aware of a ship being damaged until the fact has been reported to him.

d. Rescue of Survivors. Action to counter a threat and continued protection of the convoy are to take precedence over the rescue of survivors. When survivors are sighted in the vicinity during a search for a submarine, life rafts should be dropped. If required, the OTC is to designate screen ships, as soon as they can be spared, to pick up survivors and to screen other ships engaged in rescue work.

3633 Helicopters in the Screen

The rules for ordering helicopter screens or assigning helicopters a station or sector in a surface screen are the same as those for ordering surface screens. However, stations or sectors assigned to unspecified helicopters must be designated by addition of "DESIG H" after the station or sector assigned.

-EXAMPLE-

SCREEN K-N8C8 DESIG H

Meaning: In this sector screen, there is a helicopter patrol line 8,000 yards ahead of the main body or convoy.

3634 Control of Screen Helicopters

a. Helicopter Control Unit. The OTC (or screen commander, if delegated) may assign the control of helicopters to one or more HCUs. The duties of the HCU are the same as those of an aircraft control unit (ACU). In the case of a windline screen, the OTC should order the number of helicopters required and designate the carrier as an HCU. Helicopters may also be ordered to operate independently.

b. Procedure When Helicopters Are Employed on Screening Duties.

- (1) The OTC (or screen commander, if delegated) assigns helicopter screen stations.
- (2) The OTC (or screen commander, if delegated) normally allocates one or more helicopters to each HCU.
- (3) HCU passes to helicopters their sector boundaries and sector limits, or the bearings and distances of their stations from a suitable reference point (e.g., QQ or ZZ).
- (4) HCU directs the movements of the helicopters under positive control to ensure safety.

c. Procedure When Carrying Out Evasive Steering. When evasive steering is being carried out, HCUs must coordinate helicopter movements with ship movements so as to avoid unacceptable gaps in the screen.

- (1) Very-long-leg or Long-leg Zigzag Plan.** When one of these plans is in force, helicopters in the screen need only be informed of this fact and of the alterations of course at least one dip cycle before they take place.

(2) Short-Leg Zigzag Plan. When this plan is in effect, helicopters in the screen may be taken under positive control. Helicopters should not be employed along the short legs except in the direction of the force movement.

d. Information to Helicopters. Helicopters must be kept informed of the situation by their HCUs to enable them to perform their functions properly. Information, such as course and speed alterations, evasive steering in use, adjustment of the screen, and contacts obtained by other units, are all required by helicopters in the screen.

3635 Pickets

a. Ordering. Picket stations are ordered either by true bearing and distance from screen centre or by the sector method.

NOT RELEASABLE.

b. Manoeuvring. The true bearings and ranges of picket stations do not change with alterations of course by the main body or convoy. If new picket stations are desired, the OTC (or screen commander, if delegated) should order them well in advance of the alteration of course.

c. NOT RELEASABLE.

3636 Towed Array Ships in the Screen

The procedures for stationing surface ships equipped with towed array systems are similar to those for other surface ships.

NOT RELEASABLE.

a. NOT RELEASABLE.

b. NOT RELEASABLE.

3637–3639 Spare

3640 Special Instructions

3641 Instructions for Individual Screen Units

a. Report on Joining a Screen. On joining, the commanding officer is to report to the OTC and screen commander any defect that affects his operational capability and his fuel state.

b. Rejoining the Screen. Units rejoining a screen are to proceed to their previously assigned station, unless otherwise ordered.

c. Replenishment of Screen Units. When screen units are to conduct replenishment, the procedure will be as follows:

- (1) Screen ships are to proceed when relieved at screen station unless otherwise ordered.
- (2) Remaining screen units act in accordance with subparagraph f below.
- (3) Screen units rejoining after replenishment act in accordance with subparagraph b above.
- (4) Screen helicopters may be refuelled by surface units.

d. Bad Weather Conditions. If, during bad weather, a screen unit is unable to maintain the speed necessary to accomplish the task without damage or serious effects on its sensor performance, the commanding officer is to report to the OTC (or screen commander, if delegated) the maximum speed he can maintain.

e. Equipment Failure. Any sensor or weapon system failure in a screen unit is to be reported immediately to the OTC (or screen commander, if delegated) and to adjacent units, including the estimated time at which repairs will be completed. A gap caused by this failure is to be covered, as far as possible, by adjacent units by adjusting their patrol without leaving their assigned sectors, stations, or patrol lines, unless the screen commander decides to adjust or reorder the screen.

f. Filling a Gap. If a screen unit leaves the screen, units in sectors, stations, or patrol lines adjacent to it are to manoeuvre in their sector, station, or patrol line so as to cover as much of the gap as possible. They will leave their sector, station, or patrol line only if ordered to do so.

g. Right of Way. Ships of the main body or convoy have right of way over screen ships, unless the latter are in contact with submarines. A helicopter in the dip or hover is not to be approached by ships within 500 yards.

h. Navigational Hazards. Individual ships are responsible for avoiding navigational hazards.

i. Bulging the Screen. If, during manoeuvring a carrier by Method B (see Chapter 6), the length of flight operations necessitates the carrier to proceed outside the screen, the screen is to bulge. In this case, the two screen units ahead of the carrier leave their sectors, stations, or patrol lines to screen the carrier.

j. Taking Up or Changing Sectors or Patrol Lines. Ships should proceed at maximum sonar speed or operational speed as the tactical situation dictates.

k. Station-Keeping by Helicopter. A helicopter should be in its allocated station or sector at the moment of breaking dip for next jump.

3642 Screen Adjustment

The OTC, or the screen commander when delegated this responsibility, will adjust the screen whenever there is a change in the tactical situation or in the number of screen units available.

SECTION VII—READINESS**3700 Scope**

This section establishes common procedures for organizing, ordering, and reporting the readiness of a force.

3701–3719 Spare**3720 Readiness for Action****3721 Operational Capabilities**

a. The operational capabilities of any combatant unit can generally be considered to consist of three components: warning, evaluation, and action. Normally any engagement will develop in the following sequence:

- (1) **Warning.** The indication by any tactical information source of the presence of a threat.
- (2) **Evaluation.** The appraisal of threat information to determine the type and degree of threat.
- (3) **Action.** The employment of one or more weapon systems to counter the threat.

b. The rules governing degrees of readiness allow that, with a lowering of the warning, there follows a more rapid lowering of the evaluation and a marked lowering of the action components. In addition, the desired readiness for action is influenced by:

- (1) Capabilities of tactical information sources, weapon systems, and communications.
- (2) Effects of environmental factors (e.g., dawn or dusk, fog, sonar conditions, afternoon effects, etc.).
- (3) Training status of personnel.
- (4) Command organization.

3722 Inoperable Equipment

When a unit is unable to assume or keep the ordered degree of readiness (or alert state), this inability shall be reported to the OTC, including in the report the reason and the time at which the ordered degree of readiness (alert state) will be assumed or resumed. Permission shall be obtained from the OTC before equipment essential for warning, evaluation, or action is made inoperable for maintenance. Daily performance checks are to be carried out on such equipment to ascertain its readiness for effective use.

3723 Command Responsibilities

a. Degree of Readiness. The OTC will order the degree of readiness to be assumed. Commanding officers may order a higher degree of readiness for their own ship if they consider it necessary.

b. Alert State. In a degree of readiness the OTC may order the alert state. Commanding officers may order a higher state for their own systems. The OTC may assign this responsibility to one of the commanders.

c. Notice. The OTC will order the notice for the force.

d. Threat Warnings. The OTC will normally promulgate threat warnings. He may assign this responsibility to commanders.

e. Emergency Signals. Emergency signals may be made by any commanding officer, coordinator, commander, or the OTC, but their use requires caution because of the action/responses that will be taken in the force.

f. Readiness in Harbour/Anchorage. The OTC or commanding officer will order the degree of readiness in consultation with local authorities.

3724 Organization

a. Ships. One general degree of readiness is normally ordered to meet all types of threat; however, a particular degree of readiness may be ordered when the situation so justifies. Particular degrees may concern ASUW, ASW, AAW, MW, chemical, biological, radiological, and nuclear (CBRN) defence, or engineering. A modification of the degrees of readiness may be assumed by amphibious forces as necessary to provide for the embarkation or disembarkation of troops and equipment.

b. Guard Ships. The OTC may detail certain ships to assume a higher degree of readiness than the remainder. Ships so detailed are known as guard ships.

c. Readiness in Harbour/Anchorage. Readiness in harbour will be organized in accordance with local orders or on order of the OTC or commanding officer after consultation with local authorities. For readiness of ships against underwater swimmer attack, see Chapter 18.

3725 Joining

a. When a ship joins a force, the joining unit will provide the following information to the OTC:

- (1) Messages OPSTAT UNIT and OPSTAT HELO, stressing the restrictions to operational readiness.
- (2) National restrictions to the ROE.
- (3) Messages and updated OPGEN, OPTASKs, and OPSTATs received to date.

b. The OTC will provide:

- (1) Updated OPGEN, OPTASKs, and OPSTATs as necessary.
- (2) Last status of EMCON, communication plan (COMPLAN), and link net.
- (3) A frequency and a geographic position to rendezvous if joining fails.
- (4) A list of relevant signals in force.

3726–3729 Spare

3730 General Degrees of Readiness

This article states the aim of the several general degrees of readiness. When only a general degree of readiness is ordered, each department shall comply in accordance with the appropriate particular degree of readiness.

- a. First.** The aim is to employ the full operational capability of the unit involved. All stations are fully manned and can therefore be put into operation in the shortest time. Commanding officers may order temporary relaxation from the first degree of readiness to permit designated personnel to draw and distribute meals at their action stations.
- b. Second.** The aim is to employ the best operational capability that can be maintained for a prolonged period (e.g., two to three weeks) with up to one-half of the personnel on duty. Emphasis is to be laid on the warning component.
- c. Third.** The aim is to have weapons available to counter an unexpected threat and to retain sufficient warning time to assume a higher degree of readiness, while relaxing equipment, with up to one-third of the personnel on duty. This degree can be maintained for an indefinite period.
- d. Fourth.** The aim is to have all systems operational. Sufficient systems are to be manned to achieve adequate warnings required.
- e. Fifth.** The aim is to allow for rest and relaxation within the limitations imposed by the notice ordered. It is the lowest degree of readiness and is used only when in port or at anchor.

3731–3739 Spare**3740 Particular Degrees of Readiness**

When ordering a general degree of readiness, the OTC may order a higher degree of readiness for a particular type of warfare, CBRN defence, or engineering, should the situation so demand.

3741 Graduated Levels of Chemical, Biological, Radiological, and Nuclear Threat and Minimum Individual Protection

For information about promulgating the CBRN threat level and guidance about minimum protective measures, see Article 17060. These minimum measures may be exceeded as required by an individual command.

3742 Engineering Degrees of Readiness

- a. First.** Propulsion machinery is fully manned and power is available for maximum speed.
- b. Second.** Propulsion machinery is manned and ready for operational speed, with full power available at two hours' notice.
- c. Third.** Propulsion machinery is manned and ready for operational speed, with full power available at four hours' notice.
- d. Fourth.** Propulsion machinery is manned and ready for operational speed, with full power available at eight hours' notice.

3743–3749 Spare**3750 Weapon Alert States**

- a. The readiness of force systems can be ordered by the OTC or his delegate or be reported by a unit carrying force weapons.
- b. When ordered, the weapon alert state expresses the time (in minutes) in which the weapon system has to be ready. The alert state READY orders the immediate readiness of the indicated force weapon system.
- c. When reported, the weapon alert state expresses the time (in minutes) in which the weapon system can be available. When the system is available it is reported READY.

3751–3759 Spare**3760 Aircraft Alert States**

- a. The OTC orders an aircraft alert state to prescribe readiness requirements for aircraft within the force. Alert states are:
 - (1) AIRBORNE ALERT—Combat-equipped aircraft are airborne and ready for immediate action.
 - (2) DECK ALERT—The OTC specifies the number and type of aircraft and the time in minutes that they are to be airborne after the order to launch is given.
- b. A deck alert requires more warning than an airborne alert. The OTC should bear in mind that the presence of aircraft on the flight deck may hamper freedom of manoeuvre and that deck alerts onboard small ships may restrict the use of other weapon systems. The OTC may use OPTASK AIR (see APP-11) to order alert states for helicopters on all ships in the formation.

-EXAMPLES-

2 fighter aircraft Alert 5...Two fighter aircraft ready to become airborne
5 minutes after the order to launch has been given.

1 ASW helicopter Alert 20...One ASW helicopter ready to become airborne
20 minutes after the order to launch has been given.

3761–3769 Spare**3770 Threat Warnings**

A threat warning is informative only. Force or individual unit actions are not therefore linked to it automatically. An OTC may sometimes order measures of a temporary nature (including those for use with antiship missile defence (ASMD)) when a threat warning is promulgated (e.g., changing the EMCON plan). In many cases, however, such actions are more appropriately linked to detections and enemy reports (emergency signals).

a. Colour Code. The colour code applied to a threat warning denotes the severity of the evaluated threat:

Colour Code	Evaluation
WARNING WHITE	ATTACK IS UNLIKELY WITHOUT ADEQUATE WARNING
WARNING YELLOW	ATTACK IS PROBABLE
WARNING RED	ATTACK IS IMMINENT, OR HAS ALREADY COMMENCED

b. Type of Threat. The following plain language words are to precede the colour code to denote the type of threat:

AIR

MINES

CBRN

SURFACE

SUBMARINES

NOTE

FOR PROMULGATION OF MINE THREAT, SEE ALSO AHP-01, ALLIED WORLDWIDE NAVIGATIONAL INFORMATION SYSTEM (AWNIS). FOR PROMULGATION OF CBRN THREATS AND HAZARDS INFORMATION, CONSULT ATP-45, WARNING AND REPORTING AND HAZARD PREDICTION OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR INCIDENTS (SERIES).

3771–3779 Spare

PART II Communications/C4ISR

Chapter 4—Communications

Chapter 5—Weapons Employment

Chapter 6—Force Coordination

Chapter 7—Picture Compilation and Scouting

Chapter 8—Electronic and Acoustic Warfare

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CHAPTER 4 Communications

SECTION I—TACTICAL COMPLANS

4100 Scope

This chapter sets forth in broad terms the tactical aspects of communications and establishes measures necessary for their protection. The use of certain nets, as they affect the principal areas of warfare, is also described. Detailed communications doctrine and COMPLANs and descriptions of specific circuits are contained in ACP-176, NATO Supplements, and ACP-200. See also Chapter 8, Electronic and Acoustic Warfare, and APP-01, Maritime Voice Reporting Procedures.

4110 Communication Plan Design

COMPLANs should be designed using the following guidelines:

- a. Minimise the number of circuits to be guarded by ships. This is the principle of the electronic protective measures/reduced tactical communications plan (RTC), as shown in Figure 4-1. An RTC can be devised by combining circuits with similar procedures in order to reduce the total number of nets IAW ACP-176. For small forces with limited communication equipment, an RTC should be considered.

LINE IDENTIFIER FROM_ TO_		PLAN	COLUMN IDENTIFIER FROM_ TO_ →	SIX	FOUR	AND SO ON - - →		
	LINE NO.	CIRCUIT TITLE	EMISSION	A	B	C	D	E
CHARLIE	205/206	TF/TG BROADCAST		4510	7344	2994	2678	19568
WHISKEY	207/208	TF/TG CALLING WORKING		12132.5	2965	3767	2725	18325
AND SO ON	209/210	TF/TG TACTICAL		266.3	320.6	4213.5 (4212)	5645.5 (5644)	
	212/213	TF/TG REPORTING		308.6	371.1	2673.5 (2672)		
	222	ACTION NET ALPHA		288.7				
	223	ACTION NET BRAVO		293.0				
	224	ACTION NET CHARLIE						
	404/405	AAW WEAPON COORD						
		AND SO ON						

Figure 4-1. Example of Electronic Protective Measures/Reduced Tactical COMPLAN

- b. Minimise the use of MF/high frequency (HF) transmissions to reduce detectability by the enemy. This involves the maximum use of satellite communications (SATCOM) and/or AUTOCAT/MIDDLEMAN and ship-to-ship ultrahigh frequency (UHF) relay.
- c. Use limited range intercept (LRI) and low probability of intercept (LPI) techniques when MF/HF transmissions are unavoidable.
- d. Provide frequency diversity for key circuits, preferably in more than one band. Since equipment and frequencies are bound to be in short supply, priority should be given to those circuits most needed to coordinate force defence, particularly ASMD.
- e. Separate vital UHF circuit frequencies by at least 30 MHz (preferably 40 MHz) to reduce the effectiveness of disruptive jamming. To prevent mutual interference, a frequency separation of 1 to 5 MHz is necessary. Minimum separation depends upon equipment fitted in units.
- f. Maximise cryptographic protection on circuits to minimise the requirement for low-grade codes and authentication.
- g. Consider special requirements for specific circuits as follows:
 - (1) Antijam Coordination Net.** A line-of-sight net that ideally should be secure voice or out of band (e.g., VHF (IMM) or VHF (aeronautical)). It is used for passing vital information when under ECM attack, alerting the force to imitative deception (by a GINGERBREAD call) and coordinating the execution of countermeasures.
 - (2) Fighter Control Frequencies.** These should be in the lower half of the UHF band because of undesirable transmission characteristics which are more pronounced at the top of the band than at the bottom. Additional communications planning should allow for frequency-agile radios such as HAVEQUICK.
- h. Allow for the allocation of column and line identifiers in EPM COMPLANs to preserve security and to gain valuable time when changing frequencies in a jamming environment. Lines should be identified by random letters of the phonetic alphabet and columns by random numerals. The OTC should make clear for what period the identifiers are in force.
- i. Indicate circuit priorities to assist in equipment allocation within individual units.

4120 Communication Guidelines

Detailed procedures for the conduct of communications vary for different types of nets and are found in the appropriate ACPs and APs. Maritime voice reporting procedures are contained in APP-01.

4121 Network Control Station

Each net has a network control station (NCS) assigned to control traffic and enforce discipline on the net. The NCS function may be assigned as a specific duty, or it may be incorporated in the functions of a warfare commander, coordinator, or controller (i.e., EWC or force track coordinator air (FTC-A)) as discussed in Chapter 10. Link nets, such as Link 11, have slightly different requirements, and the control procedures for those nets are described in Chapter 7.

4122 Spare

4123 Call Signs

a. General. Daily changing call signs should be used on all military uncovered communication circuits. Ship names or international call signs may be used:

- (1) When communicating in the VHF (IMM) band in the vicinity of merchant vessels or stations.
- (2) During SAR operations.
- (3) In circumstances where it is considered impractical or unsafe to use daily changing call signs; for example, on harbour movement nets. Such nets should not be used outside 15 miles of harbour limits.

NOTE

INSTRUCTIONS FOR THE USE OF CALL SIGNS ARE CONTAINED IN APP-01.

b. Standard Call Sign Convention for Warfare Commanders and Coordinators. Warfare commanders and coordinators may be allocated a two-letter call sign related to their respective command or coordination function as shown below. This does not preclude the use of daily changing call signs. A force may have more than one CWC (such as a carrier battle force consisting of multiple carrier battle groups, each with its own CWC organization). The first letter of each call sign signifies which CWC the commander or coordinator is subordinate to and is unique to that CWC organization. For example, the first group would be allocated the letter A, the second group B. Therefore, call sign BW is the AAWC of the second group.

NOTE

THE CALL SIGN AA IS RESERVED FOR THE FLEET COMMANDER.

	Primary	Alternate
CWC	“__”B	“__”V
AAWC	“__”W	“__”C
ASWC	“__”X	“__”Y
ASUWC	“__”S	“__”T
SC	“__”N	“__”D
EWC	“__”E	“__”Z
AREC	“__”R	“__”U
HEC	“__”L	“__”H
NMWC	“__”G	“__”F
SOCA	“__”J	“__”K
IWC	“__”Q	“__”TK
STWC	“__”P	“__”TK

4124 Use of Radio Teletype for Tactical Messages

- a. When voice circuit encryption/decryption equipment is not available, secure radio teletype (RATT) should be used whenever possible to pass intra-force tactical signals.
- b. All tactical signals passed via RATT circuits are to:
 - (1) Bear the precedence IMMEDIATE.
 - (2) Bear a sequential serial number and day-time group (DTG).
 - (3) Be identified by tactical signal (TACSIG) as the first word of the text.
 - (4) Be given RUSH DISTRIBUTION only and subsequently filed.
- c. Tactical RATT cannot be used to transmit EXECUTIVE METHOD messages.

4125 Data Links

Tactical data links are communication paths used to transfer information from TDS-equipped units to both TDS- and non-TDS-equipped units. These links permit a rapid exchange of information as they automatically exchange data between the units participating. The information transferred may be used for picture compilation or to order specific action by units or weapon platforms. Voice communications must be used to pass all the appropriate information to non-link-fitted units and may be required to assist in the management of links.

NOTE

CHAPTER 5 PROVIDES DATA LINK EMCON GUIDELINES, AND ADATP SERIES PUBLICATIONS PROVIDE DETAILED PROCEDURAL STANDARDS FOR DATA LINKS.

4126 Types of Data Link

The following NATO data links are associated with maritime operations:

- a. **LINK 1** is the NATO Air Defence Ground Environment link between air defence sites in Europe.
- b. **LINK 11** is an automatic, medium-speed UHF/HF link used for the exchange of picture compilation and command-and-control information between ships and among ships, aircraft, and shore stations.
- c. **LINK 11B** is an automatic medium-speed landline link used for the exchange of the tactical picture between military units ashore.
- d. **LINK 16** is a real-time, ECM-resistant, secure, bit-oriented data link using time-division multiple access technology for information exchange in contact reporting, aircraft control, weapons coordination, and C2.
- e. **LINK 22** is a secure, ECM-resistant, medium-speed digital data link, employed within NATO to support maritime operations through the exchange of tactical data among ships, submarines, fixed-wing (FW) aircraft, helicopters, and shore-based units. The Link 22 communications system allows many users to contribute to and access a real-time database of tactical information in a controlled manner.

f. Variable message format (VMF) is a bit oriented digital information standard consisting of variable length messages. Digital data VMF messages are not man readable but are designed as a common means of exchanging digital data between combat units at various organizational levels, with varying needs for volume and detail of information, and applicable to a broad range of tactical communication systems.

g. Joint Range Extension Application Protocol (JREAP). This protocol allows TDL pre-formatted messages beyond line of sight.

4127–4129 Spare

4130 Communications Security

4131 COMSEC Procedures

COMSEC procedures form an integral part of EPM and protect communications transmissions from exploitation by hostile forces. These measures include:

- a. Control of radiated power.
- b. Use of low-grade codes to protect voice transmissions.
- c. Use of covered (electronically encrypted) circuits.
- d. Use of authentication (see Articles 4132 and 4133).
- e. Minimal transmissions on communication circuits designated for use by the EP and strict circuit discipline.
- f. Frequency selection to best exploit the medium in which the transmission is effected, including the use of LRI techniques.
- g. Maintenance of equipment to minimise internal noise and nullify the possibility of TEMPEST radiation from the superstructure of the transmitting unit or other improper antenna.

4132 Authentication

a. Principles. Authentication measures protect against imitative deception on communication circuits. Current authentication procedures are based upon the following principles:

- (1) Authentication should not be used unless warranted by the degree of risk that imitative deception may be attempted by the enemy.
- (2) When used, the amount of circuit time devoted to the procedure should be the minimum consistent with the achievement of an acceptable level of protection against the unit employing imitative deception.

b. Risk of Imitative Deception. This risk exists on all types of uncovered circuits, and tactical voice circuits are an obvious potential target. (See GINGERBREAD procedures in APP-01.)

c. Authentication Procedures. Present authentication rules call for the Challenge and Reply mode whenever possible because it is significantly more secure than the Transmission mode. However, Transmission mode can provide an acceptable compromise between security and net loading if it is backed up by Challenge and Reply when message credibility is in doubt. While this is addressed in Table 4-1, operators should be aware that it is relatively easy for an experienced adversary to defeat the Transmission mode of authentication by obtaining a valid authentication from one net and using it to intrude on another. For that reason, a receiving station must always initiate a Challenge and Reply whenever the transmitting station has not been identified as a friendly.

Table 4-1. Authentication Policies

Occasion for Use	Type of Authentication
IMITATIVE DECEPTION	
1. When challenged. (A station never responds to a challenge unless it follows on immediately from a transmission they have made.)	Respond to challenge in accordance with Challenge and Reply procedure.
2. a. When spoofing is suspected. b. To check identity of originator of an unexpected message.	Challenge and Reply Challenge and Reply
3. On receipt of a message: a. Authenticated wrongly b. On which authentication is more than 2 minutes' time late. c. Which was not authenticated when it should have been.	Challenge and Reply Challenge and Reply Challenge and Reply
4. a. Joining a circuit. b. Rejoining a circuit after a long absence (in excess of an hour).	Challenge and Reply Challenge and Reply
5. a. Imposing radio silence. b. Broadcasting to a unit under silence, or transmitting "blind." c. Requiring a unit to break silence.	Transmission Transmission Transmission
6. Making enemy contact or amplifying reports.	Transmission
7. Changing authentication policy in force.	Transmission
8. Ordering to change watch, circuit, or frequency.	Transmission
9. Initiating EPM procedures.	Transmission
10. Detaching a unit; changing screening stations; or employment of escorts and helicopters.	Transmission
11. Altering course of speed of the main body.	Transmission
12. Transmitting groups from Action Table.	Transmission
13. Calling ZIPPO.	Transmission
14. As directed by the command (i.e., when important tactical signals are made).	Transmission

4133 Authentication Policies

a. Definitions.

(1) Policy ALFA. Enemy forces are likely to use imitative deception or the use of imitative deception has been confirmed.

(2) Policy BRAVO. Imitative deception is unlikely to be used by the enemy.

b. Use of Authentication Policies.

(1) If the tactical situation is in favour of the enemy trying to conduct imitative deception, the full degree of authentication is to be implemented as in Policy ALFA (Occasions 1 to 14 in Table 4-1). This also applies when imitative deception has already been confirmed. To guard against the situation in which an intruder attempts imitative deception simply to test the force's reaction (and the OTC does not wish to reveal the practical effects of Policy ALFA), Policy BRAVO may be ordered by the OTC.

(2) In Policy BRAVO, authentication is used infrequently (Occasions 1 to 8 in Table 4-1). The initial stage of an intruder situation is typical of one in which Policy BRAVO would be appropriate; that is, the intruder is intent on monitoring rather than interfering with communications.

c. Ordering Authentication Policies. The authentication policy is ordered by the brevity word OYSTER.

d. Aircraft Authentication on Relevant Nets. Excessive use of authentication with single-seat aircraft is to be avoided. Transmission authentication is recommended over Challenge and Reply methods as it can be accomplished easily and quickly.

4134 Spare

4135 Task Force/Group Communications

Command nets link the CWC (OTC if CWC is not designated) with the warfare commanders, functional commanders, and coordinators. In addition, command nets provide a circuit for warfare commanders to coordinate actions. Tactical nets are used for the passing of signals that require individual units of a formation, or a formation as a whole, to manoeuvre by order of the formation commander and for the exchange of urgent tactical messages that call for rapid response. Control nets are used to rapidly exchange orders and information used in the overall direction and control of activities, weapons, systems, etc., by a commander or designated authority. Administrative/working nets are used for the exchange of messages of a nonoperational nature or operational messages of a nonurgent nature. The principal nets typically used by task forces/groups organized under the CWC concept outlined in Chapter 1 are described in the following articles.

4136 TF/TG Command Net

The TF/TG command net is the primary net for the coordination and exchange of information between the OTC/CWC and warfare commanders and coordinators. It is the primary means to report the tactical situation, pass policy and important decisions, exercise control, evaluate performance, and report changes in warfare cognizance. It is also used to communicate between CWCs of different forces or widely separated sectors.

4137 TF/TG and Screen Tactical Nets

The TF/TG tactical net is used for manoeuvring signals and urgent short tactical messages. For larger formations, a separate screen tactical net may be established to direct screening units.

4138 TF/TG Reporting

Although these nets are used primarily for surface data compilation, they are also the primary nets for initial raid reports and shall therefore be guarded by CTGs/CTUs, major units, and all detached units in the disposition. In addition, all surface units should maintain receiver watch on these circuits. The nets will be used as follows:

- a. By the OTC to pass tactical signals of an urgent nature to the disposition when passing a message by other means would be detrimental to the operation.
- b. By the FTCs to:
 - (1) Pass all filtered raid and EW reports to the OTC.
 - (2) Pass all position reports of own ships and aircraft (or groups of ships for individual task groups).

4139 Guidelines for Internet Protocol Chat Rooms

The professional, appropriate use of chat rooms on Internet protocol information systems such as NSWAN can greatly assist in the management of all aspects of task force operations. Electronic chat is an informal tool that supplements voice communications, message traffic, tactical signals, and tactical/operational data systems. Chat rooms may be used at the commander's discretion for delivery of orders and other official traffic. Should the commander decide to use chat in this capacity, local directives should be issued (or included in applicable OPTASKs) that indicate which operational reports and orders may be made using chat and specify release and/or authentication procedures. Acknowledgement of orders given via chat is required to ensure that the order is received and understood. Commanders must weigh chat room benefits against situational awareness to prevent chat sessions from distracting tactical display operators.

- a. **Chat Room Names.** If chat is used, commanders determine the chat rooms to establish and monitor. Chat room titles and names should identify the group/unit to monitor the chat room and the function of the chat room. For example, "SFN_AS" would be the name of the chat room used to coordinate ASW that is monitored by Striking Force NATO.
- b. **Chat Room Participation.** Commanders shall establish naming conventions for chat room participants and guidelines for documenting chat sessions and the use of acronyms and whisper modes.
- c. **Chat Room NCS.** Commanders should be the NCS for chat rooms that they establish. They are responsible for:
 - (1) Enforcing circuit discipline.
 - (2) Ensuring that chat room participants are properly identified.
 - (3) Ensuring that chat rooms are being used for their intended purpose.
- d. **Password Protection.** Temporary password-protected chat rooms may be established if required by the affected commander(s) but should only be used for a specific event or time period.

e. Whisper Sessions. Whisper boxes allow two or more chat rooms to exchange information privately and will normally be used only when the subject does not pertain to the purpose of the chat room or when sensitive data needs to be passed among a limited group. Whisper box use should be minimised to maintain situation awareness among all chat room participants.

4140 Anti-air Warfare and Airspace Coordination Communications

AAW communications nets are used for picture compilation and weapon system coordination. Well-coordinated AAW measures require a rapid and reliable flow of data between units of the force. When coordinating AAW activities, one or more of the following nets—AAW reporting net, AAW coordination net (force/sector), or AAW C&R net—may be used. The joint AAW shore coordination net may be used when coordinating activities with shore air defence authorities. If equipment limitations preclude manning of all assigned AAW nets by certain units, the affected units will report this to the AAWC for resolution. If the AAWC is unable to resolve the problem without affecting other warfare missions, the matter will be referred to the OTC for resolution.

4141 AAW Reporting Net

The AAW reporting net, controlled by the FTC-A, is used for exchanging information about the positions, identities, and supplementary information of air contacts. The duty of FTC-A is normally held by the AAWC but may be delegated.

4142 AAW Coordination Net (Force/Sector)

This net is controlled by the AAWC or sector anti-air warfare commander (SAAWC). Main types of traffic are:

- a. Threat warnings and ZIPPO calls.
- b. Orders relative to combat air patrol (CAP) or AEW assignments, stationing, and relieving.
- c. Weapon coordination (target assignment, weapon designation).
- d. Weapon restriction orders relative to safety sectors.
- e. Target engagement messages.
- f. Reports of AAW ammunition states.
- g. Coordination of homing for lost aircraft.
- h. Coordination and direction of the initial phase of SAR.
- i. Shore coordination when appropriate.

4143 Local AAW Coordination Net

This is a UHF voice net controlled by the local AAWC. The main uses of this net are to:

- a. Provide a clear picture of the local air situation to enable point defence weapon controllers to identify targets.
- b. Promulgate threat warnings and ZIPPO calls.
- c. Establish watch zones.
- d. Issue weapon restriction orders.

4144 Combining AAW Nets

In order to reduce the number of lines in use, the AAW coordination and AAW reporting nets are often combined into a single net, known as the AAW C&R net. This is the primary voice coordinating, control, and reporting net for the AAWC. The success of the combined net depends on good circuit discipline; the ability to pass information depends on the complexity of the real-time situation. However, it is essential that the following information be included:

- a. Initial detection and tracking reports of evaluated threats.
- b. Engagement and results of engagement.
- c. Tracking reports of friendly aircraft that could be mistaken as hostile.
- d. CAP and missile ship position reports when not on station.
- e. CAP, AEW, and ASW aircraft launch and mission reports (MISREPs).

4145 Fleet Air Defence Identification Zone/Force Air Coordination Area Net

The FADIZ (or force air coordination area (FACA)) net is used by the FADIZ coordinator/FACA controller/force marshaller to check-in friendly aircraft into and out of the TG AAW surveillance area, conduct IFF checks and provide air control vectors (steers) as required. It is usually a secure net.

4146 Anti-air Warfare Interceptor Coordination and Reporting Net

This is the primary net used between SAAWCs to coordinate AAW measures. The anti-air warfare interceptor C&R net is controlled by the AAWC. SAAWCs will use other nets to affect tracking and weapon control functions within their respective sectors of responsibility.

4147 Fighter/AEW Control NET

Net controlled by the AAWACU/AEWCU used to pass employment orders to fighters and AEW aircraft. Fighter and AEW control nets will normally be separated.

4148 Joint AAW Support and Coordination Net

This net is used for selective reporting of the air picture among the air defence agency ashore, AEW aircraft, and REDCROWN. Normally, when operating in or adjacent to a joint operations area (JOA), REDCROWN will establish communications with the appropriate air operations centre (AOC) on the joint anti-air warfare support and coordination (JAAWSC) net.

4149 AAW Data Links

See Article 4126.

- a. **Link 11 (UHF/HF).** Used to exchange track data and weapons control information between AAW TDS-equipped units and is the primary means by which inner defence zone coordinator (IDZC) and outer defence zone coordinator (ODZC) exchange information.

- (1) This circuit is essential to AAW units within a time-critical inner defence zone (IDZ).
- (2) For purposes of the outer air battle (OAB), Link 11 net participants should be held to a minimum with an AEW acting as NCS.
- (3) Silent surface-to-air missile (SAM) units in the outer defence zone (ODZ) receive the tactical AAW picture via Link 11 (receive only). This operation permits units detecting new contacts to get the information rapidly on the data link.

b. Link 16. Link 16 is the primary TDL for AAW. It allows for contact reporting, aircraft control, weapons management, and C2. As not all navy ships are L16 fitted, it is necessary to broadcast the air situation from L16 to L11. L16 fitted ships are normally double link fitted and able to emit on both TDL. In case of lack of L16 relay (usually with airborne L16 station).

4150 AAW Call Signs

Encrypted or one- or two-letter call signs may be used on AAW circuits. The OTC will promulgate which system will be used in his force. When lettered call signs are used, they will be assigned in the OPTASK AAW message. Letter designators are assigned to AAW units as follows:

- a. W—Collective call sign for all primary and secondary AAW units.
- b. _W—AAWC for a specific CWC organization. Remark: The first letter of this call sign is significant and unique for the CWC organization to which the AAWC belongs. The first battle group will be allocated the letter A, the second B, etc.
- c. _C—Alternate AAWC for a specific CWC organization. For first letter see remark above.
- d. D to P—Single letters for primary AAW units.
- e. Q to R—Single letters for EW aircraft.
- f. S—For all ASUW units.
- g. T to Z (except W)—Single letters for AEW stations.
- h. Dual letters for secondary reporting units. First letter of call sign is that of primary AAW unit assigned as local anti-air warfare coordinator (LAAWC). Second letter is A to Z (except I and O). Ensure call signs assigned to secondary reporting units do not conflict with those previously assigned to warfare commanders and coordinators.

4151–4154 Spare

4155 Antisurface Warfare Communications

Antisurface warfare operations require reliable, and preferably secure, communications nets for C2, targeting, and picture compilation. ASUW operations are generally conducted on the TF/TG nets described by Articles 4135 through 4138 vice dedicated nets such as those established for AAW and ASW. ASUW control nets such as the SAG nets described in Article 4157 are normally initially shared with similar ASW fighting nets.

Careful thought must be given to the communication requirements for over-the-horizon targeting (OTHT). Targeting units may well operate outside normal UHF range and may require the use of HF (subject to EP). By virtue of their important function, OTHT communications are also likely to be the object of ECM effort by an enemy, and antijam alternatives should be allocated.

4156 Spare

4157 Surface Action Group Communications

a. Control Net. When the formation of a SAG is planned and adequate warning is given, there will be no difficulty in activating a prepared communication plan. However, this may not be the case when a SAG is formed in an emergency to counter a sudden threat. In this case, the SAG shall continue employing the present control net. The OTC/SC should shift the remainder of the force to an alternate circuit.

b. Single-Letter Visual Signals. To counter an enemy capability to intercept or jam tactical communications, ships detached to carry out SAG duties must be able to communicate without a radio. This may be achieved by the use of the single-letter manoeuvring signals and single-letter action signals in ATP-01, Vol. II. Such signals may be used without further orders as soon as the SAG is formed. SAG control and tactical nets are still to be manned but should be used for vital information in an emergency only.

4158 Maritime Interdiction Operations Communications

During MIO, an MIO C&R net should be established to coordinate interdiction and boarding operations if this cannot be achieved on the TF/TG nets. ATP-71 provides communications requirements and procedures for boarding operations.

4159 Sea Combat Commander Communications

When ASW and ASUW functions have been combined into a single SCC, the separate and distinct ASW nets described previously shall be included in COMPLANs and activated as required. A separate SCC C&R circuit should also be included. All ASW and SW coordination and reporting is conducted on the SCC C&R net unless net loading grows to the point that a separate ASW net is required.

4160 Antisubmarine Warfare Communications

ASW communications are used for picture compilation and weapon system coordination. ASW communications planning considers the communications capabilities of each assigned and supporting unit and should include allocation of all circuits that may be required during the course of ASW operations; however, ASW circuits should only be activated as needed. The basic communications organization for ASW is in ACP-176.

4161 ASW Coordination and Reporting Net

The ASWC is the NCS for the ASW C&R secure voice net and uses it to coordinate with and exercise TACON of assigned forces. This net is also used by ASW forces to submit contact reports, SITREPs, and position reports to the ASWC. The ASWC also may authorize its use by individual units to coordinate among themselves. When a sector antisubmarine warfare coordinator has been designated, a separate ASW C&R net should be established for that sector. Communications between the ASWC and his SASWCs are best accomplished via an ASW over-the-horizon (OTH) C&R net or by establishment of a specific intersect or ASW C&R net.

4162 Communications with Distant ASW Units

a. During operations in which units are spread over a large area, an ASW OTH C&R net may be used by the ASWC to gather information from and control the actions of widely scattered ASW units (e.g., submarines and towed array surface ships). Ostensibly, the circuit uses HF voice; however, UHF SATCOM and low data rate (LDR) teletype (TTY) are preferred during Allied operations. Use of SATCOM for this net significantly enhances its reliability, especially for submarine communications. This net is often referred to as ASW reporting or ASW LDR, reflecting its primary function and the medium used. The ASWC functions as NCS and should operate the circuit as a directed net if it uses TTY communications.

b. Consideration must be given to the special requirements in the tactical employment and coordination of submarines and units with long-range passive sensors. These requirements are further set forth below.

(1) Submarines. The submarine must operate in coordination with other units in order that its potential may be fully exploited. This in turn requires communications to the submerged submarine on an unscheduled basis; it also may require communications relay depending upon the equipment fits of the submarine and the force ASW commander's ship. Submarine communications are discussed in Articles 4170 through 4174 and ATP-18.

(2) Towed Array. The employment of towed array units requires provision of fast, secure communication channels. These include secure voice UHF for scene-of-action coordination and UHF/super-high frequency (SHF) SATCOM to the OTC/ASWC; secure HF RATT may also be required. A dedicated intelligence broadcast may also be required. Specific communication requirements are:

- (a) A secure long-range circuit to pass contact information to the OTC/ASWC and for the OTC/ASWC to control the towed array ship(s). A voice circuit is preferable; however, in its absence a secure RATT circuit is acceptable.
- (b) A secure circuit is required for towed array ships to exchange contact data for crossfixing. A voice circuit is again preferable. If SATCOM is not available and ships are beyond line of sight, it may be necessary to employ a third party to relay this information.
- (c) Each towed array ship should be capable of coordinating the localization process with assigned aircraft using secure voice UHF communications.
- (d) All towed array units must be capable of receiving the recognized surface and subsurface picture transmitted by the FTC or other authority out to the limits of the ASW AOI.
- (e) A single net may meet the requirements of items (1) and (2). In a small force, it may also include the subsurface raid reporting function.

4163 Surface Ship Communications

- a. On dispatch of an SAU, responsibility for its communication requirements is transferred from the OTC to the SAU commander. In general, the existing ASW nets continue to be manned by the SAU, with the remainder shifting to an alternative ASW control frequency (Procedure ALPHA, see ACP-176) or screen tactical frequency (Procedure BRAVO).
- b. The SAU commander reports to the ASWC via the task group ASW C&R net and exercises TACON of SAU ships with the ASW control net. Similarly, when a screen commander or manoeuvring coordinator is assigned, a separate circuit may be activated for the execution of those functions internal to the screen or main body, with the screen commander/manoeuvring coordinator making reports to the ASWC via ASW C&R or TG CMD net. Careful thought must be given to the EP adopted by the SAU commander to avoid alerting hostile units to the existence, composition, or position of the SAU, and to this end, use should be made of standard tabulated messages, such as the ASW Action Table in ATP-01, Vol. II. Single-letter manoeuvring signals may be used for SAU action.

4164 ASW Aircraft Communications

To avoid congestion on the ASW C&R net, it may be desirable to shift ASW aircraft coordination functions to an ASW control net or air control net as appropriate. The ASW control net is used by the scene-of-action commander (SAC) to exercise TACON of assigned units at the scene of action. As with surface ships, the SAC uses the ASW control net to control the scene of action and makes reports to and receives direction from the ASWC via the task group ASW C&R net. Air control nets are used to control ASW aircraft and exchange information between ASW aircraft and surface ships and submarines. The air control circuits must always be guarded by the ACU and assigned aircraft. Aircraft normally guard 243.0 MHz for air safety. Naval tactical data system (NTDS)/Link-11 is normally the optimal means for ASW tactical data exchange with FW aircraft. UHF voice circuits are used if Link-11 is not available.

4165 Communications with Supporting Commands

Significant tactical and operational ASW information can be provided by shore-based commands such as the SUBOPAUTH and the area mobile mail centre. The ASWC may need to communicate directly with external commands that are supporting the task group when the volume of message traffic on fleet broadcasts prevents timely liaison with these commands. If sufficient communications assets are available, an ASW shore coordination circuit (often referred to as a maritime rear link (MRL)) may be established to provide this point-to-point connectivity between the ASWC and shore-based ASW and submarine force commanders.

a. Submarine Operating Authority. The ASWC requires reliable communication with the SUBOPAUTH for the receipt of WSM Allocations and Status (WSM ALLOCSTAT) messages.

b. Area Maritime Component Commander. The degree of connectivity required with the area ASWC depends upon the proximity of task group ASW forces to contacts being tracked and prosecuted by area ASW forces. Another factor is the distance between those contacts and the ASWC's area of operations.

4166 Typical ASW Reporting Requirements

The ASWC provides voice SITREPs during the progress of ASW operations and follows up with periodic hard copy situation summaries (SITSUMs). SITREPs are made via the TG CMD net to keep other warfare commanders aware of ASW operations, and SITSUMs are sent via the task group teletype circuit.

4167–4169 Spare

4170 Submarine Communications

Communications with submarines differ significantly from those with other force assets and present the most significant challenge in effecting mission coordination and tasking. Keys to success are reliable long-range communications between the task group and the SUBOPAUTH and dependable, redundant on-scene tactical circuits for the exchange of intelligence; command, control, and coordinating information; and targeting data with assigned submarines. Planners and commanders must be familiar with the submarine communication procedures and capabilities that are addressed in detail in ATP-18.

4171 Basic Considerations and Guidelines

a. Tradeoffs between covertness and coordination are necessary when conducting coordinated operations. Planning should recognize that communication delays are often a necessary adjunct to submarine operations. Additionally, an inverse relationship exists between the time a submarine spends in a communications posture (depth and speed limited) and mission effectiveness, when the submarine's tasking requires it to operate at high speed or below communications depth for extended periods of time. Historically, the submarine operational broadcast controlled by the SUBOPAUTH is the most reliable means of providing coordination, tasking, and intelligence information to submarines. This method is often slower than tactical communications, however, and provision must be made for the rapid, on-scene exchange of intelligence and coordinating information as required by the tactical situation.

b. Brevity. *As a rule, communications with submarines should be brief.*

Message formats in APP-11 are designed to contain all information required by the SUBOPAUTH and individual submarines in a concise summarization. The SUBOPAUTH may edit (or screen off the submarine broadcast altogether) lengthy messages that are not specifically oriented to the submarine's employment. The objective is to avoid overloading the submarine communication system with message

traffic not directly relevant to submarine/task group operations. Extracts of operational messages with information may be consolidated and included in Submarine Force Summary and Situation Report messages contained in APP-11. OPTASK messages, because of their length, normally are not relayed via the submarine broadcast. Nevertheless, they are important, and efforts should be made to provide them by a means other than the submarine broadcast (e.g., mail, courier, shore/guard ship communications, etc.).

4172 Submarine Broadcast

a. Submarines receive message traffic on an accountable broadcast transmitted by the SUBOPAUTH. How the broadcast is to be used for C2 of units operating with a task group should be coordinated with the SUBOPAUTH prior to coordinated submarine–task group operations. The information transmitted on the broadcast must be prioritised and coordinated with the SUBOPAUTH and SOCA. Generally, those messages containing operational-level tasking (e.g., SUBNOTEs) have first priority, and those for tactical-level tasking and coordination have second priority. Messages generated by the task group may be edited to fit on the broadcast. Use of communications ZPW (automatic cancellation) procedures applicable to perishable information allows early removal of these messages from the broadcast and significantly reduces overall traffic loading. Further guidance on submarine broadcasts is contained in ATP-18.

b. Lead-time Requirements. Depending on its role and communication schedule, lead time required to ensure submarine receipt of tasking, coordinating instructions, intelligence, etc., can be significant. Unless the submarine is maintaining a near-continuous communications connectivity with the SOCA, plans should be based on worst-case message delivery time and maximise the use of scheduled submarine broadcast cycles.

Table 4-2 contains examples of lead-time requirements based on normal broadcast cycles of 8 to 12 hours.

c. Maritime Rear Link. Establishing an MRL between the OTC/SOCA and SUBOPAUTH is essential for most operations and greatly simplifies coordination of submarine tasking and waterspace management requirements.

d. BARNSTORM Procedures. BARNSTORM is a single, serialized message that may be used by the SUBOPAUTH to transmit submarine tasking, area assignment, waterspace management application, intelligence, and other operational information on the submarine broadcast. The objective is to ensure that submarines conducting communications-intensive operations receive all required information without placing excessive traffic load demands on the submarine broadcast.

Table 4-2. Typical Advance Notification Requirements for Submarine Operations

EVENT	ADVANCE NOTICE (Hours)
Submarine Assignment Request	24 to 48
Mission Change	10 to 14
Waterspace Change Notification	12 to 30
Final Over-the-Horizon Targeting	2 to 3

4173 Tactical Communications

a. Specific tactical circuits as well as special communication procedures for submarine coordination should be identified in the OPTASK COMMS. This information should also be included in the initial submarine assignment request. The objective is to ensure that tactical communication paths and coordinating instructions are clear to all participants and that necessary and timely intelligence information can be rapidly exchanged between the task group and submarine.

b. **GUERRILLA Procedures.** The code word GUERRILLA is used by a submarine to indicate that it has HIGH PRECEDENCE traffic for the SOCA or a designated commander/unit in the task group. This code word identifies the transmitting ship as a submarine and is intended to alert other circuit operators to clear the net as soon as possible. Procedures are contained in ATP-18.

c. **Tactical Circuits.** Communications planning should provide for primary and secondary voice and data circuits for use with the SOCA as well as alternate circuits for urgent communication with any element of the task group. The intent is to provide the submarine a reliable circuit when time is of the essence while limiting the need for frequent changes in the submarine's basic COMPLAN setup. First priority should be SATCOM (if fitted), followed by line-of-sight UHF and HF. Changes that do occur should be reflected in periodic Force Summary message updates.

d. **Special Communication Windows.** Depending on tasking, special communication windows outside the submarine's normal broadcast cycle are generally disruptive to submarine operations and, where possible, should be avoided. There are occasions, however, when use is appropriate; e.g., to conduct initial rendezvous with coordinating air or surface forces, to provide updated OTH cruise missile targeting information to the submarine, or to order/confirm implementation of a contingency plan. Requests for special communication windows may be included in the Submarine Assignment Request and subsequent Force Summary/SITREP messages or discussed directly with the submarine on tactical coordination circuits.

e. **UPLINK/DOWNLINK Considerations.** Frequently, tactical situations require immediate communications outside established communication windows. Procedures for UPLINK and DOWNLINK should be clearly specified in the Submarine Assignment Request or appropriate OPTASK (if held by the submarine) and changes identified in the Force Summary message.

(1) UPLINK.

(a) **SATCOM Buoys.** For submarines so equipped, SATCOM buoys can be used to send messages to the SUBOPAETH for relay to the SOCA. See ATP-18 for details.

(b) **Expendable Communications Buoys (ECB)/Submarine-launched One-way Tactical (SLOT) Buoys.** Submarine-launched ECB and SLOT buoys are a reliable communications option if the submarine must remain at search depth. ECB/SLOT buoy use requires that an ASW aircraft be available for monitoring. See ATP-18 for details.

(2) DOWNLINK.

(a) **Keyed Sonar.** Depending on environmental conditions, keyed sonar provides a reasonably reliable DOWNLINK for BELLRINGER. ATP-18 contains further details on keyed sonar employment.

(b) **Sound Underwater Signal (SUS).** Two general types of SUS are available. One employs explosive charges to produce an omnidirectional, broadband signal. The other is nonexplosive and uses a battery-powered device that alternately transmits discrete preset frequencies. Pulse length and sequence may be varied on some systems. ATP-18 contains further details on SUS codes and employment.

4174 Submarine Reporting

Specific submarine reporting requirements must be tailored to the scenario and clearly understood by all parties prior to operations. Keeping the SOCA informed of contacts, search and engagement results, intentions, and status is essential. Prompt contact, post-engagement, and periodic situation reports from each submarine are key to the SOCA maintaining a master fused plot of operations and to the OTC's ability to coordinate, allocate, or reassign assets as the operational situation evolves.

Recommended communication-traffic-handling and event-sequencing procedures are addressed in ATP-18. Message formats for contact and periodic situation reports are contained in APP-11.

4175 Naval Cooperation and Guidance for Shipping Communications

NCAGS communications guidelines are described in ATP-02, Vol. I.

4176–4179 Spare

4180 Aircraft Communications

4181 Maritime Patrol Aircraft Communications

a. Area Operations. Maritime patrol aircraft (MPA) on area operations will establish two-way communications with their shore-based controlling authority using the appropriate Maritime Air Telecommunications Organization (MATELO) frequencies. In addition, ground/air broadcasts are available. During area operations, the MPA's first communications priority is to the maritime headquarters. MPA operating on area operations will pass traffic to the MHQ on the air reporting and control net (ARCN), which operates in two modes: RATT and voice (RATT is designed to be the primary). Modes of operation and the primary and secondary frequencies for the circuit are to be included in the GREEN/air tasking order (ATO) messages to OTCs and submarine operating authorities to allow the circuit to be monitored.

b. Aircraft on Direct Support Operations. These aircraft maintain communications with their shore-based controlling authority on MATELO until they join the force. Thereafter, they communicate with the specified agency within the force (e.g., force marshaller or ASW ACU) until they depart the force. Normally, the OTC exercises tactical control of aircraft through an ACU, which guards operational and safety frequencies. Whenever practicable, aircraft monitor MHQ ARCNs. Contact reports will not be sent to the MHQ unless ordered specifically by the OTC. During direct support operations, the MPA's first communications priority is to the OTC. Subject to the EP, contact reports may be sent to the OTC on HF if contact is not possible on UHF. On departing the force, aircraft reestablish communications with their shore-based controlling authority on MATELO. The following general communication procedures apply during direct support operations:

(1) RATT Procedures. MPA on direct support can use RATT:

- (a) To pass joining messages.
- (b) To overcome communication problems encountered when the identification safety range (ISR) is greater than the UHF communication range.
- (c) To allow exchange of tactical information between MPA and surface/subsurface units.
- (d) To allow submarines to operate POST BOX and blind broadcast procedures.
- (e) To provide the OTC secure communications with submarines operating in associated or direct support.
- (f) When necessary to clear urgent signal traffic from surface forces to shore authorities.

(2) UHF Procedures:

- (a) Read-back procedures are not to be used.
- (b) Secure RATT may be used on UHF circuits, if fitted, to achieve the communication requirements listed in paragraph b(1).

(3) SITREPs to Operational Control Authority. If the EP permits, the aircraft is to transmit an encrypted encoded SITREP to the operational control authority on completion of an incident after informing the OTC of the shift of HF channel. Detailed communication procedures that are to be used on direct support operations are contained in ACP-176 and ATP-28, Vol. I.

c. Air/Submarine Operations.

(1) Communications between MPA and submarines are primarily by UHF in the following preferred order:

- (a) Secure voice.
- (b) Secure UHF RATT.
- (c) Uncovered UHF voice, using low-level code.

(2) HF communications are normally restricted to the interception of blind or indirect read-back broadcasts by the submarine.

d. Maritime Air Control Authority (MACA). All MACAs will monitor circuits during MPA area and direct support operations. Messages received by a MACA from MPA are relayed to the aircraft's parent MACA.

e. MPA Control Nets General.

(1) A MACA, when required, communicates with and controls aircraft by the following types of communication:

- (a) Point-to-point communication.
- (b) Air/ground/air communication.

(2) During area/surveillance operations, MPA are under the control of the operational control authority/parent MACA; however, other MACAs within the area also should be information addressees on message traffic. During direct support operations, MPA are under the tactical control of the OTC.

4182–4184 Spare**4185 Helicopter Communications**

Communications with helicopters place primary reliance upon radio, but visual signals may be used for short-range communication (e.g., in launch and recovery operations) when a restrictive EP is in force. The aircraft's communication capability must be carefully considered when the EP and COMPLAN are formulated.

a. Circuits. These will normally be specified in the OPTASK AIR (see APP-11) and detailed in the COMPLAN. Circuits available for this function are described in ACP-176.

b. Tactical Data Links. Some helicopters have the capability to communicate with a parent ship through a tactical data link.

c. Communications Relay. Some helicopters have a capability to monitor SLOT buoys and may be used, subject to other screening commitments, to relay intercepted messages to the OTC or SOCA (ASWC).

4186 Helicopter Control Nets General

a. Communication Circuits. Communication nets for helicopter control are detailed in ACP-176. Selection of a suitable circuit is necessarily a function of the helicopter's employment, but the OTC must bear in mind the limited communication facilities available in most aircraft and control units. Where interoperation with other types of aircraft is required (e.g., in ASW), it is normally prudent to use a common control circuit both to aid information flow and to economize on communication equipment and frequencies.

b. Emission Security (EMSEC). Care must be taken that transmissions between ships and aircraft are subject to the same EMSEC constraints as those between other force units. Details of EMSEC procedures are in Chapter 8.

4187–4189 Spare

4190 Communications for Decentralized Command and Control

a. General. When the OTC delegates tactical control of units in a force or group as described in Chapter 1, there are specific communication requirements between the OTC and appointed warfare commanders and coordinators, and between warfare commanders and coordinators and their assigned units. To meet these requirements, the OTC and warfare commanders and coordinators have certain circuits, described in ACP-176, at their disposal.

b. Plans. When drafting a COMPLAN, the OTC and warfare commanders and coordinators must consider the communications assets of units assigned. Requirements for manning the nets and establishing the net priorities should take into account each ship's role as well as its abilities and limitations. To avoid overburdening smaller units by too many communication demands, it may be necessary to combine some circuit requirements or assign guard ships for some nets. The OTC identifies vital nets and prioritises them in the COMPLAN. This list of prioritised nets is used by units to determine how to meet their communication requirements. Communications plans should include instructions for smooth transitions through various EMCON conditions. UHF airborne relay planning must also be included to permit an uninterrupted flow of essential communications without violating RADHAZ restrictions or EMCON plans.

c. Circuit Operation. Standard operating procedures apply to each circuit. The OTC and coordinators act as NCS on their respective warfare nets. Warfare commanders or their FTCs will be the NCS for their respective C&R nets. NCS duties are transferred from a primary commander to an alternate commander when the warfare commander role is transferred. NCS is responsible for maintaining proper circuit discipline and ensuring that proper security procedures are followed. Authentication and encryption are used as required on all uncovered circuits in accordance with the instructions of the OTCs and/or EWCs. Where possible, voice circuits should be operated in a secure mode.

d. Merger of Communications Circuits in Combined TG Operations. The merger of two independent TGs into a combined TF requires one set of warfare nets to be secured while additional units join the remaining nets. Having a number of units switching circuits can be complicated and, if not handled correctly, cause a considerable amount of confusion.

SECTION II—TACTICAL ASPECTS OF SATELLITE COMMUNICATIONS

4200 Introduction

Satellites provide a method of line-of-sight communications over long distances. They have the advantage of being little affected by ionospheric phenomena and thereby offer high availability and reliability. SATCOM is limited in range only by the requirement for both shore and ship terminals to be within the earth coverage of the satellite antenna, and communication links via satellite have therefore assumed a most significant role in communication between the OTC afloat and commander ashore.

4201 Systems

Technical details and procedural instructions for the use of SATCOM are given in national publications, which may be released to other nations as required. A number of military and commercial systems are available.

4202 Employment

SATCOM systems may be provided for strategic or tactical use.

a. Strategic Use. The majority of SATCOM channels are used for strategic purposes between maritime forces and shore-based authorities. Where traffic to and from a seaborne commander is heavy, SATCOM channels may be configured as MRL or full period terminations.

b. Tactical Use. Certain SATCOM systems are configured for tactical exchange of voice or data. Where a tactical requirement is identified for strategic systems, this exchange can be achieved, with the concurrence of the operating authorities concerned, by relay of traffic via shore for automatic retransmission over satellite broadcast or rear link. This procedure may also be used for the radiation of a TF/TG broadcast using shore-based transmitters, but the technique is expensive in satellite capacity and should be used sparingly.

4203 Electronic Warfare Considerations

a. Security. By virtue of the highly directional nature of satellite transmissions from the mobile terminal and the narrow beamwidth employed by them, SATCOM systems are less susceptible to D/F than are HF transmissions. Nonetheless, they employ high power, generate significant sidelobes and, particularly at low angles of elevation, may be detected by enemy ESM at long ranges.

b. Effect on Friendly ESM. Because of the frequencies at which they operate, satellite transmissions may affect the sensitivity of friendly ESM equipment. This factor, and the susceptibility of SATCOM to intercept and D/F, must be considered when the EP is formulated.

c. ECM. Most SATCOM systems are vulnerable to ECM. Where SATCOM provides a primary communications route, consideration should be given to the provision of alternative means of transmission as a backup.

d. Limitations. When operating in high latitudes, continuous SATCOM may not be possible because of coverage limitations from geosynchronous orbits.

CHAPTER 5 Weapons Employment

SECTION I—OVERVIEW

5100 Rules of Engagement

In the conduct of peacetime operations, maritime units normally base their conduct on International Law, the International Rules of the Road, and the Geneva Conventions. Those units under national command are further guided by national instructions, while those units under the OPCOM of the strategic commanders conform to NATO instructions. The national/NATO instructions providing this supplementary guidance are designated as ROE.

ROE are directives to military forces (including individuals) that define the circumstances, conditions, degree, and manner in which force, or action which might be construed as provocative, may, or may not, be applied. ROE are not to assign tasks or give tactical instructions. With the exception of self-defence, during peacetime and operations prior to a declaration of counter aggression, ROE provide the sole authority to NATO forces to use force. Following a declaration of counter aggression, ROE generally limit the otherwise lawful use of force.

5110 Planned Responses

a. Initial Responses. As very short advanced warning of an attack may occur, it is essential that initial responses to specific detections be planned and promulgated by the OTC. To ensure quick reactions, planned responses should be:

- (1) Matched to the actual threats.
- (2) Promulgated so as to permit rapid updating.
- (3) As simple as possible.

b. Promulgation. Unless otherwise directed in planned responses, the implementation of such a plan carries with it the automatic upgrading of the appropriate threat warning to RED.

5120 Force Defence Areas

a. Force defence areas are directly associated with “anti-warfare missions” and are subsets of the commander’s area of operation. Because of the changing nature of the environment, threat, and own force capabilities, the size and geometry of these areas and zones will normally vary from warfare mission to warfare mission area (e.g., ASW, surface warfare, AAW). They are established on scene by the OTC or, if so authorized, the CWC or individual warfare commander.

(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: That area within the surveillance area and surrounding the vital area(s) in which *all objects* detected must be classified, identified, monitored, and the ability maintained to escort, cover, or engage. The size of the classification, identification, and engagement area is a function of the closing speed of a contact and the revisit time of a friendly surveillance asset.

(3) Vital Area: 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. Multiple vital areas may be established within classification, identification, and engagement area.

- b. The size of the classification, identification, and engagement area and vital area can be used to assist search planning, resource allocation, risk assessment and, with regard to ROE, the formulation and execution of preplanned responses.
- c. Preplanned responses can be triggered by the location of the threat (e.g., an unknown in the vital area would require the execution of a more immediate specific preplanned response than that of an unknown in the classification, identification, and engagement area).

SECTION II—WEAPONS MANAGEMENT

5220 Weapon Restrictions—General

Weapon restrictions such as weapon control status and weapon control orders may be used for effective and controlled use of weapons (exempt submarineborne weapons) and to maximise the safety of friendly assets. They are promulgated by the OTC or the relevant warfare commander, each at his own level and in his own area, as the occasion demands.

Whenever a threat is deemed to exist, the OTC should promulgate a policy for action. The weapon employment policy can be stated in broad terms only, or specified in detail as required.

To state the weapon employment policy, the OTC (or the relevant warfare commander) may promulgate a weapon control status in general or specified in detail as required.

Weapon control orders are one of the means of the OTC (or the relevant warfare commander) to exercise command by veto.

Target engagement messages are one of the means for the OTC (or the relevant warfare commander) to assign engagement tasks.

5221 Weapon Control Status

a. Definition. A weapon control status is issued by the OTC (or the relevant warfare commander) to state his general direction/policy with regard to weapon employment for all or in a particular warfare area. The weapon control status is general in nature because it does not overrule ROE, WSM, specific weapon control orders, specific engagement orders, or command by veto. The following weapon control status may be given:

(1) Weapons Free. Fire may be opened on any target(s) that has (have) not been identified as friend.

(2) Weapons Tight. Do not open fire unless the target(s) has (have) been identified as hostile.

(3) Weapons Safe. Do not open fire/cease firing. Fire may be opened only in self-defence or in response to a formal order.

b. Qualifying Weapon Control Status. Weapon control status may be qualified by one or more of the following:

- (1) A geographic area.
- (2) A sector.
- (3) A principal warfare area.
- (4) A period of time.

-EXAMPLE-

WEAPONS SAFE 5 SECTOR 2

Meaning: Do not open fire in sector 2 for 5 minutes.

c. Changing Weapon Control Status. A weapon control status is changed by directing another weapon control status.

5222 Weapon Control Orders

a. Issuing Weapon Control Orders. Independent of weapon control status, the following weapon control orders may be directed by the relevant warfare commander:

(1) Hold Fire. Do not open fire/cease firing; weapons already launched must be destroyed if technically possible. The direction to hold fire should be repeated at the end of the transmission.

(2) Cease Fire. Do not open/cease firing; weapons already launched continue to intercept.

b. Qualifying Weapon Control Orders. Weapon control orders may be qualified by one or both of the following:

(1) A particular unit.

(2) A particular contact (track number or position).

-EXAMPLE-

HOLD FIRE TRACK 1247, HOLD FIRE

Meaning: Do not open fire/cease firing on track 1247. Destroy missiles launched at track 1247 if possible.

NOTE

IF THE RELEVANT WARFARE COMMANDER DIRECTS A WEAPON CONTROL ORDER IN GENERAL, IT ACCOUNTS FOR ALL UNITS AND ALL CONTACTS/TRACKS.

-EXAMPLE-

WHISKEY THIS IS AW, HOLD FIRE, I SAY AGAIN, HOLD FIRE

Meaning: All anti-aircraft units hold fire on all air contacts. Destroy all anti-aircraft missiles if possible.

c. Cancelling Weapon Control Orders. A weapon control order can only be cancelled by the relevant warfare commander using the prefix NEGAT to the weapon control order.

-EXAMPLE-

WHISKEY THIS IS AW, NEGAT HOLD FIRE, I SAY AGAIN, NEGAT HOLD FIRE

Meaning: All anti-aircraft units cancel the order to hold fire.

NOTE

A SPECIFIC WEAPON CONTROL ORDER CAN EXIST WITHIN A WEAPON CONTROL STATUS.

-EXAMPLE-

WEAPONS FREE, HOLD FIRE TRACK 1644

Meaning: Fire may be opened on any contact not identified as friend, but do not open fire on track 1644 (and destroy any weapons fired at track 1644 if possible).

5223 Kill Line

In order to adequately defend against the prevailing threat, the OTC/PWC may consider establishing a kill line around protected units to promulgate the range by which it is desired that enemy has been engaged. In determining the range at which a kill line is to be established, the OTC/PWC should take into account the nature of the threat, the enemy's ability to engage at maximum range, the ability of friendly forces to provide the required level of unit/force, the ability of friendly forces to comply with ROE at the kill line, the prevailing operational situation, and the physical environment.

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CHAPTER 6 Force Coordination

SECTION I—AIR OPERATIONS

6100 Introduction

The discussion in this section encompasses maritime operations by aircraft:

1. Organic to a force.
2. Carrier- or land-based providing support to a force at sea.
3. Conducting air operations in the maritime environment.

6101 Tasking Authorities

Aircraft may be tasked by ashore authority if land-based, or by the OTC if shipborne on a force at sea. When tasking aircraft, the tasking authority or OTC should:

1. Employ the appropriate aircraft in a safe manner to accomplish the assigned task.
2. Inform all units of all friendly aircraft operating in the vicinity.
3. Disseminate pertinent information to all units in the area in a timely manner.
4. Liaise with air defence authorities and civil air control authorities including NOTAM actions. See AJP-3.3.3, Allied Joint Doctrine for Air-Maritime Coordination, for further details on air-maritime coordination.

6102 Air Support Operations

Maritime and land-based air assets may be assigned to provide support to forces at sea in one of three forms.

a. Direct Support. Aircraft assigned to direct support of a force at sea will operate under the tactical control of the OTC who is being supported. Operational control will remain with the tasking authority, and tactical command may be delegated to the aircraft commander. Direct support operations are normally carried out within the OTC's surveillance area. The radius of direct support operations about the force will be determined by the OTC and will vary according to:

1. The threat.
2. The number and type of aircraft available.
3. Area coverage desired.
4. EMCON plan in force.

The OTC is to inform the tasking authority of the dimensions of his surveillance area and of subsequent changes, emission policy permitting.

b. Associated Support. In specific cases of communications or other control difficulties, associated support may be provided. Aircraft tasked on associated support will operate independently of other forces at sea; however, their tasking is in support of a specific force. They may be tasked to support that force by providing contact information and to receive intelligence from the OTC who is being supported. The aircraft may be tasked to establish communications with the supported force

to prevent mutual interference. The OTC of the supported force cannot take tactical control of the aircraft unless authorized by the aircraft tasking authority. The aircraft commander should be briefed on the degree of support it can give to the OTC.

c. Area Operations. Area operations are conducted in areas within which enemy forces are known to be, through which enemy forces are likely to pass, or within which it is desirable to deny the enemy freedom of action. In addition, operations may be related to the protection of maritime forces scheduled to enter the area in the future or to provide defence in depth to distant forces. Land-based aircraft on area operations are under the operational control of a shore-based authority. Tactical command and control of the aircraft conducting the mission is normally delegated to the aircraft commander by the tasking authority. Aircraft commanders should be briefed on the whereabouts of friendly naval forces and as to whether or not they may react to a request from these forces to assist in the prosecution of contacts within the aircraft's operating area. Notwithstanding such authorization, the original tasking authority has the right to resume control of the aircraft at his discretion.

6103 Informing the OTC of Air Operations in His Vicinity

OTCs are to be informed by the appropriate authority of any friendly aircraft employed in the vicinity of their force. When operating in or adjacent to a JOA, the ATO and ACO messages will normally be used for this purpose.

If a force at sea is to be supported by land-based aircraft in associated or direct support, 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 aircraft tasking formats from APP-11, such as the ATO. In the case of shipborne aircraft support, the OTC of the force providing the support should keep the OTC of the supported force and REDCROWN/XCROWN agencies, and, if possible, shore authorities, informed of the flying schedule and intentions using the standard maritime tactical message system (MTMS) formats.

6104 Spare

6105 Types of Operations

6106 Operations Integral to a Force

Helicopter and carrierborne aircraft, which are an integral part of the force, are under the tactical command of an OTC. They are assigned tasks as directed by the OTC or warfare commander as required. Although the employment of these aircraft is not a support operation, the procedures in this chapter sometimes apply. Shore-based authorities are to be informed of the employment of these organic aircraft, if applicable.

6107 Tasking of Support Aircraft

a. Mission Designators. Air operations in support of forces at sea are normally tasked by standard MTMS or other messages such as the ATO. The tasking authority should stipulate in the tasking message both the form of support of each mission and the specific mission type by promulgating mission designators from Table 6-1. The mission designators can only be changed by the aircraft commander if delegated tactical command. Therefore, if an OTC wishes an aircraft to do more than one mission type, it must be requested in the support request message. The supported OTC can modify the tasking during a mission. Details on various scouting missions are in Chapter 7. NOT RELEASABLE.

Table 6-1. Table of Aircraft Mission Designators

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
Antisurface Operations	SW
Area Search	SA
ASW Operations (Note 2): NOT RELEASABLE	
Attack (Surface Targets)	AT
Barrier	BR
Investigate	IN
Mining Operations	MI
Reconnaissance	RE
Screen	SC
Search and Rescue	SR
Search and Shadow:	
a. Overt search, identification, and shadow	AR
b. Overt search, covert identification, and overt shadow	CP
c. Overt search, covert identification, and low shadow	HR
d. Overt search, covert identification, and high shadow	NV
e. Covert search, identification, and low shadow	SX
f. Covert search, identification, and high shadow	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 Forms GREEN.	
2. To be used by tasking authority for all types of ASW operations (i.e., ASW surveillance, air-sub operations, area, associated, or direct support 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.	

Table 6-2—NOT RELEASABLE

6108–6109 Spare**6110 Definitions**

The terms used by maritime aircraft during support operations are listed below and are illustrated in Figure 6-1.

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

b. Force Air Coordination Area. The FACA is that area surrounding a force within which air coordination measures are required to prevent mutual air interference between all friendly surface and air units and their weapon systems. Normally, the FACA will coincide with the 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 tactical control of aircraft must 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 local air coordination area (LACAS) around each group or units. The LACAS may be promulgated by the CWC, but this function will normally be delegated.

c. Handover Gate. The handover gate 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 air defence coordinator (ADC) and the OTC.

d. 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 PIM and not from ZZ or QQ.

1. The entry/exit gate is 5 nm in radius (10 nm in diameter) from the surface to 25,000 feet mean sea level (MSL) and reserved as an MPA climb/descent zone to and from assigned altitudes.

2. The gate will be the only point of entry and departure for aircraft. Altitudes, as specified in GREEN or ATO, should be at or near the upper limit of the gate in order to enable rapid and positive identification (ID) by the force and ensure UHF communications.

e. 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 (e.g., airfield/control and reporting centre (CRC)/combined air operations centre (CAOC)/joint air operations centre (JAOC)/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.

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-defence safety ranges that aircraft are advised to use when approaching/investigating unknown contacts. The ISR normally encompasses the force missile engagement zone (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 or QQ will be difficult to locate accurately when EMCON, large dispositions, and longer ranges are considered. Normally, ISRs should be established relative to the promulgated PIM rather than the position of the force (ZZ or QQ) whose disposition about the PIM is dynamic.

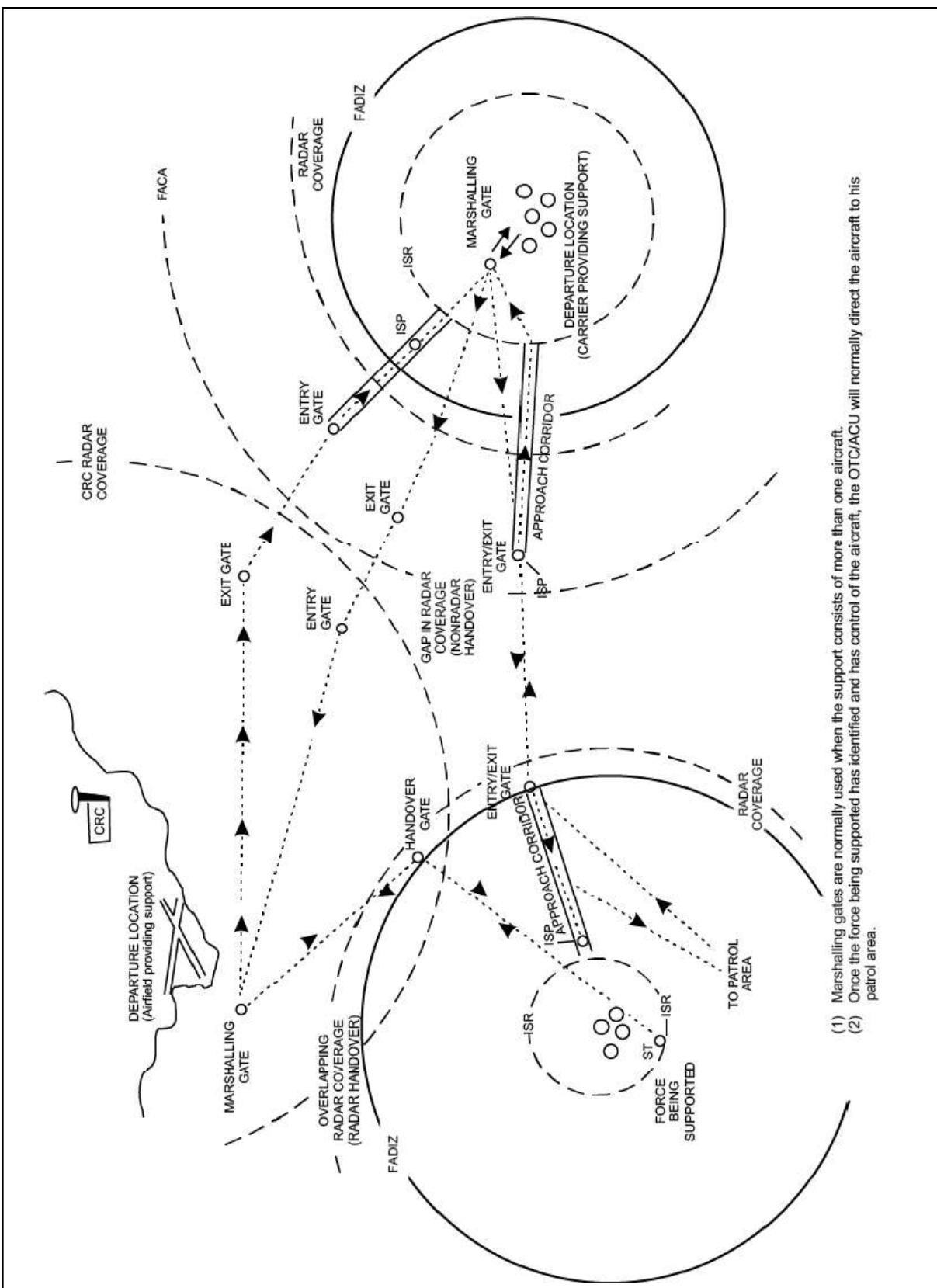


Figure 6-1. Approach Corridors

g. Approach Corridor. The approach corridor is usually established on a line between the entry/exit gate and the force/disposition centre. If the force centre cannot be determined by the aircraft's radar, the corridor will be on a line between the entry/exit gate and the PIM position. The inner boundary is determined by the ISR. The approach corridor width is normally 5 nm either side of the line. Depending on the mode of promulgation the corridor may be fixed geographically or move in the following manner (see Figure 6-1): If the entry/exit gate and ISR are established relative to force/disposition centre, the corridor orientation and dimensions will not change but the entry/exit gate and the corridor will move with the force.

There may be occasions when tactical considerations dictate deviation from the direct route from entry/exit gate to the force/PIM position. In which case, the routing must be included in the OTC's OPGEN/OPTASK updates or agreed to between the shore ADC and the OTC. When establishing approach corridors, the OTC must consider the communications that will be available for joining and marshalling, the direction of the friendly bases from which aircraft might come, threat axis, areas in which support aircraft will be employed once on patrol, location of TOMCAT and AEW pickets in a large disposition, and AAW coordination such as MEZ and fighter engagement zone (FEZ).

h. Identification Safety Point (ISP). When the gate is not within the radar cover of the ships or when two-way communications are not established between the ACUs, the ISP is the point at which aircraft on joining the force will attempt to establish two-way communications with the ships and commence identification procedures. Unless otherwise promulgated the ISP will be a position at 150 nm from ZZ on a direct line between the in-use gate and ZZ. There may be occasions when tactical considerations dictate deviation from the direct route from gate to ZZ, in which case, an ISP may be included in the OTC's AAW update or agreed between the shore ADC and the OTC. Otherwise, the ISP need not be promulgated.

i. NOT RELEASABLE.

j. Coordinated Air Defence Area. A maritime task force/task group within a JOA may require the establishment of a coordinated air-defence area. Additional information about joint air defence coordination measures is available in AJP-3.3.5, Allied Joint Doctrine for Airspace Control.

6111–6119 Spare

6120 Air Coordination and Aircraft Control

Air coordination involves the safe employment of aircraft and the coordination of airspace with other users.

- a. The OTC has responsibility for:
 - (1) All aircraft embarked in the force at all times.
 - (2) All aircraft assigned to the force for tactical command or control, from the time when two-way communications are established with any ACU in the force.
- b. Safety precautions and measures to prevent mutual interference are in Section IV of this chapter.

6121 NOT RELEASABLE**6122 Responsibilities of the Aircraft Control Unit**

Aircraft on direct support are under the tactical control of the OTC, who in turn normally delegates that function to an ACU. General responsibilities of an ACU are as follows:

- a. Ordering the tactical employment of aircraft as required by the OTC/AAWC/ASWC/ASUWC and specifying the type of control.
- b. Keeping the OTC fully informed of aircraft status and of any other factors affecting air operations.
- c. Informing the OTC, air coordinator, and FADIZ coordinator of movements of aircraft under control and in the operations area.
- d. Informing aircraft under his control of movements of other friendly and enemy aircraft; keeping them informed of the tactical situation.
- e. Assisting aircraft that are operating independently or are controlled by shore-based authorities.
- f. Relaying tactical information to and from aircraft.
- g. Safety of all aircraft under his control.

6123 Responsibilities of Units Carrying Aircraft

Any units carrying aircraft are responsible for informing the air coordinator and FADIZ coordinator of any unscheduled flights.

6124 Tactical Procedures

Tactical procedures are required to prevent tactical deficiencies caused by mutual interference between ships, aircraft, and their weapons systems, and, in particular, to:

- (1) Ensure the timely engagement of enemy forces.
- (2) Ensure that all weapons of the force can be employed effectively within force and local air coordination areas.
- (3) Prevent the force from being alerted and reacting unnecessarily to unidentified forces which are in fact friendly.
- (4) Safeguard friendly forces from being engaged by each other.
- (5) Provide a safe margin of separation whenever necessary between individual friendly forces and their weapons.

6125 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 may be used.

6126 Controlled Operations

a. Terms and Definitions. The following terms and definitions from STANAG 3993 are used to describe mission and safety-related control when ACUs are tactically controlling aircraft.

- (1) 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.
- (2) 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.
- (3) 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.

(4) 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.

(5) 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.

b. Operational Use. These agreed terms and definitions and the operational use of the combinations of the terms listed in Table 6-3 are based on:

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

(2) 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.

(3) 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.

(4) The premise that no further PROWORDS or codewords additional to the combinations listed in Table 6-3 are required to tactically control aircraft.

c. 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.

d. Change of Type of Control. Subject to control capabilities, all aircraft operating in the same area should, if the danger of mutual interference exists, operate under the same type of control. A change from one type of control to another may be ordered by the OTC or the ACU, or may be requested by an aircraft.

6127 Factors Determining Type of Operations and Control

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

- (1) Operational considerations, such as mission, range, and EP.
- (2) In-flight conditions.
- (3) Tactical situation.
- (4) Mutual interference.
- (5) Capabilities of ACUs and controllers.
- (6) Equipment status of aircraft involved.

Table 6-3. Operational Combinations of Terms Which Must Be Used to Tactically Control Aircraft

	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: The 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		

6128 Courses and True Bearings

Both true and magnetic courses and bearings may be used in aircraft operations. In communications with aircraft, courses and bearings are to be suffixed TRUE or MAGNETIC.

6129 NOT RELEASABLE**6130 NOT RELEASABLE****6131 Procedures for Aircraft in Transit**

a. Enemy Contacts. Aircraft commanders are to be briefed before takeoff on action to be taken on contacts gained while in transit. Briefing shall take the form of transit instructions as follows:

(1) 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.

(2) 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.

Table 6-4—NOT RELEASABLE

(3) Transit Instructions C (TRANSHARLIE). The aircraft is to attempt identification and report all enemy contacts. Concurrently with the report, the aircraft shall take the following action:

- (a) Submarine—Destroy it whenever possible, unless ASW attack is prohibited by WSM attack restrictions. In prehostility phase, track it in accordance with ROE. The time spent investigating an enemy contact shall be in accordance with preflight briefing or further orders. NOT RELEASABLE.
- (b) Surface Ships—Endeavour to shadow until further orders are received.
- (c) Aircraft—Endeavour to identify and ascertain course and speed.

b. Search for Friendly Force.

(1) 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 procedures; however, the OTC may not wish to break radio silence to answer the request or to use homing procedures. The aircraft is to continue searching for the force.

(2) When 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 command 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.

6132 Joining Procedures

a. Preparation. The OTC will promulgate handover gates, entry/exit gates, altitudes, ISP, ISR, PIM, communication window times, etc., in appropriate MTMS messages. It is essential that the aircraft receive all this information well before takeoff. The GREEN will also provide further information.

b. Joining Instructions Message.

(1) The OTC/ACU should, whenever possible, send a joining instructions message to the tasking authority and the airbase or parent ship to promulgate and update information regarding the mission. The message should contain the information listed in Table 6-4, Serials 7 and 9. The message can be transmitted by any means and should be received by the airbase at least 4 hours before aircraft takeoff.

(2) The signal should be of IMMEDIATE precedence to both action and information addressees. The first words of the text should be “FOR . . .” (e.g., “FOR MISSION 1234 FROM (c/s ACU) TO (c/s MPA)”).

c. Approaching the Force. The OTC should establish approach corridors for friendly aircraft to use when joining a force. In extreme conditions of weather and EMCON, he may dictate a rigidly designed flight profile for aircraft joining, operating on station, and departing a task force/task group. The design of such a flight profile must take into account the force composition/disposition with respect to ASW, AAW, ESM, ASMD, and airspace coordination in instrument meteorological

conditions (IMC). In a large disposition, the force AAW posture may permit engagement of MPA or other friendly aircraft attempting to join long before communications have been established or ID has been completed. This is especially true when pickets or deception groups are used. Therefore, it is essential that aircraft remain in these corridors until identified as friendly by the OTC.

(1) Aircraft at ISP. The aircraft should be at the ISP (entry/exit gate if no ISP) at the promulgated ON TASK time, and if early it is to hold there until ON TASK time. The aircraft then flies down the approach corridor, attempting to establish communications with the force marshaller/nominated controller/OTC on the promulgated frequency when closing the force within the approach corridor. If the aircraft reaches the ISR and has not established communications with the OTC and has not been identified as friendly, it is to hold at the ISR within the corridor and continue to attempt communications. If after 15 minutes at the ISR, no communications have been established, the aircraft is to transit towards the entry/exit gate inside the corridor until the aircraft commander considers it safe and:

- (a) Unless otherwise directed, carry out an appropriate airplan beyond the ISR and outside a safe range from unidentified or hostile contacts.
- (b) Make periodic attempts to establish communications on the promulgated joining circuit or other force circuits.
- (c) If the aircraft commander considers he cannot provide useful support or if his activities may conflict with carrier-based operations, he is to clear the force to a suitable distance and inform MHQ that he is unable to join and request instructions.

(2) Not Found/Found Procedure. See 6131.b.

d. Use of Checklist.

(1) The checklist in Table 6-5 is designed to be for both RATT and voice joining. Whenever RATT is available, it should be used in preference to voice, as it is clearer, faster, and reduces traffic on busy voice circuits. The OTC's EMCON plan will indicate which information must be encoded when voice is used.

(2) Whenever voice joining procedures are used, the OTC should consider using the abbreviated format (paragraph e), thereby reducing the time for establishing the aircraft on patrol.

e. Abbreviated Joining Procedure. It is sometimes necessary to expedite joining procedures; for example, when an action is in progress during arrival of aircraft. Such a procedure should include only the following items:

(1) From Aircraft:

- (a) Authentication.
- (b) Number and type of aircraft/helicopters, identity of senior aircraft/helicopter, persons on board.
- (c) Joining from.
- (d) Joining for/request employment.

NOTE

THE FOLLOWING ADDITIONAL INFORMATION SHOULD BE PASSED IF DIFFERENT FROM THE TASKING SIGNALS:

ALTITUDE

WEAPON LOAD

OFF TASK TIME.

FOR HELICOPTERS, IF APPLICABLE:

OBSERVER CONTROL GRADE

ANY RESTRICTION TO AIRCRAFT CAPABILITY.

(2) From Ship:

- (a) Authentication.
- (b) Identity and ship's position.
- (c) Employment/airplan—including PIM, master/watcher, controller grade, control rules in force.
- (d) Clearance to close/descend.
- (e) Weapon restrictions if appropriate.
- (f) Gridlock.
- (g) Data link information if appropriate.

Supplementary information can be passed later when the tactical situation permits.

f. Helicopters. When helicopters join from another task unit within the same task group, the abbreviated joining procedure should normally be sufficient and should therefore generally be used. If the helicopter requires further information, it should request it by reference to the appropriate section in the joining checklist (for example, "HCU FROM HELICOPTER. REQUEST D, H, M, AND N"). (The helicopter requires EW Task, Safety Info, SITREP, and Acoustic Info.)

Table 6-5. Checklist for Aircraft Joining Surface Forces for Direct Support (Sheet 1 of 3)

SERIAL NO.	ACTION UNIT	ACTION
1	OTC/ACU	On receipt of GREEN or ATO, transmit joining instructions message IAW paragraph 6432.b
2	MHQ	Relay the joining instructions message to the aircraft. If for any reason the MHQ is unable to relay the message to the aircraft, it is to inform the OTC/ACU.
3	Aircraft	Complete aircraft joining message and transmit it to MHQ for dispatch to ACU. (See Note 5 or Serial 8.)
4	Aircraft	Transit under tactical control of air operations center (CAOC/JAOC) or MHQ.
5	Aircraft	Select assigned IFF/selective identification feature (SIF) codes as ordered in GREEN or ATO. Communications should be attempted with the force before the aircraft reaches the gate.
6A	Aircraft	<i>If radar handover expected</i> , monitor handover on promulgated handover circuit and establish communications with the force marshaller, nominated controller, or OTC. (See Notes 1 and 2.)
6B	Aircraft	<i>If nonradar handover expected</i> , establish communications with force marshaller, nominated controller, or OTC on RATT or voice on ASW or marshalling circuits as promulgated. Pass: type of aircraft, time at gate/ISR, direction of approach, and altitude. (See Notes 1 and 2.)
7	Force marshaller/ nominated controller/OTC	Respond to aircraft (see Note 1); challenge aircraft IFF or pass identity procedure to be done (if required). Pass: a. Call sign and position of ACU. b. Direction and distance to patrol area. c. Altimeter setting (QNH). d. Communications security protection (CSP) aspects of EMCON plan. e. Inform aircraft if ACU has received GREEN or ATO. f. Time check. g. Clearance to descend and proceed to patrol area, as required. h. If required, new control RATT or voice frequency, and control of aircraft to ACU. i. Gridlock.

Table 6-5. Checklist for Aircraft Joining Surface Forces for Direct Support (Sheet 2 of 3)

8	Aircraft	Call ACU and ascertain if ACU has received aircraft joining message. If not received, pass all items below; if received, update appropriate items below: a. Sortie number. b. Any restrictions to role (see Note 3). c. DTG or serial numbers of OPGEN and OPTASKs received. d. ON/OFF task times. e. NOT RELEASABLE. f. Aircraft data link coordination information. Be prepared to pass following additional information if ACU informs aircraft that no GREEN or ATO was received: g. Aircraft type. h. Weapon load. i. IFF mode setting.
9	ACU	ACU pass following joining instructions message (see Note 4): a. Identify manoeuvre if no previous voice communications established. Pass ship's position and clearance to close/descend. b. Threat assessment, mission designator and employment/airplan, gridlock (if not already completed by force marshaller), controller grade, control rules in force. c. EMCON. d. EW task. e. PIM, if different. f. Update important data from OPGEN and OPTASK if different. g. NOT RELEASABLE. h. Update air safety information not previously transmitted, including other aircraft activity.

Table 6-5. Checklist for Aircraft Joining Surface Forces for Direct Support (Sheet 3 of 3)

9 (Cont.)	ACU	i. Lost communication procedures. j. Weapons restrictions and ROE. k. SITREP, including in TA operations current contact acoustic data (i.e., target sources, frequencies, source levels, aspect dependencies and advice or sensor depth). l. 1. Bathy and active acoustic information if different from predicted range. 2. In TAS operations: ambient noise. m. Weather, QNH, water depth, and tidal stream. n. Call sign and position of important and detached units. o. Times of ship/air RATT schedules (if applicable). p. Data link coordination information. NOTE: Only information required need be sent.
10	Aircraft	Report to ACU when in patrol area.
Notes: 1. Whenever joining an unsecure voice circuit, proper authentication must be used. 2. Helicopters are too close at altitudes that will allow early radar detection by the force being joined and at speeds below 140 knots. 3. Restrictions should include any significant change in standard weapon load or any unservice abilities. 4. ACU should not duplicate any information already held by the aircraft. 5. Aircraft joining message is to be: a. In accordance with MATELO Handbook b. Of IMMEDIATE precedence c. Addressed to the OTC/ACU d. From the aircraft call sign. 6. The communications security protection (CSP) aspects of an EMCON plan are reflected by radiation status indicators (RSIs) A, D, and X.		

g. NOT RELEASABLE.**6133 Identification/Recognition of Support Aircraft**

It is important that all aircraft approaching a force at sea be positively identified as friendly as they close the force. When the aircraft departs from its base/force at sea, its identity is known and the transfer of control and identification/recognition to the supported force can be done by radar handover or nonradar handover procedures.

a. Radar Handover. This procedure 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 effect a positive transfer of control of the aircraft after mutual self-identification.

b. Nonradar Handover. This procedure is used when there is a gap in radar coverage at the transit altitude or when EMCON denies the use of radar and positive handover by controllers is not possible. Aircraft who are tasked to support a force and are controlled by maritime authorities, are to use appropriate self-identification and joining procedures listed in Article 6134 and Table 6-5.

c. Fleet Air Defence Identification Zone Coordinator (REDCROWN).

(1) The AAWC assigns an AAW unit to serve as the FADIZ C (Proword: REDCROWN). The FADIZ C is a highly capable (surveillance, communications, and weapons systems) surface air defence unit and is stationed along the threat axis to identify and deconflict aircraft entering into and departing airspace designated as FADIZ by the AAWC. When sector AAWCs are designated, a sector FADIZ C is assigned for each AAW sector. Each sector FADIZ C is identified by a unique proword and call sign, e.g., BLUECROWN, MAPLECROWN, etc. GREENCROWN is normally used to identify the sector FADIZ C for an amphibious objective area.

(2) The AAWC also designates an alternate REDCROWN. The alternate REDCROWN shall be capable of immediately assuming FADIZ C duties if REDCROWN suffers degraded data link or communications, or is improperly positioned because of change in the threat axis or force disposition. The AAWC should provide specific supplemental FADIZ and REDCROWN instructions in AAW directives.

(3) NOT RELEASABLE.

6134 Identification/Recognition Procedures

Tentative initial identification/recognition of friendly aircraft may be assumed when an aircraft, showing the proper IFF/SIF code, enters and settles down on the heading of the designated approach corridor or sector. Positive identification/recognition will be considered as established when an aircraft has been visually sighted and recognized by CAP, other known friendly aircraft, or a surface ship. If not sighted, positive identification/recognition may be assumed if at least one planned IFF/SIF change or identity manoeuvre has been made. The following self-identification procedures are established:

a. NOT RELEASABLE.

b. NOT RELEASABLE.

6135 Through 6136 NOT RELEASABLE

6137 Through 6140 NOT RELEASABLE

Tables 6-6A/1 and 6-6A/2—NOT RELEASABLE

6141 Through 6143 NOT RELEASABLE

Tables 6-6A/3 through 6-6A/4—NOT RELEASABLE

Table 6-6A/5—NOT RELEASABLE

6144–6149 Spare**6150 Employment of Aircraft While on Direct Support**

Employment of aircraft on direct support is determined by the OTC or the ASWC/ASUWC as appropriate. On joining the force, the aircraft will be tasked using an appropriate airplan based on the mission as promulgated in the tasking signal. The OTC cannot normally task a support aircraft on mission types other than that authorized by the original tasking authority. The only exception to this is when “KS” ASW operations is given, then the OTC can amplify aircraft using the mission designators in Table 6-1. The OTC may change the employment of ASW aircraft by issuing a new airplan and/or ASW mission designator.

6151 and 6152 NOT RELEASABLE**6153 Identification and Recognition by Aircraft**

Visual identification/recognition is likely to be extremely hazardous to an aircraft. Covert tactics should therefore be used to force the target to radiate and give the aircraft an opportunity for identification/recognition. High-speed probe aircraft, when available, should be used if visual identification/recognition is essential.

a. Actions on Gaining Contact. On gaining contact, the aircraft should immediately turn away from the target, attempt to fix its position, and recognize the target using ESM. The aircraft should remain outside the potential MEZ and, if covert, operate at minimum operating level or below the ship's theoretical radar horizon.

b. Identification. If unable to recognize using ESM, a positive identification run may be necessary. The aircraft will normally take the following precautions:

- (1) Approach from a direction other than that on which the initial detection was made.
- (2) Approach at minimum altitude and high speed.

(3) Monitor ESM for fire control radar lock-on and, if detected, alter course approximately 135° and open the target at minimum altitude and high speed.

(4) If no fire control radar is detected, continue the approach until visual identification is obtained or AA range is reached.

6154–6159 Spare

6160 and 6161 NOT RELEASABLE

6162 and 6163 NOT RELEASABLE

This page—NOT RELEASABLE

6164 NOT RELEASABLE

6165–6169 Spare

Table 6-6—NOT RELEASABLE

6170 Safety Procedures for Maritime Air Operations

6171 Fixed-Wing Aircraft

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. 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 defence organizations.

b. Joining Procedures for Shore-Based Aircraft.

(1) 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 FL until identified as friendly and cleared to ascend/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 as detailed in Article 6132.

(2) 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 offgoing 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.

(3) 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 tactical air navigation (TACAN) channels for use in the air-to-air mode to assist in the safe separation of such units. MHQs should allocate 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., 21 AND 84, OR 33 AND 96).

(4) Aircraft Emergencies. The emergency communication procedures used by the MPA will be in accordance with the procedures contained in ICAO documentation.

6172 Helicopters

a. General. 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 two nautical miles are to vacate the airspace below 3,000 feet.

b. Joining Procedures for Helicopters.

(1) NOT RELEASABLE.

(2) Airmove 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.

(3) 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 OPCON.

(4) 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 ID/recognition as described in Article 6134 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 AAWC via its appropriate agency or controlling unit to close within ISR. The controlling unit should then order standard identification/recognition procedures IAW Article 6134.

When a restrictive EP 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:

- (a) Nominating "slot times" at the ISR for returning helicopters.
- (b) Ordering specific approach altitudes and speeds for returning helicopters.
- (c) Ordering briefed manoeuvres and/or IFF identifications to be performed every 10 minutes while closing, until identified.

The procedures adopted should be stated in the AAW and tasking messages.

6173 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 Rules. Unless otherwise ordered, or overriding tactical considerations dictate, the following rules apply when fixed-wing aircraft and helicopters 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—100 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:
 - (a) In the case of a fixed-wing aircraft and a helicopter: 1,500 yards lateral or 300 feet vertical.
 - (b) In the case of two fixed-wing aircraft: 3 miles lateral or 500 feet vertical.
 - (c) In the case of two helicopters: 1,500 yards lateral or 300 feet vertical.
- (5) Fixed-wing aircraft or helicopters conducting vectored attack (VECTAC) or magnetic anomaly detector verification (MADVEC) procedures may overfly a helicopter in the dip or hover position, but are to maintain a minimum vertical separation of 200 feet.

NOTES

- **WHEN OPERATING WITH AN AIRCRAFT TOWING 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.**
- **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.**
- **IT IS IMPERATIVE THAT A FORCE QNH BE ESTABLISHED BY THE AIR COORDINATOR (AC) AND UPDATED REGULARLY TO ENSURE AIRCRAFT SEPARATION WITHIN THE FORCE.**

6174 Lateral and Vertical Separation

a. 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 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:

(1) Lateral separation:

- (a) At least 3 nm when aircraft are within 40 nm of the control radar.
- (b) At least 5 nm when aircraft are beyond 40 nm of the control radar.

(2) Vertical separation:

- (a) Helicopters shall be separated by 500 feet.
- (b) Fixed-wing aircraft shall be separated by 1,000 feet.
- (c) Helicopters shall be separated from fixed-wing aircraft by 1,000 feet.

NOTE

BELOW 2,000 FEET HELICOPTERS SHALL BE SEPARATED FROM FIXED-WING AIRCRAFT BY 300 FEET.

- (d) When aircraft operate within assigned altitude bands, the above safety separation shall be applied between the bands.

The vertical allocation of airspace should be promulgated by the air coordinator (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/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.

b. Infringements in War. On occasions in war, 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 reestablished at its originally allocated altitude/FL.

c. 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.

d. IMC Vertical Separation Plan. An example of a multforce IMC vertical separation plan based on semicircular instrument flight rules (IFR) cruising levels is at Table 6-7.

Table 6-7. IMC Vertical Separation Plan

Altitude/Flight Level	Aircraft
FL 290+	FW AEW
FL 270–290	FW ASUW
FL 250–260	Air-to-air refuelling (AAR) Tanker
FL 220–240	CAP
FL 200–210	FW AEW
FL 170–190	CAP
FL 140–160	VS/MPA (high)
FL 120–130	FW ASUW
FL 100–110	CAP (low)
FL 80–90	RW/AEW
FL 55–70	VS/MPA (medium) (See Note 1)
5000	Transition Altitude
2000–4000	RW AEW/ASW (passive)
700–1500	VS/MPA (low)
400	RW ASW: Match Lamps
0–300	Dippers
NOTES: 1. Barometric pressures below 983 mb will reduce the separation between VS/MPA and RW ASW (Passive). 2. ASW helicopters in the 0 to 400 feet allocation should be co-operating on the same ASW frequency. 3. Administrative sorties will fly in an appropriate altitude/FL band monitoring the frequency in use, but will use an alternate frequency for routine, nonoperational messages. 4. If quadrantal FLs are required, the separation plan must be amended by commencing the FL allotments at 500 feet below the semicircular plan above, e.g., CAP (low) becomes FL 95–FL 205. 5. Communications Relay—Provision has not been made in the plan for communications relay aircraft (FW or RW) employed on MIDDLEMAN/AUTOCAT/SATCATS tasks. Often this tasking will be combined with other roles in which altitude allocation the aircraft will operate. If dedicated sorties are required, the air coordinator may have to reallocate airspace accordingly.	

6175 Use of Lights By Ships and Aircraft

a. Ship Lights. 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° 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.

b. Aircraft Lights. When numbers of aircraft are operating in proximity at night or in poor visibility, the senior officer present may order aircraft to use navigation lights.

6176 Helicopter Action Group Operations

a. Altitude Separation. See Table 6-8.

1. If more than one helicopter is operating in the same area, an altitude separation of 200 feet must be observed between helicopters.
2. If more than one HAG is employed against the same target, each HAG should be assigned an attack sector. As an additional safety measure, altitude bands should be allocated to the HAG.

Table 6-8. Altitude Separation in HAG Operations

EXAMPLE	HAG 1		HAG 2	
	Altitude (feet)	Sector	Altitude (feet)	Sector
CONTROLLER	800		1,000	
MISSILE CARRIER HELICOPTER	400	045 to 085	600	000 to 040
ILLUMINATING HELICOPTER	1,500		2,000	

3. Any departure from ordered altitude bands requires prior clearance by the ACU or HCU, which then is responsible for horizontal separation.

b. Communications. Each HAG should, if possible, operate on a separate frequency. HAG commanders will man an additional common frequency for coordination.

6177 Cooperation with Fixed-Wing Aircraft

If helicopters and fixed-wing aircraft cooperate in engaging a surface target, the following rules will apply. As the supporting aircraft approaches the target area and communications are established, the helicopter will provide all available target information to the supporting aircraft. The helicopter may be requested to illuminate the target, if it is equipped to do so. Special precautions should be observed by attack aircraft, particularly during periods of reduced visibility and at night, to ensure that the helicopter is safely clear of dropped illumination devices, the attack flight path, and weapon effects.

SECTION II—SHIPBORNE AIRCRAFT OPERATIONS

6200 Scope

This section covers aircraft operations from carriers and other ships with aircraft embarked. The types and roles of aircraft are varied. Ordinarily the employment and responsibility for such aircraft remains with the task group commander who must exercise care when positioning these ships in the task group to facilitate coordinated flight operations.

6201 Ship Movements During Flight Operations

a. Right-of-Way. Ships engaged in the launching or recovery of aircraft have the right-of-way except over the ships and formations noted in Volume II. If a ship must pass a ship which is conducting flight operations, she should pass to starboard when the ship is on the flight operations course or to leeward when the ship is not on the flight operations course.

b. Adjustment of Movements. When carriers are operating aircraft, ships in the formation other than rescue destroyers are to adjust their course and speed to maintain true bearing following minor adjustments made by the carrier. Rescue destroyers shall maintain relative bearing and distance from the carrier. Minor adjustments are defined as alterations of course of not more than ten degrees and alterations of speed of not more than two knots from the promulgated flight operations course and speed. During periods of darkness or low visibility, the carrier shall signal impending major course or speed changes to her escorts and receive an acknowledgement before altering her course or speed, using the delayed executive method when EMCON conditions permit, or by flashing light if radio silence is in force. Minor changes should be promulgated as information signals as time permits.

c. Ships Operating Vertical (VTOL) and Short Takeoff and Landing (VSTOL) Aircraft. Ships operating VTOL/VSTOL aircraft are not normally subject to the same constraints as those imposed on a CV operating non-VSTOL aircraft; however, they have to turn towards the wind for takeoff and landing but are unlikely to require high speed. Operating Method B (Article 6210) is preferred because of the flexibility of VSTOL.

d. Positioning of Ships Operating Helicopters. Large ships, such as LPH or LHA, will often need considerable sea room and freedom to manoeuvre when operating helicopters. They should be positioned in sectors or areas of a suitable size and shape to allow them to remain protected while operating helicopters. They can, if necessary, operate in the same way as a carrier. Commanding officers of such ships should advise the OTC of the size of the sector or area required and the preferred operating method whenever helicopter operations are likely to be prolonged. Escorts will also need sea room, but can manoeuvre, launch, and recover helicopters more quickly than larger ships. Their requirements for helicopter operations are unlikely to be a major factor in the tactical positioning of the ships.

e. Landing Circuit. Ships should keep clear of the path normally followed by aircraft in the landing circuit.

6202 Helicopter In-Flight Refuelling

Helicopter in-flight refuelling (HIFR) employed by Task Force units extend helicopter flight endurance. HIFR ships shall be prepared to conduct HIFR operations on 30 minutes' notice.

6203–6204 Spare

6205 Carrier Operations

6206 Duties in a Task Group

- a. Ready Deck System.** The OTC may order one carrier to keep its landing area ready as a spare landing field for immediate use by aircraft from other carriers.
- b. Duty Carrier System.** The OTC may divide the operating day among the carriers present with each responsible for providing CAP, tanker, ASW, MIDDLEMAN/AUTOCAT or surveillance services for the entire force during the period assigned.

6207–6208 Spare

6209 Flying Sectors

When two or more ships operating aircraft are in company, each ship is allotted a flying sector for her aircraft. Flying sectors are calculated as follows:

- a. Sector Median.** The median of each sector will be on the extension of the line joining the centre of the formation to the ship concerned.
- b. Arc of Each Sector.** The arc of each of these sectors will be calculated by dividing the 360 degrees of arc by the number of ships involved. Thus, with two ships, each sector will cover an arc of 180 degrees; with three ships, 120 degrees; with four ships, 90 degrees.
- c. Limits.** Flying sectors extend upward and outward as far as necessary.

6210 Manoeuvring for Flight Operations

A flight operations course and speed is used for manoeuvring ships operating aircraft. Three methods of manoeuvring ships for flight operations are available. Unless otherwise ordered by the OTC, Method A is to be used.

- a. Method A—Manoeuvring the Whole Formation Together.** This method usually is employed for all extensive flight operations at night or in low visibility because of the danger of operating ships independently within a formation under such conditions.
- b. Method B—The Independent Method.** In this method, the ship preparing to operate aircraft drops to leeward within the screen or to the leeward corner of its sector and then turns into the wind and manoeuvres independently. This method is particularly suitable when it is desired not to exceed effective sonar speed but where it may be necessary to alter base course during flight operations to keep the ship operating aircraft within her screen. Method B will normally be ordered when one ship only is operating aircraft. It may be used at night at the OTC's discretion. The sector method of ordering a screen is recommended to be used with this method. The instructions in Article 6212 apply.
- c. Method C—Methods A and B Combined.** The ship preparing to operate aircraft proceeds initially as in Method B. The OTC then manoeuvres the whole formation, including the ship concerned. It is used only by day when the OTC is not prepared to accept the risk that the ship operating aircraft may move beyond the screen. This method is not used in low visibility. It normally will be ordered only when one ship is operating aircraft. This method may be ordered if flight operations will be of such length that the use of Method B will necessitate the ship operating aircraft to proceed outside the screen, and it is important to spend as little time as possible off the base course. When executing this method with sector screening, escorts should proceed to the upwind parts of their sector prior to the ship concerned increasing her speed to operate aircraft.

6211 Method A

- a. The Guide.** The following considerations normally govern the selection of the Guide:
- (1) If only one ship operating aircraft is present, she is to be designated the Guide.
 - (2) When two or more ships operating aircraft are present, the ship in station zero is made the Guide.
 - (3) If there is no ship operating aircraft in station zero or if a circular formation is not being used, a designated ship is to be made Guide.
- b. Signals and Turns.** The formation will be to and from the flight operations course by either:
- (1) Signalling a turn-together to a definite course and speed at the beginning and at the completion of flight operations, or
 - (2) Signalling an estimate of the flight operations course and speed beforehand; later turning and adjusting speed by special signals. After turning away from the flight operations course, a new estimate of the flight operations course must be signalled before each successive turn for flight operations.

NOTE

WHEN EITHER OF THE ABOVE IS USED, IT IS PROBABLE THAT ADJUSTMENTS OF COURSE AND SPEED WILL BE NECESSARY AFTER THE INITIAL TURN AND BEFORE OR DURING FLIGHT OPERATIONS. ALL SUCH ADJUSTMENTS ARE TO BE TAKEN AS AMENDING THE SIGNALLED FLIGHT OPERATIONS COURSE.

- c. Minor Adjustments.** When they are on flight operations course, individual ships operating aircraft have discretion to make minor adjustments of course and speed, but they must remain within 500 yards of correct station. See also Article 6201.

6212 Method B

- a. Choice of Initial Position.** The ship preparing to operate aircraft is to choose an initial position best calculated to complete launching or recovering aircraft within the cover of the screen and cause the minimum interference with other ships of the main body.
- b. Bulging the Screen.** See Article 3461.
- c. Resuming Station.** The ship operating aircraft is on the assumption that the course and speed of the force will not be altered. On completion of flight operations, she is to resume station with as little delay as possible.
- d. Adjusting Course.** Should it appear probable during flying operations that the ship operating aircraft will get outside the screen, the OTC may adjust the MLA of the Guide by signal. When a screened unit other than the ship operating aircraft is designated Guide, this alteration to the MLA is to be ordered by a TURN and/or SPEED signal addressed to the main body.

The screen commander is not required to reform the screen unless ordered to do so by the OTC.

e. Screen Unit as Guide. When there is no other screened unit to become the Guide, the following procedure is to be used:

- (1) Forming or reforming the screen. The OTC is to order the formation of the screen in the normal way and include the sectors which the screen should cover.
- (2) The screen coordinator is to nominate an escort in advance, normally in a central position on the screen, to be Guide when position required by the OTC.
- (3) When the ship operating aircraft must manoeuvre independently, the OTC is to make the appropriate escort the Guide. When using a sector type screen, the screen ship designated is to proceed to the centre of her sector and then remain within one mile of this position. The Guide is then to be regarded, for station-keeping purposes, as being at the centre of her sector at all times.
- (4) The screen commander must be ready to nominate a new Guide should the existing one be diverted from her station.
- (5) The OTC may order the ship operating aircraft to assume/resume Guide in certain circumstances (for example, to sidestep a known submarine threat).

f. Resuming Course and Station. When flight operations have been completed, the OTC will order the force to turn to the course required, adjusting speed as necessary. The ship completing aircraft operations is then to regain her normal station.

6213 Method C

a. Choice of Initial Position. Refer to Article 6212.

b. Operating Within the Screen. A ship preparing to operate aircraft is to gain an initial position well to leeward within the screen, changing speed as necessary. On moving to her initial position, this ship is to make the signal Disregard my movements. The procedures laid down in Article 6201 are to be used in the normal I manner.

c. Manoeuvring to Operate Aircraft. The OTC will turn the whole formation, including the ship operating aircraft, as soon as this ship is ready. The ship is then to manoeuvre as necessary to operate aircraft, and the OTC will adjust the speed of the remainder of the force to keep the ship within the screen.

d. Resuming Course and Station. When flight operations have been completed, the OTC will order the force, including the ship completing aircraft operations, to turn together to the course required, adjusting speed as necessary. The ship is then to regain her normal station.

6214 Manoeuvring for Emergency Landings

Any ship which must manoeuvre to land aircraft in distress is to notify the OTC. The OTC may then turn the formation to the flight operations course, or he may order the ship concerned to act independently. In addition, the following special provisions apply:

a. When Formation Is on Flight Operations Course. The ship concerned may proceed to recover the aircraft in distress, provided there is sufficient relative wind or when she can produce sufficient relative wind without moving more than 500 yards out of her assigned station.

b. Independent Action in Peacetime. During daylight hours in peacetime, the commanding officer of the ship concerned has discretion to act independently and at once, if this is necessary in the interest of safety.

c. Rescue Operations. In the event of a forced landing in the vicinity, the destroyer or helicopter (or both) assigned for the purpose should proceed to rescue the crew without further orders (see Section VI).

6215 NOT RELEASABLE

6216 Manoeuvring for Low-Visibility Recovery Operations

If, while aircraft are airborne, it appears likely that the task force will encounter fog, snow, or other conditions of low visibility, the OTC may order the task groups to separate and proceed independently in the direction of the best predicted or known clear weather. Airborne aircraft are to be advised of this action, and they are to advise the OTC of any clear areas known to them.

6217 Course and Relative Wind

Normally, the course for launching and recovering fixed-wing aircraft will be such that the ship concerned has the relative wind down the angled deck.

6218 Operations at Night

a. Lighting Measures. The OTC will order the degree of lighting to be used for night flying operations. When lighting measures are ordered, ships shall automatically be darkened (except for the lights prescribed by the lighting measure) without further signal unless otherwise ordered by the OTC. Lighting measures are given in detail in Table 6-9. Lighting measure green is the minimum for all normal night operations, even for specially trained pilots, and compelling reasons should exist for selecting a lesser amount of lighting.

b. Flashing Light Communications. Except for signals concerning immediate flight operations or emergency signals, unshielded or omnidirectional flashing light communications shall cease 15 minutes prior to scheduled night air operations and shall not be resumed until ships have signalled completion of flight operations. Infrared light may be used for intership communications.

6219 Operations in Low Visibility

The tactical situation may require shipborne aircraft to be launched and landed under low-visibility conditions. Governing considerations are the extent and severity of the weather conditions, the ability and qualifications of the pilots, and the equipment to be used. Adequate preparations can be made when it has been determined in advance that aircraft are to be launched and landed under known low-visibility conditions. It is also necessary that standard procedures be established for use when aircraft must operate unexpectedly in unfavourable weather. When low-visibility conditions are encountered or appear imminent, an early decision must be reached as to how airborne aircraft are to be handled. One or more of the following procedures may be used depending on existing conditions.

a. Aircraft orbit as directed until own ship has steamed into an area where visually controlled landings can be made.

Table 6-9. Night Lighting Measures

UNITS		DESCRIPTION OF LIGHTS (1)	LIGHTING MEASURES				NOTES
			WHITE	GREEN	BLUE	(2)	
SHIPS OPERATING AIRCRAFT		Red Truck (Obstruction)	ON	ON	ON	A	(1) Words in brackets are the nearest Royal Navy Equivalent lights. (2) The OTC may order lights added to (or subtracted from) any lighting measure in force by signalling PLUS (MINUS) followed by letter designators. Example: USE MEASURE BLUE MINUS BRAVO MIKE QUEBEC
		Special Operation Task Lights	ON	ON	ON	B	
		Deck Edge (Outline)	ON	ON	ON	C	
		Deck Surface (Outline)	ON	ON	ON	D	
		Stern/Ramp Designation (Round Down After End of Flight Deck)	ON	ON	ON	E	
		Signal Light Bars (Port and Starboard Group)	ON	ON (3)		F	
		Searchlight (Horizon and Sector)	ON (4)			G	
		Centre Line Extension Drop Lights	ON	ON	ON	H	
DESTROYERS	RENDEZ-VOUS	Red Truck (Obstruction)	ON	ON		I	(3) As required. (4) ON as required for homing lost planes. (5) Used as ordered by OTC.
		Dimmed Side Lights	ON	ON	ON	J	
						K	
	RESCUE	Red Truck (Obstruction)	ON	ON		L	
		Dimmed Side Lights	ON	ON	ON	M	
						N	
OTHER SHIPS		Red Truck (Obstruction)	ON	ON		O	
		Dimmed Side Lights	ON	ON	ON	P	
AIRCRAFT		Recognition	ON	ON	ON	Q	
		Wing Lights	ON	ON	ON	R	
		Tail Lights	ON	ON	ON	S	
						T	
		Rescue Helicopter	(5)	(5)	(5)	U	

- b. Aircraft land ashore in friendly territory if conditions permit.
- c. Aircraft land on other appropriate ships which are operating in an area where visually controlled landing can be made.
- d. Aircraft land on designated appropriate ships, using a ship-controlled type of low-visibility approach.
- e. Aircraft land on designated appropriate ships using an aircraft-type low-visibility approach.
- f. Aircraft abandoned by ditching or bailing out in an area designated by the OTC.

6220 NOT RELEASABLE

6221–6229 Spare

6230 Carrier Air Operations

6231 Offensive Air Operations

a. Strike Formations. The purpose of strike formations is the destruction of enemy surface targets. They comprise:

- (1) Attack aircraft equipped with weapons which have a high capability of destruction.
- (2) Escort aircraft, including fighter aircraft, which protect strike aircraft against enemy opposition.

b. Sweep Formations. The purpose of sweep formations is the destruction of enemy aircraft. They comprise fighter aircraft and support aircraft (AEW and EW).

6232 NOT RELEASABLE

Figures 6-2 and 6-3—NOT RELEASABLE

6233 NOT RELEASABLE

6234–6239 Spare

6240 NOT RELEASABLE

6241–6249 Spare**6250 Air Traffic Control****6251 NOT RELEASABLE****6252 Aircraft Launch/Departure**

a. Fixed-Wing Aircraft. When launched from CVs, all jet and turboprop aircraft normally proceed directly to a point at least 7 miles ahead of the ship at an altitude of 300 to 500 feet, then jets fly a 10-mile arc, turboprops a 7-mile arc to intercept the departure radial. Propeller aircraft proceed to a point 5 miles ahead; fly a 5-mile arc to the departure radial, maintaining an altitude of 300 to 500 feet. High-performance VTOL/VSTOL aircraft operating from ships other than CVs shall comply with launch/departure procedures delineated for CVs. Jet and turboprop aircraft rendezvous between 20 and 50 miles, and propeller aircraft rendezvous between 10 and 50 miles from the ship along the departure radial.

b. Helicopters. Helicopters may be operated either from the CV or other ships within the CV control zone. ASW helicopters may also be operated tactically within the zone. Precise procedures to suit every circumstance cannot be defined, but the following rules apply:

- (1) All helicopters within the zone are to be under either positive or advisory control.
- (2) Helicopters should normally be operated or transited through the control zone below 300 feet.
- (3) Helicopters are not to approach within 5 nm of the CV unless cleared and/or operating under the control of the CV.

c. Unscheduled Launch and Recovery Operations. Ships are to activate control zones by INTENT message. Control zones around CV/LPH/LHA ships will be permanently in force unless otherwise ordered.

NOT RELEASABLE.

6253 Procedure for Returning Aircraft

Aircraft returning from strikes and sweeps are to rendezvous on the way back from the target area and return in formations appropriate for mutual defence, proper recognition, and fuel economy via the Tomcat if one is stationed, and if they are so directed. To assist in the establishment of their friendly character, aircraft make their final approach to each task group on a bearing and at an altitude previously specified, and squawking IFF.

6254 Marshal Procedures

- a. Marshalling is the procedure whereby aircraft are controlled on a predetermined flightpath by an ACU prior to commencing an outbound transit or after completing an inbound transit prior to recovery.
- b. The location for this process is known as the marshalling gate and will be within the radar coverage of the ACU.
- c. On entering the ship's control area, organic aircraft shall normally be turned over to marshal control for further clearance to the marshal pattern. The marshalling gate may be overhead or on an assigned radial at an appropriate distance/altitude to facilitate an orderly approach.

6255 Approach

Usually, under daylight/visual conditions, the aircraft approach the ship, enter a circling pattern, and land in sequence. During night/instrument conditions, approaches will normally be under the guidance of the approach control centre on board the respective ship.

6256 NOT RELEASABLE

Figures 6-4 and 6-5—NOT RELEASABLE

6257 Carrier Strike Group/Expeditionary Strike Group Airspace

Caution must be exercised when approaching carrier strike group (CSG) or expeditionary strike group (ESG) airspace due to the large volume of air traffic within close proximity to the carrier vessel or air-capable amphibious ship.

Identification, marshalling and approach standard procedures apply, including the correspondent FADIZ, sector FADIZ, ISR or SCZ.

Use of specific PROWORDS to name sector FADIZ coordinator/tactical air control centre (TACC), approach control or CV/LHD Tower may be appropriate, such as STRIKE, MARSHAL or TOWER respectively for a CSG, or ICEPACK, CENTER or TOWER for an ESG.

6258–6259 Spare**6260 NOT RELEASABLE****6261 NOT RELEASABLE**

6262 NOT RELEASABLE

This page—NOT RELEASABLE

SECTION III—AIRCRAFT EMERGENCY AND RESCUE

6300 Aircraft Emergency and Rescue

The measures set forth in this section cover the more common problems encountered and the procedures used in handling aircraft in distress.

6301 General Provisions

a. Emergency Landing Ship. Whenever possible, the OTO should make specific provision for emergency landings by designating another appropriate ship as the emergency landing ship. This assignment should be on a rotation basis and integrated into the flight schedule (for helicopter operations, use OPTASK AIR set SPARDECK). This allows maximum aircraft usage from all ships in company with minimum inconvenience to each.

b. Lost Aircraft Control. The OTC may detail one ship as lost aircraft control to coordinate the homing of all lost aircraft. However, any ship which has lost an aircraft should begin to identify it and home it, and the ship should immediately notify lost aircraft control of the steps that are being taken.

c. Continuous Watch on Airborne Aircraft. Ships are to maintain a current estimate of the time of return of their aircraft and keep, insofar as possible, a continuous watch on their movements. They are to be alert for emergency IFF or other indications of aircraft in distress and are to plot and report such signals, taking further action as conditions indicate.

d. Escort Aircraft. Whenever possible, an escort aircraft will accompany the aircraft in distress back to the force; assist in the emergency landing procedure as directed, or as conditions indicate; remain with the distressed aircraft until it enters the landing circuit; and maintain watch until the emergency landing is completed.

e. Aircraft Not Involved to Keep Clear. Whenever other aircraft become aware of an emergency landing in progress, they must keep clear of the entire operating area concerned.

f. Rescue Destroyer and Helicopter. The duties of rescue destroyers and rescue helicopters are described in Article 6303.

6302 Communications During Aircraft Emergencies

The following provisions apply to aircraft in distress requiring an emergency landing and to the ships involved:

a. Responsibility.

(1) Escort. The escort of an aircraft in distress assists by sending or relaying radio, radar, or visual messages, using the same procedures as described for the aircraft in distress.

(2) Ship. Ships must be alert for radio, radar, or visual indications of aircraft in distress and assist in relaying messages between the distressed aircraft, the OTC, and the parent ship as conditions indicate.

b. Emergency IFF. An aircraft in distress is to turn on its EMERGENCY IFF and set in Code 77 on Mode 3. In daylight operations, if the aircraft is within visual range of the ship, the use of EMERGENCY IFF is optional.

c. Pilot Voice Report. If possible, the pilot of an aircraft requiring an emergency landing is to inform the ship with which he is in communication as to the nature of the trouble. He must state whether he requires an IMMEDIATE or DEFERRED emergency landing and whether or not he can take a wave-off. The pilot is then to furnish such amplifying information as conditions permit or require.

d. Minimum Voice Transmission During Aircraft Emergencies. Voice transmission should be clear, concise, and kept to a minimum consistent with safety. Aircraft and ships not concerned in the emergency must keep silent on the frequencies in use for the emergency.

e. Maximum Use of Visual Signals. During a landing with radio failure or lost communications, the use of appropriate visual signals is mandatory. To expedite landings the visual signals in Tables 6-10, 6-11, and 6-12 are to be used by no radio (NORDO) aircraft and ships involved. The same signals will be used by NORDO aircraft which are additionally in distress.

f. Establishing Visual Contact. The aircraft in distress and the ship should establish visual contact with each other as far in advance of the emergency landing as is practicable. When initial visual contact is to be made with the rendezvous destroyer or other ship, the aircraft in distress should start signalling as soon as it approaches within reasonable visual range of the ship.

g. MAYDAY. The international distress call MAYDAY should only be used when an aircraft is threatened by serious and imminent danger and is in need of immediate assistance.

6303 Rescue Operations

A destroyer or helicopter (or both) should be assigned for rescue duties to a ship operating aircraft. Any ship or aircraft is to report immediately if it sees an aircraft land in the sea. The parent ship is to inform the rescuing ship or helicopter as to the number of men in the aircraft. Rescue operations are carried out as described in the following paragraphs.

a. Rescue Destroyers.

(1) During daylight operations when rescue helicopters are not available or need to be augmented, rescue destroyers may be assigned to ships operating aircraft. These rescue destroyers shall be stationed at distances from the ship operating aircraft and on bearings relative to the flight operations course, with the exception of rescue destroyer stations 2SNX and 3SNX, which are based on bearings relative to the course of the ship operating aircraft. Rescue destroyer stations are as shown in Figure 6-6 and are also listed in Table 6-13.

(2) Slide-back techniques in station 1SN may be used whenever speeds in excess of 22 knots are required. The use of the slide-back technique must be specifically authorized by the OTC.

(3) At night, rescue destroyers may be assigned the additional function of acting as reference ships to indicate the horizon for takeoff and the landing pattern for recovery operations. Rescue destroyers shall conform to the lighting measures in force at all time.

(4) If it is desired that the rescue destroyers have more boiler power than that required for screening operations, the OTC shall so advise. Rescue destroyers are to have boats manned and ready for lowering while flight operations are in progress.

(5) After flight operations, rescue destroyers are to remain with the designated ship until released by her.

(6) Sufficient stations are provided in Figure 6-6 and Table 6-13 to permit the OTC flexibility in assigning available rescue destroyers as appropriate.

Table 6-10. Signals From Aircraft in Distress

SIGNAL	MEANING OR PURPOSE
1. Rocking wings	Initially, to attract attention and help establish visual contact. Subsequently, to acknowledge receipt of signals. On crosswind leg of landing circuit, indicates inability to take a wave-off.
2. Firing RED flare	Require emergency landing. Considered IMMEDIATE unless other information is received.
3. Firing GREEN flare.....	An early landing is necessary in the interest of safety, but can orbit for a short time.
4. Series of SHORT flashes	Require IMMEDIATE emergency landing.
5. Series of LONG flashes.....	Require emergency landing but can accept short delay.
6. Fly up the port side of the ship, low and close aboard, rocking wings, in a landing configuration with hook DOWN. Navigation lights BRIGHT and STEADY with anticollision lights ON. If turning final in the visual flight rules (VFR) pattern or approaching final on a CCA, momentarily turn on the taxi light, if available.	I desire IMMEDIATE landing.
7. Fly up the port side of the ship with landing gear UP, hook DOWN, navigation lights BRIGHT and STEADY, and anticollision light OFF while abeam the ship.	I desire to land but can wait for the next recovery.
8. Fly up the port side of the ship, rocking wings with landing gear and hook UP, navigation lights BRIGHT and STEADY, and anticollision light ON. If fuel state and the nature of the emergency permit, continue making passes until joined by a wingman. Upon reaching BINGO fuel state, proceed alone, setting IFF/SIF to emergency when departing.	I am proceeding to the BINGO field.
9. Flashing R	To acknowledge receipt of message.
10. (Helicopter) Fly close aboard starboard quarter, remaining clear of other traffic, with gear DOWN and floodlights/landing light ON. With complete electrical failure, fire a RED flare to seaward.	I require IMMEDIATE landing.
11. (Helicopter) Fly by or hover on the starboard side of the ship, low and close aboard, with navigation lights BRIGHT and FLASHING and anti-collision lights ON.	I desire to land but can wait for the next recovery.

Table 6-11. Signals From Rendezvous Destroyer or Other Ships

SIGNAL	MEANING OR PURPOSE
Flashing WHITE R.....	Initially, to confirm visual contact. Subsequently, to acknowledge receipt of signals from aircraft in distress.
Flashing RED G.....	The OTC has given permission for aircraft in distress to approach recovering ship.

Table 6-12. Signals From Ship to Aircraft in Distress

SIGNAL			MEANING OR PURPOSE	
OPTICAL LANDING SYSTEM	**ALDIS LAMP	BLINKER		
1. Flashing cut and wave-off lights.	Flashing RED light	M,M		*BINGO — Proceed to alternate landing field.
2. Flash, cut lights.	N/A	N/A		Add power — (jets and turbo props only).
3. N/A	Steady GREEN light	C		CHARLIE — Cleared to board.
		- ' - .		
4. Flashing landing area lights.	Steady RED light	D		DELTA — Delay in landing. Enter DELTA pattern and maintain visual contact with the ship.
		- . .		
5. Landing area lights off. (Night only)	N/A	N/A		Closed deck. Do not land.
6. N/A	Z	Z		Do not land. Ditch or bail out/eject in the vicinity of the ship.
	- - - .	- - - .		
7. Steady (3 sec.) cut lights.	N/A	N/A		LSO has control of the aircraft on final approach at approximately 1-1/2 miles.
8. N/A	H	H		Lower hook.
				
9. N/A	W	W		Lower wheels.
	' - -	' - -		
10. N/A	F	F		Lower flaps.
	. ' - .	. ' - .		
11. N/A	G	G		Jettison disposable fuel tank.
	- - - .	- - - .		
12. N/A	Q	Q		Jettison ordnance.
	- - - -	- - - -		
OTHER			MEANING OR PURPOSE	
13. Series of GREEN flares (day only in wartime)			Ship ready to receive aircraft for IMMEDIATE emergency landing.	
14. Series of RED flares			Do not land even if previous authorization has been given.	
15. Flag: EMERG FOXTROT (aircraft)			Have emergency landing in progress. (Aircraft not involved keep clear.)	
EMERG HOTEL (helicopter)				
*Signal is given only when ordered by the air officer.				
**Aldis lamp may be located on the LSO platform, in the tower, or on the signal bridge.				

(7) The ship operating aircraft shall indicate estimated course and speed to be used during impending flight operations in sufficient time to permit rescue destroyers to take and maintain proper station. The ship shall also indicate readiness to operate aircraft at least 10 minutes prior to commencement of flight operations.

(8) Rescue destroyers shall be in assigned stations at the time flight operations are scheduled to commence. When assuming slide-back station 1SN, the destroyer takes a station that will result in a relative bearing 35 degrees on the bow of the ship operating aircraft when the formation turns into the wind.

(9) A rescue destroyer, having taken station, is to maintain that station relative to the flight operations course and is to manoeuvre to maintain station without further orders on each occasion that the flight operations course is altered by signal whether flying operations are actually in progress or not. The exceptions to this rule are stations 2SNX and 3SNX, in which the rescue destroyer maintains station relative to the course of the ship operating aircraft and is to manoeuvre to maintain station without further orders by wheeling manoeuvres. See Article 6201 regarding minor adjustments in course and speed.

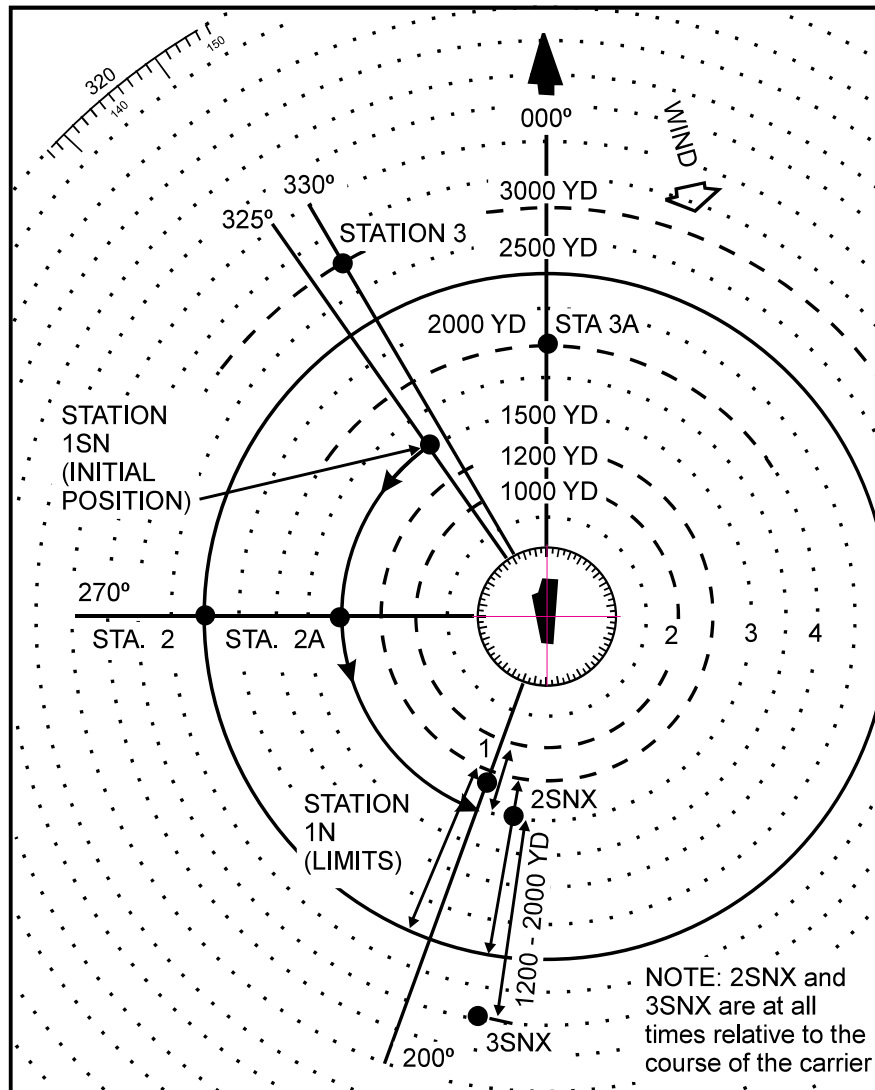


Figure 6-6. Rescue Destroyer Stations

(10) During night operations, the ship operating aircraft shall, except in emergencies, wait until rescue destroyers are on proper station before manoeuvring to conduct flight operations.

(11) The commanding officer of a ship operating aircraft shall be responsible for keeping the rescue destroyer(s) informed of his ship's course and speed changes and for issuing timely orders to prevent the development of a dangerous situation which might arise from misunderstanding his intentions.

(12) During night operations, rescue destroyers shall remain on station while aircraft are airborne unless otherwise directed.

Table 6-13. Rescue Destroyer Stations

Station Number*	Bearing Relative to Flight Operations Course	Distance from Operating Aircraft (yards)	Station Limits (yards)	When Stationed
NORMAL RESCUE DESTROYER STATIONS				
1	200°	1,000 to 1,500		Day/Night
2	270°	2,500		Night
2A	270°	1,500		
3	330°	3,000		Night
3A	000°	2,000		
SUPPLEMENTAL RESCUE DESTROYER STATIONS				
1N	200°	Distance (yards) = (ship speed x 100) - 300.	Not less than 1,200 nor more than 2,500**	Day/Night
1SN	Initial station bears 325°; rescue destroyer slides back to station bearing 200°	Initial distance is 1,500 yards; the rescue destroyer steams at a speed less than signalled speed and the ship operating aircraft overtakes her. During the slide-back, the rescue destroyer manoeuvres to maintain the 1,500 yard distance. Time required to complete slide-back may be controlled by using a speed of relative motion commensurate with the estimated time required to complete the launch or recovery. When the slide-back is completed, distance is determined using the distance formula for station 1N.	Not less than 1,200 nor more than 2,500**	Day
2SNX	190° (relative to course of carrier)	1,500 (normally)	1,200 to 2,500	Day/Night
3SNX	190° (relative to course of carrier)	3,000 (normally)	1,200 to 2,000 (from station 2SNX)	Day/Night
4SNX	The rescue destroyer operates on a station which has an inner limit of 2,000 yards and an outer limit of not more than 6 minutes from the ship. The destroyer gains the outer limit of its station upwind and drops back at such a relative speed that the outer downwind limit will not be exceeded, passing the ship not closer than 2,000 yards. If the destroyer has not dropped back to the outer limit of station by the time the launch/recovery has been completed, the destroyer turns earlier or faster to facilitate gaining the outer limit of station. On downwind courses, the destroyer repeats the procedure in reverse (that is, sliding back from the outer limit downwind of the ship to the outer limit upwind, passing the ship not closer than 2,000 yards). When winds are light and variable and the ship turns toward the destroyer to hunt for the wind, the destroyer manoeuvres clear promptly. When the ship's sled is in use on courses out of the wind, the destroyer manoeuvres to clear the sled by at least 3,000 yards.			
* Number and number-letter stations are not occupied simultaneously. ** OTC may specify maximum distance.				

b. Helicopter Rescue Station. The rescue helicopter is under positive control of the ship operating aircraft at all times. During launching and recovery operations, the helicopter is airborne on rescue station. The rescue station is a circular flight pattern on the starboard beam of the ship, 1 mile in diameter. This pattern will normally be flown in a clockwise direction at an altitude of 200 feet.

c. Rescue Stations (Helicopter Ship Operations).

(1) Rescue ships normally are not required during daylight helicopter operations of helicopter ships.

(2) At night, it may be necessary in certain circumstances to detail a rescue ship. Rescue ships may be assigned the additional functions of action as reference ships to indicate the landing pattern for recovery operations. These ships shall be stationed at distances from the helicopter ship on a bearing relative to the helicopter ship's air operating course as shown in Table 6-14. The number of stations used depends on different conditions of visibility, horizon, and the desires of helicopter squadron commanders.

d. Rescue in the Vicinity of Ships Operating Aircraft.

(1) If forced landing occurs in the vicinity of a ship operating aircraft, the rescue destroyer or helicopter (or both) proceed(s) to rescue the crew without further orders. First to arrive becomes on-scene commander and directs all supporting forces. The commanding officer of the destroyer is to assume on-scene command when ready to avoid any manoeuvre that might endanger the helicopter. The helicopter shall approach from downwind of the scene. The destroyer shall remain at least 500 yards upwind of the scene.

(2) The helicopter shall be the primary means of rescue during day or night operations except when weather conditions preclude safe flight. During peacetime, the rotating anticollision lights will be turned OFF, indicating yielding of primary means of rescue to destroyer and/or motor whaleboat.

e. Rescue Outside Screen. In the event of a forced landing outside the screen, the nearest screen ship is to proceed to rescue the crew without further orders. If more than one ship starts the rescue, the senior of such ships will determine who is most suitably placed to continue the rescue, thus expediting the recovery of personnel and at the same time ensuring that only one ship leaves the screen.

f. Ship Operating Aircraft to Make Signals. In the event of an aircraft landing in the sea from the flight deck, the ship is to make the necessary signals to indicate the occurrence. In addition, the ship should mark the location in the most appropriate manner, whenever circumstances permit.

g. Condition of Rescued Personnel. The parent ship is to be informed as soon as practicable as to the number and condition of rescued personnel.

6304 Ditching, Bailout, and Ejection

a. Ditching. The following procedures are designed to facilitate the safe landing and subsequent rescue of the crew of an aircraft which must ditch at sea.

(1) Location. The pilot should attempt to ditch in a location most favourable for rescue operations.

Table 6-14. Night Rescue Stations (Helicopter Ship Operations)

Station Number	Bearing Relative To Flight Operations Course (degrees)	Distance From Helicopter Ship (yards)
1H	180	1,000
2H	270	1,000
3H	000	1,500
4H	090	1,000

(2) In a Rough Sea. If the sea is rough, a ship may be detailed to make a slick when time is available. The pilot of the ditching aircraft should time his approach to land in the slick when it is in optimum condition for a water landing. A destroyer (or helicopter) is to be detailed to take up a rescue station about 1,500 yards downwind of the ship making the slick. When the landing is made, the destroyer or helicopter should proceed to rescue the crew without further orders.

(3) In an Emergency. In an emergency or when the tactical situation does not permit the foregoing preparations to be made, aircraft forced to ditch near the fleet should try to land about 2,000 yards on the lee bow of one of the leading destroyers of the screen.

(4) At Night. The pilot should first attempt to establish visual contact. He should turn on all available lights and try to land about 2,000 yards ahead of a destroyer in the rear semicircle. After landing, he should signal his position in the water if it is at all possible to do so. The nearest destroyer in the screen is to proceed to rescue the crew without further orders.

b. Bailing Out or Ejecting. The following procedures are designed to facilitate the rescue of personnel who must abandon aircraft by bailing out or ejecting:

(1) Location. Pilots who must bail out or eject should try to do so in such a location that the aircraft will crash well clear of any ship, and that they themselves will land in a location most favourable for rescue operations, preferably near one of the leading destroyers of the screen. Modern aircrew emergency equipment contains an emergency transmitter beacon, sending a signal on 243.0 MHz. A direction finding (DF) position should be established to help locate the aircrew.

(2) Escort Aircraft. One or more other aircraft or part of the CAP should standby the aircraft in distress while the crew bails out or ejects and visually locate the parachute's water entry.

(3) Establishing Watch Over Personnel in the Water. The escort aircraft should establish a watch over survivors in the water; the watch should be relieved on station and a continuous watch should be maintained, insofar as practicable, until the survivors are rescued.

(4) Marking Location of Survivors. Dye markers, smoke floats, and smoke lights should be used to mark the position of survivors in the water, as conditions indicate.

6305 Diversion of Ship to Locate Survivors

a. When radio communications cannot be established with a surface ship which an aircraft wishes to divert, the aircraft should first establish self-identification and then indicate the location of survivors by:

- (1) Circling the ship at least once at low altitude.
- (2) Flying across the bow of the ship at low altitude and, at the same time, rocking the aircraft.
- (3) Sending a message by visual signalling or dropping a message if possible.
- (4) Heading in the direction of the incident.
- (5) Dropping smoke floats in the direction of the incident if possible.

b. This procedure should be repeated until the ship acknowledges by following the aircraft or by hoisting the international flag NOVEMBER to indicate that it is unable to comply. In either case, the ship is to report her actions to the OTC. Crossing the wake of the ship close astern at low altitudes, opening and closing the throttles, or changing the propeller pitch and rocking the aircraft means that the assistance of the surface ship is no longer required.

SECTION IV—SAFETY PRECAUTIONS AND MEASURES TO AVOID MUTUAL INTERFERENCE

6400 Scope

This section details responsibilities and procedures for the establishment and use of safety zones and areas, and measures necessary to ensure safety of friendly air, surface, and subsurface forces from mutual interference.

6401 Implementation of Procedures

- a. This section contains rules and procedures for both peace and wartime.
NOT RELEASABLE.
- b. The transition from peace to wartime procedures will have an effect on:
 - (1) SUBNOTE procedures.
 - (2) Restricted areas.
 - (3) NOT RELEASABLE.
 - (4) Permanently and temporarily established exercise areas.
 - (5) Variable depth sonar (VDS)/depressed towed-array system (DTAS) NOTE, critical angle towed-array system (CATAS) ADVISORY, or UWO NOTE, and Surface Ship Notes.
 - (6) Submarine movement advisory authority (SMAA) functions.

6402 Implementation of Waterspace Management Procedures

Normally water space is managed by notice of intentions (NOIs), VDS notes, SUBNOTEs, etc.
NOT RELEASABLE.

6403–6409 Spare

6410 General Considerations

The complexities of modern warfare necessitate promulgation of certain basic doctrines applicable to all services and commands to prevent or minimise mutual interference during operations. Measures to prevent or minimise mutual interference are those coordinated actions required of appropriate commanders to ensure that the operations of forces under their direction are conducted in such a manner as to prevent or minimise the adverse effects of actions of any one unit upon the operations of others.

6411 Authority

Basic rules for measures to avoid mutual interference are prescribed on the basis of joint and combined agreements. Detailed rules and procedures in consonance with the basic rules are promulgated in appropriate service publications and by subordinate commanders as specified in Article 6412. During an emergency, and when, in the judgement of the commander involved, time does not permit reference to higher authority, the specified rules and procedures may be temporarily set aside. When such action is taken, the commander involved must notify other appropriate commanders, setting forth the reasons for the change.

6412 Responsibility

Each commander shall ensure that such detailed rules, procedures, plans, and methods of operation as he considers necessary for dissemination at his level of command are in consonance with those of higher echelons and are coordinated with parallel echelons. Moreover, dissemination shall leave no doubt as to the responsibilities which result. Commanders down to the lowest echelons of a force are responsible for making certain that adequate measures are taken to prevent or minimise interference with the operations of other friendly forces.

6413 Types of Measure

Measures to prevent or minimise mutual interference include, but are not limited to, the following:

- (1) Assignment of nonconflicting missions insofar as practicable.
- (2) Designation of relative importance of missions where conflict of missions must occur.
- (3) Scheduling of tactical tasks so as to limit conflict in space, time, or area.
- (4) Provision of adequate recognition and identification procedures.
- (5) Timely provision of essential operational data by controlling authorities and a similar exchange between forces where interference may occur.

6414 Compromise

In the event of compromise of any of the provisions or measures to prevent or minimise mutual interference, commanders are responsible for seeing that immediate action is taken to notify the authority establishing the particular measures and other commanders who may need to know.

6415 Identification/Recognition

The proper use of the procedures prescribed for identification/recognition is an essential feature in avoiding mutual interference. Friendly submarines are to steer the promulgated safety course while identification/recognition procedures are being carried out.

NOT RELEASABLE.

6416 Initiation of Self-identification

The responsibility for initiation of identification procedures is assigned below and has universal application:

- (1) Aircraft identify themselves to friendly surface units.
- (2) Aircraft determine identity of surface units and of other aircraft before attacking.

- (3) Aircraft and ground forces are mutually responsible for establishing their own friendly identity.
- (4) Ground forces and surface forces are mutually responsible for establishing their own friendly identity, except where special instructions for harbour entrance control are effective, or when special orders are issued for specific operations.
- (5) Submarines identify themselves to friendly surface ships and aircraft, except in submarine safety lanes.
NOT RELEASABLE.
- (6) When ships of different size encounter each other, it is normally the responsibility of the smaller ship to establish its friendly identity to the larger ship.
- (7) Within similar types, there is a mutual responsibility for establishing friendly identity; that is, air-air, ship-ship, submarine-submarine, and ground-ground.

6417–6419 Spare

6420 Routes and Reference Points

Routes and reference points are established for the purpose of facilitating control of surface, air, and subsurface traffic so as to reduce interference between forces making passage in the same area. Routes and reference points are established by appropriate commanders. Common routes and reference points should be promulgated when necessary to ensure understanding between forces operating in adjacent areas. Information concerning common routes and reference points should be disseminated to forces about to enter or leave an area, as well as to appropriate commands in adjacent areas. When no conflict with established routes and reference points would result, appropriate commanders may promulgate additional routes and reference points for the temporary use of their own forces.

See also Chapter 3, Section II.

6430 Restricted Areas

- a. Commanders establishing restricted areas shall:
 - (1) Advise other commanders sufficiently in advance to permit dissemination of restrictions to all personnel concerned.
 - (2) Specify the geographic limits and, if appropriate, the altitude limits of the restricted areas, and
 - (3) Provide for the timely disestablishment of a restricted area as soon as conditions no longer require its existence.
- b. Safety zones are normally used for noncombat operations.
- c. Air and surface restricted areas include:
 - (1) Controlled airspace, air corridors, and safety sectors.
 - (2) Shore bombardment and bomb lines.
 - (3) Blind bombing zones.

6431 Controlled Airspace, Air Routes/Air Corridors, and Safety Sectors

Controlled airspace, air routes, air corridors, and safety sectors are used to provide the safe transit of aircraft. Inputs for coordination and deconfliction of airspace requirements, of all services involved in an operation, are required by the designated airspace control authority (ACA) for the establishment and dissemination of the airspace control plan. Further details are found in ATP-40.

a. Controlled Airspace. Prior coordination with the appropriate authority is required when a controlled airspace is used by tactical or formation flights. Aircraft using a controlled airspace shall not be subject to attack by friendly surface, submarine, or air forces unless positively identified as enemy or unless they commit a hostile act. Controlled airspace will be in accordance with those published in appropriate flight information or ICAO publications or as promulgated by appropriate commanders.

b. Air Routes and Air Corridors. Ships and ground batteries are forbidden to fire at any aircraft in air corridors. The defence of air corridors against incursion by enemy aircraft is the responsibility of a CAP established for that purpose. Ordinarily, air corridors are established only when a major air operation is involved, and then only when it is essential that the participating aircraft pass near own ground and sea forces. Included within the concept of air corridors is a low-level transit route (LLTR), defined as follows: A temporary corridor of defined dimensions through the areas of organic low-level air defences of surface forces. For more details, see ATP-40.

c. Safety Sectors. Safety sectors are employed in AAW areas and are not the same as airways.

d. Identification Coordination. When maritime units are operating within, or in the vicinity of, airspace controlled by other agencies, it must be ensured that ID criteria are coordinated between all agencies concerned, and known by all users of that particular airspace.

6432 Shore Bombardment and Bomb Lines

Shore bombardment and bomb lines are used in coordinated operations with ground forces. The policy regarding establishing and using these lines shall be at the discretion of the appropriate commanders. Tactical and forward (safe) bomb lines are normally prescribed by a troop commander according to his assessment of the requirement for coordinating air strikes with his ground forces.
NOT RELEASABLE.

6433 Blind Bombing Zones

Blind bombing zones are used to permit aircraft to conduct operations unimpeded by the danger of attack by friendly forces. Rules governing actions within blind bombing zones follow:

a. Aircraft may attack any target encountered in a blind bombing zone without inquiry as to its identity, except for a submarine in a moving haven (MHN) established by a SUBNOTE, or a surface ship in an AOO about which the aircraft have been notified (see Article 6434).

b. Surface Ships shall normally keep clear of blind bombing zones. When surface ships must enter such a zone, the correct notice procedures must be followed. Surface ships may attack any submarine encountered, except for a submarine in a MHN established by a SUBNOTE (see Article 6434).

c. Submarines shall normally keep clear of blind bombing zones; when submarines must enter such a zone, they shall be protected by a SUBNOTE. During an emergency, a submarine entering a blind bombing zone without prior timely notification (normally 24 hours is required) must accept the risk of attack by friendly aircraft.
NOT RELEASABLE.

6434 Controlled Waterspace, Waterspace Management Areas, and ASW Weapon Restrictions

a. Waterspace Management/Prevention of Mutual Interference. Effective WSM and PMI are essential to ensure safety of friendly submarine and surface forces. A clear understanding of each function is required by all commands involved with submarine and/or ASW operations. WSM and PMI are the responsibilities of the area SUBOPAETH. When authorized by the SUBOPAETH, an OTC may assume local WSM and PMI responsibilities for designated task group submarines.
NOT RELEASABLE.

NOTE

FOR THE PURPOSE OF WSM AND ASW WEAPONS RESTRICTIONS, AN ASW WEAPON IS ANY WEAPON USED BY A FRIENDLY PLATFORM AGAINST A SUBMERGED OR SURFACED SUBMARINE.

(1) NOT RELEASABLE.

(2) Prevention of Mutual Interference. For submarine operations, PMI procedures are specifically intended to prevent submerged collisions between:

(a) through (d) NOT RELEASABLE

NOTE—NOT RELEASABLE

b. NOT RELEASABLE.

Figure 6-7—NOT RELEASABLE

c. Havens. Static havens and MHNs, which may be stationary, are established to provide a measure of security to submarines and surface ships in transit through areas in which existing attack restrictions would be inadequate to prevent attack by friendly forces. Additionally, moving havens in peacetime prevent or minimise mutual interference among friendly submarines or among friendly submarines and ships' operating systems (e.g., VDS/DTAS). Submarines can be made available for exercises with other forces during transit only when prior arrangements have been made. Ships operating towed acoustic devices under circumstances where a VDS/DTAS or UWO NOTE is required should be routed in moving havens. (See Article 6480.)

NOT RELEASABLE.

(1) Static Havens (used only during wartime or during periods of potential hostilities). Static havens may be established by a SUBOPAUTH or task group commander. Offensive operations within a static haven are limited as follows:

(a) Under no circumstances shall ships or aircraft attack a submarine within a static haven. Nor shall they attack a surface ship unless the target is positively identified as enemy. Additionally, surface ships shall not enter a static haven without the permission of the commander who established the static haven.

(b) Submarines shall not attack other submarines or surface ships unless they are positively identified as enemy.

NOTE—NOT RELEASABLE

(2) NOT RELEASABLE.

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6435 NOT RELEASABLE

6436 NOT RELEASABLE

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6437 Procedures for Surface Ships Entering Restricted Areas

Surface Ship Notices. When surface ships must enter a blind bombing zone, the commander ordering the movement shall notify, as far in advance as possible, the theater, fleet, or equivalent commander concerned and the commander controlling aircraft movements in the area. The commander ordering the surface ship movement shall state either the route to be followed, given SOA and times of passing reference positions, or the area in which the surface ship operations are to be conducted. During an emergency, surface ships entering a blind bombing zone without prior timely notification (normally 24 hours is required) must accept the risk of attack by friendly aircraft.

6438–6439 Spare

6440 Safety Procedures

a. Safety procedures are established to:

- (1) Safeguard friendly forces from attack by each other; prevent needless alarms; prevent expenditure of unnecessary effort on the part of friendly forces by the approach of other forces not yet recognized or identified as friendly.
- (2) Provide confidence in identification, thereby ensuring the immediate effective engagement of enemy forces.
- (3) Ensure the safety of friendly forces in routing operations and exercises.

b. Safety procedures applicable to specific operations are established in appropriate publications. Safety procedures for maritime air operations are detailed in Article 6170.
NOT RELEASABLE.

6445 Safety of Aircraft

6446 Weapon Restrictions—General

Weapon restrictions apply to aircraft, SAMs, and guns and may be ordered to allow the operation of friendly aircraft, especially within MEZs. They are promulgated by AAWCs, each at his own level and in his own area, as the occasion demands. They may be ordered in a general sense, or specifically for a given area, or for a given type of weapon.

6447–6449 Spare

6450 Special Surface Ship Precautions

6451 Surface Ship Notices and Advisories

Surface ship notices or advisories will only be required for those specific instances in which surface ships are towing acoustic devices in peacetime under the provisions of Article 6480 or are required to enter blind bombing zones or submarine patrol areas in wartime, or in peacetime are towing acoustic devices (see article 6480) or are conducting MW operations (see Article 6481).
NOT RELEASABLE.

6452 Radiation Hazards To Personnel

a. Ships Fitted With High-Power Transmitters and Personnel. Ships are typically fitted with high-power transmitters such as radio communications, radar, and electronic warfare equipment. The same ships also carry personnel. The RF fields produced by these transmitters can cause general or localized heating in personnel from the induced currents. Personnel shall not be exposed to RF levels that exceed the NATO standards of STANAG 2345. The commanding officer of each unit is responsible for the safety of his own personnel, and those of surrounding units, from RADHAZ produced within his unit. AECP-2, NATO Naval Radio and Radar Radiation Hazards Manual, provides engineering derivations for RADHAZ protection for personnel, and AECP-2 Supplement provides Practical Operational Guidance and procedures for fleet use. It is the responsibility of each commanding officer to warn other units when his unit is within the range in which powerful transmitters could create a RADHAZ to personnel on other units.

b. Instructions.

- (1) Identify and attenuate potentially hazardous RF fields by physical controls wherever possible, protective equipment, administrative actions, or a combination thereof.
- (2) Limit RF field exposure of personnel per AECP-2.
- (3) Define and control areas in which RF exposure of personnel could exceed the PEL. Ensure that personnel are aware of potential RF exposures in their workplaces and duty assignments.
- (4) Investigate, document, and prevent recurrences of RF overexposure.
- (5) Use RF Hazard Warning Signs as shown in STANAG 1379 RAD, or the national standard to warn personnel of hazardous areas.
- (6) For RF Induced and Contact Current restrictions, use the following table:

Frequency Range (f) (in MHz)	Maximum Current Through Both Feet (mA)	Maximum Current Through Each Foot (mA)	Contact Current (mA)
0.003–0.1	2000*f	1000*f	1000*f
0.1–100	200	100	100

6453 Radiation Hazards to Materiel

a. Ships Fitted With High-Power Transmitters and Carrying Materiel. Ships are typically fitted with high-power transmitters such as radio communications, radar, and electronic warfare equipment. The same ships also typically carry naval stores including weapon systems and ordnance that may contain electro-explosive devices (EED), or other materiel containing critical systems, defined here as *materiel*. The RF fields produced by these transmitters can cause inadvertent initiation or dudding of EEDs or upset sensitive electronic systems. The commanding officer of each unit is responsible for the safety of his own materiel, and those of surrounding units, from RADHAZ produced within his unit. AECP-2 provides engineering derivations of RADHAZ protection for materiel and AECP-2 Supplement provides practical operational guidance and procedures for fleet use. It is the responsibility of each commanding officer to warn other units when his unit is within the safety distance of RF transmitters that could create a RADHAZ to materiel on other units. It is also the responsibility of each commanding officer to warn other units of RF-sensitive materiel held in such a location that they could be hazarded by RF transmissions from other units.

b. Instructions. Referring to the operational guidance in AECp-2 Supplement, each unit should construct a set of tables such as described in Chapter 7 of that publication (Guidance to Simplify the Implementation of Operational Procedures).

(1) Susceptibility Radiation Hazards Designator (SRAD) codes for RF-sensitive materiel are provided to fleet units by each nation's appropriate engineering authority for materiel safety. Chapter 7, Table 1, provides a place to collect each unit's SRAD codes from their ammunition allowance list. This table is used to inform other units of the SRAD of materiel when approaching another unit.

(2) Transmitter RADHAZ Designator (TRAD) codes for each unit's transmitters are provided by each nation's appropriate engineering authority for electronic systems. Chapter 7, Table 2, provides a place to collect each unit's TRAD codes unique to emitters and antenna suites of that unit. This table is used to compare to the SRAD provided from an approaching unit (platform). If a unit's TRAD is higher than any corresponding frequency SRAD of an approaching unit (platform), then the appropriate safety distances in Chapter 3, Table 1, must be observed. If this is not possible, one of the options of paragraph 302.b must be achieved.

(3) A table unique to each platform, such as that in Chapter 7, Table 3, can be prepared in advance once the unit's TRAD codes are known by filling in the matrix with values extracted from Chapter 3, Table 1: Safety Distances. Since a safety distance of 3 metres is a minimum separation between a transmitting antenna and materiel or aircraft structure, only values >3 metres need be considered.

6454 Radiation Hazards to Fuel

a. Ships Fitted with High-Power Transmitters and Fuel. General instructions regarding the control of RF transmissions to avoid RADHAZ to fuel and flammable materials pertain only to flammables with flashpoints less than (<) 60° C. These fuels have to be in shielded, closed containers when there is a possibility of being exposed to electromagnetic radiation.

b. Instructions. To avoid causing a hazard during fuelling operations on vessels in close company, the following more detailed procedures should be observed for flammable materials with a flashpoint below or equal to 60° C when they are exposed to RF transmissions during fuelling, defuelling, and handling operations and ship-to-ship replenishments. These procedures apply, too, when there is any leakage of flammable materials (flashpoint >60° C) from a damaged container.

(1) Radar and Satellite Communications. Radar main beams and radiations from other directional aeriels of own or other ship must not illuminate fuelling points, fuelling rigs, aircraft, vehicles or craft being fuelled, defuelled or replenished within 300 m for radars of average power greater than 500 W and within 100 m at lower powers.

(2) Radio Communication (omnidirectional).

(a) Within 10 metres of fuelling point, fuelling rig or nearest point of aircraft vehicle or craft being fuelled, or replenished, no transmissions at all from own or other ship are authorized.

(b) Between 10 and 30 metres, transmissions are allowed from own and other ship up to 250 W per transmitter (no limit to the number of transmitter).

(c) Above 30 metres, no restriction. Transmitters connected to a dummy load do not cause RADHAZ risks and are not restricted by the above precautions.

6455–6459 Spare

6460 NOT RELEASABLE**6461 ASW Compensatory Allowances**

a. For any ASW engagement, air and surface units shall apply a compensatory allowance which minimises the risk of that weapon inadvertently entering an area containing a friendly submarine.

NOT RELEASABLE.

b. The weapon danger zone is based on the type of weapon, method of employment, run pattern, and estimated acquisition range. This danger zone is not intended to be the maximum possible weapon run, but an area which will protect the submarine from a properly operating weapon. Weapon danger parameters are derived from ASW weapon employment publications, and may also be specified by the ASWC.

c. Submarines shall remain clear of their area boundaries by at least their assessed navigation error and take appropriate precautions to prevent its own ASW weapons from endangering friendly submarines and surface units.

d. Figure 6-8 illustrates compensatory allowances.

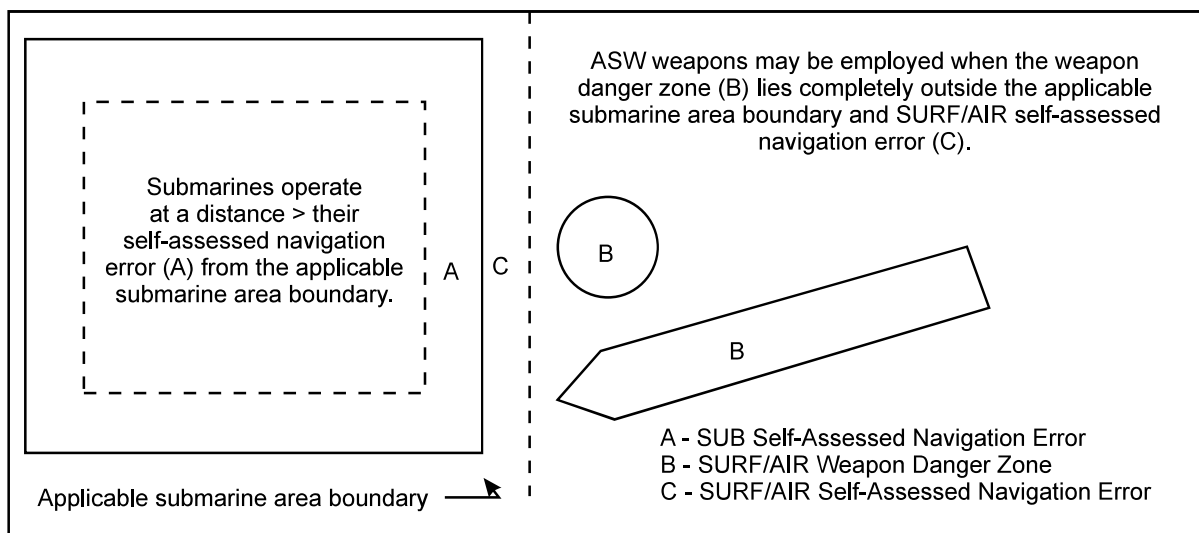


Figure 6-8. ASW Compensatory Allowances

6462 NOT RELEASABLE

Figure 6-9—NOT RELEASABLE

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6463 NOT RELEASABLE

Figure 6-10—NOT RELEASABLE

Figure 6-11—NOT RELEASABLE

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6464 Safety Lanes

Safety lanes are used to facilitate submarine and surface ship operations. Rules governing actions within activated submarine and surface ship safety lanes follow.

a. Submarine Safety Lanes. SSLs are available as a set of lanes superimposed on a grid, or geographically described, and may be activated wholly or in part by message. SSLs may be used to prevent or minimise mutual interference among friendly submarines, ships and aircraft. Offensive operations within activated SSLs are limited as follows:

(1) Aircraft. ASW attacks are prohibited.

(2) Surface Ships. ASW attacks are prohibited.

NOT RELEASABLE.

(3) Submarines. A submarine in an SSL shall not attack another submarine unless it is positively identified as enemy.

b. Surface Ship Safety Lanes. Offensive operations within a surface ship safety lane are limited so that surface ships will not be attacked while in the lanes unless they are positively identified as enemy or unless they commit a hostile act. Attacks on aircraft and submarines will be governed by the designation of the surrounding zone or area. Cartel ships, enemy hospital ships, and neutral shipping may be routed along surface ship safety lanes.

NOT RELEASABLE.

6465 Command Relationships of Transiting Submarines

The OTC of all escorted submarine moves is normally the escort commander. In the case of unescorted moves or when the submarines part company with the escort for any reason, the senior submarine commander present shall assume the duties of OTC. The commander of an area through which submarines are transiting will provide routing instructions for the SUBOPAUTH.

6466 Responsibility to Assist Disabled Submarines

Any friendly ship or aircraft meeting a disabled friendly submarine is to make every effort, so far as circumstances permit, to ensure the subsequent safe passage of the submarine.

6468–6469 Spare**6470 Special Precautions for Submarine Operations in Peacetime**

This section contains additional procedures for promulgating NATO submarine movement information. It also provides a system that meets the requirements for an orderly transition from peace to war. The primary reason for accurate and timely promulgation of submarine movement information is to prevent submerged mutual interference. Secondary reasons are to provide information for intelligence plots so that submarine contact reports may be properly evaluated and to establish a search area in case of SUBLOOK/SUBMISS/SUBSINK based on the routing information given in the SUBNOTE.

6471 Submarine Movements

a. Authorities. Authorities who have responsibilities with regard to submarine movements are the SUBOPAUTHs, SMAAs, and submarine exercise area coordinator (SEACs).

Allied nations are responsible for informing relevant SMAAs about those national submarine exercise areas which have been established permanently as agreed by the nations concerned and are under the control of SEACs. SMAAs are responsible for monitoring submarine and VDS ship movements and for informing SEACs, SUBOPAUTHs, and units concerned of possible mutual interference. NATO SMAAs have no authority to control submarine movements. The procedures required below will neither infringe on national prerogatives, infringe on the freedom of the sea, nor release submarine commanders from their responsibilities regarding the International Law of the Seas. They do place a moral obligation on all Allied SUBOPAUTHs to declare accurately their submarine operations and in sufficient time to permit the widest promulgation to “need to know” addressees.

b. SUBNOTE Procedures. Submarines are routed in peace and in war by means of SUBNOTES that must clearly and accurately define the route to be followed.

NOT RELEASABLE.

c. Notice of Intention. When exercises are being planned it may be considered advisable to establish a temporary submarine exercise area and/or to promulgate the intended track of the submarine well in advance. This should be done by issuing an intention message to appropriate addressees in advance of promulgating a SUBNOTE. This message should state the limits of the area and the duration of its use and/or intended track.

NOT RELEASABLE.

d. Diving Restrictions. It is assumed that the submarine will proceed along its promulgated track dived. Those portions of the route that must be transited surfaced are to be specified in the SUBNOTE. Should it be necessary to route the submarine dived through permanently established exercise areas, the provisions of Article 6472 apply.

6472 Action on Suspected Mutual Interference

a. Outside Established Submarine Exercise Areas. The SMAA will advise SUBOPAUTHs as soon as interference is suspected. However, an interference situation may become evident to SUBOPAUTHs concerned as soon as SUBNOTES or changes thereto are promulgated, in which case they should initiate action to eliminate the suspected interference situation without waiting for a message from the SMAA. There are no set parameters for determining when an interference situation is deemed to exist, and the good judgement of the authorities involved will determine the necessary action.

NOT RELEASABLE.

b. Inside Permanently Established Submarine Exercise Areas. The SEAC will be best informed concerning the movements of his own submarines within an established exercise area. On receipt of information of a submarine transiting through the permanent exercise area, the SEAC is, if interference is possible, to recommend avoiding action to the SUBOPAUTH involved, keeping the SMAA informed.

c. Inside Temporarily Established Submarine Exercise Areas. The commander establishing a temporary submarine exercise area by a notice of intention will be best informed concerning the movements of exercise submarines within the area. On receipt of information of a nonexercise submarine transiting through the temporary exercise area, the SMAA is responsible for advising the commander who established the area and the appropriate SUBOPAUTH. The commander who established the area is to decide if interference is likely and to recommend to the appropriate SUBOPAUTH, keeping the SMAA informed, whether or not avoiding action is required.

6473 Operations Inherently Dangerous to Subsurface Operations

a. Various peacetime operations scheduled by surface and air commanders are inherently dangerous to submerged submarine passage when the whereabouts of the submarines are unknown to these commanders. Such operations include:

- (1) Streaming/deployment of VDS, minesweeping or minehunting gear, or other underwater devices/bodies including helicopter dipping sonars.
- (2) Scheduling of live air-to-surface, surface-to-surface, or antisubmarine weapon firings.
- (3) Hydrographic survey explosive ranging.
- (4) Naval mine warfare operations.

b. Recipients of SUBNOTEs should further disseminate submarine movement information to those authorities normally involved in scheduling these operations in order to avoid mutual interference.

c. It is incumbent on surface and air commanders to send a message to the appropriate authorities informing them of their intent to schedule operations which may be inherently dangerous to submerged operations. In the case of surface ships streaming VDS or other towed underwater devices/bodies, the requirements of Article 6480 shall be followed. Naval mine warfare operations are described in Article 6481. In all other cases the SUBDANGER format from APP-11 should be used. In the case of live weapon firings, the time and geographic area involved should be included. Commands scheduling hydrographic survey explosive ranging operations should include track information, SOA, times for explosive ranging, and size and detonation depth of charges to be used.

d. Operations inherently dangerous to submerged submarines are frequently undertaken by civil authorities. These operations require separate consideration by authorities with responsibility for submarine safety.

e. Maritime unmanned systems (MUS) carry out military operations or civilian activities controlled by civil/military authorities. For prevention of mutual interference all underwater MUS activities should be reflected in the corresponding underwater plots in order to ensure the safety of subsurface operations.

- (1) For any underwater MUS military operations, an UNDERWATER OBJECT NOTE message format is available to declare those operations. An appropriate UNDERWATER OBJECT NOTE message is to be sent to the responsible SMAA at least 48 hours before commencing the operation.

(2) For underwater MUS civilian activities such as surveys, research or observations etc.; a SUBDANGER message should be distributed to the appropriate SMAA by military authorities that gained information by respective civilian messages like NOTMAR, HYDROLANT or NAVTEX warning.

(3) The responsible SMAA should consider any deployment of an underwater MUS as a hazard to subsurface operations.

6474 NOT RELEASABLE

6475–6479 Spare

6480 Prevention of Mutual Interference Between Submerged Submarines and Surface Ships with Towed Acoustic Devices Streamed

a. Safety measures prescribed below shall be enforced to prevent mutual interference between submerged submarines and surface ships with VDS, DTAS, and critical angle towed-array system (CATAS) devices streamed or helicopter dipping sonar (HDS) when operating in nonexercise situations in peacetime. This coordination is required to enhance safety and surveillance coverage, and avoid conflicts of interest, but is not intended to prejudice national prerogatives or inhibit freedom of the seas.

b. Even if HDS are considered as “soft” sonar systems for the purposes of PMI (e.g., they may be employed in the same depth zone as submarine as described in AXP-01), they remain dangerous devices and must be declared by UNDERWATER OBJECT NOTE to the appropriate SMAA at least 48 hours before to be lowered to optimum depth.

NOTE

TOWED TORPEDO DECOYS ARE EXCLUDED FROM THESE REQUIREMENTS.

(1) Submarine commanding officers must assume that all ships which are operating sonar have streamed a towed acoustic device unless positively known otherwise and that ships do not know the submarine's position. A submarine hearing sonar transmissions or other signals is to remain clear, keeping in mind that the subject unit may be trailing an acoustic device up to 4,000 yards astern. A surface ship with contact on a friendly **submarine** must keep his ship and towed array clear of the submarine.

(2) VDS may be employed in the active or passive mode. No active sonar transmissions or other signals are required, provided the response to the VDS/DTAS NOTE has been received from the SMAA.

NOT RELEASABLE.

(3) VDS/DTAS Safety Precautions

(a) The VDS/DTAS NOTE described below is required for safety whenever a VDS/DTAS device is to be streamed to a depth greater than 30 metres (98 feet). An UNDERWATER OBJECT NOTE is also required for operations at 30 metres (98 feet) or less when:

- i. The water depth is less than 375 metres (1,200 feet).
- ii. Operation within 40 nautical miles of the Norwegian coast.
- iii. Operation in the Aegean Sea north of Crete.
- iv. Operation in the French national exercise areas.

(b) The required UNDERWATER OBJECT NOTE is to be sent to the appropriate SMAA at least 48 hours before commencing the operation. Upon receipt of the UNDERWATER OBJECT NOTE, the SMAA is to send a message to the originator of the UNDERWATER OBJECT NOTE confirming that there is no safety hazard. If a risk of collision between the VDS/DTAS and a submarine is apparent, the SMAA will advise those concerned and request that appropriate action be taken to eliminate the hazard. VDS and DTAS are not to be streamed until the ship is in receipt of the SMAA confirmation message, except as noted in paragraph (5).
NOT RELEASABLE.

(c) Once the confirmation message is received, the ship may employ VDS/DTAS in the active or passive mode and no active sonar transmission or other warning signals are required.
NOT RELEASABLE.

(4) A ship planning to stream a CATAS at depths greater than 30 metres (98 feet) is to send a UNDERWATER OBJECT NOTE, using the message format in APP-11, to the appropriate SMAA at least 48 hours before commencement of the operation. Upon the receipt of the UNDERWATER OBJECT NOTE, the SMAA is to send a reply to the originator of the UNDERWATER OBJECT NOTE acknowledging receipt. In the acknowledgement, the SMAA may include advice on other units conducting surveillance in the area or advice on best placement of the sensor for minimizing mutual interference and avoiding duplication of effort. Upon receipt of the acknowledgement, and after considering the SMAA's advice, the ship may stream its CATAS as stated in the UNDERWATER OBJECT NOTE. If the towing ship departs the UNDERWATER OBJECT NOTE area and the system cannot be recovered, the towing ship is to provide warning on sonar or UWT, as described in the Sonar Signal Code Table of AXP-01, at least once every five minutes unless otherwise specified by the SMAA.

(5) NOT RELEASABLE.

(6) NOT RELEASABLE

6481 Prevention of Mutual Interference Between Mine Warfare Activities and Submarines

a. The procedures for PMI/WSM between NMW activities and submarines are for use whenever NMW equipment (for example, mines, remotely operated vehicles, autonomous underwater vehicles (AUVs), minesweeping gear, VDS, etc.) is physically deployed at depths below 30 metres, as follows:

- (1) In international waters and in areas outside of the nationally declared permanent exercise areas detailed in AHP-06 (see Note).
- (2) In areas where WSM has been implemented.

NOTE

PROCEDURES FOR PMI WITHIN PERMANENT EXERCISE AREAS ARE THE RESPONSIBILITY OF THE NATIONAL SUBMARINE EXERCISE AREA COORDINATOR. NATIONAL SEACS ARE ENCOURAGED TO PROMULGATE PROCEDURES FOR PMI BETWEEN MINE WARFARE ACTIVITIES AND SUBMARINES WITHIN THEIR PERMANENT EXERCISE AREAS TO NATIONS EXERCISING IN THESE AREAS.

b. Peacetime Procedures.

- (1) The exercise coordinator should submit a WSM request to the SUBOPAUTH as far in advance of the planned operation/exercise as possible. The format for the WSM request is contained in APP-11.
- (2) The SUBOPAUTH SMAA will check for potential interference with other assets, resolving interference through liaison with the affected parties. He will issue a WSM Status and Allocation Message when interference is not present or has been resolved.
- (3) The Submarine Movement Advisory Authority will then inform submarines under his OPCON, or inform other SUBOPAUTHs using the SMAA system, of NMW activities in areas adjacent to submarine operating areas or moving havens.
- (4) NMW assets are responsible not to engage in NMW activities that may interfere with submarines outside of the area or range of operations described in the UNDERWATER (UW) OBJECT NOTE.

c. NOT RELEASABLE.

d. Coordination. In general UW OBJECT NOTES should be promulgated by the tasking authority as far in advance of the planned operation as possible. If potential interference is discovered, it will be resolved through liaison between the SMAA/SUBOPAUTH and the NMW tasking authority. Sufficient lead time is required to allow potential interference to be resolved in a manner acceptable to all parties. Interference that cannot be resolved through this liaison will be forwarded to a superior commander for resolution. Notwithstanding this, UW OBJECT NOTES must be promulgated no less than 48 hours prior to the planned operation to allow the SMAA and/or affected SUBOPAUTH time to inform and, if necessary, reroute the submarine to avoid interference. This period is due to delays inherent in the submarine communications broadcast system.

e. Messages. The format for the UNDERWATER OBJECT NOTE is detailed in APP-11.

SECTION V—CONTACT PROSECUTION

6500 ASW Airplans, Attack and Support Methods, and Ship Plans

Table 6-15 lists the plan number, purpose, and publication location for detailed information on ASW airplans, attack and support methods, and search plans.

6501 Surface Ship Search, Attack and Support Plans

Figures 6-12 through 6-14 describe general search, attack, and support plans available for use by ships or by ships and helicopters. While these plans are designed specifically for ASW actions, many of them have other applications as well. When helicopters are used, the letter H is added as a suffix to the plan number.

Details on coordinated operations at the scene of an ASW action are provided in Chapter 12 and ATP-28, Vol. I.

6502 Airplans

Figures 6-15 through 6-19 describe search plans designed specifically for use by aircraft conducting ASW and surface search missions. ASW airplans are described in ATP-28, Vol. I.

Table 6-15. ASW Airplans, Attack and Support Methods, and Search Plans

Plan	Purpose	Publication
This Section—NOT RELEASABLE		
This Section—NOT RELEASABLE		
Attack and Support Methods		
THIS SECTION NOT RELEASABLE		
14AH Cordon	1. Sector support for a close ASW action. 2. Stand-off attack in sectors. 3. Circular attack in zone.	MTP-01, Vol. 1, Chap 6
Search Plans		
14SH Cordon	A sector search around a datum, involving one or more ships and/or helicopters.	MTP-01, Vol. 1, Chap 6
1S Oak Tree	Area search, intercept search, lost contact search, or bottom search by two or more ships.	MTP-01, Vol. 1, Chap 6

ATTACK, SUPPORT, AND LOST CONTACT METHOD 14AH/14SH CORDON

a. Plan CORDON is composed of sectors 0–8, centered on a contact or datum, as per the diagram below. In PLAN RED CORDON, Sector Zero will default to the METFR as promulgated by the ASWC. METFR will also apply to Sector Zero when executing PLAN BLACK CORDON. However, when using PLAN BLACK CORDON, the SAC must also consider the age of the datum when assigning the radius of Sector Zero. Over time, this will result in a Sector Zero larger than METFR.

b. Units have freedom of movement within assigned sectors but they must not approach within 500 yards of adjacent occupied sectors. The inner limit of sectors 1–8 is the boundary of sector zero, and there are no outer limits.

c. When employed as an ATTACK AND/OR SUPPORT PLAN, CORDON allows ships and helicopters the freedom of manoeuvre within assigned sectors in order to conduct attacks, provide support, and carry out assisting unit duties.

d. When contact is lost, the establishment of the DATUM is the authority that initiates the CORDON search plan. When the DATUM is established,

units are to remain in their existing sectors unless otherwise ordered by the SAC.

e. The SAC is to order:

(1) Sector assignments. Units may be designated multiple sectors providing they are adjacent to one another. Not all sectors must be assigned.

(2) Radius of sector zero, if other than the default due to mission priority (i.e., detection, engaged in operations other than war, etc.).

(3) Reassignment of sectors as the tactical situation requires.

Notes:

1. SACs may order a range or distance with sector assignments. If this is done, units are to remain within 1 mile of that range/distance from the center of PLAN CORDON.

2. SACs may direct surface ships to conduct stand-off ASW or to remain outside of TDA. If this is done, ships are not to approach within 500 yards of TDA. The SAC may also consider setting the radius of sector zero to that of TDA.

3. NOT RELEASABLE.

4. NOT RELEASABLE.

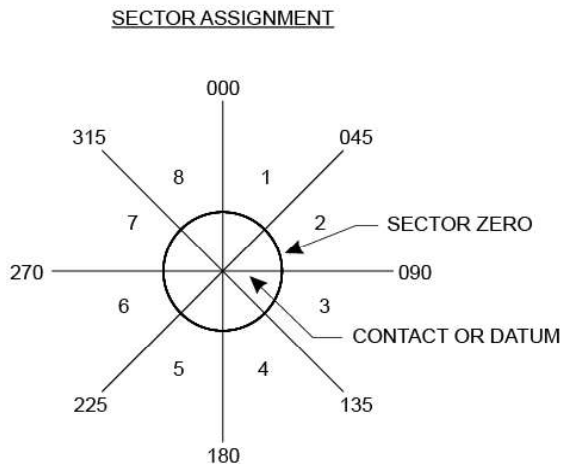


Figure 6-12. Attack, Support, and Lost Contact Method 14AH/14SH Cordon

SEARCH PLAN 1S OAK TREE

Oak Tree is a search by ships in a loose formation into which helicopters may be integrated. It may be used as an area, intercept, lost contact or bottom search.

a. **DIRECTING SHIP.** The SAU commander or SAC is the directing ship.

b. **FORMATION.** Units should be formed on a loose line abreast. Distances between units and speed are to be ordered by the SAU commander. Accurate station keeping in this search is not necessary. The SAU commander is to order and coordinate the deceptive or evasive steering of the formation and/or individual ships.

c. METHODS

(1) **AREA SEARCH.** An area can be searched by:

(a) **A SINGLE SWEEP** through the area, using a broad zigzag if necessary to widen the front. This method could be used if the area is small, or if it is desired to carry out a rapid but comparatively low probability search.

(b) **A SERIES OF SWEEPS** in the form of an expanding square search based on a datum or search center. In this case units are required to be in a loose line abreast. This provides a slow sweep rate.

(c) **A SERIES OF PARALLEL SWEEPS** through successive portions of the area. This provides thorough geographic coverage but a slow sweep rate.

(d) **A SERIES OF RANDOM SWEEPS** within the area. This provides maximum deception when it is believed that the submarine will remain within the area.

(2) **INTERCEPT SEARCH.** Units search a moving area. The position and size of the area at any moment depend upon the estimate of the submarine's probable courses of action. This moving area can be searched by a series of sweeps if the area is large and if time permits. When intercepting a submarine assumed to be closing a convoy or force, time is normally limited. The requirement to keep the units between the submarine and the force will in most cases permit only a single sweep of the area.

(3) **LOST CONTACT SEARCH.** This method is used in the following cases:

(a) When the submarine would be outside the area covered by a close lost contact search by the time it can be effectively started.

(b) When the execution of a close lost contact search would involve excessive manoeuvring of the ships as a result of their positions with reference to the datum.

(c) When the submarine's most dangerous course can be predicted, or when it is essential that the units should remain between the submarine and his target.

(4) **BOTTOM SEARCH.** When searching for bottom contacts, an area search should be conducted with the direction of the search at right angles to the current.

d. **SEARCH TURN.** If a zigzag is in use when a search turn is executed, the zigzag is to cease automatically and units are to return to base course. The zigzag is only to be resumed on signal. While the formation is completing the manoeuvre, ships are particularly vulnerable. Individual ships are therefore to carry out their own torpedo countermeasures during this time.

e. **HELICOPTER MANOEUVRE DURING SEARCH TURN.** When a ship alters course using a search turn, helicopters stationed on it are to be repositioned on the other side of that ship on the new course.

EXAMPLE
C2D THIS IS A1B
EXECUTE PLAN BLACK OAKTREE
SIGNALS EXECUTE TO FOLLOW
FORMATION YANKEE 090 TACK 40
SPEED 16

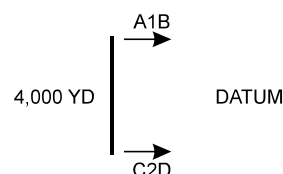


Figure 6-13. Search Plan 1S Oak Tree

Figure 6-14—NOT RELEASABLE

Figure 6-15—NOT RELEASABLE

Figure 6-16—NOT RELEASABLE

Figure 6-17—NOT RELEASABLE

Figure 6-17 (Cont.)—NOT RELEASABLE

Figure 6-18—NOT RELEASABLE

Figure 6-18 (Cont.)—NOT RELEASABLE

Figure 6-19—NOT RELEASABLE

CHAPTER 7 Picture Compilation and Scouting

SECTION I—PICTURE COMPILATION

7100 Introduction

This section describes the process of picture compilation, which is fundamental to maritime operations, and scouting, which is the observation of the surrounding environment.

NOT RELEASABLE.

7101 Picture Compilation

In all maritime operations, ranging from peacetime through increasing tension to hostilities, it is necessary to compile a plot of surface, air, and subsurface contacts.

The process of all actions and activities aimed at compiling a plot is called picture compilation.

In maritime operations, picture compilation will normally be executed to support decisionmaking in relation to the mission. The nature of the mission will dictate the importance of the plot and what information is to be derived from it.

In support of the overall plan, the OTC and/or delegated authorities are to develop, formulate, and implement the picture compilation plan.

7102–7109 Spare

7110 The Picture Compilation Plan

The picture compilation plan should take into account the following three items:

- a. General considerations.
- b. Elements of picture compilation.
- c. The process of picture compilation.

7120 General Considerations

General considerations in developing the picture compilation plan are:

- a. Environment.
- b. Resources.
- c. Operational situation.

7121 Environment

There are three basic elements of the environment which should be considered:

- a. Geographic location of the AOO (e.g., open ocean, inshore).
- b. Environmental factors (e.g., oceanographic, meteorological, atmospheric, etc.).
- c. Familiarity with the geographic location and environmental factors.

7122 Resources

The OTC or delegated authorities should assess all resources available to support the picture compilation plan:

- a. Intelligence information.
- b. The capabilities and limitations of the available assets and their sensors and the probability of gaining contact with them.
- c. Dissemination capabilities (e.g., data link systems, voice communications, messages).

7123 Operational Situation

In maritime operations, the operational situation will significantly affect the production and implementation of the picture compilation plan. Important elements are:

- a. Mission.
- b. Threat.
- c. Peacetime, time of tension, time of war.
- d. ROE.
- e. Directives from superior authority.
- f. Traffic density.
- g. Familiarity with traffic-pattern.

7124–7129 Spare

7130 Elements of Picture Compilation

In general terms, picture compilation should result in the determination of the following four elements:

- a. WHAT:
 - (1) Environmental descriptors (surface, subsurface, land, air and space).
 - (2) Identity (hostile, suspect, unknown, neutral, assumed friend, friend).
- b. WHERE:
 - (1) Position.
 - (2) Bearing.
 - (3) Area of probability.
 - (4) Height.
 - (5) Depth.

c. WHITHER:

- (1) Course.
- (2) Speed.

d. WHEN: Time of contact report of information in the report.

All elements should be amplified if possible or required (e.g., type, class, nationality, Doppler, behaviour, time late, etc.).

7140 The Process of Picture Compilation

Picture compilation can be subdivided into five processes:

- a. Detection.
- b. Localization.
- c. Recognition.
- d. Identification.
- e. Dissemination.

7141 Detection

- a. The detection process includes the employment of sensors in a certain area or volume, to determine the presence or absence of contacts or contact-related data. The presence of contacts or contact-related data should stimulate the other four processes.
- b. The detection process can be aimed at the detection of specific contact(s) in a clear-cut area.
- c. Probability of gaining contact depends on the following:
 - (1) Sensor probability of detection (sensor's sweep width).
 - (2) Coverage factor.
 - (3) Frequency of cover.
 - (4) Duration of mission.
 - (5) Type and behaviour of target.
 - (6) Time late and last known position.
 - (7) Operator performance.
 - (8) Environmental and geographic factors.
- d. These factors should be applied to the conduct of scouting missions against surface and subsurface targets. As it is often impossible to assign values to these factors because of the problems in predicting sensor performance and target behaviour, the probability of gaining contact is difficult to determine. However, broad values for both coverage factor and frequency of cover may be required in planning.

e. NOT RELEASABLE.

7142 Localization

The localization process includes the employment of sensors to determine the positional information and movements of a contact (WHERE/WHITHER). The positional information, which might be an area of probability or a bearing, can be relative to a platform, absolute, or in a grid system.

7143 Recognition

The recognition process includes the employment of sensors in order to determine characteristics of a contact. The collected characteristics should be compared with reference data which can lead to correlation, with a level of confidence. The degree to which recognition will have to be executed should be ordered by the appropriate authority and can range from very rough (e.g., combatant/merchant) to fine (e.g., name of contact). In general, recognition is the interpretation of data collected by sensors. The recognition confidence levels which can be used are:

a. Certain Target. Positively recognized by type, visually or electro-optically, and by a competent person and continuously tracked after initial recognition.

b. Probable Target.

- (1) A certain target that has been tracked intermittently and is confidently considered to be the same target, or
- (2) A contact viewed by imaging radar whose image quality provides strong cumulative evidence with positive indicators that are consistent with a type of enemy unit, or
- (3) Strong, cumulative information based on any two of the following:
 - (a) A contact with an electronic emission unique to a type of enemy unit.
 - (b) A contact with acoustic emissions unique to a type of enemy unit.
 - (c) A contact in a position predicted by enemy or intelligence reports.
 - (d) A contact sighted visually or using electro-optics but not positively recognized.
 - (e) Radar target with tracking and/or formation consistent with that expected of the enemy.
 - (f) Active sonar contact with tracking and/or formation consistent with that expected of the enemy.
 - (g) Missile release by target.

- (h) A contact viewed by imaging radar whose image quality provides indicators that are consistent with a type of enemy unit.
- (i) A contact with electronic ID systems (e.g., AIS, IFF) transmission consistent with that expected of the enemy.

c. Possible Target. A contact that has a lower degree of recognition than that required for probable. The confidence of the recognition must be amplified as follows:

- (1) High Confidence—A contact which satisfies only one of the criteria required for probable.
- (2) Low Confidence—A contact which has indications that it may satisfy the criteria and further investigation is required.

7144 Identification

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. Table 7-1 provides examples of identification methods and criteria.

7145 Dissemination

The dissemination process overlaps the previous four phases and includes the use of data links, voice communications, and messages in order to transfer data of contacts between two or more units/platforms.

7146–7149 Spare

7150 Scouting

7151 Introduction

The considerations and processes described in the previous paragraphs are applicable to all areas of warfare. However, each type of warfare has its own special features which will impact on the methods and processes for compiling the plot. It is the responsibility of the OTC and/or delegated authorities to promulgate specific instructions for different warfare areas in advance as stated in Chapter 2.

7152 Aim

The aim of scouting is the observation, either systematic or not, of the surrounding environment executed by all available means in a particular area.

7153 Scope

- a. In maritime warfare, the generic term “scouting” is used to describe all surveillance and reconnaissance activities as indicated in Figure 7-1.
- b. Only tactical scouting will be considered, since strategic scouting is beyond the purpose of this publication.
- c. Scouting operations may be tasked against any vehicle or area. However, since deployed maritime forces have a continuous need for information about the enemy or potential enemy, they are constantly engaged in tactical surveillance and reconnaissance, and thus units may contribute to scouting whether or not specifically tasked. Scouting operations are designed to investigate, detect, identify, localize, report, and monitor if required. Occasionally, specific tasks may be ordered to accomplish more limited needs, such as the hampering of the opposition’s movement.

Table 7-1. List of Track Identification Methods and Criteria

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.	
VISUAL (including electro-optics)	
- Contact positively identified - Contact identified but not positively - Opening of fire (guns, missiles ...) - Wrong reply to a visual identification signal - No reply to a visual identification signal - Ship or aircraft showing no lights	
ELECTRONIC	
- Contact(s) less than 10 (or n) degrees from a communications intercept bearing (or at an intersection of two bearings) - 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 - Contact(s) less than 10 degrees from a jamming bearing - Contacts not responding to an IFF/SIF interrogation - Contacts giving wrong reply to an IFF/SIF interrogation - Contact transmitting incorrect ID information on Auto ID System - Electronic emission identified as that of a missile guidance system - Electronic emission corresponding to a fire control radar - Electronic emission with changing characteristics (frequency, scan, pulse repetition frequency (PRF)) - Airborne radar transmissions associated with data link transmission	
ACOUSTIC	
- Contact with acoustic emissions - Passive sonar intercept of a unit - Passive buoy intercept of a unit	
BEHAVIOUR	
- Contact in a position predicted by enemy or intelligence reports - Contact closes within a specific range - Contact closes from an expected direction - Contact proceeds at excessive speed - Contact operating airborne vehicles - Contact correlates with known PIM, patrol area, or flight plan of own units - Contact shows hostile intent - Contact shows hostile act - Change of speed greater than 5 knots	

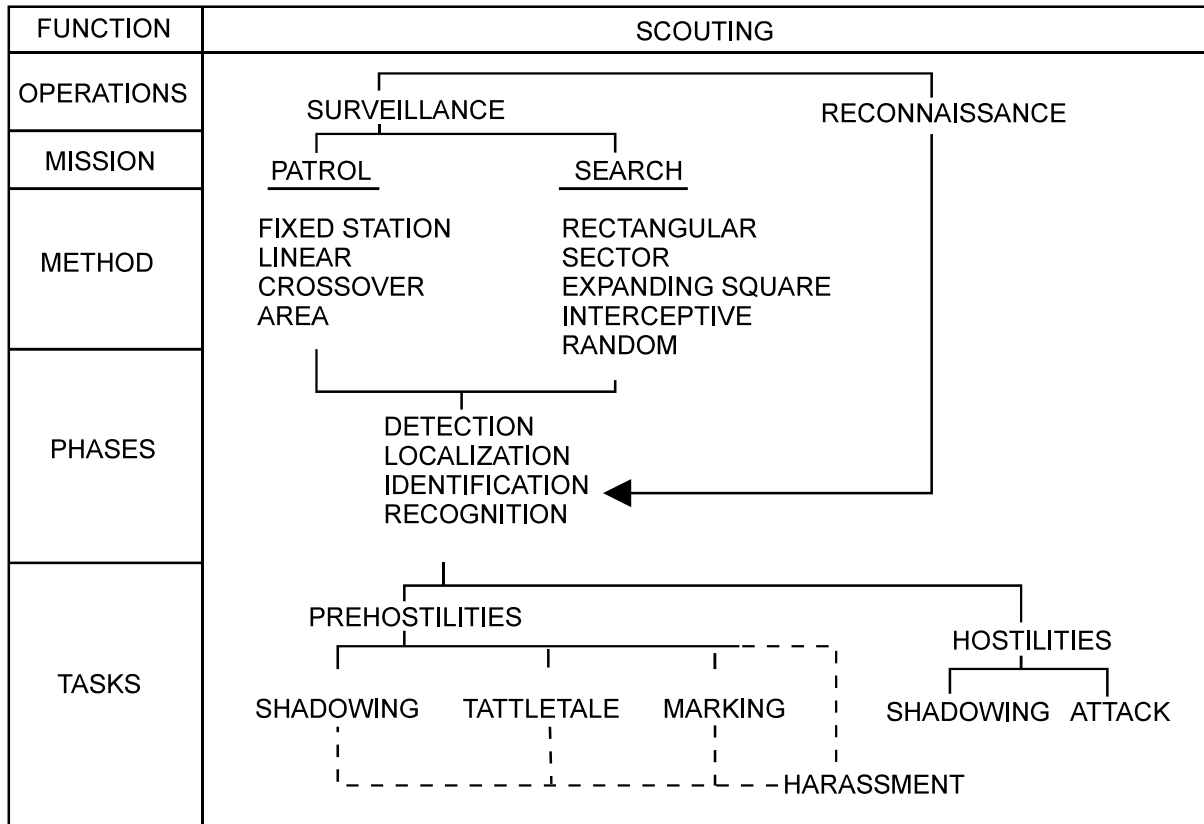


Figure 7-1. Scouting Description

d. The relationship between the various types of operations, missions, methods, and tasks are illustrated in Figure 7-1.

7154 Planning of Scouting Operations

a. Selection Criteria. The type of operation, mission, method, or task to be used will depend on the situation and vehicles available and may also depend on the ROE in effect. Although Figure 7-1 illustrates a progression of all the above, the sequence may be initiated or terminated with any operation, as appropriate.

b. Selecting Units and Sensors.

(1) Units. Surface units, submarines, and aircraft may be assigned to conduct a scouting operation. Coordinated operations are encouraged, where possible, to maximise the advantages of each kind of unit.

(2) Sensors. Sensor selection is partially limited by the type of unit tasked. The controlling authority may specify the sensor(s) to be used by giving adequate emission policy. It is usually better to allow the unit a choice of sensor(s), as selection often depends on local operational and environmental factors. Selection also depends on the ROE in force, as they are a primary consideration in selecting covert or overt action and are therefore a factor in selecting the type of sensors to be used.

c. Overt and Covert Tactics. Scouting can be carried out overtly or covertly and the tactical implications must be considered before missions are ordered.

(1) Overt Tactics. In general, overt tactics are adopted when concealment of the unit's task is undesirable, unnecessary, or impracticable, and/or the need for speed in gaining contact overrides the need for concealment.

(2) Covert Tactics. The term "covert," applied to air operations, should be interpreted as "disguised" rather than as "passive," because an aircraft may need to use radar occasionally to skirt unidentified contacts at a safe stand-off distance based upon expected weapon envelopes of threat units. In general, covert tactics are adopted to:

- (a) Avoid detection of the unit or at least minimise the warning to enemy defences.
- (b) Deny the enemy continuous intelligence of the unit.
- (c) Force the enemy to use active sensors.
- (d) Deceive the enemy.

7155 Scouting Methods

As indicated in Figure 7-1, scouting consists of surveillance and reconnaissance activities.

a. Surveillance. The systematic observation of aerospace, surface, or subsurface areas, places, persons, or things by visual, aural, electronic, photographic, or other means; specifically, in maritime surveillance, to detect and determine the number, identity, or movement of aircraft, missiles, surface, or subsurface vehicles. Surveillance operations in peacetime are normally a national responsibility. NATO Surveillance Coordination Centres coordinate maritime surveillance operations in order to optimize the effort and the information obtained. Moreover, contingency plans are available to expand the NATO surveillance effort when the situation so dictates. Since forces under different operational and tactical control may participate in surveillance operations, the command and control relationships detailed in Chapter 2 are not always applicable. However, when local coordination is required, the area headquarters may designate an on-scene surveillance coordinator (OSSC) as tactical coordinator. The OSSC should:

- (1) Establish communications with other forces involved in the same operation.
- (2) Inform all units about his intentions.
- (3) Dispose units in order to optimize efforts and resources.
- (4) Send all the appropriate reports.
- (5) Inform the concerned headquarters when assuming/passing his duty.

NOTE—NOT RELEASABLE

b. Reconnaissance. An operation undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy; or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. Reconnaissance operations are often classified according to the purpose for which they are undertaken (e.g., intelligence, ice, or beach reconnaissance) or according to the means employed in obtaining the information (e.g., radar, AIS, or ESM reconnaissance). Reconnaissance missions may be conducted by satellite, aircraft, submarines, or surface units. It is a more limited operation than surveillance.

7156 Surveillance Methods

There are two methods to conduct a surveillance mission:

- a. Patrol.
- b. Search.

7157 Patrol

a. General. A patrol is a detachment of units sent out for the purpose of gathering information or systematic and continuing investigation along a line to detect or hamper enemy movements.

b. Basic Types of Patrol. The four basic types of patrol are fixed station, linear, cross-over, and area.

c. Ordering a Patrol. The OTC or controlling authority should promulgate some or all of the following:

- (1) Aim of the patrol.
- (2) Type of patrol.
- (3) Limits of the barrier line or location and dimensions of the patrol area.
- (4) Sequence of ships and their initial position.
- (5) Patrol guide.
- (6) Start and duration of the patrol.
- (7) Patrol speed.
- (8) Assumed enemy course and speed.
- (9) Sweep width.
- (10) Direction and length of legs.
- (11) EMCON plan.
- (12) Tasking of passive sensors.
- (13) Reporting procedures.

- (14) Action on gaining contact.
- (15) Action on completing the patrol.

NOTE—NOT RELEASABLE

7158 Search

a. General. A search is a systematic investigation of a particular area to establish the presence or the absence of (a) specific contact(s).

b. Basic Types of Search. The five basic types of search are rectangular, sector, expanding square, intercepting, and random.

c. Ordering a Search. The OTC or controlling authority should promulgate some or all of the following:

- (1) Aim of the search.
- (2) Type of search.
- (3) Assumed position of enemy at a stated time, or the geographic area to be searched.
- (4) Limiting enemy courses for intercepting search.
- (5) Limiting enemy speeds for intercepting search.
- (6) Direction of search line.
- (7) Order of ships on search line if other than standard.
- (8) Track spacing.
- (9) Position of the Guide at time of starting search.
- (10) Start and duration of search.
- (11) Search course.
- (12) Search speed.
- (13) EMCON plan.
- (14) Tasking of passive sensors.
- (15) Reporting procedures.
- (16) Action on gaining contact.
- (17) Action on completion of search.

7159 Spare**7160 Tasks**

Based on the recognized picture, tactical decisions can be made. This can lead to the assignment of tasks to ships, aircraft, or submarines. The following tasks are described in the subsequent paragraphs:

- a. Shadowing.
- b. Countershadowing.
- c. Marking.
- d. Countermarking.
- e. Tattletale.
- f. Weapon employment.

7161 Shadowing

- a. Shadowing operations are normally a follow-up to surveillance and/or reconnaissance missions. The effectiveness of shadowing is measured by the ability to obtain and report the required information. Shadowing can be carried out using overt or covert tactics. In times of tension, the shadowing unit must be well aware of the ROE in force. Shadowing may be conducted by aircraft, submarines, or ships, or combinations of them.
- b. It is important that shadowing is not mistaken for marking, as this may cause an unwanted escalator effect. To avoid any misunderstanding on own intentions, the following should apply:
 - (1) Select shadowing units with little offensive capability.
 - (2) Shadowing with relatively strong units should be done within own sensors but outside own maximum effective weapon range.
 - (3) Shadow covertly.

7162 Information Exchange Between Shadowing and Relieving Units

- a. The exchange of information between the shadowing unit(s) and the relieving unit(s) must be as complete as possible. Some major points to consider are:
 - (1) Additional information about the type of target.
 - (2) Position, course, and speed of the target.
 - (3) Observed EP and level of communications security of the target.
 - (4) Frequencies used by the target.
 - (5) Aircraft embarked.
 - (6) Behaviour of the target in general and against the shadowing unit(s).

b. During aircraft handover, the aircraft going off task is to ensure that the relief aircraft gets a positive handover. In covert operations, the following should be considered:

- (1) The handover should take place below the target's radar horizon.
- (2) If possible, secure communications should be employed, preferably at a range and altitude from the target that will preclude intercept.
- (3) Passive handover techniques, such as the use of predesignated sonobuoy channels, should be considered.

7163 Countershadowing

- a. In both peacetime and times of tension, commanders should be aware of the fact that they could be shadowed even though there may be no indication of a shadower. The known presence of one shadower does not exclude the presence of other, undetected, shadowing units. A shadower is not necessarily dangerous in itself.
- b. Its task may be to gather intelligence or to observe units and relay information on movements. On the other hand, its task may be to provide target information for the opponent's offensive forces, intended to adopt countershadowing tactics to hamper the shadower's task.
- c. The purpose of countershadowing tactics is to confuse and deceive the shadowing opponent in order to withhold information on own movements and intentions and, if possible, to shake it off. In general, these tactics will be most effective when used at night, in reduced visibility, or by taking advantage of environmental conditions.

NOT RELEASABLE.

7164 Marking

The aim of marking is to be able to deliver an immediate and effective attack on the enemy when hostilities are ordered. However, units overtly engaged in marking operations will be particularly vulnerable to surprise attack by the enemy; units marking covertly (e.g., SSNs) will be less vulnerable to attack. In selecting the marking unit, it will be necessary to weigh the need to demonstrate a presence against the vulnerability of the marker.

7165 Countermarking

The potential threat posed by a marking unit may be reduced by the employment of a countermarker. Units engaged in countermarking will pose a direct threat to the marker and thus limit the options available to him. If conducting continuous countermarking duties, they may be better able to accomplish the aim than surface units as they are less vulnerable to pre-emptive action. Surface units conducting countermarking may be at close quarters harassment stations; missile, gun, or radiation positions; or defensive positions close to own threatened unit(s).

7166 Tattletale

A unit maintaining contact may be used to pass targeting information to other units. Such a unit maintaining contact is designated a tattletale. A tattletale may or may not be capable of taking offensive action. Tattletale operations may be preferable to direct marking as they permit the whereabouts of the primary attacking unit to be concealed.

7167–7169 Spare

7170 Picture Compilation and Weapon Employment

- a. The required product of the picture compilation process is a recognized picture that forms the basis for tactical decisionmaking, including weapon employment.
- b. In general, weapon employment will only be considered on contacts which constitute a threat to friendly forces and therefore should be identified as hostile.
 - (1) However, the identity hostile does not necessarily mean that the OTC has evaluated the contact to form so great a threat that weapon employment is justified. On the other hand, in some situations weapon employment may be authorized on contacts with an identity other than hostile.
 - (2) NOT RELEASABLE.
 - (3) **NOT RELEASABLE.**
- c. The OTC and warfare commanders are to specify all these requirements and considerations in the respective general and warfare instructions in order to make clear to all subordinates what the weapon employment policy is. Usually this will result in differences among warfare areas (e.g., different identification criteria, recognition (confidence levels), and weapon release criteria).

7180 Terms and Definitions

- a. Picture Compilation.** All actions and activities aimed at compiling a plot.
- b. Detection.** The discovery of the presence of a contact or contact-related data.

Figure 7-2.—NOT RELEASABLE

c. Localization. The determination of positional information and the movements of a contact.

d. Recognition. The determination of certain characteristics of a contact.

e. Identification. The assignment of one of the six standard identities, based upon available data and the determined identification criteria.

f. Recognized Picture. The result of the picture compilation process laid down in a common plot, which is compiled using available information from all units/levels concerned, and which covers a predetermined area in which all detected contacts have been evaluated and assigned an indisputed identity.

g. Identification Criteria. Criteria laid down by the OTC or delegated authority to determine which standard identity can be assigned to a detected contact based on the available localization and recognition data.

h. Release Criteria. Criteria laid down by OTC or delegated authority to be satisfied before weapon employment is authorized.

i. Recognition Level. The level to which a contact must be recognized as to platform type, class, or individuality.

j. Recognition Confidence Level. The degree of probability with which the recognition level is established.

SECTION II—DATA COMPILATION

7200 Data Compilation

7201 Reference Publications

a. Procedures and Instructions. Instructions concerning communication procedures are contained in relevant ACPs.
NOT RELEASABLE.

b. Brevity Code. Operational brevity code words are from APP-07. Personnel concerned with raid reporting should familiarize themselves with code words in general use.

c. NOT RELEASABLE.

7202 OTC's Requirements

As described in Section I, the OTC/CWC and/or delegated authorities will formulate and implement the picture compilation plan. Parts of the plan are the required and available means of data compilation.

7203 Means of Data Compilation

Various means are used to compile the recognized picture. Data links, voice nets, and RATT are used to disseminate the information gathered through surveillance (which is done by air, surface, and subsurface units). Data links, voice nets, and RATT are used to promulgate the information gathered through surveillance (by these units). The function of the voice nets in data compilation is raid reporting. On the same nets the management of data links will be coordinated.

7204 Coordination

As part of the picture compilation plan, surveillance is coordinated by the OTC or delegated warfare commanders. Data compilation is coordinated by warfare commanders or by the force track coordinators (air, surface, and subsurface) if the task is delegated by the OTC/warfare commanders.

7205–7209 Spare

7210 Surveillance

Surveillance missions are normally designated by delineating the area and type of surveillance. Surveillance may be of a tactical or strategic nature and may be followed by reconnaissance. Considerations for the selection of vehicles for surveillance are similar to those applying reconnaissance.

7211 Surveillance Area

- a. The establishment of the size and shape of the surveillance area is fundamental to the success of the surveillance concept. The size and shape of the surveillance area will be determined by comparing the warning time required to deploy forces with the resources available to provide surveillance.
- b. The surveillance area may move with the PIM or be fixed.

7212 Coordination of Data Compilation in the Surveillance Coordination Surveillance Area

The aim of surveillance coordination is to optimize the use of resources and avoid duplication of effort. Coordination of unit activities in surveillance is vested in the appropriate warfare commanders. Coordination of data compilation may be delegated to the appropriate force track coordinator.

7213 Force Track Coordinator (Air)

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 colocated with the AAWC, if designated. Acting under AAWC, AC or FADIZ C is ultimately responsible for the identification of all friendly aircraft flying within its area. The AAWC/FTC-A has the following responsibilities for picture compilation and dissemination:

- a. Control the AAW reporting net (see Article 4141).
- b. Compile the air picture, including the correlation and evaluation of reports from other units of the force (including data links).
- c. Issue SITREPs.
- d. Designate the link management units (data net control station (DNCS), GRU, link broadcast units, and Gateway Unit).
- e. Manage the link picture.
- f. Promulgate the link management codes to be used in network management.
- g. Control over link operational procedures.
- h. Order general gridlocks to be done by the GRU.
- i. Coordinate entries from non-link-fitted units into the link picture.
- j. Order frequency shifts or other parameter shifts for link if necessary (initiated by the DNCS).
- k. Crosstell of information with shore air defence authorities when appropriate.
- l. Issue track release policy to be used.

7214 Force Track Coordinator (Surface) and Force Track Coordinator (Subsurface)

The ASUWC and ASWC are charged with maintaining and disseminating the surface and subsurface picture as it is formed by the total of sensor inputs. These duties may be delegated to the force track coordinator surface (FTC-S) and force track coordinator subsurface (FTC-SS), who are normally colocated with their respective warfare commands when designated. Their duties can be combined in the FTC-S/SS. In TDS systems, the FTC-A has the primary responsibility, while the FTC-S and FTC-SS are using that part of the system made available for their data compilation efforts. The FTC-S and FTC-SS have the following responsibilities:

- a. Control the appropriate reporting nets.
- b. Compile the surface and subsurface picture, including the correlation and evaluation of reports from other units of the force (including data links).

- c. Issue SITREPs.
- d. Coordinate entries from non-link-fitted units into the link surface and subsurface picture.

7215–7219 Spare

7220 Contact Reports

7221 General Information

a. Purpose. Contact reports are designed to pass the fullest information about contacts in the shortest time and simplest manner. They serve to:

- (1) Alert authorities and forces or units about contacts in the area.
- (2) Develop comprehensive plots to assist in the rapid evaluation of the situation in the air, surface, and subsurface environment. Contact reports can be made as raid reports and enemy contact reports.

b. Raid Reports. Raid reports are designed to alert the OTC/warfare commander and the units in a formation or disposition to new contacts and, by means of a series of related reports, to develop an accurate plot. They may concern hostile, friendly, neutral, or unidentified contacts. Rapid reporting may be used with land-based stations when a continuous flow of information is required.
NOT RELEASABLE.

c. Enemy Contact Reports (ECRs). Enemy contact reports are designed to alert appropriate shore authorities, as well as other forces or units operating in the area, to the presence of hostile units or unidentified contacts in the area. Enemy contact reports are made by:

- (1) The OTC.
- (2) Surface units operating independently.
- (3) Land-based aircraft not on direct support.
- (4) Submarines operating independently.
- (5) Merchant ships.

Details are in APP-11.

7222 Responsibility for Passing Information About Contacts

a. The OTC. The OTC is responsible for the dissemination of the recognized picture to all units under his tactical command and to appropriate shore authorities or units in the area using enemy contact reporting.

b. Surface Units.

- (1) Any unit operating under the tactical command or tactical control of an OTC is responsible for passing early and accurate contact information to him, using raid reporting.
- (2) Any unit in the vicinity of the force, but not under the tactical command or control of an OTC, is responsible for passing early and accurate information to the force about contacts that may be a threat to the force, using enemy contact reporting.

c. Aircraft.

- (1) Aircraft on direct support are responsible for making raid reports to the OTC.
- (2) Aircraft on area operations or in transit are responsible for making enemy contact and in-flight reports to their shore controlling authority. When operating in the vicinity of friendly surface forces, aircraft are also to pass the information to the OTC(s) concerned. Aircraft may be briefed to give precedence to reports to the OTC(s) over reports to their shore controlling authority. If two-way communication with an OTC cannot be established, or is not permitted by EMCON, an aircraft is to broadcast its reports and, EMCON permitting, pass its reports ashore for retransmittal on the appropriate ship broadcast.

d. Submarines.

- (1) Submarines operating independently that make contact with possible enemy units are to make the appropriate enemy contact reports as soon as practicable.

NOT RELEASABLE.

(a) and (b) NOT RELEASABLE.

(2) and (3) NOT RELEASABLE.

7223 Air Raid Reports

a. General. Long-range detection of air contacts is the first principle of anti-air warfare; however, detection alone does not ensure success, because individual commands must first make a cursory evaluation of all information prior to reporting an air contact. Position and accurate amplifying information about all air contacts must be reported to the FTC-A. Air picture reporting will cover all contacts in the anti-air warfare area, with emphasis on early detection and an information flow that is as continuous as possible on friendlies. However, contacts already being reported by another unit should not be reported, unless the unit desiring to report is in a more advantageous position to track and wishes to assume reporting responsibility for that contact. Ships are to track or watch all air contacts on their radar displays, with emphasis on promulgated watch zones, and are to report in accordance with reporting rules promulgated by the OTC. In any case, units are to report all air contacts not positively identified as friendly, provided they are considered an immediate threat. All means of detecting air contacts, including lookout reports, are to be exploited to the maximum extent.

Visual sighting can be of special value in engaging both high and low contacts, and lookouts should be indoctrinated as to the importance of reporting all sightings, smoke, and contrails.

b. Local Air Situation. In addition to reporting the general air station, there is an equal requirement for all ships fitted with guns and self-defence missiles to have a clear picture of the local air situation, including relevant information on missile zones, safety sectors, weapon restrictions, and positions of friendly aircraft and helicopters. A knowledge of the positions of all friendly aircraft may be the only clue to the identity of a contact that is in fact an enemy aircraft or missile. The AAWC will normally be the LAAWC for his group and will promulgate the local air picture. Commanding officers are responsible for the employment of their own weapons, and the primary function of the local AAW coordination net is to promulgate information to assist them in making their decisions.

c. Local Air Picture. The aim is to provide the group with a clear picture of the air situation around the group. Contacts within 50 nm are given priority, with less frequent reports on those beyond. Contacts are reported using the current agreed basic identities. Position is reported as range and bearing from ZZ of the local force. Although reporting procedures are vital for good raid reporting, under certain conditions a colloquial running commentary has been proven to be more successful than a rigid reporting procedure. However, when a unit detects or sights a target that is a direct threat to the force and has not been reported, it immediately broadcasts a flash report.

d. Amplifying Instructions. Friendly aircraft should be referred to by their task. Other aircraft should ideally be referred to by their force track number. A unit reporting a contact must be careful to report fades, including when it is “too close,” so that another unit may continue reporting that contact.

(1) NOT RELEASABLE.

7224 Surface and Subsurface Raid Reports

Surface raid reports are normally made on TF/TG Reporting net. This net may be HF or UHF. Details concerning the information to be exchanged are in Chapter 9. Subsurface reports are made either on ASW Air Coordination net, on an action net, or on TF/TG Reporting net, depending on whether immediate action is required. Searches should, where possible, be coordinated on a communication circuit common to all operating units. Where MPA are operating in this role, ASW Air Coordination (UHF) net will normally be used. Helicopters operating independently of FW aircraft should be TF/TG Reporting (HF/UHF) net, unless the level of traffic is such as to overload the limited facilities of the helicopter. Certain helicopters have the facility for transmission of the tactical picture by data link, and under these circumstances, control of the aircraft may be conducted on an alternate circuit at the OTC's discretion. NOT RELEASABLE.

7225 Other Reports

a. Air Combat Report. Air combat reports are reports made by aircraft and are primarily used to warn other aircraft and the ACUs of the presence of enemy aircraft. The report consists of code words from APP-07 and/or plain language.

b. Supporting Aircraft Mission Reports. These reports (such as the MISREP) are used by land-based aircraft when in support of maritime operations. They are described in APP-11.

c. Mine Detection Report. Every ship detonating a mine or detecting a moored mine or a drifting mine case shall make a report to the OPCON authority with an information copy to the OTC of the NMCM force if in contact with such a force. For dedicated mine countermeasures vehicles (MCMVs), the OPREP NMW/MINREP found in APP-11 should be used. Other ships should use the MW128 tactical signal from ATP-01 Volume II.

d. Situation Reports.

NOT RELEASABLE.

e. Engagement After-Action Reports. All units will submit hard-copy after-action summary reports to the OTC and warfare commander concerned, informing other warfare commanders and others as directed. Units will, in addition, make voice reports to the warfare commander concerned over the appropriate tactical net. For detached units, the task element commander should submit consolidated reports. The AREC will transmit MISREPs or PURPLE messages for CV-based aircraft. These reports will repromulgate mission results based upon mission debriefing or post-flight analysis.

7226 Warfare Commander Reports

a. Warfare Commander SITREP. Warfare commanders will make voice SITREPs to the OTC on the TF/TG Command net. Additionally, warfare commanders must keep units apprised of the tactical situation over the respective C&R nets. (The same SITREP may satisfy both requirements, but if units are not guarding the TF/TG Command net, then the report should be made over both nets.) SITREPs will briefly describe the tactical situation and state the warfare commander's intentions. They will be transmitted whenever dictated by the tactical situation and will be particularly critical during fast-moving situations, in order to keep the OTC sufficiently informed.

b. Warfare Commander SITSUM. When directed, warfare commanders and coordinators will submit message SITSUMs to the OTC. Reporting will be over the TF/TG Command (RATT) net in order to keep the OTC, other warfare commanders, and the task force generally informed. SITSUMs will include (as appropriate) warning and weapon status, equipment casualties, and other problems serious enough to be brought to the attention of the OTC and other warfare commanders.

(1) The ASUWC will, in addition, report best current estimate of hostile ship positions and time of last actual detection. Results of recent ASUW actions and surveillance flights, and status of ongoing actions and flights will also be reported. Friendly ship positions will be given on request.

(2) The ASWC will report best current locating information for hostile and friendly submarines and towed array ships. Status of current prosecutions and ASW air picture and deck alert will also be reported.

(3) The AAWC will summarize bogey and CAP status, including CAP station occupancy, ACUs, and ready alert posture. Missile inventory and status and the results of recent engagements will also be reported.

(4) The EWC will report force EMCON condition and intra-task force variations or violations thereof, current RACKET status, and status of EW aircraft.

(5) The AREC will report aircraft readiness and availability, flight deck status, and launch schedules. Real-time information will be most critical in AAW.

c. The OTC, along with the rest of the force, can best follow a rapidly developing situation by monitoring the AAW(C) net. In order to avoid duplication in reporting and distraction of the AAWC from his vital primary role, the OTC should cancel any requirement for AAW SITREPs/SITSUMs over the TF/TG Command net during periods of intense AAW action and require instead an after-action report from the AAWC summarizing the results of each series of engagements.

7227–7229 Spare

7230 Communication

For details of communications and circuits associated with data compilation, see Chapter 4, Section I.

7231–7239 Spare

7240 Tactical Use of Data Links

7241 Purpose

Data links are the backbone of operations. More than a link to share and establish tactical picture, modern TDL allow large information exchange, including text messages, voice, logistic elements, engagement orders. Multi-link networks, as it is in present operations, are great enablers and can give strategic advantage, but their inherent complexity and various levels of implementation could be an obstacle.

7242 Integration with Standard Tactical Doctrine

Link information is compatible with the information passed over voice circuits between non-link-fitted units and should reflect the same tactical picture. Positional information passed by data link is based on the DLRP, which is established by the OTC and should be in the same position as the origin for the CCG. This is considered further in Articles 3211 and 7261.

7243 Tactical Use of Link 11

a. Link 11 Operation. The OTC's tactical instructions for operating Link 11 are detailed in the OPTASK LINK. The force picture depends largely on the interoperability and availability of Link 11 facilities within the force or cooperating units. For Link 11, as for other communications means, radiation status indicators (RSIs) apply respectively. The following considerations will influence the OTC's decision:

- (1) Link equipment of participating units.
- (2) Expected threat, preplanned reactions, and standard occasions for breaking radio silence.
- (3) Mission.
- (4) Planned tactical positioning of own units, keeping in mind the expected HF and UHF communication ranges.
- (5) Rules of discretion (required (maximum) net cycle time, rate of sequential transmission, data exchange periodicity).

b. Operating Modes. The operating (or transmission) modes of the link are:
NOT RELEASABLE.

- (1) Roll Call.
 - (a) Full Roll Call.
 - (b) Partial Roll Call.
 - (c) Roll Call Broadcast.

(2) Broadcast.

(3) Silence.

c. Tactical Use of Silence Mode. The Silence Mode can be used in two ways:

(1) All units silent with single transmissions made only are standard occasions for breaking silence.

(2) All units silent with periodic, preplanned, single transmissions by designated units. This tactical mode is referred to as Short Broadcast.

d. Operational Employment.

NOT RELEASABLE.

7244 Wide-Area Link Operations

When a Link 11 net is established on a wide area and involves several TF/TG operating independently or in support situation Bravo or Charlie, a link point of contact, the FTC-A, will be designated in each TF/TG. On behalf of the OTC, the FTC-A of each TF/TG will be authorized to provide information and requirements about the link net management with the DNCS, using RATT messages or the voice Link Coordination Circuit. Depending on the nature of the operation, the senior OTC will promulgate information or requirements about the net management, updating the current OPTASK LINK as necessary. During wide-area Link 11 operations, the DNCS should be the AEW aircraft (E-3 or E-2 type) when on station.

7245 NOT RELEASABLE

7246–7249 Spare

7250 Link Management Units

Apart from track management on voice nets and data links, the links themselves need to be managed. Several duties describe the management task. These duties may be combined and are ideally vested in the FTC-A.

7251 Data Net Control Station

The DNCS is the participating unit in a link organization for air, surface, and subsurface data compilation that performs the technical management of the net.

a. The responsibilities are:

(1) Advise the FTC-A on the use of frequencies and link parameters.

Table 7-2.—NOT RELEASABLE

- (2) Initiate and terminate the data net, under the overall directives of the OTC.
 - (3) Control the order in which units are called in Roll Call mode of operation (Link 11).
 - (4) Monitor and analyse the data nets from link establishment to link termination (technical performance).
- b. The DNCS is chosen on the basis of:
- (1) Central location relative to other link-fitted units, which it must interrogate.
 - (2) Radiation hazard and EMCON considerations.
 - (3) State of equipment.

7252 Gateway Unit

In group working with more than one TDS system (i.e., Link 11, 16, 22, VMF) a gateway unit is assigned. A gateway unit is a participating unit operating in more than one data link system responsible for forwarding tracks data between these data link systems (data forwarding unit). The transfer can be manual or automatic.

7253 Link Broadcast Unit

For Link 11, a broadcast unit may be assigned. This unit will transmit data from this TDS system to other units, which will only receive this data but not answer or retransmit. The receiving units will either plot this data manually or automatically.

7254 Grid Reference Unit

The GRU is the unit designated by the OTC to maintain the OTC's geographical reference point.

- a. The GRU is responsible for:
- (1) Carrying out general grid locks as ordered by the AAWC/FTC-A.
 - (2) Acting as reference for individual grid locks where possible.
 - (3) Monitoring the positional accuracy of transmitted data by link participating units.
 - (4) Ensuring his data systems' navigational input is both up-to-date and accurate.
- b. The GRU should be chosen by the OTC on the basis of:
- (1) Position in the force, ensuring:
 - (a) Good link communications.
 - (b) Greatest track density coverage.
 - (2) Large and accurate track reporting capability.
 - (3) Accurate navigational facilities.
 - (4) Reliability of link participating unit.

7255–7259 Spare**7260 Procedures****7261 Grid Lock Procedure**

a. Grid Locks. The GRU executes grid locks on completion of the insertion of the DLRP into the various TDS, or after changing the DLRP. Grid locks are also executed periodically to reduce errors in grid reporting.

(1) Individual Grid Lock (Codeword RONSON). Individual grid locks are undertaken:

- (a) When a unit joins the force and enters the net.
- (b) On request of a misaligned unit.
- (c) Whenever the GRU or FTCs detect misalignment of one unit only.

(2) General Grid Lock (Codeword GRID LOCK). General grid locks are undertaken:

- (a) When misalignment occurs in several units.
- (b) Upon activation of the net and after inserting the DLRP into the various TDSs.
- (c) After changing the DLRP.
- (d) When requested by FTC-A.

b. Execution of Grid Locks. The procedure of executing grid locks differs between TDS and non-TDS units.

(1) TDS Units. This is the simple matching of the position of a single track reported over the data link by the GRU or another unit with the same locally held radar contact in the unit(s) carrying out the grid lock. Correction to align the link-reported track over the local contact will be in X and Y coordinates and will be applied according to the individual system design, either by moving the DLRP in terms of own-ship position or by applying the appropriate correction to transmitted and received tracks. Units are to report whether or not satisfactory grid lock has been achieved.

(2) Non-TDS Units. The correct X and Y coordinates of a locally held track are reported by the GRU or another grid locking unit, and units adjust their grid accordingly.

NOTE

**THE RESPONSIBILITY FOR KEEPING THE PICTURE ALIGNED
LIES WITH THE INDIVIDUAL UNIT(S).**

c. Locking Non-TDS Aircraft Into Grid. The appropriate ACU can lock aircraft into grid by five methods:

(1) Radar Grid Lock. On joining and after full identification procedures, the aircraft will be instructed to stand by for grid lock and X and Y coordinates are issued.

(2) Reverse Radar Grid Lock. If for some reason the ACU is unable to use radar, a reverse radar grid lock is executed. This requires the aircraft to use its radar and take bearing and distance from QQ or ZZ as applicable. It is essential that the aircraft knows the position of the reference within the force so that the fix is correctly taken.

(3) On Top. If the aircraft has permission to enter the ISR and overfly the force and can identify the ACU, the aircraft may obtain an ON TOP grid position of the ACU.

(4) TACAN Method. EMCON permitting and when a TACAN-fitted ship is in the group, an aircraft can obtain a TACAN lock of this unit and then be passed its grid position.

(5) Alternative. Individual unit position reports can also be given using bearing and distance from a geographically fixed reference position (e.g., HRP). When this is done, the code word(s) (REVERSE) UPDATE is (are) to be used. An UPDATE can be given by the GRU or another grid locking unit as a bearing and distance from the reference position to the subject unit. If for some reason the GRU or grid locking unit is unable to use radar, a REVERSE UPDATE can be executed. The subject unit uses its radar to determine the position of the GRU or grid locking unit; the GRU or grid locking unit passes its own position relative to the reference position. This bearing and distance is then used by the subject unit to align its grid.

d. Security of the Grid. Correlation between the DLRP and observed units enables the enemy to break the grid and obtain a missile firing solution on any subsequent unit reporting its grid position. While grid reports which have not been encoded are acceptable for detached units, bogeys, etc., the position of major units must be encoded in a suitable numerical code.

7262 Procedures for Reporting Own Position

Units not correctly reported on the net are to report their positions as follows:

- a. All ships are to guard or copy the TF/TG reporting HF net.
- b. PIMs are to be reported to the OTC when units join. The OTC will:
 - (1) Relay PIM information to the FTC-S.
 - (2) Inform transmitting units of the FTC-S frequency and call sign.
- c. Periodic position reports are to be transmitted to the FTC on the TF/TG reporting net. Frequency of reporting is as follows unless otherwise directed:
 - (1) Hourly, from CTGs, CTUs; major units; and all detached units.
 - (2) Every two hours, or when more than five miles from reported PIM, from transiting and supporting units.
- d. A composite position report is to be made for ships operating in company by the commander of the group.

Units on the link will monitor Link 11 to check for own-ship position accuracy. Units believing link position to be significantly in error will report correct position to FTC broadcast ship. This procedure will be of particular importance for detached units (e.g., towed array ships) to ensure that they are correctly included in the force surface picture.

7263–7269 Spare

7270 Security and EMCON Considerations

a. Speed of Transmission Versus Security. The conflict between the need to transmit an enemy report quickly and the need for security has to be considered on each occasion of making an enemy report. The solution will depend on the particular circumstances at the time, unless on-line encryption facilities are available. If the enemy is aware that he has been detected, and especially if he is able to inflict early damage, speed of transmission will be the more important factor. However, it must be realized that enemy reports which are not encrypted may, if intercepted, be valuable to the enemy.

b. Effect of Over-Emphasizing Security. It is important that security classifications are not imposed unnecessarily. Due consideration should be given to the availability of on-line encryption facilities and to type of units concerned with the reports.

c. Reporting Procedures During Restricted EMCON. Modifications to reporting procedures should be anticipated when the force is operating under restrictive EMCON conditions. In particular, the OTC must specify which reports are to be made when the OTC and/or warfare commander's flagships are in EMCON and when the entire force is EMCON (e.g., when only the OTC's flagship is in EMCON for purposes of operational/communications deception); the OTC may require continued reporting by warfare commanders and units, but will not acknowledge receipt or will acknowledge receipt via another circuit. If required by EMCON, RAID reporting responsibility may be passed to the E2C, AWACS, or MPA. Reports, other than initial raid reports, would normally be terminated in this situation.

d. Breaking Radio Silence. Enemy reporting is one of the occasions when radio silence may be broken. This subject is described in more detail in Article 8210.

7280 Automatic Identification System

(a) Introduction. AIS is a shipboard International Maritime VHF transponder system conceived and mandated by the International Maritime Organization (IMO) to enhance the safety of life at sea, the safety and efficiency of navigation and the protection of the maritime environment. In essence it is a form of Maritime IFF, but the fact that individual ships are responsible for some of the transmitted information means that the information received through the transponder should be analysed for its accuracy. Regulation 19 of the IMO Safety of Life at Sea (SOLAS), Chapter V (Safety of Navigation) covers the carriage requirements for shipborne navigational systems and equipment.

(b) Carriage of AIS by Warships. SOLAS Chapter V Regulation 1 provides the detail on application of SOLAS. This clearly states that, unless expressly provided otherwise, this chapter shall apply to all ships on all voyages, except; warships, naval auxiliaries and other ships owned or operated by a contracting government and used only on government non-commercial service.

(1) Thus technically warships, or other vessels owned, leased, or operated by a government, are not mandated to conform to IMO regulations however many nations do choose to comply with aspects of the regulations; or certainly to comply when not involved in a tactical activity. This may require a CTG to consider what instructions are given to civilian-flagged vessels operating in support of military operations particularly when a Silent EMCON policy is applied. This has led to a generic capability described as Warship AIS, often shortened to W-AIS.

(2) Following on from W-AIS there is growing availability of militarized AIS transponders which provide an additional secure AIS channel that can be considered as a significant operational force multiplier for the future. In these equipments the channel on which the secure data is passed is selectable and the baseline is encrypted. Equipment configured in this manner can be used for Blue Force Tracking and secure communication, but also allows Geospatial data to be transmitted and exchanged between warships and any appropriately equipped smaller craft in a group.

(c) Receipt and Exploitation of AIS Data.

Data Validity. Although mandated by the IMO, AIS is not policed on a global scale; received AIS data should therefore be treated with caution. Whenever using AIS data the following issues should be considered:

- (1) Many vessels might not be fitted with AIS, particularly warships and small craft (less than 300 GRT) including fishing boats and leisure craft.
- (2) It is not considered technically difficult to manipulate Static data fields including maritime mobile service identity (MMSI), IMO numbers, call sign and ship name. Alternatively, the generation of Pseudo AIS data could potentially be employed to add confusion to a situation.
- (3) An AIS fitted vessel might have an unserviceable system or it may be switched off if the Master/CO considers its continued use may compromise the security of the ship (e.g., piracy or high terrorist threat areas).
- (4) Poorly configured or calibrated ship sensors (position, speed and heading) might lead to incorrect information being transmitted.
- (5) Manually input data (e.g., Navigational status and voyage related data has frequently been observed to be inaccurate).
- (6) Spurious data has occasionally been detected on AIS receivers. This has tended to occur at very close ranges and has therefore been resolved easily by alternative sensors.
- (7) Poor positioning or wooding of own receiver may deny AIS data along some lines of bearing.
- (8) Existing ships of less than 500 GRT are not required to fit a gyro compass and are thus unlikely to transmit heading information on AIS, even if fitted with AIS equipment.

AIS Data Validation. Confidence in AIS received information can be increased by comparison with other information sources including:

- (1) Visual, electro-optical (EO)/infrared (IR) sight.
- (2) Helo/MPA probe.
- (3) EW data
- (4) Known traffic routes and schedules.
- (5) Lloyds Register Fairplay Shipping Database (available on the worldwide web).
- (6) International Telecommunication Union (ITU) "List of Call signs and Numerical Identities." The ITU issues MMSI numbers that are listed with a ship's name on CD-ROM.
- (7) The use of S-AIS and correlation of optical and radar imagery may provide a significant way ahead to improve AIS Data Validation.

(d) EMCON/OPSEC Considerations. The IMO/SOLAS regulations state that AIS should be in operation (implying transmitting) when underway or at anchor, however, they do permit the system to be switched off¹ if the CO/Master believes transmitting AIS data may affect the safety or security of his ship. EMCON/OPSEC issues are considered to be covered by this mandate.

(1) Although AIS is currently limited in its operation by VHF ranges, AIS sourced data is routinely collected and distributed via the world-wide web. An AIS transmission can therefore be easily tracked through a range of strategically important waters.

(2) In broad terms, AIS transmissions should be limited to the minimum required either by use of radiation status indicator (RSI S (Silence)), using standard occasions for breaking silence (including navigational safety) or RSI X where its use can be specified if required to support overt operations or to comply with local regulations. As a rule of thumb, if VHF radio transmissions in a given area would have included the use of ships' names, then overt AIS transmissions will generally be acceptable.

(3) EMCON Plans. AIS transmit capability should always be considered when developing a unit or force EMCON plan.

(4) AIS Transmit Checks. For ships with AIS transmit capability, the following AIS settings should be checked before sailing and at each watch handover.

- (i) Compliance with EMCON Policy, CO's and CTG's orders/local port requirements.
- (ii) Static data fields correct.
- (iii) Dynamic data correct, particularly navigational status.
- (iv) Voyage related data correct, however, destination, waypoints and ETA should generally not be entered.

(e) AIS Operational Planning. Units conducting surveillance and Maritime Interdiction Operations during recent operations have found AIS to be a particularly valuable tool, primarily as a sensor, however, it has a proven utility in the transmit mode also. The following paragraphs reflect recent operational experience and are provided to assist exploitation of AIS within an operational environment.

(1) AIS & Hailing. If AIS data is available within the force all ships can reduce dramatically the requirement for VHF hailing. If hailing is required, name and/or call sign from AIS should be used to enable a short and precise call. Experience has shown that "short calling" is appreciated by merchant shipping. Care should also be taken to ensure that merchant ships are not subject to repeated VHF hails from different warships; pre-assigned Link Special Track numbers can be used within a force to indicate ships that have been hailed.

(2) ROE. Consideration should be given to incorporating AIS received data within the ROE process. For example, if AIS received data from a specific contact conflicts with data received via other sources (including visual) it may be considered that the requirements for a boarding have been fulfilled.

¹ SOLAS Chapter V reg 19-Annex A Para 1.

(3) AIS Operating Modes. Three AIS operating modes have been identified:

(i) Covert. Used to deny own ship data and position to opposing force. This mode should be adopted as much as possible but it should be noted that a non-AIS-transmitting vessel may draw attention to itself if held by OPFOR ship or shore based sensor systems.

(ii) Generic. With some AIS equipment it is possible to adjust Static data in order to deny specific unit data. In this case, a “generic” MMSI number (issued by the ITU) can be inserted and a ship’s name replaced with text appropriate to the scenario (e.g., MILITARY VESSEL CONDUCTING INTERDICTION OPERATIONS). This mode may be appropriate in the TACSIT 2 (Force position known).

(iii) Overt. All own ship Unit ID transmitted. To be used when passing through mandatory VHF reporting areas/traffic schemes or to support overt operations.

(4) Spoofing. In addition to the three modes described, there is potential for AIS to be used to spoof, either through the transmission of false targets, false position of own ship, or false static data. This capability may be available within some AIS equipment however, it should be noted that AIS has been introduced to improve traffic monitoring, augment existing procedures for collision avoidance and simplify ship/ship, ship/shore information exchange. The system should therefore be operated in a fashion that is consistent with regulation for the Safety of Life at Sea. The transmission of false information should be avoided unless considered operationally necessary and approved by the Command.

(f) Dissemination of AIS Policy. Instructions for tactical employment of AIS within a force, both in transmit and receive, should be incorporated within appropriate operational tasking messages. Relevant messages may include the OPGEN and/or OPTASKs ASUW, MIO, EW. In order to ensure that AIS is fully considered when planning operations and developing EMCON plans, AIS capabilities should be reported to the OTC in the OPSTAT UNIT message.

CHAPTER 8 Electronic and Acoustic Warfare

SECTION I—OBJECTIVES AND ORGANIZATION

8100 Introduction and Scope

This chapter covers the basic procedures and instructions for electronic and acoustic warfare together with emission policy and control. The ability of a military force, as part of the overall information operations plan (see AJP-01, Allied Joint Doctrine), to make effective use of the electromagnetic and acoustic spectrum while, at the same time, preventing or reducing the enemy use thereof, will play an important part in deciding the outcome of any future conflict. A comprehensive and viable emission plan together with capable electronic and acoustic warfare systems is as important as any other plan or weapon system in a commander's arsenal, and must be fully integrated into all military operations. For the purpose of this chapter, EAW means electronic and/or acoustic warfare.

NOT RELEASABLE.

8101 Definitions

a. Electronic Warfare. Military action to exploit the electromagnetic spectrum, which encompasses the search for, the interception and the identification of the electromagnetic emissions, the employment of the electromagnetic energy, including directed energy, to reduce or prevent hostile use of electromagnetic spectrum, and actions to ensure its effective use by friendly forces.

EW comprises three divisions:

(1) Electronic Warfare Support Measures. That division of EW involving action taken to search for, intercept, and identify electromagnetic emissions and locate their sources for the purpose of immediate threat recognition. It provides a source of information required for immediate decisions involving ECM, EPM, and other tactical actions.

(2) Electronic Countermeasures. That division of EW involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, through the use of electromagnetic energy. There are three subdivisions of ECM—electronic jamming, electronic deception, and electronic neutralization.

(3) Electronic Protective Measures. That division of EW involving actions taken to ensure friendly effective use of the electromagnetic spectrum despite the enemy's use of the electromagnetic energy. There are two subdivisions of EPM—active EPM and passive EPM.

(a) Active EPM. Detectable measures, such as altering transmitter parameters as necessary, to ensure friendly effective use of the electromagnetic spectrum.

(b) Passive EPM. Undetectable measures, such as operating procedures and technical features of equipment, which are meant to ensure friendly effective use of the electromagnetic spectrum.

b. Electronic Order of Battle. A list of emitters used by a force or in a scenario with specific information on the electromagnetic characteristics, parameters, location, and platforms of these emitters.

c. Acoustic Warfare. Military action to use the underwater acoustic spectrum to the advantage of friendly forces by exploiting enemy emissions and controlling friendly emissions.

There are three divisions within AW:

(1) Acoustic Warfare Support Measures (AWSM). That division of AW involving actions to search for, intercept, and identify radiated underwater acoustic energy for the purpose of exploiting such radiation. The use of AWSM involves no intentional underwater acoustic emissions and is generally not detectable by the enemy.

(2) Acoustic Countermeasures (ACM). That division of AW involving actions taken to prevent or reduce an enemy's effective use of the underwater acoustic spectrum. ACM involve intentional underwater acoustic emissions for deception or jamming.

(3) Acoustic Protective Measures (APM). That division of AW involving actions taken to ensure friendly effective use of the underwater acoustic spectrum, despite the enemy's use of acoustic energy. APM involves anti-AWSM and anti-ACM, and may not involve underwater acoustic emissions.

d. Acoustic Spectrum (Freq KHZ).

	FROM	TO
ULFA	-	0.001
ELFA	0.001	0.01
VLFA	0.01	0.75
LFA	0.75	3
MFA	3	15
HFA	15	100
VHFA	100	300
UHFA	300	500
SHFA	500	+

e. The three divisions of electronic and acoustic warfare are parallel and complementary.

f. Frequency Management. Ensure frequency deconfliction and coordination, with particular concern that safety frequencies are adequately assigned, throughout the force.

8110 Direction and Coordination

8111 General

The OTC/CWC is responsible for EAW; he may delegate functions in Table 2-9 to an electronic warfare coordinator and Table 2-5/2-9 to an ASWC. To best exploit its potential, EAW policies and activities must be harmonized with other warfare policies and activities. The OTC/CWC promulgates the EP for the force, which will be reflected in the EMCON plan. To accomplish the mission, the electromagnetic and acoustic environment in which the force will operate is a major factor of the situation assessment.

8112 Functions Which May Be Delegated to EWC/ASWC

a. Formulation of EMCON Plans. The EWC and the ASWC are the OTC's/CWC's principal advisers on the formulation of his EP. Once the OTC/CWC promulgates the EP, the ASWC will develop the acoustic portions of the EMCON plans and the EWC will develop the electronic portions. Both portions will then be incorporated into the force EMCON plans, which will be coherent in intent and support the EP.

b. ESM/AWSM Activities. The EWC/ASWC assign the ESM/AWSM duties and guards as appropriate. They perform the following functions, if delegated by the OTC/CWC:

- (1) Issue the list of threat and target emitters (electronic order of battle (EOB)).
- (2) Assign the ESM/AWSM duties and ESM/AWSM guards as appropriate.
- (3) Coordinate with the AC/AREC/HEC for aircraft support, the OTC/CWC/SOCA for submarine support, and/or the OTC/CWC for surface support.
- (4) Coordinate and control ESM/AWSM activities on the appropriate net.
- (5) Collect, evaluate, recognize/classify intercepts, and disseminate data.
- (6) Correlate information obtained from own sensors with information available from other sources.
- (7) The EWC allocates racket numbers.

c. ECM/ACM Activities. The IWC with support from the EWC/ASWC coordinate and control ECM/ACM activities respectively within the force. Coordination with all warfare commanders is required. They perform the following functions, if delegated by the OTC/CWC:

- (1) ASWC will direct and direct the employment of force decoys according to the policy formulated by the OTC/CWC/IWC.
- (2) The IWC will coordinate the employment of active jamming and of electronic neutralization devices according to the policy formulated by the OTC/CWC.
- (3) IWC or ASWC will advise and direct the OTC/CWC on planned responses.
- (4) IWC will coordinate with the AC/AREC/HEC for aircraft support, the OTC/CWC/SOCA for submarine support, and/or the OTC/CWC for surface support.
- (5) IWC will advise the OTC/CWC, the SC, and warfare commanders on unit disposition to achieve the optimum balance between ECM/ACM effectiveness and countersurveillance posture.
- (6) IWC will promulgate plans to conduct electronic/acoustic deception according to the policy formulated by the OTC/CWC.
- (7) The IWC will provide tasking of ECM aircraft.

d. EPM/APM Activities. The EWC manages, monitors, coordinates, and may control EPM within the force. In particular, he monitors compliance with the EMCON plan and assesses force electromagnetic interference (EMI) and force electromagnetic compatibility (EMC). The ASWC carries out similar functions in APM. The EWC also manages the security aspect of force communications.

e. Anti-Intruder Activity. The EWC and warfare commanders may advise the OTC/CWC of anti-intruder policy in peacetime or periods of tension.

f. Cryptological Activity. The EWC advises the IWC (or OTC/CWC if no IWC is assigned) on the use of cryptological assets, both organic and nonorganic.

8113 Individual Ship Responsibilities

a. Each commanding officer is responsible for the defence of his ship. Therefore, under direct attack, he may lift electronic and acoustic emission restrictions as necessary for self-defence.

b. **Detached Unit.** When detached, the commanding officer becomes responsible for formulating the EP related to the ordered task, within the framework of the OTC/CWC's overall EP.

8120 Voice Reporting

8121 NOT RELEASABLE

8122 EW Reporting of Confidence Levels

a. Recognition of electronic emitters can be difficult, either because transmissions are short, or because transmitted parameters are common to many emitters. False reports may not only lower the confidence of the command in EW, but also may cause wrong decisions. Therefore, an operator is to indicate his confidence in his assessment of an intercept.

b. Confidence levels as indicated are to be used in voice reporting:

(1) Confidence 1: Doubtful. The operator is unsure about the recognition of an intercept because it is based on estimated rather than measured information.

(2) Confidence 2: Possible. The operator has some reservations on the recognition of an intercept because it is based on limited intercept information and/or falls within common parameters of other emitters.

(3) Confidence 3: Probable. Recognition of an intercept based on measured parameters which, although coinciding with those of the stated emitter, are common to some other enemy and/or friendly emitters. The EWC may ask for the spot numbers of alternative emitters.

(4) Confidence 4: Certain. A recognition of an intercept based on measured parameters which coincides accurately with those of the state emitter.

Normally the OCT/CWC/PWCs will indicate in their operational signals the signals the confidence level required for preplanned responses (e.g., SAU/SAG detachment, orders for engagement, etc.).

8123 EW Intercept Bearing Accuracy

Bearing accuracy of an intercept must be reported as soon as it can be estimated to permit triangulation of the source emitter. Bearing accuracy of any radar jamming experienced should be reported. Accuracy should be reported by use of suffixes detailed at Article 3207.

SECTION II—NOT RELEASABLE

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SECTION III—EMISSION CONTROL (EMCON)

8300 EMCON Considerations

The overall EP is promulgated by operation order or signal and describes the policy in broad terms with a brief explanation of rationale. It must be in sufficient detail for both subordinate commanders to apply the EMCON plan and MHQ to plan support operations accordingly.

The detailed control for each type of emission is achieved by an EMCON plan covering all emissions. The OTC/CWC should promulgate, well in advance, a number of plans covering all options related to the tactical situation and anticipated changes.

The IWC if designated provides overall guidance and intent within the OPTASK IW to support the EMCON plan. This may include generalized statements and planning considerations as to the intent for emission control of sensors for the TG as the TG transits to/from its AOO. The IWC if designated also clearly highlights his EMCON pre-planned responses (PPR) as the threat or tactical situations changes and how emissions will be controlled.

The tactical situations (TACSIT) are listed below:

- 0 Unknown.
- 1 Forces located and targeted.
- 2 Force location known; disposition unknown.
- 3 Forces not located.

Table 8-1 contains the standard format of an EMCON plan. Methods of signaling EMCON are explained below. Every effort should be made to ensure that air, surface, and subsurface units tasked in support are aware of the force's EMCON plan before arrival. In addition, the OTC/CWC should signal the EMCON plan in force as part of the joining message.

8301 NOT RELEASABLE

8310 Construction of EMCON Plans

- a. In the EMCON plan format (Table 8-1):

(1) Index Numbers are used to designate the columns assigned to each type of emitter. Spare numbered columns should be used to designate specific emitters whenever it is necessary to issue separate overriding instructions.

(2) Index Letters are used to designate the lines assigned to each type of unit. Spare lettered lines may be used for particular units, or alternatively, a unit may be detailed to use a line other than that normally applicable by using the appropriate signal group from ATP-01, Vol. II.

[illegible]

Table 8-1. Basic EMCON Plan Format (Sheet 2 of 2)

	INDEX NUMBERS	EQUIPMENT TACTICAL UNITS	INDEX LETTERS
ACOUSTIC	60	ALL EQUIPMENT	A
	61	FATHOMETERS	B
	62	UW TELEPHONE	C
	63	TOWED DECOYS	D
	64	SIMULATORS	E
	65	IND ACTIVE DECOYS	F
	66	SONAR BELOW 6 KHz	G
	67	SONAR 6-15 KHz	H
	68	SONAR ABOVE 15 KHz	I
	69	FEAR/ACTIVE SONOBUOYS	J
	70	SONAR JAMMERS	K
	71	PROPELLER CAVITATION	L
	72		M
	73		N
	74		O
	75		P
	76		Q
	77		R
	78		S
	79		T
RADIO COMMUNICATIONS	80	ALL UHF COMM	U
	81	LINK UHF	V
	82	UHF SHIP/SHIP	W
	83	UHF SHIP/AIR	X
	84	VHF	Y
	85	ALL HF/MF COMM	Z
	86	HF/MF SHIP/SHIP	AA
	87	HF/MF SHIP/SHORE	AB
	88	HF/MF SHIP/AIR	AC
	89	LINK MF/HF	AD
	90	EHF SATCOM	AE
	91	SHF SATCOM	AF
	92	UHF SATCOM	AG
	93	COMMERCIAL SATCOM	AH
	94	CELLULAR TELEPHONE	
	95	VISUAL COMM (DIR)	
	96	VISUAL COMM (OMNI)	
	97	STARSHIELD/FLARES	
	98	PANEL/MARKER LGTS	
	99	IR DECOYS	
ELECTRO-OPTICAL	100	ILLUMINATION IR	
	101	IR COMM	
	102	LASERS	
	103	NAV/POSITION LGTS	
	104		
	105		
	106		
	107		
	108		
	109		
	110		
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	120		

b. The status of emissions required or allowed for each type of emitter by each type of unit should be defined using a RSI from Table 8-2. RSIs provide sufficient flexibility to meet most situations. A blank space in any EMCON plan is equivalent to the RSI "S" (silence). EMCON plans can be ordered and/or amended by Operation Order or MTMS directives, or by using signal groups from ATP-01, Vol. II, and signalled to aircraft by using the appropriate brevity code word. Generally, original EMCON plans are designated by letters; for example, EMCON plan ALFA. Modified plans are designated by the same letter as the original plan, followed by sequence number of the modification; for example, EMCON plan ALFA ONE, ALFA TWO. Each modified plan should be considered to be a separate EMCON plan. Units should keep a copy of each modified EMCON plan in order to be able to revert to an earlier plan if required.

Table 8-2. Radiation Status Indicators

The following RSIs indicate when equipment may be operated without seeking the OTC/CWC's permission, or operated outside the standard occasions for breaking silence:		
A	Aircraft	May be operated if essential for safe operation of aircraft and helicopters.
B	Night	Between sunset and sunrise.
C	Day	Between sunrise and sunset.
D	Distance	When clear of nearest friendly unit or position designated. Distance to be specified in miles (e.g., D30).
E	Essential Transmission	Essential transmissions may be made without seeking the OTC/CWC's permission. (Note 1)
G	Guard	To be operated or guarded (COMMS) by unit designated on behalf of other units. (Note 2)
S	Silence	No emissions permitted without the permission of the OTC/CWC or in accordance with the standard occasions for breaking silence. Equipment that "leaks" in dummy load or in standby should be switched off. (Note 3)
T	Reduced Output	Brilliance/output level reduced to the minimum level required for safety and/or to obtain the required operational results.
U	Transmitter Permitted	Transmissions may be made. (Note 1)
X	Specific Emissions	The TCO/CWC must specify when the emitter may be used. (Note 4)
NOTES:		
1. Units should transmit for as short a time as possible to achieve the aim and should avoid emitters that cause interference. Sonars may use random mode, scale, power, and frequency changes.		
2. Details of guard ships and how they transmit information (e.g., data link) should be outlined in the EP. The EMCON plan must ensure that guard ships are provided with the means to transfer data to the force. Guardship duties can be rotated at irregular intervals between appropriate units. RSI "G" for communications should detail one unit for a named circuit (e.g., radar guard ship RSI "G" for HF JAAWSC). This should not be confused with setting watch on circuits as detailed in the OPTASK COMMS.		
3. A blank space in any EMCON plan is equivalent to the RSI "S" (silence).		
4. XRAY is to be used to indicate unique occasions when an emitter may be used outside the standard occasions for breaking silence and the occasions governed by the other RSIs. These may be, for example, the deployment of decoys against radar satellites, the use of FC radars for height finding, or the use of IFF systems. The OTC/CWC is to specify these occasions for each column.		

8320 NOT RELEASABLE

Figure 8-1—NOT RELEASABLE

SECTION IV—NOT RELEASABLE

Figure 8-2—NOT RELEASABLE

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SECTION V—EMPLOYMENT OF ELECTRONIC AND ACOUSTIC SUPPORT MEASURES

8500 Interception, Detection, and Direction Finding of Transmissions

- a. The objective of ESM/AWSM search is to provide the tactical advantage of “first sighting” by passive means. The first indication of an enemy’s presence may be provided by interception of his emissions. In addition, early interception allows the timely preparation of countermeasures.
- b. In order to conduct ESM/AWSM search for an enemy, complete and continuous coverage of the frequency spectrum is required together with as wide a geographic dispersion of intercept equipment as possible.
- c. Intelligence sources may provide information on the frequencies emitted by the enemy and, in certain cases, give actual frequencies used, or likely to be used. It is, therefore, possible for the OTC/CWC to organize ESM/AWSM search to cover specific frequencies.

8510 Electromagnetic Interference of Search Equipment by Own Transmissions

- a. Interference caused by radiations from electronic transmitters of ships in company may reduce the effectiveness of passive sensors. Radars, in particular, by reason of their short pulses at peak power, produce powerful harmonics that can make reception in a sensitive search receiver difficult in adjacent bands, and almost impossible in the same band. It is possible to reduce this interference by using a very narrow bandwidth, a filter, or a suppression device in the receiver. This may result in a corresponding loss of intercept probability.
- b. Interference may also be caused by accidental radiations, such as sparking in motors or generators, or by lack of EMC.

8511 Acoustic Interference of Search Equipment by Own Transmissions

- a. Interference caused either by own ship’s radiated noise or by active sonar transmissions can reduce the effectiveness of sonar receivers both in own ship and other units in a force.
 - (1) Own ship’s radiated noise is sound that is inadvertently transmitted into the water, predominantly by machinery, cavitation from propellers, ship’s movement, and flow noise. These can be exacerbated by man-made noises caused by unsecured equipment and electrical/electronic circuits in the ship. Radiated noise can be reduced but not eliminated by good husbandry of machinery and propellers and general securing of equipment throughout the ship.
 - (2) Sonar transmissions can cause mutual interference with other units operating in the same vicinity, particularly when two frequencies are close. This can be received directly or through reverberations that increase background noise. Interference can be reduced by placing units with similar sonar frequencies on opposite sides of the screen.
- b. Passive sonar can be confused by high acoustic levels; for example, units in a departure screen streaming noisemakers/operating echo sounders/transmitting on underwater telephone could mask the acoustic signature of a heavy unit passing through the area from a listening submarine.

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SECTION VI—NOT RELEASABLE

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SECTION VII—EMPLOYMENT OF ELECTRONIC AND ACOUSTIC PROTECTIVE MEASURES

8700 General

a. The friendly use of the electronic and acoustic spectrums, with minimum risk of detection by the enemy, is achieved as follows:

(1) The OTC/CWC issues his EP.

(2) The EP is promulgated, taking into account current communication or emission security (COMSEC/EMSEC) guidance.

(3) The IWC (if designated)/spectrum manager produces EMCON/frequency management plans, based on the EP, that friendly units should adhere to, unless released by standard occasions for breaking radio silence, for instance.

b. Enemy ECM/ACM can be protected against by technical and tactical antijam measures.

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8723 Reducing the Effectiveness of Electronic Neutralization

Measures to protect against electronic neutralization include:

- a. Physical protection.
- b. Technical EPM features.

8724 NOT RELEASABLE

Table 8-3—NOT RELEASABLE

SECTION VIII—NOT RELEASABLE

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PART III Above Water Warfare

Chapter 9—Antisurface Warfare

Chapter 10—Anti-air Warfare

Chapter 11—Naval Cooperation and Guidance
for Shipping

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CHAPTER 9 Antisurface Warfare

SECTION I—GENERAL

9100 General

a. This chapter contains tactical and procedural instructions for ships (including submarines) and aircraft when operating against enemy surface forces. Its purpose is to:

- (1) Specify tactics and procedures in antisurface operations.
- (2) Enable commanders to issue orders and instructions to fulfil their responsibilities.
- (3) Enable subordinates to understand and comply with orders and instructions received.

b. NOT RELEASABLE.

9101 Definitions in ASUW Operations

ASUW operations may be split into two distinctive types of operations. These are defined as follows:

a. Theatre ASUW Operations. These operations are conducted in a geographical area unrelated to the protection of a specific surface force. These operations may be offensive or defensive in areas where it may be possible for surface units to conduct surface/land attacks.

b. Integrated ASUW Operations. These operations are controlled by the task force/group commander for his local area within an AOR and are designed to provide ASUW support to a force/group at sea.

9102 Command in Antisurface Warfare

The regional component commander/OTC/CWC may delegate to the antisurface warfare commander (ASUWC) the authority necessary to plan ASUW operations, to establish ASUW policy and to control assigned ASUW assets to implement in the ASUW plan. The ASUWC's superior retains ultimate control with the option of command by veto. The OTC's functions in surface warfare, including those that may be delegated to the ASUWC, are summarized in Table 2-4.

a. Theatre ASUWC. Is responsible to the regional component commander for the conduct of ASUW operations throughout his AOR, direct area-wide offensive ASUW operations, and provides the supporting forces needed by task groups afloat for ASUW operations. The regional component ASUWC collects, evaluates and disseminates regional intelligence, surveillance and reconnaissance information to the regional component commander and task groups operating in his AOR. He functions as the operational control authority for assigned assets (for the regional component commander).

b. Task Force/Group ASUWC. Is responsible for the conduct of ASUW within the task force/group. When CWC concept is being used, the task force/group ASUWC is responsible to the CWC for the protection of the force against threats. He collects, evaluates, and disseminates ASUW surveillance information to the CWC, regional component ASUWC and the force. He also plans and executes TACON of task force/group ASUW resources and coordinates with supporting commanders and reports to the regional component ASUWC.

9103 Definitions of ASUW Support Operations

a. Associated Support (AS). Units conducting ASUW for the regional component ASUWC in AS are operating independently of a specified TF/TG, but may be tasked to provide contact information to and receive intelligence from an OTC under the OPCON of a regional commander, who coordinates tasking and movement in response to the OTC's requirements.

b. Direct Support (DS). Unit(s) conducting DS are those in which the designated unit provides ASUW support to a specified TF/TG. Tactical control of unit(s) in DS is exercised by the OTC of the force being supported or a designated subordinate.

9104 Force Track Coordinator Surface and Subsurface

The OTC may delegate surface and subsurface surveillance to one of the warfare commanders. They in turn can assign a FTC. In principle the designated force track coordinator surface and subsurface perform the tasks described in Chapter 7, Article 7214.

9105 Concept of Antisurface Warfare

a. Antisurface warfare must make full use of the offensive potential of own surface, submarine, and air forces in order to deny the enemy effective use of his surface forces.

b. Antisurface operations by surface ships and submarines include all actions to combat enemy surface forces. In the case of an offensive antisurface action, a SAG will be formed. A SAG may comprise surface ships and/or submarines. If the action is of a defensive nature, the OTC may either detach a SAG to counter the surface threat, maintain the integrity of the force, or avoid any action by altering course with the whole force, depending upon the significance of the surface threat as compared to the air and subsurface threats.

c. Forces Employed. Antisurface operations may be carried out by:

- (1) Ships.
- (2) Fast patrol boats.
- (3) Fixed-wing aircraft.
- (4) Helicopters.
- (5) Submarines.
- (6) Coastal batteries (tactics and procedures are a national responsibility).
- (7) Mining (see ATP-06).
- (8) Unmanned aerial vehicles (UAVs).
- (9) Coastal Radar Stations.

NOTE

SUBMARINE OPERATIONS ARE NOT DEALT WITH IN THIS CHAPTER. SAFETY PRECAUTIONS TO BE OBSERVED WHEN COOPERATING WITH SUBMARINES ARE PRESCRIBED IN CHAPTERS 6 AND 12.
NOT RELEASABLE.

d. Coordinated Operations. Antisurface operations may be carried out by a combination of any of the single types of forces listed in paragraph c, in order to exploit the different advantages of their sensor, weapon, and command capabilities. The most important combinations in coordinated operations are dealt with in this chapter. The cooperation of those combinations not described must be arranged for ad hoc using the procedural principles of this chapter.

9106 Surface Policy

a. Surface Threat. Whenever a surface threat is deemed to exist, the regional component commander/OTC/CWC should promulgate a policy for surface action. An early and comprehensive statement of intentions in an Operation Order/OPGEN/OPTASK will reduce the requirement for messages, unless the situation changes.

b. Surface Policy. The Surface Policy can be stated in broad terms only, or specified in detail as required. Table 9-1 contains a checkoff list, based on the phases of surface action outlined in Article 9107. They may be used to prepare orders and to update and execute them.

c. Success of Surface Action. The success of surface action depends on a thorough understanding of the Surface Policy, a good initial plan, and the initiative of commanding officers.

9107 Surface Action

a. Phases of Surface Action. Surface action can be broadly stated as taking place in the following phases.

(1) Phase 1—Preparation.

- (a) Events leading to the detection, localization, identification, and recognition of the enemy.
- (b) A review of the situation against the established policy, planning, and tasking.

(2) Phase 2—Detection, Localization, Identification, Recognition, and Target Assignment.

- (a) Assuming the optimum force offensive and defensive posture.
- (b) The decision to join the enemy in battle.
- (c) Selection and localization of particular enemy units as prime targets.
- (d) Decision to request area commanders' assets or to use force assets.

Table 9-1. Surface Action Checkoff List (Sheet 1 of 5)

PHASE 1—PREPARATIONS	PHASE 2—DETECTION, IDENTIFICATION, AND TARGET ASSIGNMENT
a. Evaluate updated threat intelligence; SSM ships will be primary threat; SAM ships must also be considered. Decide enemy's most dangerous likely courses of action, having determined whether he has already been targeted by other friendly forces. b. Consider surface surveillance priority in relation to ASW and AAW. c. Consider stationing of pickets, bulging the screen, and/or detaching SAGs or submarines. d. Consider use of deception and evasion. e. Consider best use of assets, links, and communications for targeting. f. Ensure emission policy is appropriate to surface threat priority. g. Consider retention or delegation of authority to initiate and coordinate OTH attacks by LR antisurface ship missile (ASSM). h. Consider target identification criteria, required recognition level, required recognition confidence level, and weapons expenditure. i. Consider target priorities and damage criteria. j. Determine likely units to coordinate and conduct OTH action, after considering disposition, capabilities, etc. k. Consider methods of damage assessment. l. Reevaluate jamming tasking. m. Consider effects of weather, e.g., on ship's manoeuvrability and flying operations. n. Determine the execution of gridlocks, ensuring a matched picture with all participating units.	a. Determine employment of available surveillance assets, including provision of extra helicopters and tasking of ESM equipment of all aircraft. b. Determine employment of air, surface, and subsurface units, and other support facilities to provide timely, continued, and accurate target localization, identification, and recognition data. c. If appropriate, request support from area commanders' forces. d. In light of available target localization, identification, and recognition data, review force weapon release criteria. e. Consider employment of air, subsurface, and surface units for attack. f. Review previously ordered, or order appropriate surface action plans. g. Review Emission Policy. h. Consider SSM missile seeker free zone (MSFZ) and missile seeker tight zone (MSTZ). i. Determine SAG composition after considering disposition and capabilities. j. Assign targets and promulgate clear directions to participating units.

Table 9-1. Surface Action Checkoff List (Sheet 2 of 5)

PHASE 3—LONG-RANGE ENGAGEMENT	PHASE 3—LONG-RANGE ENGAGEMENT (CONT.)
a. INITIATION. (1) Engage with air or, if appropriate, subsurface assets. (2) Unless tasks have already been assigned, the OTC or ASUWC may: (a) Detach a SAG with LR SSM assets and consider redistribution of remaining forces. (b) Order LR SSM attacks without forming a SAG. (c) Order OTH standard action plan, and if not already specified: 1. Target to be engaged. 2. When LR SSM are to be fired, or time on target (TOT) for missiles. 3. Communications/links to be used. (d) Order any other, or combination of, standard surface action plan(s). (3) If detaching a SAG, consider shifting remainder of force to alternate SAG net. b. SAG APPROACH. (1) SAG commander (SAGC) orders formation, disposition, course, and speed in accordance with action plan(s). If no plan is detailed, considerations are: (a) Formation/disposition. (b) Freedom to manoeuvre. (c) Mutual support. (d) Separation to avoid single jammer beam width. (e) Concealment of identities of missile-armed ships. (2) Communications (unless specified otherwise): (a) SAG uses appropriate HF/UHF/Secure Voice circuits or visual signals, for manoeuvring and picture compilation.	(b) Establish communications with cooperating submarines, MPA, AEW, or helicopters on their previously assigned nets, ordering shift to SAG net as necessary. (c) The Air Strike Control Net is used to pass position and intentions to friendly attack aircraft deployed against assigned target. (d) Establish communications on the TF/TG OTH Command Net if necessary. (3) SAGC may assume duties of LAAWC, FTC-S, and ACU for the SAG. (4) Reassess threat, open-fire range, expected time of coming under fire, and missile advantages and disadvantages. (5) Reassess current electronic warfare policy. (6) Employment of allocated air, surface and subsurface assets to optimize OTH attacks. Considerations include: (a) Assessment of OTH information. 1. Single passive bearing. 2. Triangulation. 3. Deploying a target reporting unit (TRU). 4. Other sources. (b) Updating of plots, identification/recognition, and target selection. (c) Obtaining best possible picture of immediate area around target for selection of optimum missile seeker settings (e.g., weather, clutter, and proximity of other units). (d) Selection TRU for passing accurate data by link or voice. (e) Stationing and protection of TRU.

Table 9-1. Surface Action Checkoff List (Sheet 3 of 5)

PHASE 3—LONG-RANGE ENGAGEMENT (CONT.)	PHASE 3—LONG-RANGE ENGAGEMENT (CONT.)
(f) Selection of LR SSM firing units. 1. Available missiles and their seeker characteristics. 2. Accuracy of required target data. 3. Spacing of other enemy units in relation to intended line of SSM fire. 4. Direction of attack. (g) Safety of friendly forces, including MSFZ and MSTZ. (7) Order coordination and employment of: (a) LR/SSM, including weapon release criteria and fire distribution. (b) Jammers. (c) Chaff-firing sectors and patterns for confusion and/or distraction. (8) Intentions, to include plans of approach and post-combat rendezvous, must be passed early since at a later stage communications are likely to be saturated and/or jammed. (9) Action in case of damage. (a) Nominate standby SAGC. (b) Action for own damaged ships. (10) Enemy contact report—SITREP to OTC/ASUWC. c. COMBAT. (1) OTH action is conducted according to the standard plan ordered, or as specified otherwise.	(2) If cooperating with surface attack aircraft, establish “time windows” for arrival of system. TOT for aircraft and missiles should not coincide; however, aircraft and missiles attacks should be coordinated. (3) After damage assessment, reattack if results do not meet OTC’s Damage Criteria. d. POST-COMBAT. OTC, ASUWC, or SAGC orders action to cease and issues post-combat instructions (See phase 4, paragraph d, below).
	PHASE 4—SHORT-RANGE ENGAGEMENT
	a. INITIATION. Unless tasks have already been assigned, the OTC will: (1) If appropriate, detach a SAG and consider redistributions of remaining units. (2) Consider main body evasion. (3) Order standard action plans and, if not already specified: (a) Targets to be engaged. (b) Communications/links to be used. (4) Verify position of own forces to avoid engagement of friendly units. (5) Consider shifting remainder of force to alternate SAG net. b. APPROACH. (1) Actions covering formation, disposition, communications, assumption of duties, reassessment of threat and enemy’s intentions, and EW policy as in preceding Phase 3, paragraphs b.(1) to (5). (2) Employment of allocated air, submarine, and surface assets.

Table 9-1. Surface Action Checkoff List (Sheet 4 of 5)

PHASE 4—SHORT-RANGE ENGAGEMENT (CONT.)	PHASE 4—SHORT-RANGE ENGAGEMENT (CONT.)
(a) Assessment of target information. 1. Single passive bearing. 2. Triangulation. 3. Deploying a TRU/forward observer. 4. Other sources (e.g., radar). (b) Updating plots, identification/recognition, and selection of target. (c) Selection of TRU/forward observer. (d) Selection of firing units to include available SR SSM/surface-to-air in the surface-to-surface (SASS). (3) Order employment of: (a) SR SSM/SASS—including weapon release criteria and fire distribution. (b) Guns. 1. Methods of verification and control of fall of shot. 2. Control of opening of weapon area. 3. Control of opening fire. 4. Pre-action calibration (PAC) — range from enemy to conduct — ESM aspects. 5. Ammunition type. 6. Wind finding. 7. Illumination. 8. Fire distribution. (c) Jammers. (d) Chaff-firing sectors and patterns for confusion and/or distraction.	(4) Action in case of damage. (a) Standby SAGC take command. (b) Action for own damaged ships. (5) Missile/gunnery advantage/disadvantage. (a) Maintain missile/gunner advantage. (b) Carry out action to assume advantage if not presently held. NOT RELEASABLE 1. and 2. NOT RELEASABLE. (6) NOT RELEASABLE. (7) Enemy contact report—SITREP to OTC. (8) Following the OTCs policy, order type and number of SR SSM/SASS to be fired. A “cocktail mix” will make the enemy’s ASMD difficult. (9) Consider use of surface- or submarine-launched torpedoes and long-range ASW weapons. c. COMBAT. (1) Open fire order—coordination of SR SSM/SASS and guns. NOT RELEASABLE. (2) NOT RELEASABLE. (3) Reassess gunnery advantage/disadvantage; change tactics accordingly.

Table 9-1. Surface Action Checkoff List (Sheet 5 of 5)

PHASE 4—SHORT-RANGE ENGAGEMENT (CONT.)	PHASE 4—SHORT-RANGE ENGAGEMENT (CONT.)
(4) Weapon arcs—adjust SAG formation to a course to maximise SAG weapon effectiveness. (5) Fire distribution consider redistribution. (6) Ammunition expenditure—use burst fire initially; continue burst fire until good hitting rate achieved, then use continuous fire. (7) Jamming/chaff employment—continue unless interference is caused to own gun/missile control radar. (8) NOT RELEASABLE. (9) Damage reports—only if fighting capability is reduced. (10) Fall of shot reports—only if situation is confused. (11) Reassess target priorities. NOT RELEASABLE. NOT RELEASABLE. NOT RELEASABLE.	d. POST-COMBAT. (1) Individual ships report to SAGC. (a) Damage and assistance required. (b) Ammunition reports. NOT RELEASABLE. (c) Fuel. NOT RELEASABLE. (2) SAGC—SITREP to OTC. (3) Update position of post-combat rendezvous (if required). (4) Update OTC Rendezvous/PIM. (5) Order formation, course, and speed. Consider maximum sonar speed if significant subsurface threat exists. (6) Survivors—use helicopter assistance. (7) Further action—re-engage, shadow, or withdraw. NOT RELEASABLE. NOT RELEASABLE.

- (e) Decision on the use of submarines for detection, identification, and possible attack utilizing either torpedoes or antisurface ship missiles (ASSMs).
- (f) Decision on the use of air attack units and/or employment of ASSMs to provide defence in depth.
- (g) Obtaining accurate target data for possible engagement.

(3) Phase 3—Long Range Engagement.

- (a) Consideration of detaching air assets or submarines for long-range attacks.
- (b) Detachment as necessary of long-range ASSM units in SAGs with supporting submarines as appropriate or single units for long-range engagements.
- (c) Conducting long-range attacks.
- (d) Post-combat.

(4) Phase 4—Short-Range Engagement.

- (a) Detachment of SAGs with short-range missiles, guns, and torpedoes.
- (b) Conducting attacks.
- (c) Post-combat.

9108–9109 Spare

SECTION II—ANTISURFACE WARFARE BY SURFACE UNITS

9200 Surface Action Checkoff List

a. Checkoff List of Surface Action. Table 9-1 contains a checkoff list of points to be considered during the four phases of surface action. Not all of the points in the table will apply to every action, but they should be considered and disregarded if not appropriate.

b. Enemy SSMs. Enemy SSMs may be fired from over the horizon: that is, beyond the launching platform's active sensor ranges and at shorter or horizon range. With the horizon range threat, appropriate factors in Table 9-1 must be considered early and plans quickly promulgated. Indeed, under these circumstances, phases 2 and 4 may be compressed to run concurrently. Because of the high level of expected EW activity, success at horizon range depends on careful planning, thorough briefing, and minimal reliance on radio communications.

9201 Surface Action Group

a. SAG Commander. On formation of a SAG, the SAG commander is responsible for:

- (1) The organization of the SAG and its tactical employment.
- (2) The tactical control of aircraft assigned.
- (3) EW coordination.
- (4) Local AAW coordination.
- (5) Keeping the OTC informed of the progress of the action.

b. Composition. SAG units should be compatible in weapons, sensors, speeds, and manoeuvrability; however, if a capability such as a complete EW suite is available only in an incompatible unit, that unit may have to be in the SAG despite any other shortcomings.
NOT RELEASABLE.

c. Communications. When the formation of the SAG is preplanned and adequate warning is given, there will be no difficulty in activating a prepared communication plan. However, this may not be the case when a SAG is formed in an emergency to counter a sudden threat. In this case, the SAG may employ any already established control net as ordered by the OTC. Where appropriate, the remainder of the force should switch to alternate circuits.

d. Electronic Warfare.

- (1) On the formation of the SAG, control of EW in the SAG is automatically assumed by the SAG commander. The SAG commander will reassign ESM tasking based on threat intelligence and retask ECM assets in order to enhance warning and defence possibilities with minimum mutual interference.
- (2) Retasking of the SAG's EW equipment to concentrate on the surface threat against which the SAG has been detached requires the EWC to reconsider overall force EW tasking. Threats no longer covered by SAG units may have to be reassigned to ensure complete threat coverage within the force.

e. Anti-air Warfare. As soon as possible after the SAG separates from the main body, the SAG commander should become his own local AAW coordinator, controlling his own friendly aircraft if they are available. This will add to the effectiveness of his forces, better ensure own aircraft safety, and minimise the confusion that would result in divided aircraft control.

f. Antisurface Ship Missiles.

(1) ASSM systems are divided into three categories.

(a) Short range: Up to 20 miles (to-the-horizon range).

(b) Medium range: From 20 to 75 miles.

(c) Long range: More than 75 miles.

The OTC or delegated authority should, if he has any choice, allocate units to the SAG with ASSM systems of sufficiently superior range and lethality to ensure success without needlessly wasting his most powerful assets.

(2) The conflicting use of SAM systems for AAW on the one hand and for SAM surface-to-air in the surface-to-surface mode (SASS) on the other must be carefully weighed by the OTC. Systems with more than one tracker can maintain both, although with reduced capabilities. However, most medium- and long-range SAM systems have sufficient surface-to-surface capability to favourably influence the outcome of the surface action.

9202 Surface Action Group Policy

In defence of the main body, the primary concern must be to remain between the enemy and the main body. If the SAG has been detached to destroy, neutralize, or repel missile carrier(s), the SAG should do so as far as possible from the main body or convoy. In formulating his policy, the SAG commander must consider the following factors:

- a. Relative capabilities of own and enemy forces.
- b. Likely tactics of enemy forces.
- c. The use of ECM. The SAG commander should make use of the ECM capability of ships of the SAG to disrupt enemy fire control, surface warning sensors, missile systems, and communications.
- d. The use of deception. When approaching the enemy, the SAG commander should consider the use of physical and electronic measures designed to conceal the size and formation of the SAG. The electronic emission pattern of the SAG must conform with the deception plan in use.
- e. The formation. It is important that deployment into the chosen surface-action formation should have been completed before action commences. The surface-action formation must allow ships to engage with all their weapons, and to take avoiding action without endangering adjacent ships. Unnecessarily large intervals between ships give an enemy with superior speed the opportunity to concentrate on one part of the group at a time.
- f. Pre-action fire control settings. It is vital that these are obtained as early in the action as possible. Thus, initial settings on fire control equipment must be accurate. However, fire control is vulnerable to jamming and therefore calibration involving fire control radar transmissions may be inadvisable and should only be carried out on instruction from the SAG commander.

g. Fire distribution.

(1) Normal fire distribution. Normal fire distribution entails the engagement of opposite numbers of the enemy force and should as far as possible leave no enemy ship unengaged. If concentration of fire is possible, major enemy ships should receive priority. Normal fire distribution is automatically in force.

(2) Targets to individual units. The SAGC may make a fire distribution signal allotting targets to individual units at any time before or during an action. Special signal groups are available for this purpose.

h. Number of missiles to be fired in ASSM salvos.

9203–9209 Spare

SECTION III—ANTISURFACE WARFARE WITH AIR COOPERATION

9300 General

Air assets in support of antisurface warfare operations may be used for the detection of the enemy, for locating, identification/recognition, and reporting in order to contribute to the surface picture and for target data reporting and transmission. Independent and coordinated attacks on the enemy's surface units may be included. The type of support to be provided by air assets depends on operational requirements and on the capabilities of the air assets. Air assets may also be used to distract the enemy's attention from own forces, and to disrupt the enemy's C2.

9301 Antisurface Operations Support by Fixed-Wing Aircraft

a. The aim of antisurface operations by FW aircraft is to ensure the detection and engagement of enemy surface forces in order to deny their effective employment. Fixed-wing aircraft may be employed in:

- (1) Attacks on enemy surface forces.
- (2) Scouting, using any sensor to acquire tactical information.

b. Armed reconnaissance, a combination of both types, is possible, depending on the tactical situation and available air assets.

NOT RELEASABLE.

9302 Antisurface Operations by Helicopters

a. The aim of antisurface operations by helicopters is to:

- (1) Assist forces in the detection, localization, identification, recognition, and targeting of hostile surface forces.
- (2) Attack lightly defended enemy forces, especially FPBs equipped with SSMs.

b. Helicopters will normally be integrated with a surface force that may or may not have other air support. They may be land based or shipborne. When two or more helicopters cooperate against a particular surface threat, they form a HAG. The best-fitted helicopter should become HAG commander (CONTROLLER).

c. Helicopters in antisurface operations may be employed in reconnaissance and attack and may carry out controlled operations or act independently, as ordered by the OTC or the unit that the OTC has assigned duty as HCU.

(1) Controlled Operations. When the helicopter has two-way communications with and is within the radar range of the control unit, the helicopter is to operate under positive or advisory control.

(2) Independent Operations. When the helicopter is beyond radar range and/or communication range of the HCU, the helicopter is fully responsible for safety, navigation, and the accomplishment of its task.

9303 Cooperation Between Fixed-Wing Aircraft and Helicopters

If helicopters and FW aircraft cooperate in engaging a surface target, the following rules will apply. As the supporting aircraft approaches the target area and communications are established, the helicopter will provide all available target information to the supporting aircraft. If it is equipped to do

so, the helicopter may be requested to illuminate the target. Special precautions should be observed by attack aircraft, particularly during periods of reduced visibility and at night, to ensure that the helicopter is safely clear of dropped illumination devices, the attack flightpath, and weapon effects.

9304 Employment of a Helicopter Action Group

a. Alert State. The limited endurance of missile-armed helicopters prevents, in most cases, the keeping of a HAG at airborne alert. Missile-armed helicopters should, therefore, normally be placed at the highest possible alert state (see Chapter 3).

b. Selection of a HAG Rendezvous. The HAG rendezvous should normally be in the direction of the threat, in order to make best use of the short on-task time of the helicopter.

c. Attack Procedure. The prime requirement for a successful missile attack is precise information about the position, course, and speed of the target. The need for the missile-firing helicopter to be in visual contact with and/or be pointed in the general direction of the target mainly depends on the capability of the sensors available and the missile used. In case of a visual attack, a flare-dropping helicopter may be used.

d. Provision of Helicopter Operating Facilities. When a SAG is to cooperate with a HAG, units with helicopter refuelling facilities should be included in the SAG to increase the effective range and endurance of the HAG.

9305–9309 Spare

SECTION IV—NOT RELEASABLE

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SECTION V—THIRD-PARTY TARGETING

9500 General

Weapon range of ASSM exceeding the sensor range of the missile-firing unit requires the evaluation and transmission of target data by a third party acting as an external sensor. When there is a requirement to disguise the presence or identity of a missile-carrying unit from a target within the firing-units sensor horizon, third-party targeting may be used. Surveillance, identification, classification, recognition, and reporting as a contribution to the surface picture compilation by this external sensor is a prerequisite for the firing unit to decide target selection, weapon, and firing policy. Damage assessment after missile engagement is another important function for an external sensor.

9501 Definitions

- a. Third-Party Targeting (TPT).** TPT is the evaluation and reporting/transmission of data for the surface picture compilation and/or missile engagement by a target reporting unit (TRU).
- b. Over-the-Horizon Targeting.** OTHT is the location evaluation and reporting/transmission of data for a target *outside* the active sensor horizon of a missile-firing unit by means of a TRU.
- c. Disguised Targeting.** This is the evaluation and reporting/transmission of data for an enemy within sensor range of a missile-firing unit aimed to disguise its presence.
- d. Remote Targeting.** This is the evaluation of target data for a missile engagement by means of a system-integrated remote sensor platform capable of midcourse and terminal command override.
- e. Target Reporting Unit.** TRU is a sensor platform (manned or remotely piloted). This unit is able to evaluate and report/transmit data for surface picture compilation and missile engagement to a missile-firing unit.
- f. Voice/RATT Reporting.** This is the reporting of data for surface picture compilation and missile engagement for a TRU to a missile-firing unit by voice/RATT.
- g. Link Reporting.** This is the transmission of data surface picture compilation and missile engagement from a TRU to a missile-firing unit by automatic data transmission in real time (Link).

9502 Over-the-Horizon Targeting Considerations

- a. Appropriate OPGEN or OPTASK ASUW.** The OTC normally promulgates his antisurface warfare policy using the appropriate OPGEN or OPTASK ASUW.
- b. Employment of OTHT Weapons.** Normally OTHT-capable weapons are force weapons and therefore are employed as directed by the OTC or delegated authority.
- c. Policy Considerations.** The following is a list of items to be considered for inclusion in the policy:
 - (1) Retain or delegate authority to initiate OTHT and coordination.
 - (2) Target priorities and desired results.
 - (3) Firing units in order of preference.

- (4) TRUs in order of preference.
- (5) Force defensive action.
- (6) SAG employment.
- (7) Geographical and environmental aspects.
- (8) EMCON.
- (9) Sensor employment (including parameters of target vehicle emitters).
- (10) Weapon release criteria.
- (11) Mutual interference.
- (12) Weapon economy.
- (13) Damage assessment.

SECTION VI—GUIDELINES FOR CRISIS RESPONSE OPERATIONS

9600 General

Non-Article 5 crisis response operations (CROs), such as noncombatant evacuation and maritime interdiction, are invariably prompted by political/diplomatic considerations and as such are characterized by the following:

- a. Offensive Action.** Offensive or aggressive action is unlikely to be permitted as a first resort. Indeed a de-escalatory posture may be ordered initially. Nonetheless, diplomatic developments may eventually require retaliatory/punitive action.
- b. Enemy.** There is unlikely to be a force or group who can be treated as an enemy in the traditional manner.
- c. Forces and Groups.** The forces and groups in the area of operations may be aligned on national, ethnic or religious lines. In the latter cases this may cut across established national boundaries. This may in turn lead to ambivalent attitudes from neighboring states, and action may be necessary with respect to apparently third-party nations.
- d. Rules of Engagement.** Freedom of action by own forces will be determined by ROE, probably dictated by diplomatic rather than military imperatives.
- e. Central Control.** In addition to the prohibitions imposed by ROE, there are likely to be other considerations in which real-time consultation is necessary both with a shore-based chain of command and nonmilitary directing bodies (e.g., UN) before action is permitted.
- f. Multinational Forces.** The forces involved in enforcing any internationally directed sanctions are themselves likely to be international in composition. They will therefore contain disparate and dissimilar units with varying degrees and areas of expertise. This will in turn impact on ROE interpretation, force disposition, force cohesiveness, tactics and procedures and prevention of mutual interference.
- g. Joint Operations.** Crisis response operations are most likely to be “joint” by nature. Command relationships (AJP-01) will reflect this. Maritime forces will require the support of other services, including civil authorities, to achieve their mission, much as they will require maritime support to achieve their own.
- h. Geographical Constraints.** Action in pursuit of the diplomatic aims of any operation is likely to be permissible only within a defined geographic area. There is a high probability that this area will include littoral waters.
- i. Political Constraints.** The level of involvement by individual Allied nations may differ due to national commitments and policy. The degree of willingness to accept damage and casualties will be a key factor.
- j. The Media.** Any operation is likely to take place under the spotlight of international media, and indeed use of the media must be part of the commander’s concept of operations. Consequently, media perception of the results of military decisions at all levels must always be a consideration.

9601 Scope of Operations

While the nature of each individual operation is likely to have unique aspects, in all likelihood unforeseen until the inception of the task, there are equally likely to be common threads running through each operation. In broad terms the task will fall under the general headings described in AJP-3.4.

a. Demonstrate Forward Presence. The TF will need to establish an overt presence in the area and to make all parties aware of its capabilities and intentions. This may also involve information operations and the use of PsyOps and, in particular, media coverage in order to reach both the political leaders and the community at large. In some cases this alone may achieve the aims of the TF.

b. Carry Out Surveillance. In order to establish its presence the TF will be required to carry out surveillance of its designated area of operations in order to establish the optimum positions from which to maintain that presence. In so doing, the TF will have to establish the following.

- (1) Commercial and civilian traffic patterns both in the air and at sea.
- (2) Traffic density.
- (3) Military operational patterns in all three environments.
- (4) Refine the impact of environmental factors on TF capabilities—in particular sensor performance.

All these elements will impact directly on the integrity of the surveillance product and its sustainability, as well as providing important baseline information for indications and warnings.

c. Carry Out Maritime Interdiction Operations. In view of the nature and range of maritime sensors (both active and passive) and weapons, the TF's area of interest and involvement is over land. Some or all of the following activities may be involved.

- (1) Monitoring military activity and movements in all three environments and reporting such activity up the chain of command. Certain activity and movements may have been proscribed by international (UN) edict and may attract intervention or retribution.

—Assets may be required to be on notice to carry out this task.

- (2) Monitoring all traffic in order to enforce embargo orders on specified goods, persons, and services.

—Assets will be required to be deployed to ensure that the integrity of the embargo is maintained and to carry out enforcement action when needed.

- (3) Providing protection of specified commercial shipping from interference by third parties. In a scenario short of all-out conflict, politico-diplomatic imperatives and indeed risk levels may dictate measures up to and including the introduction of Naval Supervision of Merchant Shipping. In this situation alternative but less rigorous measures such as “accompaniment” may be appropriate.

—Assets will in all likelihood be required to be dedicated to this task alone.

- (4) Taking enforcement action. In addition to maintaining a comprehensive search and monitoring operation, when violations are detected, effective policing action will be required.

—Assets are required to be available from amongst those engaged in monitoring traffic. Their diversion to enforcement must not endanger the integrity of the search.

d. Carry Out Evacuation. This may involve the removal of civilian or military personnel in a wide variety of possible scenarios. ATP-03.4.1.2, Multinational Maritime Support of Humanitarian Operations, provides guidance on noncombatant evacuation operations. Common threads are likely to be:

- (1) The need for a landing force to organize and liaise with shore authorities or, in the worst case, to provide protection. The nature of its task will determine its size and composition.
- (2) Identification of an egress route. This brings the requirement for a port or beachhead from which to carry out the evacuation or alternatively the uninterrupted use of an airhead, which could involve a major land force operation to secure. An overland exit is also a possibility but will involve maritime forces to a lesser degree.
- (3) In the absence of air evacuation, the use of specialist shipping may be necessary to beach and/or to embark military equipment or transport large numbers of personnel, together with appropriate medical facilities.
- (4) Resources required to carry out an evacuation on a large scale are likely to exceed what is available in the area of operations. While assets should not be required at short notice for this task, contingency planning must be carried out (in any case this may have already been done at the national level) and units earmarked—in particular any specialist assets that have yet to be deployed into theater. These must include logistic units to handle large-scale movements of personnel and equipment, as well as medical units to receive evacuees and deal with welfare problems amongst them.
- (5) It is possible that the provision of assistance to shore may stop short of evacuation but may necessitate the provision of humanitarian aid. In this instance many of the elements mentioned above will still be required, but the emphasis will be on bringing them to the people affected. In addition numbers involved are likely to be far higher with the consequent logistic load in providing large amounts of food and other essentials.

9602 Operational Requirements

The force commander will require at his disposal:

- a. Surveillance assets in all three environments. These should include long-range, long-endurance shore-based aircraft to ensure wide area coverage.
- b. Access to shore-based maritime and land intelligence analysis and reports. The ability to use near-real-time wide area product utilizing overhead resources is highly advantageous, as is the ability to send/receive classified imagery on line.
- c. Access to information concerning civil air and sea movements, including commercial information relating to cargo. This may require a shore support organization to filter and collate.
- d. A clear command chain. This link to the political diplomatic decision-makers will be required for real-time management of incidents to ensure that events are not allowed to damage diplomacy and equally that military forces can negotiate relaxations to political directives to ensure their own safety. A robust communications architecture will be required to support this.
- e. Units ready or on notice to carry out follow-on tasks (e.g., sanction enforcement).
- f. Logistic support afloat and/or ashore.

9603 First-Stage Preparations

Even prior to departure for the operational area there are certain matters the task force commander must address, some in conjunction with his operational authority. The TF commander must ensure the following:

- a. That the task, pertinent ROE and political policy are accurately and unambiguously defined. In particular both politicians and the military must be agreed on the concept of what is both achievable and allowed. This is of importance when dealing diplomatically with the nation or group against whom the operation is directed and when planning information operations/media coverage. The task, ROE and political policy must subsequently be promulgated widely in the OPGEN.
- b. That the legal basis of the task is established and that the legal limits of what action is or is not permitted are known. This must be thoroughly understood by all subordinate commanders.
- c. The level of risk of damage and casualties that are politically acceptable has been established.
- d. That an “in-depth” threat analysis is carried out on any likely aggressor nation.
- e. That, in light of the above, the force mix and capabilities match the demands of the task. If this is not the case, representations must be made to either alter or add to the TF or reduce the scope of the task.
- f. That a thorough environmental brief is obtained on the geographical area of operations. This should include predictive analysis of weapon and sensor performance, particularly as affected by the littoral environment.
- g. That ROE are critically examined. The TF commander must be satisfied that:
 - (1) Self-defence of the force within the level of acceptable risk is possible in light of the known capabilities of any potentially hostile nation or group.
 - (2) Units will be able to carry out their task. With a detailed knowledge of the characteristics of his own units’ weapons and sensors coupled with examination of the restrictions placed on their use, he must establish that the task remains achievable. In particular he must be sure that any graduated response called for is possible and permissible with the weapons and sensors carried. For example, weapons relying on a laser-based fire control system would not be available when the use of lasers is prohibited.
 - (3) Intelligence gathering is permitted by the ROE profile.
 - (4) ROE changes required to meet foreseeable contingencies are highlighted and prepared.
 - (5) ROE are common to all TF units and similarly understood. In particular any national reservations must be known. If ROE differences exist between units it should be clearly stated and known to all.
- h. If the examination process above reveals deficiencies, ROE requests are raised to remedy them, including full justification for each additional rule or change.
- i. A formal ROE brief is carried out for all units. In some cases it may be necessary for formal certification of this briefing to be made to an external authority.

j. That a pre-sail meeting is carried out between all participating forces, including shore-based assets and HQs. This should cover briefing on the task and on individual units' capabilities and limitations in order that a full understanding of the commitment and individual potential contributions is achieved. If units join the TF without attending this meeting, briefings should be carried out by CTF/CTG staff on arrival.

k. That special predeployment training is carried out. Table 9-2 gives a suggested list of topics to be covered. An operation of this nature will call on skills outside core warfighting disciplines. Among the areas which may need extra attention are:

- (1) ROE play.
- (2) Boarding and searching.
- (3) Merchant vessel protection (goal-keeping and anti-FAC).
- (4) Theater-specific scenarios.

9604 Second-Stage Preparations

a. Once definition of the operational task and its associated restrictions and limitations have been established, the TF commander may address the mechanics of setting up his force organization.

b. Command Arrangements. As stated above, it is most likely that an operation of this nature will take place under the umbrella of a joint force multinational command structure, and a full CJTF organization may be created. Relationships within this structure must be quickly and unambiguously established in order to achieve a coherent force with specific aims. AJP-01 will assist in achieving workable lines of communication to political/diplomatic authorities (as described above). Within the maritime force, organization is naturally required. This may include the requirement for a number of subcommanders, should the size of the geographical area dictate. A typical chain of command might be:

- (1) Joint Force Commander**—not necessarily in a seagoing appointment.
- (2) Maritime Component Commander**—in operational control of all maritime forces assigned.
- (3) OTC/CWC**—in tactical command of the maritime forces assigned.
- (4) Sector Commander**—of a geographical area conducting command and control of units within an AOR, assigning and tasking air and surface units.
- (5) Warfare Commanders**—responsible in the traditional way for organizing their particular area of warfare.
- (6) On-Scene Commander**—in charge of an incident.
- (7) Force Track Coordinators**—responsible for maintaining a recognized picture in their environment.
- (8) Liaison Officers**—responsible for ensuring that commands and units to which they are posted are fully aware of the capabilities of their parent unit/command.

Table 9-2. Crisis Response Operations—Guidance Checkoff List (Sheet 1 of 2)

1. TASK CHARACTERISTICS Options for action, if any. - Is there an enemy? - Who is involved? Rules of Engagement. - Who is controlling/directing? Multinational forces—disparate units. Joint operations in conjunction with other services and civil authorities. Merchant shipping aspects? Are there geographical constraints? Are there political constraints? 2. SCOPE OF OPERATIONS Demonstrate forward presence? Carry out surveillance? - civil traffic patterns - Role of merchant shipping - Trade lines of communications - traffic density - military operating patterns - environmental factors Carry out peacekeeping? - monitor activity - enforce embargo - protect shipping Carry out evacuation? - landing forces - specialist shipping - beachhead/airhead - assets earmarked - humanitarian aid required. 3. OPERATIONAL REQUIREMENTS Surveillance assets? Access to intelligence sources? Access to commercial intelligence? Force mix appropriate? - weapons - sensors Command chain? Units at notice to carry out follow-on tasks. Logistic support ashore and afloat.	4. PREPARATIONS PRIOR TO DEPARTURE 1st Stage Define task, ROE, political policy unambiguously in conjunction with higher authorities. Define legal limits. Level of risk of damage established. Ensure ROE: - robust enough to permit self-defence - permit task to be achieved - permit intelligence gathering ROE request? Threat analysis. Environmental brief—include predictive analysis. Pre-sail meeting. - unit capabilities (weapons and surveillance) - unit compatibilities (comms and data links) Capabilities match task? ROE certification. 2nd Stage Command Arrangements. - including joint force set up relationships with civil authorities, communications to support arrangements Maritime force organization. Force disposition. - take into account unit capabilities, Link architecture Sustainability, patrol cycle. Equipment maintenance. Crew fatigue. Maintenance of OC. Rotation of units—balance of on/off station time. Logistics. RAS. Establish overland resupply. Nominate airhead arrangements. Nominate resupply ports for afloat support ships. Establish national logistic cells. Establish stand-off ports. Nominate ports and airfields to receive detained vessels and aircraft.

Table 9-2. Crisis Response Operations—Guidance Checkoff List (Sheet 2 of 2)

5. EXECUTION Commonality—communications and links Gateway procedures. Contingency planning—incident preparation. IDCRIT. Recognition confidence levels. Weapon release criteria. Weapon of choice—having considered ROE. Warnings—formulate agreed text. Surveillance. recognized surface picture (RSP) Size of AOR v assets. Picture compilation assets available? white shipping I&W patrol. forward deployed vulnerability assessment protection if required Information flow. Plan according to equipment limitations and geographical and propagation constraints. Duplication of effort. avoid—use units' capabilities to the full avoid multiple reporting Air Integration. command relationships coordinated tasking with shore assets Force marshalling/airspace control	Naval Cooperation and Guidance for Shipping. Shipping self-protective measures Coordination requirements with civil actors Shipping reporting scheme, including NATO Shipping Centre role Advice and guidance to shipping Deployed naval cooperation and guidance for shipping elements Passage coordination AWNIS Safety and security of navigation information 6. MISCELLANEOUS Boarding operations. Special forces required? Submarines in support. advantages May require SAT for waterspace management. FPB operations. support requirements Tactical considerations—good for scouting. May require own AOR Allocate liaison/gateway unit. Air embargo. identification difficulties enforcement options Prevention of mutual interference. Records. PR/media matters.

A high priority should be given to the establishment of a Secure Command Net for CTG/CO discussion; this can be particularly useful in preventing misunderstanding and ensuring commonality of approach. A secure SATCOM High Command Net can serve the same function between OTCs and shore command.

c. Force Disposition. The force disposition will take into consideration the capabilities of units, the prevention of mutual interference and considerations regarding the cooperation of units used to different tactics and procedures. The patrol areas defined inside the AOR should consider average sensor ranges and some backup between units. The flagship should have a central position to ensure good communications between units. The units assigned to patrol areas near “choke” points should be Link 11 fitted and, if possible, have an organic helicopter. These units are likely candidates to carry out the duties of MPACU for aircraft on surface picture compilation missions.

d. Sustainability/Patrol Cycle. Major considerations in determining time on task and patrol cycles will be the areas to be covered, the number of units allocated and the expected duration of the operation. In addition to the logistic aspects of sustainability, these and a number of other considerations must influence the planning process.

(1) Equipment Maintenance—periodic upkeep in order to minimise operational defects. Maintenance periods should be scheduled to last ten working days at two monthly intervals. Their location must be carefully considered to ensure that adequate engineering support facilities are available. Repair/depot ships, if available, can provide this support.

(2) Crew Fatigue—stand-off port visits for rest and recreation combined with material maintenance and logistic resupply. Rest and recreation visits should last at least four days to ensure all members of a ship's company can take leave.

(3) Maintenance of Operational Capability—patrol routines will not permit normal military capability training. Thus, while surveillance and picture compilation skills will be honed, other war-fighting skills will atrophy unless opportunities are provided to exercise them. This may necessitate withdrawing units from the immediate theater to allow training activities to take place. Where possible, passages should be in company to allow training to be progressed.

(4) Patrol Cycle—in order to plan rotation of units, the CTF/CTG must establish the balance between “on station” and “off station” (in transit, training, port visit) time. Figures of 60 percent “on” and 40 percent “off” allow adequate time for maintenance and recreation. While at sea, a cycle of six days operations, one day maintenance and one day rest gives a satisfactory balance and allows the extended periods between port visits to be sustained. At pre-sail briefing, units must make the CTF/CTG aware of any constraints (e.g., aircraft operating cycles) that will affect their availability. Every effort should be made to establish a patrol operating cycle to allow units to conduct proper planning and management in order to maintain unit efficiency and effectiveness.

e. Logistics. Initial planning should anticipate a lengthy operation in which sustainability will play a key role. The following areas may require attention:

(1) Replenishment at Sea Arrangements for food, stores, fuel and oils. Deficiencies in this area would severely curtail patrol endurance and complicate patrol cycles.

(2) Overland Resupply. Feasibility and routes should be established. Use of this means of resupply requires advance planning and good forecasting of future requirements. This method is especially useful for unique national requirements and arrangements can normally be left to national authorities. Host-nation support may be required to ease problems of clearances and documentation.

(3) Airhead Arrangements. Similar to overland routes arrangements are normally made by national authorities for routing of urgent stores items and personnel movements. Coordination to determine the location of the airhead will be required to avoid duplication and to ensure that its position is optimized for on-movement of stores and personnel, which may well fall to task force assets to carry out.

(4) Resupply Ports. A port or ports should be designated as replenishment points for store ships and oilers. Wherever possible these should be collocated with the airhead and be on an overland route.

(5) Logistic Cells. The establishment of national cells ashore at airheads or resupply ports is most advisable to ensure a prompt and efficient service to seagoing units. ALP-4.1, Multinational Maritime Force Logistics, and AJP-4.6, Allied Doctrine for the Joint Logistics Support Group, should also be consulted when setting up multinational logistic arrangements.

(6) Stand-off Ports. A list of ports capable and willing to host ships during stand-off from patrol should be drawn up. They must be categorized by size (i.e., capacity for size and number of ships) and by distance from patrol areas in terms of steaming time, which can then be related to operational notice for the area. The task force commander will likely wish to retain the responsibility of designating ships to port visits, in conjunction with the relevant host-nation authorities.

(7) Diversion Ports/Airports. Preparations for the reception, detailed search and possible detention of embargo breakers must be made. This will, in most instances, involve close liaison with the competent local authorities. Anchorages should also be identified for use as holding areas for vessels detained and awaiting search.

9605 Execution

a. Commonality. The task force commander must strive for commonality in communications and data links, which will be the threads that hold the organization together. Factors that will be critical in communications and will impinge on data link operations are as follows:

- (1) Number of transmitters/receivers.
- (2) Availability of satellite communications facilities.
- (3) Availability and compatibility of secure speech equipment.
- (4) Data-handling capacity of the circuits available.
- (5) Location and environmental factors.
- (6) Cryptologic equipment and keying material.
- (7) Operator's ability in the designated common language.
- (8) Portable equipment (for use by liaison officers, etc.).

In data link terms, the capacity of the host AIO system is often the critical factor. Where different links exist every effort should be made to ensure that data-forwarding facilities are available. However, all units should be aware that certain elements of data may be stripped during this process. This area should be examined during pre-sail conferences. These factors apply equally to air units.

b. Contingency Planning. At an early stage contingency planning should be carried out to cater for all likely incidents and tested against the fullest range of "what if" scenarios in tactical discussions involving all participants. Such plans will be heavily influenced by ROE considerations and special attention should be paid to:

(1) Identification Criteria—elements required for identification of a contact. Standard schemes exist (see Chapter 6, Table 6-15) but should be reexamined to ensure that ROE requirements are met. Unit capabilities in this respect may differ (e.g., availability of IFF Mode IV, height-finding). Care must therefore be taken to ensure that ROE are not breached as a result of a unit attempting to achieve the necessary criteria. In situations short of all-out hostility it may be expedient to use the terms Contact of Interest and Critical Contact of Interest or Possible Violator. For unambiguous link information exchange an identification matrix will then be required (these additional identities cannot be exchanged via link). Use of specific code words (changing or fixed) for individual units or types of unit may also assist in clarity of picture compilation. The use of a predetermined set of PIF/DI codes (either via link or voice reporting) may also assist in information exchange. All of these will require definition in the task force commander's instructions.

(2) Recognition Confidence Levels—the level and criteria required for achieving recognition should also be examined in the light of ROE.

(3) Weapon Release Criteria—this will require most careful definition in order to reflect ROE intentions. This subject may require clarification discussions at the task definition stage with those issuing the original directive.

(4) Weapon of Choice—having considered the ROE it may be desirable/necessary to specify which weapons and types of ammunition may be used in each circumstance. In general, in these situations weapons with man-in-the-loop target acquisition or engagement at short (visual) ranges will allow more flexibility and minimise the risks of collateral damage and misidentification. This will have important implications for overall force mix in general and for which assets may be employed for these contingencies in particular.

(5) Warnings—In the graduated response situations permitted by ROE, warning will play an integral part. The commander should ensure that standardized warnings are used to reflect ROE and mission objectives. Instructions in this respect should be extended to include such matters as the training and use of fire control systems and radars and the movement and manning of weapons.

Once these plans have been completed they must be given wide promulgation among the force and good familiarity ensured, particularly once roulement of units commences and the original task force members are replaced. Additionally, plans should be exercised to ensure that all elements, including those ashore, are practiced and aware of their role. It will be of particular importance to ensure that command and control communications links operate correctly to allow real-time management by the higher command.

c. Surveillance. The success of the operation is likely to stand or fall on the ability of the force to maintain adequate surveillance over its area of responsibility (AOR) as defined by the geographical limits of the directive.

NOT RELEASABLE.

(1) Recognized Surface Picture. A recognized surface picture (RSP) must be built with the aim of positively identifying and continuously tracking all contacts in the AOR. Equally important is wide and timely dissemination of the RSP. Data links will almost always be the best method of achieving this. The RSP is designed to achieve one or more of the following:

- (a) Detect all surface contacts in the AOR.
- (b) Identify all tracks in the AOR to a level required by the type of operation.
- (c) Hand over reporting responsibility between adjacent units.
- (d) Identify a specific and defined contact of interest (COI) or critical contact of interest (CCOI) in the AOR.
- (e) Identify a specific type of COI in the AOR.
- (f) Track an identified COI in the AOR.
- (g) Take action against a unit to identify/intercept a COI.

It should be borne in mind that establishment and maintenance of the RSP (and recognized air picture (RAP) (see below)) are highly asset-intensive and may require 24-hour airborne cover. However, once traffic patterns and confidence in intelligence cuing have been established, the level of activity may possibly be reduced.

(2) Size of the AOR. This is governed by:

- (a) The TF mission.
- (b) Number of assets.
- (c) The type of sensors available.
- (d) The objective in building the RSP.
- (e) The environmental conditions in the AOR.
- (f) The targets' characteristics.

Resolution of the possible conflict between the actual area over which satisfactory cover can be achieved and the area laid down in the task directive should have been done in consultation with shore authorities prior to sailing.

(3) Picture Compilation Assets may consist of some or all of the following:

- (a) National intelligence sensors.
- (b) MPA.
- (c) Ship/carrier-based surveillance aircraft (FW or RW).
- (d) Shore-based liaison officers in key ports.
- (e) AEW aircraft.
- (f) Submarines.
- (g) Sonar.
- (h) Comms HF/DF.

Each surveillance unit will possess one or more of the following capabilities:

- (a) Radar.
- (b) Electro-optical (EO)/visual devices.
- (c) ESM.
- (d) Towed array.

and information exchange capabilities:

- (a) voice.
- (b) RATT.
- (c) Tactical Data Links (e.g., JMICS, Link 11/16).

(4) Indications and Warning Patrol. It should be apparent from intelligence analysis prior to arrival in theater where the focal points of the activity by the nation or group under surveillance are located. Of particular interest is that activity, usually military in nature, which poses threats to either the task force itself, the shipping it may be tasked to protect, the embargo it is tasked to enforce, or the land forces it may be supporting. In these instances priority consideration should be given to the establishment of Indications and Warning patrols. These will have the following characteristics:

- (a) Be forward deployed; thus the value of the intelligence and warning to be gained must be weighed against the potential increased threat to the gatherer.
- (b) Can be carried out by surface units or submarines.
- (c) Units selected should possess sophisticated ESM equipment, including a comms intercept and analysis capability and direct comms link to CTF/CTG as well as a good self-defence capability.
- (d) Contingency planning should include protective cover for the patrol.
- (e) Covert option is available if a submarine is used.
- (f) Give 24-hour surveillance. While air assets, in particular AEW and ESM aircraft, can contribute, the prolonged cover required is likely to be too draining on probably limited assets.

(5) Information Flow. The task organization must ensure that a two-way flow of information exists in all environments. While commonality of equipment will go some way to ensuring this, attention must be paid to geographical and propagation constraints and plans made accordingly.

(6) Duplication of Effort. With assets likely to be limited, every effort must be made to ensure that units are used to their full capability, particularly in the area of surveillance, and that their information is reported in a timely and efficient manner. Clearly, duplication of effort is not only wasteful but may also lead to confusion if multiple reports are received on a single incident.

d. Air Integration. The task force commander will wish to employ air assets to assist in achieving his tasks. Initially among these will be the surveillance function, but the latter stages of the operation could extend to cover the full range of air capability both over sea and land. It is likely that in all stages of the operation the demand for air assets will exceed the organic capability of the task force to provide it. The commander will be required to address:

- (1) Command relationships** with respect to tasking of shore-based assets. This may be done within the context of a joint command structure.
- (2) Establishment of coordinated tasking** of both shore and seaborne air assets to ensure optimum and efficient utilization of resources. The landing of a suitably qualified liaison officer from the maritime force to assist in this process is strongly recommended.
- (3) Governmental agreement for hosting** of other nations' forward deployed aircraft and their logistic support.
- (4) The designation of a unit to maintain overall coordination of** all aircraft airborne within the AOR, with particular regard to Blue aircraft in order to prevent Blue-on-Blue conflicts. The unit performing this task (force marshaller) will require a comprehensive radar, IFF and ESM suite coupled with a very capable automated command system with access to Data Links 11/16.

(5) Participation in the message traffic regarding aircraft tasking and control (especially relevant for the force marshaller).

(6) The establishment of the recognized air picture using the same principles as those applied to the building of the RSP.

e. NCAGS Structure. There is no standard NCAGS organization, but NCAGS is tailored to support the operational commander's mission in the most efficient and effective way, depending on the character of the actual operation. The NCAGS elements are to execute NCAGS plans and tasks in a timely and accurate way, keeping the operational commander's mission in mind at all times.

The following organic elements are identified:

(1) The operational commander is responsible for his mission and therefore has overall responsibility for all NCAGS taskings and activities.

(2) The SO NCAGS is the first responsible authority on behalf of the operational commander for all NCAGS aspects and activities. This includes NCAGS planning, preparation, execution, evaluation, and organizational NCAGS matters. His primary tasks are to make sure that:

(a) The operational commander's mission is supported in the best way.

(b) The OPTASK NCAGS and NCAGS-related directive are drafted.

(c) The NCAGS plans and tasks are effective and up-to-date.

(d) All members of the NCAGS staff, including deployed NCAGS elements, are fully informed about the actual NCAGS plans and tasks.

(3) The Deployed NCAGS Element(s). If the operational situation requires, or other factors will improve the execution of the commander's mission, deployed NCAGS elements can be used. The assignment and tasking will be decided by the operational commander but initiated by the SO NCAGS. The SO NCAGS is responsible for the size, composition, and tasking of the assigned deployed NCAGS element(s).

(4) NATO Shipping Centre Augmentation Element. The complexity of an operation may require an augmentation of NCAGS personnel to the standard manning of the NATO Shipping Centre (NSC).

(5) The NCAGS manning will be determined by factors such as the task assigned, the complexity and volume of shipping, the duration of the operation, size of the AOO, and used locations. For detailed information, see ATP-02, Vol. I.

f. Continuity of Approach. By their very nature crisis response operations tend to be of unspecified duration and can become drawn-out affairs lasting, in some cases, many years. It is therefore certain that units and individuals extending to the very top of the command chain will change. In order to maintain the overall thrust of the operation and to ensure consistency of application of its intended measures, it is vital that the means are put in place by the initial task force members and its commander to pass on this vital information to their successors. This can best be achieved by:

(1) Issue of a simplified Operation Order covering items addressed in this section.

(2) Issue of Standing OPGENs and OPTASKs—these should be reviewed by newly arrived commanders and revised as the operation develops.

- (3) **Face-to-face handover briefings** between units.
- (4) **CTG/CTF brief** to newly arrived units.
- (5) **Newly arrived CTF/CTG face-to-face brief** with area commander.
- (6) **Effective liaison between land forces and air forces** deployed ashore and other Allied commanders in the AOR.

9606 Miscellaneous

a. Boarding Operations. ATP-71 provides much comprehensive detailed guidance for the conduct of boarding operations. This should be adopted or adapted to suit existing circumstances. In any case, instructions to the TF will be required. Included in such instructions should be a standardized set of warnings to be used should the target vessel/aircraft prove uncooperative. In the event that it is assessed that opposed boardings are seen as a likely scenario, special training for select teams will be required or special forces teams requested to be deployed.

b. Submarines in Support. The allocation of submarines to support these operations greatly enhances the force's capability in a number of areas:

- (1) **Indications and Warning Patrol**—the covert nature of the submarine greatly increases the commander's options in the placement of the patrol. As a result it is likely to be in the forefront of intelligence gathering. In allocating submarines to this type of operation the relative capabilities and endurance of the different types (SSN v SSK v SSC) of submarine will have to be considered. In general terms, the smaller the submarine the more units will be required to support the patrol cycle.
- (2) **Psychological Operations**—again the unseen covert nature of submarine operations is a potent factor in creating uncertainty in the assessments of the opposing force and can be further manipulated by public statements that are difficult to prove or disprove. Its largely independent *modus operandi* allows the submarine to be the first or among the first units to reach an AOR.
- (3) **Exclusion Zone Enforcement**—should ROE be robust enough to permit this mode of operation, the submarine, again by virtue of its covertness, can exert a disproportionate influence on the opposing forces' activities.

The submarine's most significant contribution is made by virtue of its covertness. It follows from this that its use in overt operations (boarding/warning) will detract from its primary value. In any case submarines are poorly equipped to conduct such evolutions. When submarines are allocated for support, PMI and WSM problems will have to be addressed.

c. Fast Patrol Boat Operations. Fast patrol boats and similar craft may be able to make significant contributions to both surveillance and interception of COIs. They have particular advantages in the inshore environment and in operating against small fast craft, often used for smuggling high-value cargo and personnel. The following should be kept in mind when considering their employment:

- (1) **FPBs will require forward-based support** either ashore or afloat, in or close to their AOO for maintenance, fuel and crew rest.
- (2) **Weather may limit their operations** but will also significantly affect their opponents.
- (3) **The effectiveness of FPBs** in both surveillance and, if required, attack is greatly enhanced by ensuring helicopter assets are assigned to cooperate and integrate into their operations.

(4) FPBs should be assigned their own AOR in which to operate, together with appropriate reporting chains. In times of actual conflict consideration should be given to excluding all other units (other FPBs and assigned air assets) from this area to avoid Blue-on-Blue incidents.

(5) FPB Integration into a larger TF organization is made more effective by the allocation of a liaison/gateway unit. This unit should carry out the functions of C2 of FPB operations, participating on the FPB RATT circuit, providing air defence over the FPB operating areas, control of air assets working with FPBs and relaying instructions and information from the ASUWC or other commanders.

d. Air Embargo. While the enforcement of an air embargo should be addressed along the lines suggested above, it does however present some unique problems. While control of regular international civil air traffic may be quickly seized by means of withdrawal of facilities, the control of internal light aviation, short-duration military flights, and clandestine resupply by air will prove to be:

(1) Asset-intensive to detect—in all probability requiring 24-hour coverage by sophisticated AEW aircraft.

(2) Characterized by difficulty in positive identification to the required degree to enable enforcement action to be taken.

(3) Characterized by a lack of enforcement options compared to the maritime surface situation. Diversion/warning off may not be feasible with ROE insufficiently robust to allow engagement. In addition, the duration of the contact may be too short to permit full consultation up the chain of command, which is a prerequisite for action to be taken.

The assets carrying out this role are likely to be heavily augmented by, or completely derived from, shore-based aircraft. This will, therefore, be an area in which close cooperation in command relationships will be necessary.

e. Records. In order to be able to reconstruct incidents accurately for subsequent analysis, public relations purposes and use in a court of law, it is vital that *all* units are ordered to take records whenever an incident seems likely to occur until its completion. Some or all of the following may be ordered:

(1) Unit navigational records.

(2) Narrative records either on tape or manuscript taken on the Bridge or in the Operations Room/Combat Information Centre.

(3) Audio tapes of selected comms nets, normally those used in challenging merchant vessels and in dealing with opposing units.

(4) Records from video cameras/EO devices slaved to fire control radars.

(5) Video records of surveillance radars.

(6) Records from combat system computers.

(7) Manuscript records as ordered from Maritime Analysis Handbook.

f. Prevention of Mutual Interference. In a multinational force the CTG needs to know the main characteristics of all sensors and weapons and to issue technical instructions to avoid electronic interference. Force disposition may also be influenced by the requirement to keep mutually interfering units apart.

g. PR Media/Matters. Relations with the media should, wherever possible, be proactive rather than reactive. Indeed the media should be used at both government and task force level to demonstrate presence, determination and capability. The fact that PR contact may be made at various levels and at various locations underlines the vital necessity that a common line is taken by all concerned. The Commander should ensure that:

- (1) **A clear media policy** is established in the TF.
- (2) **Unit commanders are given a media briefing** before arriving on station.
- (3) **Requests for media facilities** are channeled to and approved by one authority.
- (4) **Written line-to-take press briefings** are issued on a regular basis and updated as a matter of urgency in the event of any development/incident even if only to confirm no change has occurred. Where possible these briefs should consist of likely questions and agreed answers.
- (5) **Units should have experienced** in their pre-deployment training, exercises where unannounced contact with media representatives in the wake of an incident is rehearsed.

9607–9609 Spare

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CHAPTER 10 Anti-Air Warfare

10000 Introduction

Anti-air warfare (AAW) consists of those measures taken to defend a maritime force against attack by airborne weapons launched from aircraft, ships, submarines, and land-based sites. AAW procedures used by a naval force at sea when operating in isolation from shore air defence authorities are described in this chapter. However, when ships are operating in or adjacent to a JOA, they are to coordinate their AAW operations with those of the appropriate CAOC, JAOC, or AOC.

NOT RELEASABLE.

NOTE

IN SOME COASTAL AREAS LLTRS AND TRANSIT CORRIDORS THAT SERVE FOR COORDINATING AIR TRAFFIC AND AD/AAW REPRESENT WEAPONS-TIGHT ZONES FOR SURFACE UNITS, WHEN ACTIVATED. TRANSIT CORRIDORS AND LLTRS ARE TEMPORARY AIR CORRIDORS OF DEFINED DIMENSIONS THROUGH THE AREA OF ORGANIC, LOW-LEVEL AIR DEFENCES OF SURFACE FORCES. NOT RELEASABLE.

10001 Command and Control in Anti-air Warfare

The OTC's functions in anti-air warfare, including those that may be delegated to the AAWC, are summarized in Table 2-3. When operating with a small force, the OTC will normally retain most of his command functions; when operating with a larger force, the OTC will normally delegate most of his command functions to the AAWC. Irrespective of any specific AAW duties that may have been assigned to him, the commanding officer of each ship is responsible for the defence of his ship.

The threat, ROE, and TF/TG communications and control capabilities will determine whether or not the OTC executes centralized control or decentralized control. In general, effective AAW is facilitated by decentralized control when faced with a modern threat equipped with both high-speed ASSMs and an ECM capability. The high-speed air threat and severe EW environment significantly compresses air defence reaction time. This, coupled with lack of assured communications, requires that AAW be executed in a decentralized manner once the battle is joined.

Prior to battle, preplanned responses are developed that must be consistent with any applicable ROE. These preplanned responses are contained in the OPTASK AAW and form the basis of decentralized execution.

10002 Sector Anti-air Warfare Commander

If the tactical situation dictates that the AAW area should be divided into sectors, a SAAWC may be designated. Within his sector, an SAAWC will be subject to the overriding authority (veto) of the AAWC but is otherwise vested with most of the prerogatives and responsibilities of the AAWC.

a. Direction Functions.

- (1) Designating LAAWCs.

- (2) Assigning AAW aircraft to appropriate units for control.
- (3) Initiating action against an air threat, if no action has been initiated by other units in his sector.
- (4) Exercising overriding authority (veto) over all actions initiated by other units in his sector.
- (5) Designating the sector fleet air defence identification zone coordinator.
- (6) Designating the sector force marshaller.

b. Coordination Functions.

- (1) Resolving with other SAAWCs problems of coordination on or near the border lines between sectors, to ensure the efficient change of reporting responsibility and to avoid mutual interference.
- (2) Coordinating the effective employment of aircraft and missiles within his sector.

c. Control Function. Controlling the AAW communication nets within his sector.

d. Additional Duties.

- (1) Requesting the launch of land-based alert aircraft if no carrier is allocated to his sector.
- (2) Keeping the AAWC informed of evaluated threats, and of the location of friendlies that could be mistaken as hostile.
- (3) Issuing SITREPs for the benefit of the units in his sector.

10003 Local AAW Coordinator

When two or more ships are in company and within UHF range, a LAAWC will be designated. The AAWC of a force will normally act as the LAAWC for his own local group. LAAWCs have the following functions:

a. Direction Functions.

- (1) Delegating, as appropriate, specified functions to other ships in his local AAW group.
- (2) Establishing watch zones for ships in his group.
- (3) Broadcasting the local air picture to ships of the group on the local AAW coordination net.

b. Coordination Functions.

- (1) Correlating and evaluating reports from ships in company and, where appropriate, relaying this information to the SAAWC or AAWC on the AAW coordination net.
- (2) Issuing threat warnings: if the threat to the group warrants a higher warning than that in effect for the force, the LAAWC is to keep the SAAWC or AAWC informed.
- (3) Passing pertinent information to ships of the group regarding MEZs, weapons restriction orders, safety sectors, and targets that have been designated to force weapon systems.

c. Control Function. Controlling the local AAW coordination net.

10004 Force Track Coordinator—Air

The AAWC or SAAWC is normally responsible for air reporting and track coordination within the force or sector respectively; he may assign this duty to another, more suitably equipped ship, if required, as FTC-A. Responsibilities are found in Article 7213.

10005 Individual Ship Responsibilities

The following individual responsibilities always apply.

a. Self-Defence. Each commanding officer is responsible for the defence of his ship. When his ship is under direct attack, qualifying orders, directives, or plans from higher authority do not relieve him of this basic responsibility.

b. Degree of Readiness. Each commanding officer is responsible for establishing an appropriate degree of readiness within his ship. The degree of readiness he sets must not be lower, but may be higher, than that ordered by the OTC. The ship's organization must ensure the proper maintenance of the ordered readiness for as long as it is in force.

c. Reporting. Subject to any restrictions imposed by the EMCON plan, each unit is responsible for reporting promptly to the appropriate anti-air warfare commander or coordinator all AAW information that may be of local, sector, or force interest, including any deficiencies of equipment.

d. Initiation of AAW Measures. Each unit is responsible for initiating AAW measures without delay, whenever available information indicates the necessity of such action.

10006–10009 Spare**10010 Stationing Anti-air Warfare Units**

Although AAW requirements normally call for dispersion, other considerations, such as antisubmarine warfare, mutual support, and emission policy, are likely to indicate the need for using a closer formation, disposition, or screen. In any operations, the OTC will invariably have to reach an optimum compromise between all requirements to meet the prevailing threats. AAW units are stationed on true bearings irrespective of the direction of the AAW axis. AAW stations are promulgated by means of the OPTASK AAW message. Further details on stationing are in Chapter 3.

10011 NOT RELEASABLE

10012 Surface Pickets

(a) Picket ships are stationed primarily to extend the range of AAW measures. Surface pickets are normally stationed to extend as far as practicable the AAW surveillance area, recognition/identification, and control of aircraft.

(b) NOT RELEASABLE.

(c) When the number of pickets is not sufficient for all-round coverage, stations on or near an arc across the threat axis may be used to give effective detection capability in the threatened sector. When attacks from only one general direction are likely, a second picket line closer in may be used, in lieu of greater all-round protection.

(d) A picket whose main task is AAW is called a Watchdog. A picket that has been given the primary duty concerning the identification of friendly aircraft is called a Tomcat.

10013 Aircraft Carriers

Carrier formations and dispositions are described in Chapter 3. Carrier and carrier air operations are detailed in Chapter 6.

10014 Surface-to-Air Missile Ships

a. General. Surface-to-air missiles are divided into three categories according to range:

- (1) Long-range—range over 50 nm.
- (2) Medium-range—range of 10 to 50 nm.
- (3) Short-range—range under 10 nm.

b. NOT RELEASABLE.

10015 Units With Self-Defence Weapons

Ships equipped with self-defence weapons only must be stationed close to each other to provide mutual support. This may be the only means of defending a force that lacks both fighter and missile defences. Such formations should be limited to small groups when used in a nuclear environment or under conditions in which dispersed or deceptive formations provide a better defence. These ships also have the ability to contribute to the AAW defence of a force against certain missile flight profiles, if they are stationed as close as possible to the unit(s) being protected. When ships are sailing in a 2W disposition or in a screen centred in a HVU, the OTC/CWC/AAWC should determine the suitability of positioning the best self-defence weapon-fitted ship in the closest sector to the HVU to act as main goalkeeper.

10016 NOT RELEASABLE**10017–10019 Spare****10020 Anti-air Warfare Aircraft**

AAW aircraft may be either land based or carrier based and, depending on the tactical situation, may be ordered to beat ground or deck alert or on CAP. Land-based aircraft in particular will often be supported by tanker aircraft for air-to-air refuelling (AAR) and should be stationed on a towline promulgated in the OPTASK AAW or ACO.

NOT RELEASABLE.

10021 Airborne Early-Warning Aircraft

a. Capabilities. AEW aircraft are well suited for long-range detection and tracking of both high- and low-altitude aircraft, for CAP control, and for surface search. Suitably equipped aircraft can also relay communications (AUTOCAT), transmit information by data link, and intercept electromagnetic emissions.

b. Stationing.

- (1) AEW aircraft are stationed as directed by the OTC or AAWC in a barrier patrol line.
- (2) and (3) NOT RELEASABLE.

c. Procedures.

(1) Call signs for AEW aircraft consist of daily changing call signs or the code word ANY FACE, followed by the barrier designator. Barrier designators are TANGO, UNIFORM, VICTOR, XRAY, YANKEE, and ZULU. When a relieving AEW aircraft is airborne before its predecessor has landed, the call sign must include a numeral suffix (i.e., ANY FACE TANGO is relieved by ANY FACE TANGO ONE, which in turn is relieved by ANY FACE TANGO).

d. Capability of Other Aircraft.

(1) Modern CAP aircraft with extended radar ranges should be considered an AEW sensor, particularly during periods when AEW aircraft are not airborne.

(2) However, intense and sophisticated enemy ECM may severely degrade/negate modern CAP detection capabilities.

10022 Electronic Warfare Aircraft

Electronic warfare aircraft can be either land based, carrier based, or ship based. The primary function of these aircraft is to provide ESM and ECM support to the force, as defined in Article 8101. Coordination of the EW capabilities of these aircraft is normally exercised by the OTC through the IWC (if designated).

10023 Aircraft Authentication on AAW Nets

Excessive use of authentication with single-seat aircraft is to be avoided. Authentication is recommended over challenge and reply methods as it can be accomplished easily and quickly. For further details, see Chapter 4.

10024–10029 Spare**10030 Anti-air Warfare Communications**

Details are in Chapter 4.

10031–10039 Spare**10040 Anti-air Warfare Coordination**

The cardinal principles of AAW organization—to ensure the quickest possible response to any threat—are:

(1) **Decentralized control** to the lowest possible level, and the use of preplanned reactions and responses contained in the OPTASK AAW.

(2) **Control by veto**, exercised by a commander/coordinator, who may apply a veto to an action initiated by a subordinate unit.

(3) The integration of fighters, SAM ships, AEW and EW aircraft, and measures to counter enemy targeting to provide defence in depth.

The degree of decentralized control depends on the situation. When operating in a confined area, in an area of joint operations, or in an area where neutral units may be encountered, the AAWC may have to retain centralized control.

Examples of how the AAWC may control the air battle are given below.

a. Control by Veto. An example of control by veto is:

“This is (call sign) TAKING HOSTILE 3456 with STATION 4.”

“This is (call sign of AAWC) NEGAT HOSTILE 3456.”

b. Engagement Order. If the AAWC wishes a unit to engage a particular target, he is to issue an engagement order; if the weapon to be used is a fighter, he is to state his intention to IDENTIFY or to DESTROY the target. For example:

“(Call sign A), and (Call Sign B), this is (call sign of AAWC) (Call Sign A) TAKE Northern/Eastern/Western/Southern package, (Call Sign B) TAKE Northern/Eastern/Western/Southern package.”

“(Call sign A), and (Call Sign B) this is (call sign of AAWC) (Call Sign A) TAKE Lead/Middle/Trail, (Call Sign B) TAKE Lead/Middle/Trail.”

“(Call sign) this is (call sign of AAWC) TAKE HOSTILE 1007 with STATION 3 and DESTROY.”

c. MORE HELP. If the unit detailed to engage a raid cannot identify the target on radar or needs further information, the unit calls for MORE HELP.

“This is (call sign) MORE HELP HOSTILE 1007.”

d. NOCAN. Any unit that cannot carry out the order of the AAWC is to say so, stating the reason:

“This is (call sign) STATION 3 NOCAN—STATE LAMB ZERO—OUT.”

“This is (call sign) STATION 3 NOCAN—WEAPONS ZERO—OUT.”

e. COVER. If the AAWC wishes a long- or medium-range SAM-equipped ship to initiate an engagement on a specified track up to the point of firing, he can order this by “COVER.” This procedure allows a track to be designated to more than one firing unit without multiple engagement of the track. For example:

“(Call sign(s)) this is (call sign AAWC) COVER HOSTILE 1234.”

“(Call sign) this is (call sign AAWC) TAKE HOSTILE 1234 WITH BIRDS. (Call sign(s)) COVER.”

10041 Methods of Anti-air Warfare Coordination

Rules for the integration of fighters and SAMs in anti-air warfare must:

- (1) Minimise mutual interference.
- (2) Prevent engagement between friendly units.
- (3) Maximise weapon effectiveness.

a. Area Coordination. Fighters, SAMs, and ECM are employed in the same airspace. The AAWC and SAAWC resolve any conflict by ordering one or the other to hold off—or he may order specific engagements. This method is recommended for use against an enemy with little or no ECM capability, when it is likely that a clear and coherent air picture can be maintained, communications are good, and AAW coordination is of a high standard.

b. Zone Coordination. Fighters and SAMs are employed in separated zones of airspace, delineated by sector, altitude, and range from an origin as appropriate. Normally, safety sectors and three types of zone—missile engagement zone, crossover zone, and fighter engagement zone—are established (see Figure 10-1). They are promulgated by the AAWC and may be altered as necessary. The positions and shapes of the zones will depend on weapon characteristics, availability of aircraft, expenditure of missiles, and disposition of units. ECM may be employed in all zones.

c. Joint Coordination. Joint coordination combines advantages of area, zone and local coordination by providing the ability to manage a wide space of engagement and the protection of friendly assets. Further details are included in ATP-31.

d. Promulgation. The method of coordination is normally promulgated by the OPTASK AAW. An operation order may, in addition, specify jammer frequency restrictions and the circumstances under which the method of weapon coordination is automatically changed. It is the responsibility of the AAWC to ensure that forces involved are aware of the method of coordination in use. Procedural messages enable the AAWC to establish, change, or give warning of a change of method, as in the following examples:

- (1) **Establish**—“(Method) coordination is in force.”
- (2) **Change**—“Cancel (method) coordination—assume (method) coordination.”
- (3) **Warning**—“At (time)—cancel (method) coordination—(method) coordination will be assumed.”

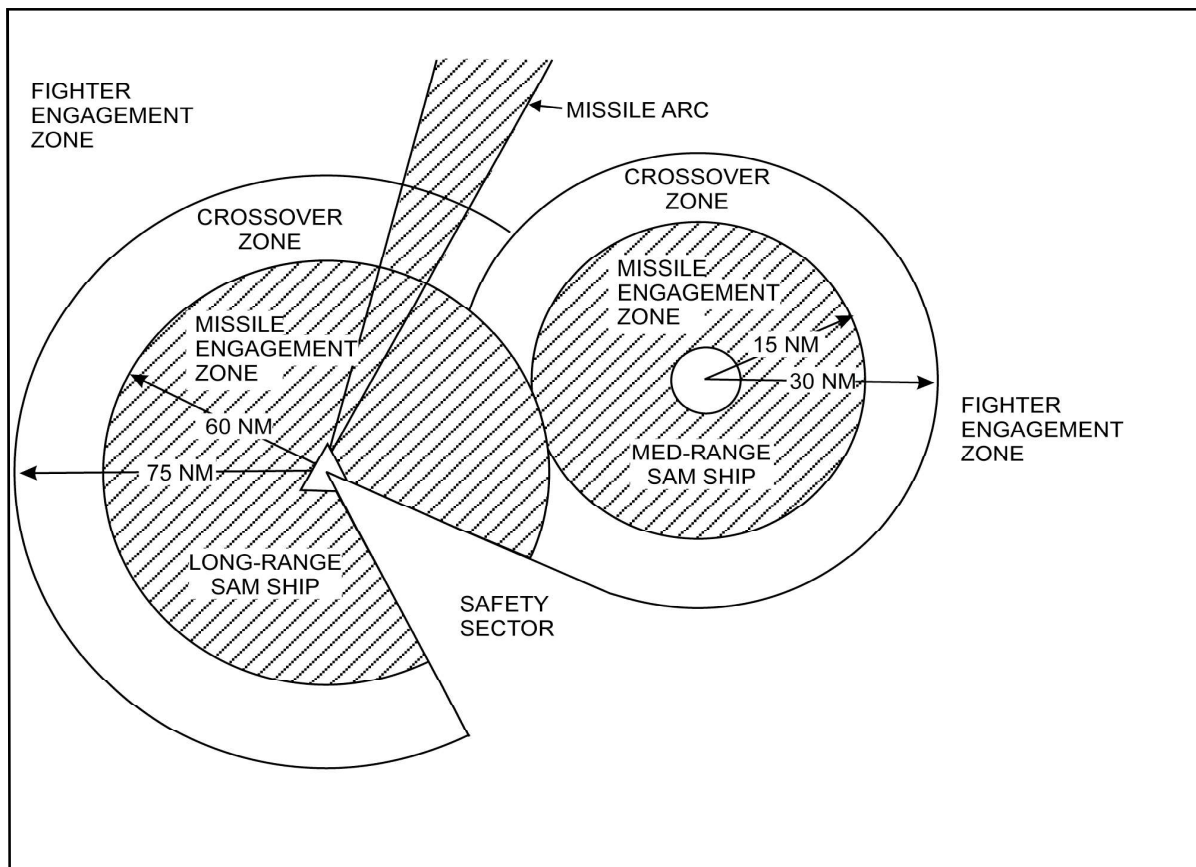


Figure 10-1. Example of Zone Coordination

e. Local Coordination. Local coordination only applies to the employment of self-defence SAMs, ECM, and guns; it is not an alternative to area or zone coordination. The LAAWC will compile and promulgate the local air picture to specifically enable ships to identify friendly aircraft and prevent their engagements by friendly units. No further attempt to coordinate weapons employment is normally made, and target engagement messages for self-defence weapons systems are not required.

10042 Missile Engagement Zone

a. Standard SAM MEZ. A MEZ is a zone around a ship or force in which targets are to be engaged by ship's missiles, in accordance with weapon control status/orders. Special features are:

- (1) Friendly aircraft must not penetrate the MEZ unless positive clearance has been obtained from the AAWC/SAAWC or LAAWC.
- (2) Any change in status of a MEZ is promulgated to aircraft and friendly units by the AAWC/SAAWC using the appropriate code words from APP-07.

b. Silent SAM MEZ. When covert, long- or medium-range, SAM-equipped ships are stationed upthreat, a Silent SAM MEZ may be established; this has significant differences from the MEZ described above. The key factors for ships operating a Silent SAM MEZ are:

- (1) Ships remain covert, receiving the air picture via data links.
- (2) Ships' weapon control status is automatically WEAPONS FREE.
- (3) The OPTASK AAW will contain details of MEZ size, position, and timing.
- (4) No safety sectors are established in a Silent SAM MEZ.
- (5) No friendly aircraft are allowed in the Silent SAM MEZ, except for AEW, ASW, and ASUW aircraft that are required to operate in the Silent SAM MEZ, providing the following criteria are met:
 - (a) SAM ships must be alerted to the mission, and the aircraft must be continuously tracked and their position transmitted on data link.
 - (b) Grid lock between the data-link reporting unit and SAM ship is excellent.

10043 Crossover Zone

A crossover zone normally extends 15 nm beyond the MEZ, but the width may be varied by the AAWC and is usually based on the speed of the assumed threat. When a controller anticipates that an infringement of a crossover zone may occur, he is to request a countdown. The fighter is to give a commentary on the interception, indicating when it expects to complete. The controller will instruct the fighter to break off if necessary, so that the target can be engaged by another weapon.

10044 Fighter Engagement Zone

Fighters 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.

10045 Safety Sector

A safety sector is defined by the AAWC and, when required, coordinated with the responsible ACA, in terms of origin, range, centre bearing, width, height band, time, and controlling agency. If more than one safety sector is established, they should be numbered and designated. Safety sectors are normally dormant and are activated by the AAWC/SAAWC.

10046 Watch Zones

When required, watch zones will be assigned to ships by the AAWC/SAAWC. Assignment of a watch zone does not imply that the unit should not engage a target outside the sector, but that priority must be given to surveillance and engagement within it.

10047 Positive ECM Control

When the necessity for concealing the presence of the force from the enemy is overriding, the OTC will order positive control over ECM. Ships will wait for a specific order from the OTC, AAWC, or SAAWC to employ ECM. This method applies only to area defence ECM and not to self-defence. See also Chapter 8.

10048 Missile Arc

This is established automatically when an engagement order has been issued assigning a target in the FEZ to a SAM system. Unless otherwise ordered by the AAWC, the missile arc is 10 degrees wide, centred on the bearing of the target, and extends to the maximum range of the SAM.

10049 Spare**10050 NOT RELEASABLE****10051 NOT RELEASABLE****10052 NOT RELEASABLE**

10053 ASMD Reactions

a. To assist in the timely co-ordination and execution of ASMD, a system of planned reactions is necessary. These are to be made automatically, collectively, and/or individually by units and depend on rapidity and simplicity. ASMD reactions are initiated by using the code word "ZIPPO," followed by a number or letter and (if applicable) a designation for the attacking missile, which indicates the type of attack and the reactions required. For planning purposes the ZIPPO groups (indicated by numbers) may be subdivided for a better understanding of the respective missile's function.

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NOT RELEASABLE.

b. NOT RELEASABLE.

10054 NOT RELEASABLE

10055–10079 Spare**10080 Carrier Battle Group Air Defence Tactics**

The key elements of carrier battle group air defence tactics are:

- a. Destroy hostile missile platform prior to release of weapons.
- b. Position forces in the outer defence zone based on indication and warning information for engagement of hostile missile platforms.
- c. Position forces in the inner defence zone for engagement of leakers and ASSM defence.

10081 Inner and Outer Defence Zones

Aircraft carrier battle group AAWCs are controlling two separate but interrelated forces: those forces assigned to the ODZ and those within the IDZ. The former are primarily fighters, AEW aircraft, and SAM ships with responsibilities for destroying missile platforms before missile launch; while the latter are surface units with primary responsibilities for engagement of leakers and providing ASSM defence for mission-essential forces. Due to the separation of forces by mission and distance, each defence zone is essentially controlled as a separate entity. With the exception of “heads up” situations on enemy penetrations, coordination problems mainly involve:

- a. Identification of friendly aircraft operating within the IDZ or transiting between IDZ and ODZ.
- b. Nonorganic aircraft entering the AAW surveillance area.

10082 Inner Defence Zone

A circle around each CV whose radius is normally 100 nm but may be adjusted by the CWC based on expected air threats and geographic considerations.

The primary AAW responsibility of IDZ units is to provide ASMD to mission-essential forces. This is done through the coordinated employment of both hard-kill and soft-kill systems.

The IDZ will be defended primarily by SAM ships. IDZ AAW defences may be augmented by CAP normally positioned overhead the CV under either IDZC or carrier control. Primary targets for SAM ships will be ASMs and enemy aircraft that have penetrated ODZ defences.

10083 Outer Defence Zone

The ODZ is an area encompassing the AAW surveillance area outside the IDZ to a range equivalent to the maximum sensor range of assets stationed outside the IDZ.

The objective of AAW of ODZ is the early detection, identification, and destruction of the platforms before missile launch. To accomplish this objective, fighters, ships, and AEW aircraft must be stationed in sufficient numbers up-threat and at a distance that will ensure adequate warning and destruction of enemy platforms before missile launch. Surface ships with long-range SAMs will be stationed in the ODZ as either traditional AAW pickets or in a Silent SAM role. Coordination between SAM ships and airborne assets is vital to avoid blue-on-blue engagements. ODZ forces must be prepared to execute preplanned response to counter attacking forces in an active electronic environment.

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CHAPTER 11 Interaction with Merchant Shipping and Safety of Navigation Management—Naval Cooperation and Guidance for Shipping and Allied Worldwide Navigational Information System and Leadthrough Operations

SECTION I—NAVAL COOPERATION AND GUIDANCE FOR SHIPPING

11100 Reference

ATP-02—Naval Cooperation and Guidance for Shipping (NCAGS) Manual.

11101 Description

1. Maritime operations frequently affect merchant shipping; similarly, merchant shipping may impact, or be involved in, maritime operations. NCAGS is the interface with merchant shipping in support of the commander's mission.
2. NCAGS is the provision of cooperation, guidance, advice and assistance to merchant shipping in support of the commander's mission and to enhance the safety and security of merchant ships.

11102 Effects

1. NCAGS enhances and contributes primarily to the following effects:
 - a. Commander's freedom of manoeuvre.
 - b. Commander's decision-making process.
 - c. Effective and efficient commitment and use of military assets.
 - d. Nation's economic well-being and international stability.
 - e. Free flow of maritime trade in the area of operations.
 - f. Merchant shipping's confidence in military operations.

11103 Operational Application

1. NCAGS operates through the full spectrum of operations from peacetime to crisis contributing to both military and economic lines of development and therefore, must be considered at the early stages of planning. In particular, NCAGS expertise should be incorporated into the staff composition where interaction with civil maritime actors is either anticipated or desired.
2. The NATO Shipping Centre provides the permanent NATO NCAGS capability under the command of MARCOM, Northwood.

SECTION II—ALLIED WORLDWIDE NAVIGATIONAL INFORMATION SYSTEM

11201 References

1. AHP-01—Allied Worldwide Navigational Information System.
2. Hague Convention 1907, Articles 3 & 5—Notification of Danger Zones and Removal of Mines Post Conflict.
3. San Remo Manual, Articles 98 & 101—Blockade Management and Embargoes and Article 106—Maritime Exclusion Zones.

11202 Description

1. AWNIS contributes to freedom of navigation by providing safety and security of navigation information for military and merchant ships in support of maritime operations.
2. The AWNIS capability delivers to military commanders and civil maritime actors assurance against the additional risks to safety and security of navigation that are associated with maritime operations. It is responsible for both classified and unclassified safety and security of navigation information.
3. AWNIS fulfils the obligation upon a commander to comply with relevant legal conventions.

11203 Effects

1. AWNIS contributes primarily to the following effects:
 - a. Deconfliction of military and merchant shipping from threats and hazards to navigation.
 - b. Maintenance of the freedom of navigation.
 - c. Improved confidence and reassurance of military and civil maritime actors.
 - d. Post-conflict stabilisation within the maritime domain.

11204 Operational Application

1. AWNIS operates through the full spectrum of operations where there is a threat to navigational safety. AWNIS contributes to both the military and economic lines of development and therefore, must be considered at the early stages of planning. AWNIS expertise should be incorporated into the staff composition.
2. An AWNIS qualified officer is appointed as the safety of navigation information coordinator (SONIC) to fulfil the safety and security of navigation management responsibilities.
3. The permanent NATO AWNIS authority resides in the NSC under the command of MARCOM, Northwood.

SECTION III—LEADTHROUGH OPERATIONS

11301 Leadthrough Procedures for Surface Ships

a. Introduction. The aim of leadthrough is to lead transiting ships in staying as close as possible to the centreline of a channel or any track ordered in an area. This article provides guidance for surface ships transiting a channel utilizing a leadthrough vessel (LTV). Any vessel that has suitably qualified personnel and accurate navigation means may be used as the LTV.

Notes:

1. *The following considerations also apply to submarines on the surface or at periscope depth.*
2. *Leadthrough is not a MCM operation. Historically, leadthrough has been conducted through channels where MCM effort has occurred.*

b. Command and Control. Figure 11-1 provides an example C2 structure for leadthrough operations.

c. Communications.

(1) Communications between LTV and vessel transiting minefield (VTMs) can be accomplished by a variety of methods depending upon the EMCON policy in force. Electronic emissions should be reduced to the absolute minimum as required by the tactical situation. Available methods include:

- (a) Automated identification system (AIS).
- (b) Satellite phones (encrypted or unencrypted).

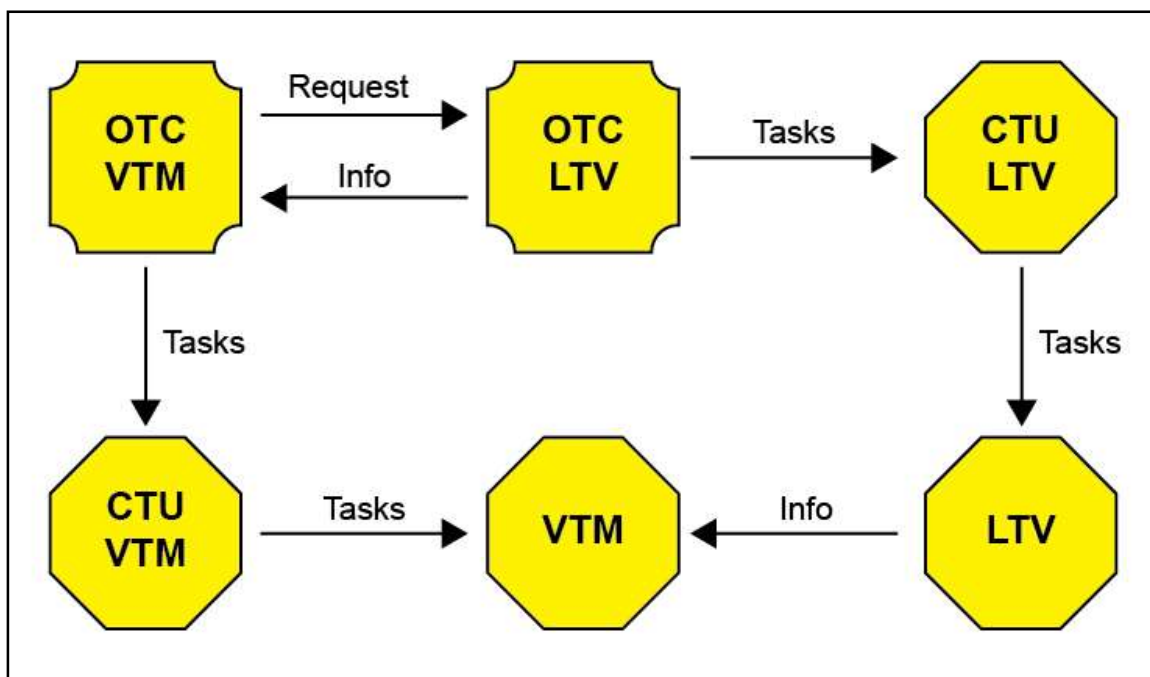


Figure 11-1. Example C2 Arrangements for Leadthrough Operations

- (c) UHF/VHF communications (encrypted).
 - (d) Lights.
 - (e) Flag hoists (daylight only).
 - (f) For naval forces, use standard communication systems.
- (2) Commanding officers of LTV must be aware that masters of merchant ships only hold ATP-02, which provides the necessary instructions for ships passing through mined areas.
- (3) Use can also be made of signal groups from ATP-01, Volume II, when operating with warships, or ATP-02, and the International Code of Signals when operating with merchant ships. It should be noted that the International Flag outfit, held by merchant ships contains numerical pennants, not flags.

d. Responsibilities.

- (1) OTC of the VTMs. From 36 to 48 hours in advance of arrival, the OTC of the transiting unit will:
- (a) Submit a Leadthrough Request, informing the respective LTV tasking authority about the ETA and composition of a convoy/naval force (VTMs) to be led through.
 - (b) Provide the CTU of VTMs/convoy commodore with tactical data (provided by OTC LTV) which includes:
 - i. Extant Q-Messages.
 - ii. NAVWARNs.
 - iii. Channel position relative to Q route.
 - iv. Channel width.
 - v. Relevant communication frequencies.
 - vi. MCM units on task.
 - vii. Amplifying information.
- (2) OTC of the LTVs. The OTC of the LTV will:
- (a) Order the CTU of the LTVs to execute the leadthrough operation.
 - (b) Obtain the following information from the MCMTA and provide to the OTC VTMs and CTU LTVs:
 - i. Channel position relative to Q route.
 - ii. Channel width.

iii. MCM units on task.

iv. Amplifying information.

(3) CTU of the LTVs. The CTU of the LTVs will provide Leadthrough Transit Instructions well in advance. This task may be delegated to the LTV ordered to execute the leadthrough.

(4) Leadthrough Vessel. The LTV will:

(a) Conduct the leadthrough operation.

(b) Ensure that ordered distances are maintained.

(c) Ensure that vessels transiting the channel maintain the ordered track or centreline.

e. Coordinating Instructions.

(1) VTMs should keep station by true bearing from the LTV in order to proceed on the centreline or on another track as ordered.

(2) Depending on sea state, visibility, method of navigation, manoeuvrability, and other characteristics of transiting units, one LTV can lead a maximum of three VTMs; a ratio of one LTV to one VTM is ideal.

(3) If rendezvous with a LTV is expected during darkness and the EMCON policy precludes the use of electronic means listed in para 3 above, lights should be utilised. The first VTM of the column is to show three white lights displaced vertically at the bow for identification purposes. The LTV will point the rendezvous position, showing a white light over red. If more than one LTV is employed, only the first LTV will show the lights mentioned. Other LTVs are to proceed to their assigned stations and to show those lights after arrival.

(4) Units damaged by mine detonation and unable to proceed at the ordered speed should attempt to manoeuvre clear of the channel's centreline. In narrow and shallow channels, such as harbour entrances, heavily damaged or sinking units should be grounded outside the main channel.

11302 NOT RELEASEABLE

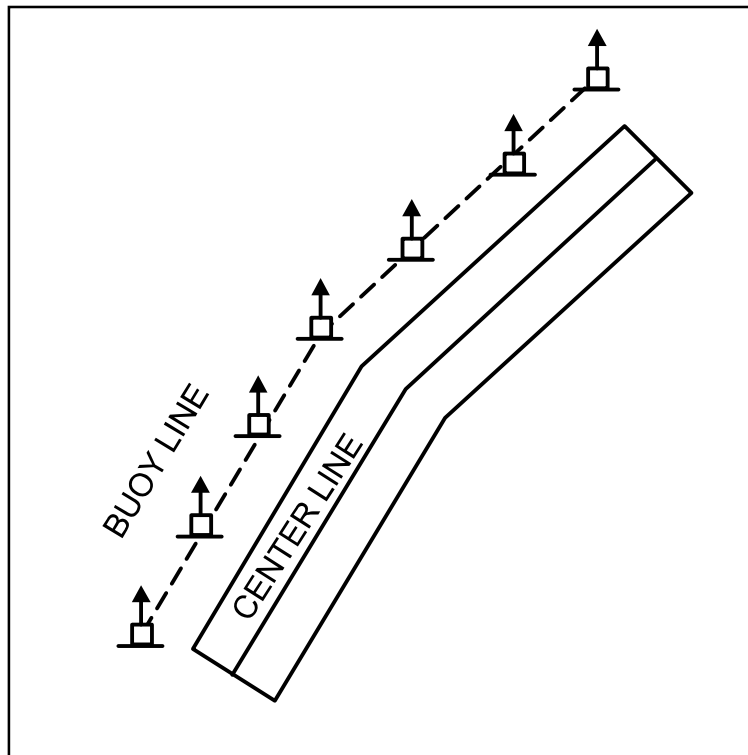


Figure 11-2. Normal Channel With Offset Buoys

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Figure 11-3—NOT RELEASABLE

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PART IV Underwater Warfare

Chapter 12—Antisubmarine Warfare

Chapter 13—Naval Mine Warfare

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CHAPTER 12 Antisubmarine Warfare

SECTION I—GENERAL

12100 Introduction and Scope

This chapter lists the types of operation available to counter the submarine threat and details tactical and procedural instructions for ships, submarines, and aircraft when operating individually or in cooperation with other maritime forces.

NOT RELEASABLE.

12101 Aim of ASW

The aim of ASW is to deny the enemy effective use of his submarines.

12102 ASW Tasks

In support of the above aim, ASW forces may be assigned the following tasks:

- a. Location and neutralization or destruction of submarines at sea.
- b. Ensuring the safe and timely arrival of shipping or forces at their destinations.
- c. Protection of land targets from submarine attack.
- d. Protection of inshore waterways from submarine insertion.
- e. Denial of submarine operations in a specific area (detection and deterrence).
 - (1) Precursor operations.
 - (2) Barrier operations.

12103 ASW Principles

- a. The successful planning and conduct of ASW depends on the application of principles common to all forms of warfare. However, the nature of the submarines, the wide variation in types and characteristics of ASW forces, and the effects of the environment within which these forces operate, necessitate many special applications of these principles.
- b. The following factors have a fundamental influence on ASW tactics:
 - (1) The submarine operates beneath the surface of the sea; it is manoeuvrable and can rapidly vary speed and depth. This combination makes it a difficult, evasive target.
 - (2) The position of the submarine may become known only after it poses an immediate threat or has conducted an attack.
 - (3) The ASW commander may be far from any particular scene of action. Thus, significant responsibility is delegated as far down as unit levels.
 - (4) Local and/or scene-of-action commanders may be required to coordinate the actions of a wide variety of ASW units.

(5) Acoustic sensors are the primary means of detection and localization for both ASW forces and enemy submarines. Acoustic detection and counterdetection ranges vary significantly with equipment and environmental conditions.

(6) In most cases, helicopters and FW aircraft are currently considered to be immune from attack by submerged enemy submarines. However, recent developments indicate that certain submarines have or may receive the ability to launch an anti-aircraft missile.

c. Notwithstanding, when submarines are operating at periscope depth there may be significant non-acoustic detection opportunities (radar, IO/EO, visual and magnetic).

12104 General Considerations

a. Perhaps more than any other warfare discipline, effective ASW demands the coordinated employment of a balanced mix of assets. This requires the ASWC to understand the capabilities and limitations of all ASW platforms and systems. Using this knowledge, ASW operations must be planned and executed to achieve optimal value from all arms available.

b. This chapter discusses the coordination of ASW at the scene of action. This will be the responsibility of the SAC. At a higher level, the ASWC must take a wider view and consider the employment of all ASW forces over the entire AOI.

c. In determining the best employment for his assets, the ASWC should consider the following items:

- (1) Mission.
- (2) ASW posture, e.g., offensive or defensive.
- (3) Objectives of ASW (e.g., deter, detect, destroy, etc.).
- (4) Environment (e.g., geography, hydrography, oceanography, meteorology, shipping density, ambient noise, etc.).
- (5) Speed, time, and distance considerations.
- (6) Threat evaluation (submarine/torpedo types and associated enemy forces).
- (7) Own and supporting assets available (including performance/deficiencies).
- (8) Comparison of own force and opposition capabilities and limitations.
- (9) Possible, probable, and most dangerous enemy courses of action.
- (10) Own courses of action to counter each of the enemy's options.
- (11) Logistics.
- (12) Level of risk acceptable to own forces.
- (13) ROE.
- (14) Possible and likely future changes to the situation.

(15) Communication, connectivity, coordination, and data fusion procedures.

(16) WSM.

(17) PMI.

d. Capabilities of the assets available will be found in OPSTAT UNIT signals.

12105 Definitions of ASW Operations

ASW may be split into two distinctive types of operations. These are defined as follows:

a. Area ASW Operations.

These operations are conducted in a geographical area unrelated to the protection of a specific surface force. These operations may be offensive in nature in areas of high probability, or defensive in areas where it may be possible for submarines to conduct antisurface/land attacks.

b. Task Force/Group ASW Operations.

These are operations controlled by the task force/group commander for his local area within a regional area and are designed to provide ASW support to a force/group at sea.

12106 Command in ASW

The regional commander/CWC/OTC may delegate to the ASWC the authority necessary to plan ASW operations, to establish ASW policy, and to control assigned assets to implement the ASW plan. The ASWC's superior retains ultimate control with the option of command override. The OTC's functions in antisubmarine warfare, including those that may be delegated to the ASWC, are summarized in Table 2-4.

a. Area ASWC. Is responsible to the area commander for the conduct of ASW operations throughout his AOR, directs area-wide offensive ASW operations, and provides the supporting forces needed by task groups afloat for ASW protection. The regional ASWC collects, evaluates, and disseminates area ASW surveillance information to the regional commander and task groups operating in the area for which he is responsible. He functions as the operational control authority for assigned assets (for the regional commander).

b. Task Force/Task Group ASWC. Is responsible for the conduct of ASW within the task group. When the CWC concept is being used, the task group ASWC is responsible to the CWC for the protection of the force against hostile threats. He collects, evaluates, and disseminates ASW surveillance information to the CWC, regional ASWC, and the force. He also plans and exercises TACON of task group ASW resources and coordinates with supporting commanders such as the regional ASWC.

12107 ASWC Duties and Responsibilities

General duties and responsibilities of the ASWC can be divided into four primary areas:

- a. Plan.
- b. Coordinate.
- c. Establish and maintain the tactical picture.
- d. Exercise tactical control.

12108 Authority of the ASWC

An OTC (regional commander/CWC) may delegate to the ASWC the authority necessary to plan ASW operations, establish ASW policy, and control assigned assets to implement the ASW plan. The ASWC's superior retains ultimate control with the option of command override.

12109 Force Track Coordinator (Subsurface)

The OTC may delegate surface and subsurface surveillance duties to one of the relevant warfare commanders, which in turn can assign an FTC. In principle, the designated FTC-S and FTC-SS perform the tasks as described in Chapter 7, Article 7214.

12110 Definitions of ASW Support Operations

a. Area Operations. Generally conducted by units operating independently. Such operations are conducted in geographic areas through which enemy submarines are likely to pass, or which are likely to contain patrolling submarines. Areas may be related to the protection of maritime forces scheduled to enter the area, or to provide defence in depth to distant forces. Operational control of units conducting area operations remains with the regional commander. Tactical control of units conducting regional operations is exercised by commanders subordinate to the regional commander.

b. Associated Support. Units conducting ASW for the regional ASWC in associated support to a TF/TG operate independently of a specified task force/group, but may be tasked to provide contact information to, and receive intelligence from, an OTC. The designated unit operates under the OPCON of the regional commander, who coordinates tasking and movement in response to the OTC's requirements.
NOT RELEASABLE.

c. Direct Support. Units conducting DS are those in which the designated unit provides ASW support to a specified task force/group. Tactical control of the DS unit is by the OTC of the force being supported or a designated subordinate.
NOT RELEASABLE.

d. NOT RELEASABLE.

e. NOT RELEASABLE.

12111–12119 Spare**12120 Ranges of ASW Sensors and Weapons**

a. ASW Sensor and Weapon Equipment. These are classified by maximum range capability as follows:

- (1) Short range—under 5,000 yards.
- (2) Medium range—5,000 to 15,000 yards.
- (3) Long range—over 15,000 yards.

Figure 12-1—NOT RELEASABLE

b. Predicted Sonar Range (PSR). PSRs are determined by each unit for its sensors under the existing environmental conditions. When mixed-layer and thermocline conditions exist, PSRs are calculated for various sensor and target depth combinations in-layer and below layer. PSRs can be determined for active or passive sensors, and depend on the sensor's characteristics, operator's ability, environmental conditions, target source levels for passive operations, and depth locations of sensor and target. PSRs should normally be determined on a 50 percent probability of detection, if not otherwise stated. When convenient, units fitted with VDS may specify the minimum and maximum figures of PSR for targets below layer depth and report the shallowest target depths at which these figures are predicted.

NOT RELEASABLE.

c. Tactical Sonar Range (TSR). The TSR for ships and helicopters is decided and promulgated by the OTC or commander/coordinator to whom the duty is delegated. When sonars of significantly different capabilities are present in the same force, the OTC may elect to promulgate more than one TSR. TSR enables the ASWC or screen commander to station units to optimize ASW defence. TSR is also used for calculating the distance apart at which units are stationed during ASW action. TSR is based on reported PSRs and may make allowance for probable submarine depth and other tactical consideration. For tactical convenience, TSRs are expressed in multiples of 500 yards and normally should not be greater than the appropriate PSR.

12121–12129 Spare

SECTION II—EMPLOYMENT OF ASW UNITS

12200 ASW Ships

12201 Surface Screens

The design and selection of ASW surface screens will depend on several factors. These factors are listed in para 3611 in this publication.

- a. Number of screening units available and their individual and collective weapons and sensor fits.
- b. Size and disposition of the force being screened.
- c. Availability of ASW aircraft.
- d. Anticipated threat.
- e. Environmental conditions.
- f. TSRs.
- g. PIM, including any navigational constraints.
- h. Requirement for command, control, and communication, including EP.
- i. Requirement for supporting operations; for example, replenishment.
- j. Requirement for other forms of defence; for example, AAW.
- k. Requirement for nuclear spacing.
- l. Deception policy.

NOT RELEASABLE.

12202–12204 Spare

12205 Surface Ship Towed Arrays

12206 General Considerations

NOT RELEASABLE.

- a. Generally, the method of employing a towed array ship will depend on the type of array fitted. Surveillance towed-array systems (SURTAS) tend to have an extremely long length and are optimized for very slow towing speeds. For this reason, they are best suited to stationary operations which allow them to patrol their stations at slow speed and to avoid frequent manoeuvres which cause array destabilization and degrade its performance. Tactical towed array systems are specifically designed for higher speeds and are the best option for moving-PIM operations such as convoy escort. The actual performance of an array depends as well on its design. Due to the greater length of tow cable critical angle-towed array systems tend to be less affected by tow ship noise than do arrays towed from a depressor DTAS. Hence a CATAS will tend to provide better all-around ranges of initial detection and tracking than can be expected of a DTAS.

b. To enhance effectiveness as an ASW sensor system, it is necessary for a towed array ship to reduce the range at which it may be counterdetected by the submarine. For this reason, the towed array ship will tend to operate in as silent an EP as possible. It is therefore necessary for the OTC to provide as much guidance as possible to the ship prior to its taking up station to avoid unnecessary electromagnetic emissions which may reveal its presence. The following areas should be addressed in appropriate messages/orders.

- (1) The policy on contact reporting frequency.
- (2) The relative importance of station-keeping versus contact holding.
- (3) The degree of freedom allowed the towed array ship with respect to EMCON in order to prosecute his contacts.
- (4) Additional assets available to help prosecute contacts and the means of obtaining them.
- (5) The OTC's assessment of the tactical situation, together with a summary of the positions of friendly, neutral, and hostile shipping, should be transmitted to the TAS ship as frequently as possible.
- (6) Anticipated changes to PIM and the time the TAS ship is to reposition with respect to it.

(7) NOT RELEASABLE.

12207 Stationing of Towed Array Units

The selection of a station for a TAS ship is based on the following considerations:

a. Own Force Noise. The reduction of force noise levels reaching a towed array is an important element in increasing its detection envelope. For this reason, all units operating near a towed array ship should institute measures to reduce their radiated noise levels.

NOT RELEASABLE.

b. Reaction Time. TAS ships may be stationed ahead, astern, or on the flanks of a force. Regardless of the relative position chosen, such ships should be stationed sufficiently far from the force to allow the OTC time to react to detections made by the TAS ships. The actual distance will depend on:

- (1) Whether the expected threat is equipped with missiles, torpedoes, or a mixture of both.
- (2) Whether the threat is from nuclear or diesel-electric submarines.
- (3) The type of localization to be employed.
- (4) The time to complete localization.

NOT RELEASABLE.

- (5) Detection envelopes. These will vary for different types of TAS.

NOT RELEASABLE.

- (6) Whether the OTC is primarily concerned with alertment to allow evasion or whether he intends further prosecution.

- (7) Other sensors and weapons such as ESM or area air defence fitted in the towed array unit.

c. Communications. The communication fit of a towed array ship will affect the OTC's stationing decision as well. Ships should not be stationed at a distance from the OTC/ASWC such that they are not capable of passing, on a real-time basis, contact information and of receiving orders from the OTC/ASWC (see Chapter 4). Long-range communications are required between towed array ships and the OTC/ASWC to:

- (1) Station units.
- (2) Report figure of merit and contact data to the OTC/ASWC.
- (3) Request and coordinate nonorganic air support (from ashore).
- (4) Assign aircraft to a TAS contact prosecution.
- (5) Coordinate the TF/TG response to an ASW contact.
- (6) Join MPA coming on task. This may be delegated to the ASWACU (see Chapter 6 for MPA joining procedures).

d. Mutual Support. Because of the distance at which TAS ships can operate from the force, mutual support for TAS ships should be considered in the following areas:

(1) NOT RELEASABLE.

(2) Independent Localization and Attack. The TAS ship may be provided with an independent localizing and attacking vehicle such as a helicopter or MPA.
NOT RELEASABLE.

(3) Communications and Stationing Considerations. Depending on the limiting lines of approach (LLA) and the frontal coverage desired, it may be advantageous to station towed array ships specifically to allow for cross-fixing. In this event, it will be necessary to provide reliable communications between the TAS ships. If equipment fitment or EMCON restrictions prevent such communications, an acoustically quiet surface ship or an aircraft may be stationed between the TAS ships to act as a relay unit.

NOT RELEASABLE.

(a) through (e) NOT RELEASABLE.

12208 NOT RELEASABLE

12209 Towed Array Zero-PIM Operations

Towed array ships may also be employed in zero-PIM operations such as barrier patrols, defended lanes, and area surveillance. The OTC should consider these factors:

a. Selection of Station Size. In direct support operations, the OTC will have to decide on the size of the area to be allocated to a towed array ship. The size of the area allocated will depend on the expected initial PSR for the sensor involved against the anticipated threat. The actual size should be such that the revisit time throughout the area will be small enough to ensure the target cannot complete a transit through the area between TAS ship visits.

b. Selection of Search Type. When applied to towed array searchers, the sweep width should be replaced by the expected PSR. The specific type of search will depend on the actual operation. For example, to search an area of probability (AOP) or datum, the expanding square search may provide the best results, whereas for defended lane operations, a linear or crossover patrol may be appropriate.

NOT RELEASABLE.

12210 ASW Helicopters

12211 General Considerations

Stationing of helicopter-carrying escorts in the screen should be made, if possible, to provide optimum relative wind to facilitate launch and recovery without having the escorts leave their assigned sectors. ASW helicopters may be fitted with sonobuoys, processors, dipping active/passive sonar, airborne radars, FLIR, MAD, ESM and/or ASW torpedoes and depth bombs. When tasked within a force, they may be considered as force assets or as extensions to ship's sensors and weapon systems. Helicopters fitted with sonobuoys and processors may be tasked in the same way as direct-support FW aircraft. Screening stations for helicopters fitted with ASW sensors should be selected using similar considerations to those for surface units (see Article 12201).

NOT RELEASABLE.

12212 ASW Helicopter Employment

ASW helicopters may be allocated for screening duties as indicated in Chapter 3 and may also be ordered to carry out other ASW tasks.

NOT RELEASABLE.

12213–12219 Spare

12220 ASW Fixed-Wing Aircraft

12221 General Considerations

a. Air Operations Procedures. Air operations procedures described in Chapter 5, Section I apply to the tasking of ASW aircraft. The OTC's functions for both ASW and air coordination are summarized in Tables 2-6 and 2-9.

b. Planning. The following factors should be considered in planning and controlling ASW air operations:

- (1) Overall tactical situation.
- (2) Assumed or known capabilities and tactics of the enemy.
- (3) Number, type, and capabilities of available aircraft, including sensors and weapons.
- (4) Size and location of area of operations.
- (5) Environmental conditions.
- (6) Availability and characteristics of cooperating and/or supporting units, including ships, submarines, and other aircraft.
- (7) Frequency of coverage required (revisit time).

c. Tasking. Fixed-wing ASW aircraft may be ordered to carry out ASW tasks by means of dedicated airplans.

NOT RELEASABLE.

d. Rainforms. Since aircrews and air controllers must be thoroughly briefed, it is mandatory that Form GREEN be sufficiently detailed. When land-based aircraft have been ordered to provide support to a force at sea, the OTC of the force will be informed by means of a Form GREEN. When organic air support is provided, the flying schedule will be promulgated by appropriate message.

12222 Conduct of Airplans for Fixed-Wing ASW Aircraft and Helicopters

a. Aircraft Flightpath. The flightpath of an aircraft within an assigned area depends on the type of aircraft; on the search, localization, and navigation equipment available; and on environmental conditions. An ASW aircraft joining a force should be prepared to inform the OTC of the maximum size of the area that it can search effectively under the prevailing conditions.

b. Contact Investigation. When an airplan is ordered which requires an aircraft to investigate a contact or bearing, it is essential that sufficient details of the contact or bearing be passed to the aircraft to allow the aircraft commander to determine the most appropriate search and localization procedures to be used.

c. Variations to Airplans. When an airplan is ordered, the order may include variations to the airplan and any amplifying instructions not included in previous signals.

d. Relative Airplans. The term "relative" applied to an airplan implies that the area so ordered shall assume the intended movement of the force. It does not affect the bearings associated with airplans. These bearings are always given in degrees from true North.

e. Change of PIM in Relative Airplans. The direction in which ships are to proceed may be changed in many ways which may or may not require a change of airplan. To avoid misunderstandings, whenever it is necessary to alter the PIM on which a relative airplan is based, the airplan is to be reordered.

f. Accuracy of Airplan Origin, Datum, or Contact Position. When ordering an airplan, it may be desirable to use radar to ensure that the origin of the airplan, datum, or contact position is accurately established.

12223 Aircraft in Support of Towed Array Ships

The aircraft assigned is required to:

- a. Join the AAWC/ASWC/ASWACU in direct support. In associated support and area operations, the aircraft will cooperate with the towed array ship, depending on the disposition of forces, to prosecute contacts.
 - b. Report contacts to the OTC/ASWC/ASWACU in direct support and to the area commander and cooperating individual towed array ships in area operations. In associated support, report contacts to the OTC/AWC/ASWACU and to the area commander.
 - c. Receive and acknowledge the SAC's AOP, airplans, search plans, and attack plans when contact is held.
 - d. Exchange precise target acoustic data (type of contact, frequencies, sources, Doppler, complete bearing information, and target movement) with the SAC and other cooperating units when contact is gained.
- NOT RELEASABLE.

12224–12229 Spare

12230 ASW Submarines

12231 General Considerations

ASW submarines may be employed in the following levels of C2:

- a. Area operations.
- b. Associated support.
- c. Direct support.
- d. NOT RELEASABLE.

12232 NOT RELEASABLE

12233 NOT RELEASABLE

12234 NOT RELEASABLE

12235 NOT RELEASABLE

12236 NOT RELEASABLE

12237 NOT RELEASABLE

12238 NOT RELEASABLE

12239 NOT RELEASABLE

12240 NOT RELEASABLE

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12241 NOT RELEASABLE

12242–12249 Spare

SECTION III—CONTACT PROSECUTION

12300 General Considerations

The reaction of units gaining contact on a hostile submarine will be influenced by:

- a. The range at which contact was gained.
- b. The capabilities and ranges of own ASW sensors and weapons.
- c. The degree of threat to the force screened.
- d. The classification of the target.

12301 Contact Classification

Classification is the method by which subordinate commanders inform their superiors and other units of their opinions as to whether contacts which they have just detected or are investigating are of submarine origin. Since classification is subject to the individual reactions of personnel who have varying degrees of experience, classification terms are inevitably subjective in character. The maximum possible degree of standardization is essential if senior officers and accompanying forces are to react quickly and with confidence to contact reports. Classification terms are therefore intended as a guide; reporting commanders may use their own judgement in interpreting the terms, always bearing in mind the aim of such reports.

12302 Contact Classification Terms

a. CERTSUB (Certain Submarine Contact). A contact that has been sighted and positively identified as a submarine is classified CERTSUB. Parameters for this assessment are: a surfaced submarine; a submerged submarine; submarine masts, antennae, periscope or snorkel; a missile emerging from the sea sighted and positively identified by competent personnel. If any doubt exists about the certainty of the observation the contact should not be classified CERTSUB.

b. PROBSUB (Probable Submarine Contact). A contact that displays strong cumulative evidence of being a submarine is classified PROBSUB. Evaluation of a contact obtained by one or more of the following sensors may be followed by a PROBSUB classification: sonar, radar, electronic intercept, MAD, passive or active sonobuoys, towed arrays, optronics, and other devices. The possible means of sensor contact are numerous. The following guidelines illustrate the extent and quality of the evidence that is required before a PROBSUB classification may be made.

(1) Contact by Active Sonar or Active Sonobuoy.

(a) Competent personnel report a firm sonar contact showing submarine characteristics.
NOT RELEASABLE.

- i. through iv. NOT RELEASABLE.

(b) NOT RELEASABLE.

(2) Broadband Contact by Passive Sonar or Passive Sonobuoy. Consistent tracking of a firm contact with courses, speeds, or other indications, which are compatible with submarine characteristics and are confirmed by at least one other type of sensor.

(3) Radar Contact. Confirmation of a radar contact by at least one of the following, obtained simultaneously or in close sequence:

(a) Search receiver contact on the same bearing and displaying characteristics of a distinctive submarine radar.

(b) Active or passive sonobuoy or MAD tracking.

(c) Sonobuoy and MAD contact near datum.

(d) Sonar contact having submarine characteristics.

(e) LOFAR contact evaluated as submarine.

(4) NOT RELEASABLE.

(5) MAD Contact. MAD is normally a confirmatory sensor used in conjunction with other sensors.

NOT RELEASABLE.

(a) and (b) NOT RELEASABLE.

(6) Narrowband Passive Sonar Contact. A LOFAR signature is evaluated as a submarine; if known, the type of submarine is to be included in the classification.

c. POSSUB (Possible Submarine Contact). A contact on which available information indicates the likely presence of a submarine but there is insufficient evidence to justify a higher classification. A classification of POSSUB may be given under any one or more of the following conditions:

(1) An object thought to be a surfaced submarine, submerged submarine, submarine periscope, or snorkel is sighted; but, because of poor visibility or the lack of competence of the observer to recognize such objects, the criteria for CERTSUB cannot be supported.

(2) Active or passive sonar, MAD, radar, ESM, active or passive sonobuoys, towed acoustic arrays, and other devices; such contacts are investigated or tracked, without confirming all of the characteristics listed for PROBSUB, but are suspected to be of submarine origin.

(3) Surface flares, blinker lights, tracer lights, and similar indications are thoroughly investigated, do not lead to submarine sightings or sensor contact, but are suspected to be of submarine origin.

(4) Surface ship HF/DF contact on a signal classified as being of submarine origin.

d. Confidence Level. The classification POSSUB must always be amplified by adding an assessment of the confidence level. Confidence levels are specified as follows:

(1) **LOW CONFIDENCE**—A contact that cannot be regarded as NONSUB and requires further investigation. This assessment may be further amplified by using grades 1 and 2, 1 being the lower grade.

(2) **HIGH CONFIDENCE**—A contact that from the evidence is firmly believed to be a submarine but does not meet the criteria established for PROBSUB. This assessment may be further amplified by using grades 3 and 4, 3 being the lower grade.

e. NONSUB (Nonsubmarine Contact). After investigation, a contact that is shown to have characteristics that exclude the possibility that it is a submarine. NONSUB is a firm statement that the classifier is entirely satisfied his contact is not a submarine. When a contact is lost which was previously classified POSSUB or PROBSUB, it is dangerous and wrong to amend the classification to NONSUB without the most thorough investigation.

12303 Contact Classification Process

In order to make an accurate assessment of the classification of a sonar contact the process at Figure 12-2 should be followed. This process is not a definitive answer but is the most reliable method for making the best assessment of any sonar contact.

12304 Contact Reporting

a. General Considerations.

(1) Initial Contact Reporting and Classification. To initiate rapid response to counter what may be an imminent enemy attack, the initial contact (whether classified or not) must be reported immediately. When not included in the initial report, a classification must be made in the subsequent amplifying report. Where possible, contacts should additionally be amplified by propulsion and class. Voice contact procedures are contained in APP/MPP-01. Enemy contact reports are contained in APP-11.

(2) Subsequent Evaluation. Reclassification of a contact continues throughout the entire ASW action, and subsequent reports by a unit may amend or amplify the classification. Prosecuting units must continually review contact classification using other sensors as available.

(3) Command Responsibility. When more than one ASW unit is in contact, the SAC or OTC (or ASWC if delegated) evaluates all information and classifications and reports the contact together with his classification.

Figure 12-2—NOT RELEASABLE

(4) NOT RELEASABLE.

(5) Contact Information. The method in which contact was obtained, maintained, or localized may be of assistance in assessing a passive acoustic contact report.

NOT RELEASABLE.

b. NOT RELEASABLE.

c. NOT RELEASABLE.

Table 12-1—NOT RELEASABLE

d. NOT RELEASABLE.

e. NOT RELEASABLE.

12305–12309 Spare

12310 ASW Attack Policy

12311 General

a. Types of Attack. Attacks may be URGENT or DELIBERATE. The purpose of an URGENT attack is to upset the submarine's plan of action and gain the initiative in the engagement; speed of action is essential and outweighs accuracy. The purpose of a DELIBERATE attack is destruction of the hostile submarine using the most effective ASW weapon for the prevailing tactical situation. Accuracy is more vital than speed. (Deliberate attack criteria are illustrated in Figure 12-3.)

b. NOT RELEASABLE.

12312 NOT RELEASABLE

Figure 12-3—NOT RELEASABLE

12313 NOT RELEASABLE

12314 NOT RELEASABLE

12315 NOT RELEASABLE

12316 NOT RELEASABLE

12317 NOT RELEASABLE

12318–12319 Spare

12320 Coordinated ASW**12321 Datums****a. NOT RELEASABLE.**

b. Designating a Datum. The datum is given the track number of the submarine or sonar contact upon which it has been established. Subsequently, new datums established on the same contact retain the original track designator.

12322 ASW Search Plans

Table 6-15 summarizes the ASW search plans available for use by ships or by ships and helicopters. When helicopters are used, the letter H must be added as a suffix to the plan number.
NOT RELEASABLE.

12323 Collision Hazard During ASW Operations

a. Safety Manoeuvres. ASW manoeuvring plans for multiship ASW action are designed to reduce the collision hazard. However, International Regulations for Prevention of Collisions at Sea will take precedence over the manoeuvres established by the manoeuvring plans in use. If the situation becomes confused, or if there is a possibility of collision, the first ship recognizing such a danger is to order "Break off." At this order, the operation is discontinued, ships are to manoeuvre to avoid collision, and the action is resumed as soon as practicable.

b. Use of Navigation Lights. The attacking, directing, and assisting ships are required to burn sidelights when multiship attacks or close searches are being conducted during night operations, unless they are ordered to do otherwise. Dimmed sidelights may be used, but ships must have the facilities to rapidly switch them to full brilliance in an emergency. Dimmed stern lights should also be shown, whether or not they can be switched to full brilliance at short notice. This paragraph limits neither the authority of the SAU commander to order navigation lights darkened at any time, nor that of any commanding officer to turn them on at any time they are necessary.

NOTE

**FOR LIGHTS TO BE SHOWN BY SHIPS, HELICOPTERS, OR OTHER
AIRCRAFT OPERATING TOGETHER AT NIGHT OR IN LOW
VISIBILITY, SEE CHAPTER 5.**

c. Special Lights. Ships equipped with special lights are not to use such lights until their characteristics and meanings have been disseminated by the OTC to other units.

12324–12329 Spare**12330 Coordinated ASW Action****12331 Action on Gaining Contact**

A unit gaining contact is to report IAW Chapter 5 and assume the duties of SAC if not part of a SAU.

12332 Action by Units in the Vicinity of the Unit Gaining Contact

Units in the vicinity of a unit reporting initial contact are to take immediate action to render assistance.

a. Surface Ship. The ship best placed to assist the detecting unit automatically acts as assisting ship unless otherwise directed. It is to report that it is assuming the duties of the assisting ship. If the detecting unit is an aircraft, the assisting ship may take control of the aircraft when in a position to control the action. Adjacent ships fitted with long-range weapons or weapon-delivery helicopters are to be prepared to provide immediate assistance.

b. Helicopter. Except when operating under close positive control, and when there is an immediate threat to a ship or the force, the helicopter nearest the detecting unit is to proceed to support the detecting unit and inform the detecting unit, HCU, or other appropriate authority of its intentions. When operating under close positive control, the helicopter is to await orders from the HCU before proceeding to assist the detecting unit.
NOT RELEASABLE.

c. Fixed-Wing Aircraft. When an FW aircraft has received a request for assistance from the detecting unit, and when the tactical situation permits, the aircraft is to close that unit and inform the ASWACU of his intentions. The aircraft is to keep clear of weapon danger areas, using the limits provided by the ASWACU.
NOT RELEASABLE.

d. ASW Aircraft Control Unit. The ASWACU is to inform aircraft of the contact and:

- (1) When an FW aircraft is in the vicinity of a contact that is an immediate threat, direct the aircraft to close the unit in contact and ensure that it keeps clear of weapon danger areas.
- (2) If directed, transfer control of the aircraft to the unit in contact or to another unit in the vicinity of the contact.

e. Helicopter Control Unit. The ACU performing the duties of an HCU is to:

- (1) Reassign helicopter screen stations as ordered by the OTC or appropriate commander.
- (2) Inform helicopters of any contact that is an immediate threat.
- (3) Direct the helicopter nearest the contact to a position in support of the detecting unit and:
 - (a) Inform the detecting unit of the helicopter's availability, weapon load, and control frequency in use.
 - (b) Be prepared to transfer control of the helicopter to the detecting unit, or the unit in the vicinity of the contact that is most capable of assuming HCU duties. Transfer of control may take place without further orders.

NOTE**GUIDANCE IN ITEMS 2 AND 3 ABOVE APPLIES TO AN AIRCRAFT PERFORMING HCU FUNCTIONS.****12333 Detaching ASW Forces**

a. Designation and Dispatch of a Search and Attack Unit. A SAU may be dispatched to assist at a scene of action or to conduct a search of a designated area. The dispatch of a SAU is based on considerations of threat, mission, conditions, assets available, possibilities of evasion, environmental conditions, and so on. The assessment of the total threat will determine the type and number of units dispatched. The SAU may consist of ships and/or aircraft. Helicopters can provide a rapid reactive capability, provided the distance is such that the time on task will be worthwhile. Dispatching ships to a known scene of action may be exposing them to unacceptable and unnecessary risk. In such circumstances it is for consideration that the SAU should consist of aircraft only.

b. OTC/ASWC Functions.

- (1) The OTC's general functions in ASW are in Table 2-4.
- (2) Information required by SAU and SAU commander:
 - (a) Composition of the SAU and identity of the SAU commander.
 - (b) Identity of the SAC.
 - (c) Latest position, time, source of information, classification, and confidence level of the contact.
 - (d) If applicable: Datum designation, datum position, datum error, last known course and speed of contact, datum time, and SITREP.

c. SAU Communications. On dispatch of a SAU, responsibility for its communication requirements is transferred from the OTC to the SAU commander. Normally, the existing ASW circuits will continue to be manned by the SAU, with the remainder shifting to an alternative ASW control frequency (Procedure Alfa, see ACP 176) or screen tactical frequency (Procedure Bravo). Use should be made of standard tabulated messages, such as the ASW Action Table in ATP-01, Vol. II. The single-letter manoeuvring signals may be used for SAU action.

NOT RELEASABLE.

12334 The SAU Commander**a. The SAU Commander's Responsibilities.**

- (1) Forming the units assigned.
- (2) Establishing communications on assigned SAU frequencies with units of the SAU and with the SAC.
- (3) Designating the appropriate ACU; however, ACU duties are normally best carried out by the SAU commander.
- (4) Establishing datums, as necessary.
- (5) Promulgating helicopter alert states, if applicable.

b. Information to Be Passed by SAU Commander to SAU.

- (1) SITREP.
- (2) Torpedo countermeasures to be employed.
- (3) Intentions, including Plans RED and BLACK.
- (4) If dispatched to assist at an existing scene of action:
 - (a) Identity of the SAC.
 - (b) Latest position, time, source of information, classification, and confidence level of contact or:
 - (c) Datum time, datum position, datum designation, and datum error.
 - (d) ETA at contact or datum and, if applicable, the torpedo danger area (TDA).

c. NOT RELEASABLE.

d. NOT RELEASABLE.

12335 SAU Approach to a Contact or Datum

The method of approach and countermeasures to be applied depend on the tactical situation. The SAU commander must balance the danger to the SAU against the subsurface threat to friendly forces that may be targets for submarine-launched missiles and accept a calculated risk where necessary. Availability of a medium- or long-range weapon delivery capability, especially in good sonar conditions, may allow the SAU commander to use a more deliberate approach tactic than is necessary when only short- or medium-range weapons are available.

a. through c. NOT RELEASABLE.

Table 12-2 and Figure 12-4—NOT RELEASABLE

This page—NOT RELEASABLE

12336 SAU Commander/SAC Intended Employment of Units

The SAC or SAU commander should promulgate, within the OTC's policies, the intended employment of units as soon as a contact is gained, under the heading Plan RED, and the intended employment of units immediately after contact is lost, under the heading Plan BLACK. The purpose is to advise all units, well in advance, of what is expected of them and to avoid confusion at the time that contact is lost. An order to execute Plan RED or execute Plan BLACK is all that is required to initiate the action; all units are then to proceed as previously directed. Plans RED and BLACK are normally promulgated in the OPTASK ASW or its supplements.

a. NOT RELEASABLE.

b. NOT RELEASABLE.**12337 Aircraft Reports to the SAU**

An aircraft at the scene of action shall transmit reports to the SAU to assist in closing the contact or datum. However, attack procedures and maintaining contact take precedence over reporting. The aircraft may indicate the position of the submarine contact or datum relative to the approaching unit or relative to KINGPIN (an arbitrary reference position established by the aircraft). The procedures described below may be used to indicate contact, datum, or KINGPIN.

a. Radar On Top. When an approaching unit holds the aircraft on radar, the commander of the approaching unit may send the message "Request radar on top." On receiving this signal, the aircraft shall fly over the contact, datum, or KINGPIN and report, "On top contact (datum or KINGPIN) now, now, NOW," and using IFF squawk identity. The third "now" will be the on-top position.

b. Reverse Radar On Top. When an approaching unit does not hold the aircraft on radar, the aircraft should try to determine using its own radar the position of the unit relative to the contact, datum, or KINGPIN. The aircraft shall fly over the contact, datum, or KINGPIN and report, "On top contact (datum or KINGPIN) now, now, NOW," and transmit to the approaching unit the bearing and distance from the approaching unit to the datum, contact, or KINGPIN.

c. Visual On Top. When the aircraft is sighted, the commander of the approaching unit may send the message, "Request visual on top." On receiving this signal, the aircraft shall fly in a shallow dive over the contact, datum, or KINGPIN and signal, "On top contact (datum or KINGPIN) now, now, NOW." The aircraft is pulled out of the dive and a yellow flare may be fired on the transmission of the third "NOW."

12338 NOT RELEASABLE

12339 Spare

12340 NOT RELEASABLE

12341 NOT RELEASABLE

12342 NOT RELEASABLE

12343 NOT RELEASABLE

12344 NOT RELEASABLE

12345 NOT RELEASABLE

12346 NOT RELEASABLE

12347 NOT RELEASABLE

12348–12349 Spare

12350 NOT RELEASABLE

12351 NOT RELEASABLE

12352 NOT RELEASABLE

12353–12359 Spare**12360 Torpedo Attack Coordination**

a. For attacks in which more than one ASW unit is involved in close prosecution, the attacking unit must, upon attack, announce an area from which assisting units should remain clear for their own safety. For torpedoes, an area (DOGBOX) is established within which units interfere with or are endangered by running torpedoes. DOGBOX is based upon type of torpedo, method of employment, and estimated acquisition range. The DOGBOX is time-limited to torpedo expiry.

b. The presence of surface ships or employment of other ASW weapons within a DOGBOX may degrade the performance of the running torpedo. Therefore, the attacking unit must reconsider the attack and cancel it if:

- (1) There is a risk to a friendly unit, or
- (2) The anticipated effect of the weapon is unacceptably degraded due to friendly unit interference.

12361 ASW Ship and Helicopter Attack and Support Methods

When helicopters are used in ASW attack and support methods, the letter H must be added as a suffix to the method number. A description of ASW attack and support methods is found in Chapter 5 and ATP-28, Vol. I.

12362 ASW Ship Actions

a. Attacking Ship. The ship conducting an attack or using aircraft to conduct an attack is considered to be the attacking ship. The attacking ship's duties include:

- (1) Delivering a deliberate or urgent attack, as appropriate, to keep maximum pressure on the submarine.
- (2) Indicating that she is the attacking ship and the weapon she will use.
NOT RELEASABLE.
- (3) Manoeuvring in accordance with the rules for the attack method ordered. If deemed necessary to keep a constant range or open the contact, use a figure-of-eight manoeuvre to ensure the stern is never pointed towards it. This will limit chances of the contact being lost in the stern arcs of the sonar.
- (4) Exchanging information and passing movements and intentions of own ship and attacking aircraft under control.
- (5) Indicating by signal immediately when the contact is lost or becomes doubtful.
- (6) In a close ASW action, transferring the attacking ship responsibility to an assisting ship holding contact as the situation dictates.
- (7) Promulgating the torpedo interference/weapon danger (DOGBOX) where appropriate.

b. Assisting Ship. The assisting ship's duties include:

- (1) Manoeuvring to keep clear of the attacking ship and to avoid obstructing the attack.
- (2) Manoeuvring in accordance with the rules for the attack method ordered, to gain and maintain sonar contact and remain clear of torpedo interference/weapon danger (DOGBOX) areas. If deemed necessary to keep a constant range or open the contact, use a figure-of-eight manoeuvre to ensure the stern is never pointed towards it. This will limit chances of the contact being lost in the stern arcs of the sonar.
- (3) Exchanging information with the attacking ship.
- (4) Reporting immediately when the contact is lost or becomes doubtful.
- (5) Reporting when ready to assume the duties of attacking ship.

c. Supporting Ship. Ships not engaged in a close ASW action may be used in support.
NOT RELEASABLE.

NOTE—NOT RELEASABLE**12363 Vectored Attacks****a. Rules.** The rules for the conduct of VECTACs follow:

- (1) The type of weapon must be agreed upon and the aircraft's delivery speed and altitude mutually understood.
- (2) The attacking aircraft should be prepared to inform the controlling unit of the forward throw of the weapon to be used and the desired splash point relative to the submarine.

NOTE

ALTERNATIVELY, A REVERSE RADAR VECTAC OR INFOTAC COULD BE CONDUCTED WITHOUT THE NEED TO FURNISH THE CONTROLLING UNIT WITH DELIVERY SPEED/ALTITUDE, FORWARD THROW, OR DESIRED SPLASH POINT.

- (3) All bearings and courses must be specified at the outset as either magnetic or true, and ranges shall be given in hundreds of yards.
- (4) The attacking aircraft should inform the controller of all weapon drops and MAD marks.
- (5) When the unit in contact is a helicopter, FW aircraft overflying the helicopter must maintain vertical separation of at least 200 feet.
- (6) When more than one unit is in contact with the same target, only one unit shall conduct VECTACs on that target at any given time. In this case, the SAC shall designate the controlling unit. If the controlling unit is a ship, then that ship must also be designated as the attacking ship IAW Article 12362.
- (7) The attacking aircraft shall be informed of all contact course and speed changes.
- (8) The controlling unit may at any time after initiating a VECTAC order "Cancel VECTAC." After this order is given, a subsequent attack must start with the full VECTAC procedure.

b. Methods. The methods of ordering and executing VECTACs are described below.

(1) Radar VECTAC. The attacking aircraft is directed to the weapon release point by the controlling unit. The controlling unit initiates the attack by ordering "Execute radar VECTAC." During the run towards the target, the controlling unit passes correcting vectors as necessary and frequent range information. The attack is ordered by "Stand by weapons," followed by "Drop, now, now, NOW."

(2) Reverse Radar VECTAC. The attacking aircraft uses its radar to determine the position of the unit in contact and, from that unit, plots the range and bearing of the sonar contact. The unit in contact orders, "Execute reverse radar VECTAC," and the attacking aircraft will determine the optimum splash point depending on the contact's course and speed and the type of weapon. The attacking aircraft manoeuvres, using its own navigation system, to the weapon release point for release of the weapon.

(3) Informative VECTAC. The unit in contact gives target position, course, and speed of the contact to the attacking aircraft to enable it to manoeuvre to the weapon release point. The controlling unit orders, "Execute INFOTAC" and specifies the method of defining the target position. This could be as a range/bearing relative to either the controlling unit or a marker/reference point. With the widespread availability of GPS, target position is increasingly given in Latitude/Longitude. The attacking aircraft plots the contact information, visually marks on top the units in contact or marker to lock plots (if necessary), and is responsible for its own navigation to the weapon release point and for the release of the weapon at the proper time.

(4) Visual VECTAC. The unit in contact gives the attacking aircraft a course and time to fly, either from the controlling unit or a nominated marker, to the weapon release point. The attack is ordered by, "Execute visual VECTAC," and the departure point and approximate attack heading are passed to the aircraft. The attacking aircraft makes a warning call, "Stand by 1 minute," when approximately 1 minute away from the departure point. The controlling unit then computes the splash point for the expected attack time and the attack heading and time to fly. When the attacking aircraft is on top of the departure point on the attack heading, the attacking aircraft reports "On top, now, now, NOW." The controlling unit then times the run and orders weapon release. A visual VECTAC may be employed when the controlling unit cannot conduct a radar VECTAC and the attacking aircraft has no navigation system.

c. Types of Attack. VECTACs may be either urgent or deliberate. Since the VECTAC is considered to be primarily a form of deliberate attack, an urgent attack, if desired, must be specifically ordered.

d. NOT RELEASABLE.

12364 NOT RELEASABLE

12365–12369 Spare

CHAPTER 13 Naval Mine Warfare

Note: All references to “mine warfare,” “mine countermeasures” and “mines” throughout this chapter refer to “naval mine warfare,” “naval mine countermeasures,” and “sea mines,” respectively.

13000 Introduction

a. Naval mine warfare includes the whole field of designing, producing, and laying mines and the parallel effort of designing, producing, and operating all forms of mine countermeasures to combat the adversary mining campaign (Figure 13-1). This chapter provides background knowledge and instructions to commands and personnel not normally involved in mine warfare.

b. NOT RELEASABLE.

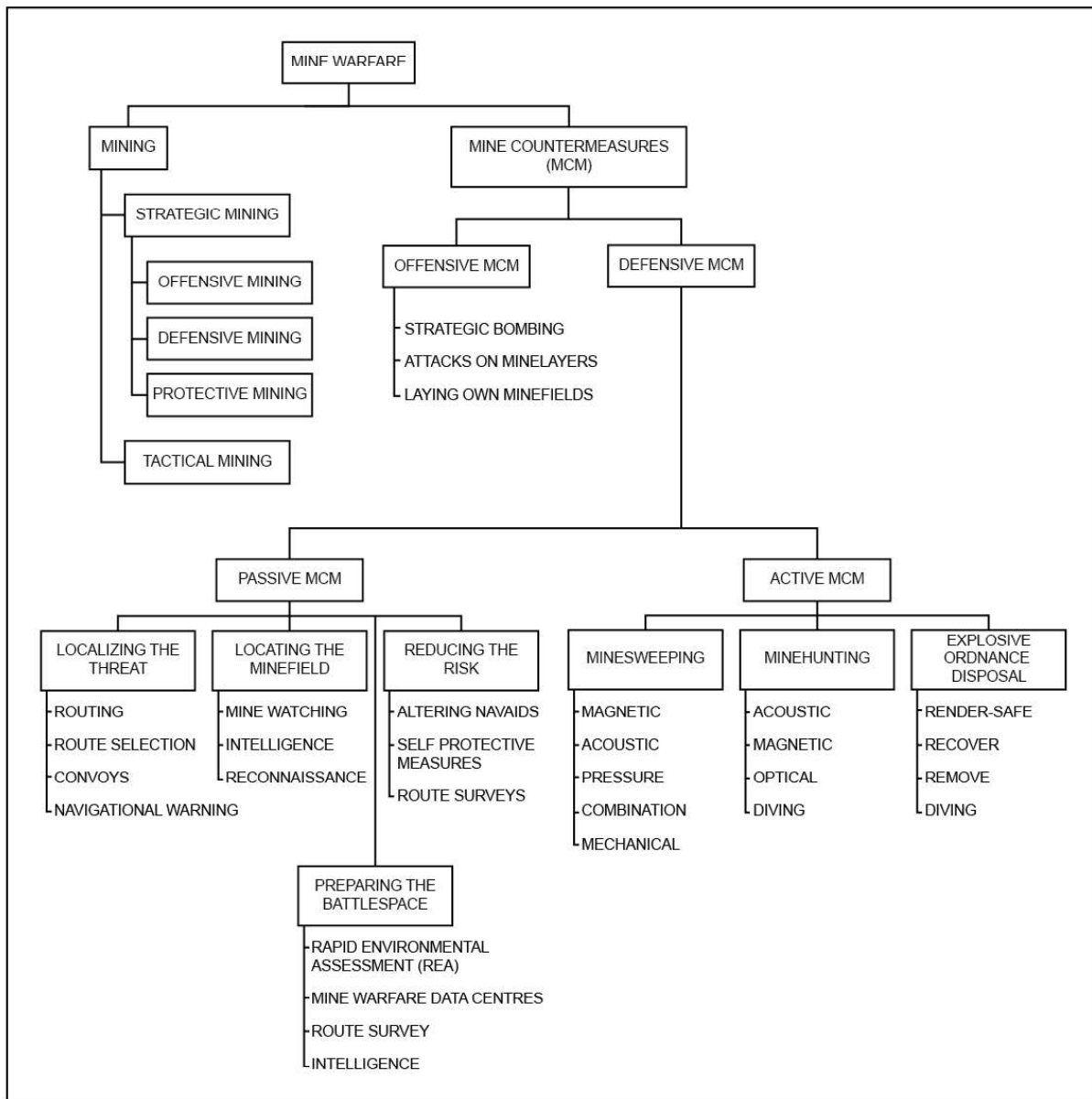


Figure 13-1. The Naval Mine Warfare Family Tree

13001 Mining

The aim of minelaying operations is to assist in the dislocation of the adversary's war effort to the maximum possible extent and to contribute to the security of our sea communications by the destruction or threat of destruction of the adversary's merchant and naval units.

13002 Types of Mines

a. In naval mine warfare a sea mine is defined as an explosive device laid in the water by aircraft, submarines, or surface ships with the intention of damaging or sinking ships or of deterring shipping from entering an area. The term does not include devices attached to the bottom of ships or to harbour installations by personnel operating underwater, nor does it include devices which explode immediately on expiration of a predetermined time after laying.

b. Sea mines can be classified in a variety of different categories. Common categories include:

- (1) Position in the water.
 - (a) Drifting.
 - (b) In the volume.
 - (c) On the seabed.
- (2) Method of actuation or firing system.
 - (a) Influence.
 - (b) Contact.
 - (c) Remote controlled.
- (3) Intended purpose.
 - (a) Harbour defence.
 - (b) Sea lines of communications interdiction.
 - (c) Anti-invasion.
 - (d) Sea denial.
- (4) Intended target.
 - (a) NMCM asset(s).
 - (b) Surface ships or vessels.
 - (c) Submarine.
 - (d) Helicopter.

- (5) Delivery method.
 - (a) Surface.
 - (b) Air.
 - (c) Submarine.
- c. Types of settings used with mines include:
 - (1) Ship counts, which allow a certain number of ships to pass the mine before it detonates.
 - (2) Arming or rising delays, which prevent the mine from becoming active before a preset time.
 - (3) Sterilizing time, which renders the mine inoperative after a preset time.
- d. NOT RELEASABLE.
- e. NOT RELEASABLE.
- f. NOT RELEASABLE.

13003 Mineable Waters

- a. Mineable waters are waters in which mines may be effectively used against submarines or surface ships. The depth of the water may dictate the use of either moored or ground mines (see Article 13002). Drifting mines can be encountered in any depth of water.
- b. During the initial stages of a mining campaign, offensive operations are likely to be confined to ports, harbours, and focal points where traffic concentrations can be foreseen.

13004 The Nature of a Minefield

As all minelaying operations will have a lasting effect on enemy as well as own operations, all sources of intelligence should be used by planners. Where independent mines (a mine which is not controlled by the user after laying) have been laid, the minefield presents the same danger to own forces as to enemy forces. Operational advantages can be achieved by the use of arming or rising delays and sterilizers that will activate and deactivate the minefield at preset times. If sterilizers are not used, the minefield can be expected to create a danger for years.

13005 Types of Mining

- a. NOT RELEASABLE

13006 Jettisoning Mines

- a. and b. NOT RELEASABLE

13007 Minelaying Operations

Normally the MARCOM issues orders for the operation. These consist of directives, preparatory orders, and final operation orders. Minelaying intentions and plans must be coordinated with subordinate commanders to ensure that mining operations will not conflict with submarine and surface force operations. Details of ordering minelaying operations are given in ATP-24, Vol II. Ships not equipped with modern navigational systems or with degraded navigational systems still require a leadthrough IAW Chapter 11 (NCAGS).

13008 Information to Friendly Forces

a. Although the distribution of orders should be confined to units that are concerned directly, the position, nature, and extent of a new minefield, or an addition to an existing minefield, must be communicated to all other units that may transit the area. For this purpose AWNIS and the associated Q-Messages are used.

b. NOT RELEASABLE.

13009 NOT RELEASABLE

13010 NOT RELEASABLE

13011 Naval Mine Countermeasures

a. The aim of naval mine countermeasures is to permit Allied warships and merchant vessels to use the seas and enter and leave ports, as necessary, to further the war effort and support the

population, without sustaining unacceptable damage or losses from enemy mines. This aim can be achieved by offensive and defensive NMCM.

(1) Offensive NMCM is intended to prevent the enemy from successfully laying mines. Included under this heading are:

- (a) Strategic bomb/missile attacks.
- (b) Attacks on enemy minelayers.
- (c) Laying own offensive/defensive minefields.

(2) Defensive NMCM is designed to reduce the threat from mines after they have been laid. They include:

- (a) Passive countermeasures.
- (b) Active countermeasures.

b. NOT RELEASABLE.

13012 Passive Mine Countermeasures

a. Passive MCM is aimed at protecting naval and merchant shipping against the threat from enemy mines (see also ATP-06, Vol II). These mine countermeasures are:

(1) Localising the Threat. Localise the threat by:

- (a) Concentrating shipping on routes and in channels by using convoys where possible, so that less Active MCM is required. For more details on the routing of shipping see ATP-02, Vol I.
- (b) Warn shipping by issuing Navigational Warnings about mined and suspected mined areas (see AHP-1).
- (c) Determine the routes or diversions where it is assessed that no mining has taken place taking into account operational requirements and geographical constraints.
- (d) Closure of ports.

(2) Locating the Minefield. Locate the minefield by:

- (a) Establishing mine-watching organizations.
- (b) Gathering and assessing intelligence.
- (c) Surveillance.
- (d) Reconnaissance.

(3) Reducing the Risk. Reduce the risk to shipping by:

- (a) Applying self-protective measures (SPMs) (see Article 13014).
- (b) Altering or adjusting navigational aids.
- (4) Preparing the Battlespace.
 - (a) Conducting Rapid Environmental Assessment (REA).
 - (b) Information held by National Mine Warfare Data Centres.
 - (c) Conduct of Route Survey (RTSV).
 - (d) Gathering and assessing intelligence.

13013 Self-protective Measures

Self-protective measures are part of defensive MCM; they are those passive measures taken by any vehicle to reduce the risk to the vehicle from mines. SPMs are achieved by tactical measures or material means.

- a. NOT RELEASABLE.**
- b. NOT RELEASABLE.**

13014 NOT RELEASABLE

This page—NOT RELEASABLE

This page—NOT RELEASABLE

This page—NOT RELEASABLE

13015 Active Mine Countermeasures

a. General Concept

(1) Responses to a mining attack must be immediate, with highest priority being given to the most urgent objective. The responsible authority must assess the threat and available MCM assets and, with the aid of contingency orders, plan the MCM operation. The immediate reaction must be to gather data on the mine threat and battlespace as soon as possible. This may be done by MCM systems, rapid environmental assessment (REA) systems, exploratory operations, reports of mining, intelligence estimates, mine investigation and exploitation (MIE), and any other means available. Exploratory operations may begin in accordance with contingency plans while the threat estimate is still in progress. The choice of mine countermeasures becomes a continuing process based on information as it is received. In all cases, where risk to the MCM unit permits, channels are segmented and the various segments are cleared simultaneously. The general threat to the MCM unit must be considered in the light of the objective together with the tactical considerations and the number and the type of MCM units available. The loss of MCM units will affect the level of risk reduction and subsequent threat to follow-on traffic and thus the accepted MCM risk must be as low as possible.

(2) As in any type of warfare scenario, MCM planning will normally follow the basic steps below:

- (a) Assess the threat.
- (b) Assess the available MCM capabilities against the threat.
- (c) Determine the MCM objective.
- (d) Develop and implement the tactics.

b. Active MCM operations are all activities of MCM forces conducted with the aim of countering enemy mining. This is accomplished by minesweeping, minehunting, or explosive ordnance disposal which are defined as follows:

- (1) Mine sweeping is the technique of countering mines by MCM units using mechanical gear, which physically removes or destroys the mine, or using influence gear by producing, in the volume, the influence field necessary to actuate it.
- (2) Minehunting is the employment of ships, airborne equipment, unmanned systems, marine mammal systems and/or divers to locate and dispose of individual mines.
- (3) Explosive ordnance disposal is defined as the detection, identification and field evaluation, rendering safe, recovery and final disposal of unexploded explosive ordnance by suitably qualified personnel.

c. NOT RELEASABLE.

d. NOT RELEASABLE.

13016 Protection of MCM Forces

a. Due to their limited self defence capability, the MCM force may require AAW, ASUW, ASW, and AASYW protection as well as protection from land based threats. When operating in mined waters, MCM forces are limited in their ability to manoeuvre in channels and avoiding action cannot be taken while engaged in MCM operations. This makes the MCM force vulnerable to enemy attack. Warning should be issued in due time in order to enable the MCM force to take avoiding action. The commander ordering the support will specify the support operation situation (A, B, or C). Normally Situation C applies. See Article 2181.

b. However, it is unlikely that protecting forces will be able to operate in close proximity to the MCM forces because of the mine threat and the associated lack of free manoeuvrability. Therefore careful consideration must be given by both the protecting force commander and the MCM commander to the requirements and limitations of the tactical situation.

13017 Transit of Surface Ships Through a Channel

a. Transiting ships equipped with modern navigation systems are perfectly capable of independently transiting channels where MCM effort has been applied. The channel width must be at least 6 x SDNE of the transitor plus the largest damage width of the mine threat (W_d).

Note. The following considerations also apply to submarines on the surface or at periscope depth.

b. General Considerations. This article provides supported forces and individual units with instructions for manoeuvring through mined waters.

(1) The responsibility for the safety of merchant shipping rests with the NCAGS commander. The NCAGS commander must decide whether merchant shipping will, or will not, transit mined areas. The decision to pass naval units through mined waters rests with the OTC. Convoy commodores and OTCs of naval units must ensure that their masters/captains are informed about transit procedures. MCM authorities provide information related to the transit.

(a) It is important that the MCM tasking authority and the NCAGS commander establish clear, reliable communications between themselves and their subordinate units at sea. Figure 13-2 shows the sources and responsibilities for the flow of information in situations that may arise when units transit mined areas.

(b) Units transiting a swept/hunted channel should keep station on the centreline or on another track as ordered. Sea state, visibility, method of navigation, manoeuvrability, and other characteristics of transiting units must be considered.

(c) In the event of more than one ship transiting the area, the shorter the distance between the ships in column, the less the danger from influence mines with regard to the mines' intercount dormant period.

(2) Safety Measures and Preparations. Take action in accordance with Article 13014.

(a) When a convoy is approaching, the Convoy Commodore must form his convoy into a single column formation. Intership spacing is dependant on sizes of the ships and their navigational/station-keeping capability. As a general rule, intership spacing should not exceed 1,000 yards.

(b) A naval force should pass in a single-column formation at standard distance or less, if possible (See Article 3427), each unit navigating independently.

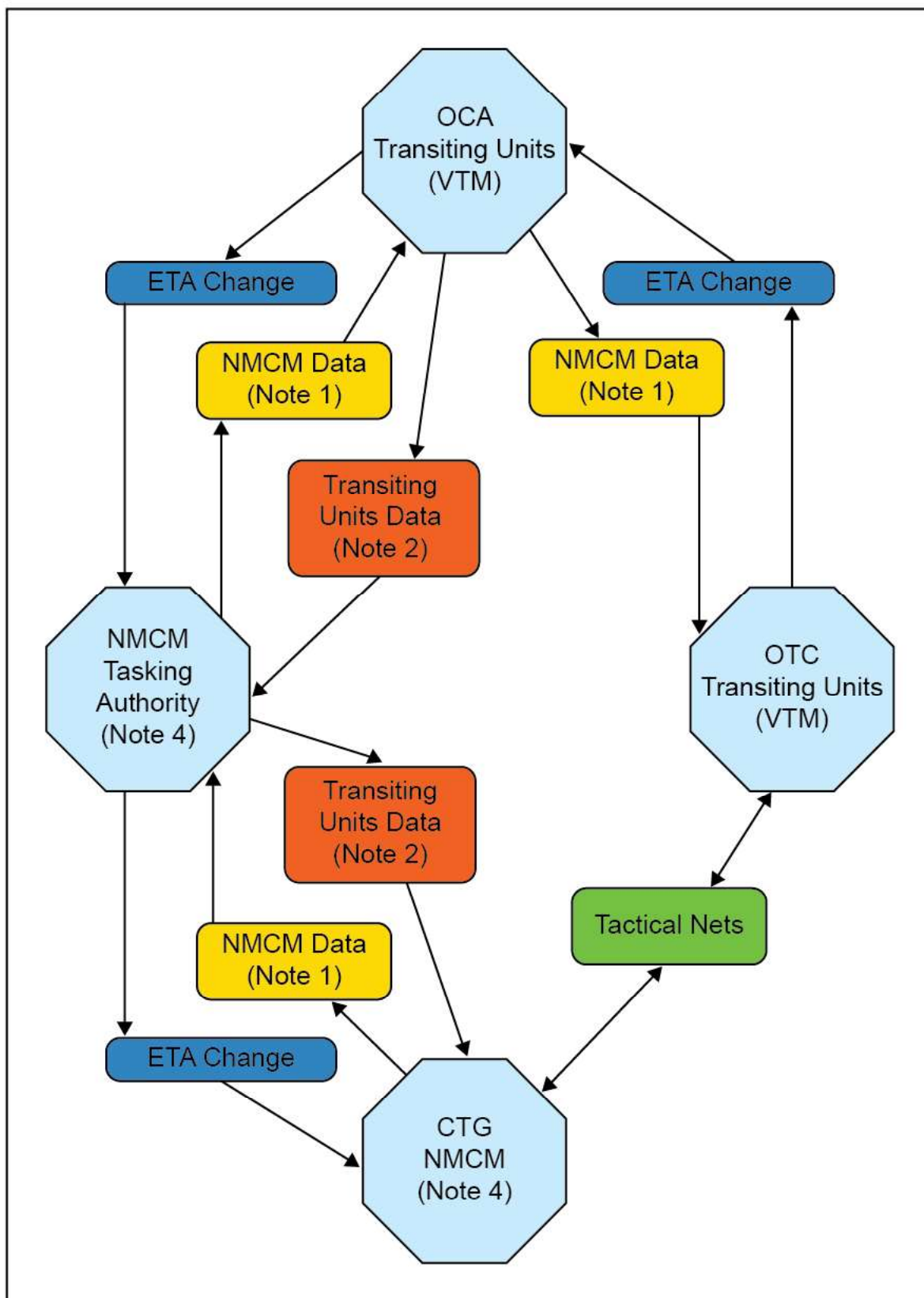


Figure 13-2. Information Flow for Transits of Mined Waters (Sheet 1 of 2)

Notes:

1. NMCM data will include:
 - a. Channel position relative to Q-Route.
 - b. Channel width.
 - c. NMCM tactical frequencies.
 - d. NMCM units on task.
 - e. Amplifying information.
2. Transiting units data must include:
 - a. Number of units.
 - b. Names of units.
 - c. Approximate size.
 - d. Any manoeuvring limitations.
 - e. Maximum draft.
 - f. ETA.
3. ETA changes will be required if the transiting units are off their sailing schedule.
4. The NMCM Tasking Authority and OTC NMCM may be co-located.

Figure 13-2. Information Flow for Transits of Mined Waters (Sheet 2 of 2)

(c) Other distances may be indicated by the OTC of the MCM force.

(d) To reduce the risk of actuating an influence mine, slow speed and minimum feasible separation distance between transitors is essential. The reduction of speed reduces the pressure and the acoustic signature; it will also reduce the rate of change of the magnetic signature. However, the ship being led must never be forced to conduct excessive alterations to maintain station. Therefore the speed and distance ordered will always be a compromise and must take into account the manoeuvrability of the ship and the experience of its crew.

(3) A naval force, convoy, or independent unit transiting a channel without a lead through vessel will be passed relevant instructions using the leadthrough transit instructions format of APP-11; merchant vessels will use ATP-02, Volume II. Ships transiting swept/hunted channel should review all available guidance including information contained in the following:

(a) Q-messages.

(b) Routing/transit instructions.

(c) Channel information.

Note: See Chapter 11, Section III, for additional information on leadthrough operations.

(4) Units Damaged by Mines. Units damaged by mine detonation and unable to proceed at the ordered speed should attempt to manoeuvre clear of the channel's centreline. In narrow and shallow channels, such as harbour entrances, heavily damaged or sinking units should be grounded outside the main channel.

13018 Conduct of Submarines in Mine Threat Areas

See ATP-18, Chapter 5.

13019 Spare

PART V STRIKE/AMPHIBIOUS

Chapter 14—Strike Warfare

Chapter 15—Amphibious Operations

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CHAPTER 14 Strike Warfare

SECTION I—GENERAL

14100 Introduction and Scope

Strike operations may employ ballistic or cruise missiles, aircraft, naval surface fires, marines and special operations forces (SOF) to attack targets ashore and at sea. The term “strike warfare” is used in the maritime domain and commonly includes joint fire support, interdiction, strategic attack, and close air support. Amphibious operations may involve extensive application of strike warfare capabilities, while amphibious raids are also a form of strike operations.

Strike warfare may be conducted by ballistic and cruise missile carrying submarines, fixed and rotary-wing aircraft, surface action groups of one or more naval surface vessels fitted with these weapons.

14101 Missions

Maritime strike operations may be conducted to accomplish a number of operational objectives including protecting sea lines of communication, denying the enemy commercial and military use of the seas, protecting naval logistic support to deployed battle forces, and establishing maritime power projection. Critical elements of maritime strike warfare include:

a. Surveillance Coordination and Surface Warfare

SSC in maritime ASUW provides reconnaissance and surveillance in support of the maritime commander’s objectives. The SSC mission plays a critical role in establishing/maintaining the common operational picture (COP). The objective of SW operations shall be the effective conduct of surveillance, reconnaissance, and the engagement of all hostile surface threats prior to reaching their maximum effective weapons release range on friendly units. ASUW operations will be governed by the concept of a defence in depth, but will focus on offensive ASUW versus a littoral threat and the need to conserve resources by allocating minimum assets to successfully counter the threat.

b. Maritime Air Support

MAS is air action against hostile surface targets at sea that require detailed integration of each air mission with the fire and movement of maritime forces. The mission is conducted by any available and suitably loaded aircraft in order to provide a rapid response to a hostile surface vessel when directed. The procedures are more closely aligned with offensive air support (OAS) and JCAS missions and are the evolutionary follow-on to “SLEDGEHAMMER, Screaming Eagle” and Maritime Air Support Operations Centre tactics, which were designed to counter immediate threats and targets of opportunity. Procedures are applicable for joint maritime operations (air) assets providing maritime air support. Primary consideration is rapid response to counter hostile contacts closing the force. To conduct effective MAS, the following conditions are essential; however, urgent force defence may preclude obtaining all of the following:

1. Local air superiority
2. Local suppression of enemy air defences
3. Means to identify target to aircrew

4. Weather conditions acceptable for target acquisition and weapons employment
5. Prompt response
6. Appropriate ordnance
7. Communications
8. Command and control.

c. Air Interdiction of Maritime Targets

AIMT in maritime SW differs from MAS in that detailed tactical integration with surface forces is not required. This mission shares many common similarities with traditional AI, AR, and SCAR missions. AIMT missions are classified as permissive or nonpermissive and can be executed using preplanned or dynamic tasking.

1. Permissive AIMT assumes local air superiority, standoff from a threat is not required, and identification of the contact can be provided by own ship or off-board sensors.
2. Nonpermissive AIMT assumes an acceptable level of risk is appropriate to support mission objectives, appropriate ordnance is available, and identification can be provided by own ship or off-board sensors.

d. Maritime Strike Coordination and Reconnaissance

Maritime SCAR is a quick-reaction mission that is flown for the purpose of acquiring and reporting known or suspected targets and coordinating engagement of those targets. It provides mission leads to an aviation battlespace manager who can assist in targeting to prevent redundant air strikes and help expedite flow of maritime air-support aircraft into and out of target areas. SCAR is generally different from AR missions in that the primary purpose is to locate and coordinate target neutralization or destruction by multiple flights. General procedures consist of the following:

1. Alert crew/aircraft readiness will be IAW surface warfare commander (SUWC)/SCC DIM and alert procedures.
2. Proceed to PB target(s) or assigned patrol area and conduct surveillance as outlined in SSC procedures.
3. Verify preplanned targets' location and monitor movement.
4. Provide target location, description, and weather conditions.
5. Provide target mark (if required) and recommend target tactics.
6. Confirm threat warning condition, weapons control status.
7. Pass current threat capabilities to strike aircraft as able.
8. Assist in the evaluation of bomb hit assessment (BHA) and recommend restrike(s) as necessary.

e. Maritime Interdiction Operations Support

During boarding operations, SSC assets may be requested to provide support. Two primary support roles for boarding parties include reconnaissance and show of force. In the reconnaissance role, aircraft can provide awareness and force disposition to the boarding party. In the show of force role, aircraft may orbit in the vicinity of the vessel to be boarded.

1. SLEDGEHAMMER Tactic. The SLEDGEHAMMER tactic is designed as a rapid response in defence of friendly/neutral forces under attack or as a method to identify the intention of an unknown contact. Any aircraft regardless of pre-assigned mission may be instructed to conduct SLEDGEHAMMER. The term—SLEDGEHAMMER is only used in an actual scenario.
2. The term—GANGPLANK is used for training only.

f. Combat Search and Rescue

The objective of CSAR is to effectively employ available assets to recover isolated personnel. Strike assets may be tasked with the recovery of isolated personnel from hostile coastal waters and over land. The OTC of any deployed unit or group of units is directly responsible for conducting rescue/recovery operations for his own units. To ensure the effective and expeditious execution of CSAR missions, the commander afloat will establish a Rescue Coordination Team (RCT). The exact position of the survivor and the threat that hostile forces pose to a CSAR attempt must be determined as quickly as possible. Situation and threat permitting, the on-scene commander (OSC) should attempt to locate and initially authenticate the survivor(s), determine survivor(s) physical condition, and note any geographic/cultural landmarks. The OSC should note any possible threats to the survivor and neutralize any immediate threats. An immediate response is the preferred method to execute a CSAR as it allows rescue forces to be on scene very quickly. CSAR mission execution requires OTC approval.

14102 Air Operations in Overland Strike

a. Tomahawk Land Attack Missiles.

The Tomahawk land attack missile (TLAM) is an all-weather, long range, subsonic cruise missile used for land attack warfare, launched from Navy surface ships and submarines. It flies more than 500 miles, navigating along a pre-programmed route that follows specific terrain features to the target. Tactical land attack missiles can carry a 1,000-pound class high-explosive or a submunitions warhead.

TLAM operations require a lengthy mission planning process. Planners must identify a route extending from a fixed starting point to the target. The route must be within the missiles' range, must not contain any obstacles to its flight such as steep mountains or concentrations of enemy air defences, and must pass over terrain that would allow planners to prepare usable Terrain Contour Matching (TERCOM) maps and Digital Scene Mapping and Area Correlation (DSMAC) images. Planners must also identify specific aim points on the target whose destruction will achieve the desired military effect. Finally, planners must select a terminal manoeuvre—the manner in which the missile impacts the aim point—and the number of missiles needed to achieve the desired level of destruction.

Planned missions are transferred to the TLAM-capable ship or submarine either through delivery of a data transport device or through radio communications channels. Once a ship or submarine is tasked to launch a TLAM, the process on board the launching vessel involves powering up the missile, aligning its inertial navigation equipment, transferring the mission into the missile's computer, and then launching the missile.

One of the most significant improvements to the Block III missile is its added ability to navigate to targets using the GPS. GPS navigation frees the TLAM from having to fly over terrain that is suitable for and has been mapped for terrain contour matching navigation. TLAM is weapon of choice for critical, long range, precision strike missions against high value or heavily defended targets.

14103 Surface Warfare Considerations

While there are many similarities between air operations over land and sea, important differences exist:

- (1) Lack of Visual/Terrain References at Sea.** The lack of visual references adversely affects not only the ability to navigate but also the ability to quickly orient an 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.
- (2) Target Identification.** Similarities in ship design, appearance, and density of surface traffic require aircrew threat training tailored to the maritime environment.
- (3) Naval Vessel Mobility.** A vessel's mobility coupled with poor weather conditions can increase difficulties in performing visual identification and complicate targeting.
- (4) Friendlies/Neutrals/Noncombatants.** 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.
- (5) Maritime Rules of Engagement.** The maritime environment encompasses historical laws of the sea which impact ROE (e.g., territorial waters versus high seas).
- (6) Maritime Airspace Control.** Nearly every combatant has a powerful radar sensor/weapons system; as a result, maritime airspace control tends to be more positive vice procedural. This emphasis on positive control involves more controlling agencies within the maritime domain. (e.g., REDCROWN [RC], GREENCROWN [GC], STRIKE control)
- (7) Tactical C2.** While the maritime environment contains common tactical C2 such as a FAC[A] and a SCAR, it also employs tactical C2 unique to the maritime environment such as a MAC and an ACU.
- (8) Composite Warfare Commander Nomenclature.** Maritime forces are scalable in size and capabilities; therefore, a unique naming convention has evolved to accommodate this scalability within the CWC command structure.
- (9) 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 deconfliction.
- (10) Subsurface Operations.** Deconfliction of surface warfare and subsurface operations will be coordinated at the CWC level. Aircrew should immediately report the location of all submarines, when spotted, to the CWC.

14104–14109 Spare

SECTION II—PLANNING

14200 General

This section provides general guidance and information to support mission planning including relevant air and water space conventions. The general planning and employment considerations previously developed for air-to-ground missions serve as the baseline for maritime strike mission planning.

14201 Mission Planning Considerations

a. Time of Day. The time of day for a strike will typically be dictated on the ATO or other external means. However, there are some planning considerations to keep in mind regardless of whether the strike lead is given the opportunity to choose the timing for the mission. In general, nighttime offers a number of tactical advantages for a strike, but other considerations might drive the strike to daytime. If daylight is required to achieve target acquisition due to the type of weapon necessary to achieve the desired weapons effects on the desired mean points of impact (DMPs) then every effort should be made to conduct the strike during daytime. For example, a target may be difficult to ID using IR sensors because of target characteristics or camouflage, concealment, and deception (CCD) but may be visually significant, thereby, driving the strike to a daytime mission. Another factor that could force the strike to daytime is the expectation to conduct visual identification (VID) of enemy aircraft. It is important to weigh the day/night decision against enemy pilot proficiency at night as well as the enemy's dependence on EO/VIS acquisition for surface-to-air systems.

b. Altitude Selection. Current tactics typically dictate a high-altitude attack profile for power projection strikes. However, the following considerations might drive the strike to a low-altitude profile to achieve mission success: target area weather might force the strike low due to either a solid, high overcast layer that prevents the strikers from going above it or a lower layer when laser guided weapons (LGWs) are required; and advanced surface-to-air systems (particularly double digit RADAR SAMs) may force the strike to a low-altitude, terrain-masking profile. If deception or surprise is required, low-altitude and/or EMCON may be the only method to achieve this.

c. Commander's Intent. Whether participating in large-scale joint/coalition operations or setting an air defence posture for a transiting CSG or ESG, planning begins with consideration and study of the operational commander's intent. Operational orders are the primary method by which an operational commander disseminates intent for the operation and tasking for subordinate commanders. Subordinate commanders will reference the OPORDs when creating specific tactical-level guidance.

14202 Timely and Accurate Intelligence

- a. Obtain threat information. Threat information on adversary air-to-air and surface-to-air capabilities is essential for employing appropriate tactics and planning support assets for SW force protection.
- b. Obtain target description, locating data, and self-defence weapon systems information.
- c. Obtain the COP or PICTURE/LOWDOWN to include friendly and enemy surface contacts and CSG/ESG operational areas.

14203 Air Superiority

Theater-wide air superiority or supremacy is not required to conduct maritime air operations; however, local air superiority is a key enabler. Multi-role aircraft with the capability to conduct self-escort into the target area by carrying both air-to-air and air-to-surface weapons may be necessary in the absence of local air superiority. Range limitations, aircraft loading, or tactics may degrade the effectiveness of aircraft in completing their mission.

14204 Suppression of Enemy Air Defences

The suppression of enemy air defences (SEAD) level of effort is determined by the threat level and the acceptable level of risk. It may be necessary to destroy or disrupt all or parts of an enemy's integrated air defence system prior to or during the execution of STW missions with air assets.

14205 Effective Communications

Communication nets between ship-based or airborne C2 and STW air assets must be clearly established with dedicated frequencies considered in the development of the communications plan. Ideally, a frequency will be associated with each mission to enable asset coordination.

14206 Weather

Weather conditions may complicate the mission. Poor weather conditions affect target search/ID targeting, and post mission assessment.

14207 Aircraft Capabilities

SW missions must be able to effectively locate, positively identify, and engage target vessels in all environmental conditions. In almost all cases, target engagement will be against moving targets and standoff capability (detection, identification, and targeting) is essential against a defended target. Often, aircraft must be able to conduct STW missions at significant distances where fuel limits time on station. Typically, one type aircraft cannot conduct all of these mission requirements simultaneously. Clear, concise communication capability—both voice and tactical data link—is essential to mission success.

14208–14209 Spare

CHAPTER 15 Amphibious Operations

SECTION I—INTRODUCTION

15100 General

1. This chapter contains a summary of NATO doctrine for amphibious operations. The detailed information on this subject can be found in ATP-08, Vol I, Doctrine for Amphibious Operations, and ATP-08, Vol II, Tactics Techniques, and Procedures for Amphibious Operations.

2. An amphibious operation is a military operation launched from the sea by an amphibious force to conduct LF operations in the littorals. The littorals include those land areas (and their adjacent sea and associated air space) that are predominantly susceptible to engagement and influence from the sea. In amphibious operations an amphibious force manoeuvres into a position a position of advantage in the littoral in respect to the enemy, from which force can be threatened or applied ashore. Such littoral manoeuvre will be directed towards a decisive point or a critical vulnerability that impacts a centre of gravity (COG). The term amphibious operation has often stirred visions of wave upon wave of amphibious assault vehicles and landing craft approaching a well-defended beach in straight lines, such as those well-known amphibious assaults that were necessary in World War II. While those amphibious assaults are a matter of historical record, they are not the only, or even the most likely form of amphibious operations. Current amphibious forces are more operationally manoeuvrable having the ability to project forces from OTH, in some instances, proceeding directly to objectives by both air and surface means.

Amphibious operations require the unique ability to operate across the littorals. Amphibious operations require a well-planned and integrated C2 framework to achieve unity of effort, increase speed of action, and maximise the application of sea control and power projection capabilities.

3. Some waterborne operations such as riverine, river crossings, ferrying, shore-to-shore movement, administrative debarkation, logistics over-the-shore, and water terminal operations may possess certain characteristics and employ some of the techniques of an amphibious operation; however, the focus of this chapter is the doctrine concerned with projecting and supporting the landing forces' scheme of manoeuvre ashore. As such, these other waterborne operations are not addressed in this chapter.

15101 Spare

15102 Utility of Amphibious Operations

An amphibious force (AF) provides a unique capability; as an integrated part of a maritime capability—within a joint force, if applicable they have utility in all phases of a campaign, from benign presence to the conduct of forced-entry combat operations. Whilst AF provide a wide range of options at the tactical level, they also have distinct roles at the operational level. They can sail early in a developing crisis situation and with the use of complementary information operations demonstrate a nation's or Alliance's will and capability. AFs can, in common with all naval forces, transit international waters without infringement of territorial boundaries, they can be kept ready off-shore ("poised") almost indefinitely, offering presence without occupation and deterrence without commitment of forces ashore. An uncommitted AF is a factor in the estimate of an adversary theatre commander, and requires him to retain coastal defence forces and a counter-balancing reserve as a contingency against the threat of an amphibious landing. The (poised) LF can land on virtually any coast, at practically any time and place, entirely independent of infrastructure ashore. Once the LF is ashore, it can be sustained for protracted operations by its integral logistic organization and amphibious force ships. Once the decision to execute an amphibious operation is taken, the amphibious force conducts operations at the tactical level; but when the landing force is re-embarked, it can again play a role at the operational level, a sequence that can be successively employed during the conduct of a campaign.

15103 Types of Amphibious Operations

There are five types of amphibious operations: demonstration, raid, assault, withdrawal, and amphibious force support to crisis response and other operations.

1. Demonstration. Amphibious demonstration is a type of amphibious operation conducted for the purpose of deceiving the enemy by a show of force, with the expectation of deluding the enemy into an unfavourable course of action (COA).

2. Raid. An amphibious raid is a type of amphibious operation involving swift incursion into or temporary occupation of an objective followed by a planned withdrawal. Amphibious raids might be conducted to accomplish one or more of the following:

- a. Inflict loss or damage.
- b. Obtain information.
- c. Create a diversion.
- d. Capture or evacuate individuals and/or equipment.

3. Assault. Amphibious assault is the principal type of amphibious operation that involves establishing a force on a hostile or potentially hostile shore. Only amphibious assault involves the permanence of establishing a LF ashore. The special measures required for a rapid build-up of combat power ashore, from an initial zero capability, creates organizational and technical differences between amphibious operations and land warfare.

4. Withdrawal. Amphibious withdrawal is: a type of amphibious operation involving the extraction of forces by sea in naval ships or craft from a hostile or potentially hostile shore.

5. Amphibious Force Support to Crisis Response and Other Operations. The capabilities of amphibious forces may be especially suited to conduct military operations other than war (MOOTW) such as NEOs and HA. NEOs may use amphibious raid techniques and require relatively minor adjustments to planning. HA and disaster relief may require more flexibility during planning and execution based on the assistance and/or relief required.

15104 Characteristics of Amphibious Operation

1. Integration of Naval and Landing Forces. An amphibious operation requires extensive air, maritime, land, space, and SOFs participation. It is typified by close integration of forces trained, organized, and equipped for different combat functions.

2. Unity of Effort and Operational Coherence. The complexity of amphibious operations and the vulnerability of forces engaged in amphibious operations require an exceptional degree of unity of effort and operational coherence. Regardless of the command relationship between CATF and CLF, all commanders require shared intelligence, a shared understanding of the operational environment, a COP, understanding of the JFC's intent, and open communications between the staffs. The effects of modern weapons and sensors and their extended ranges both seaward and landward, further highlights the need for closely integrated application of capabilities throughout the operational area. The JFC or joint force maritime component commander (JFMCC) should integrate all of the naval assets such as strike, ASW, and ASUW while at the same time coordinating the joint capabilities required for an amphibious operation.

3. Task Organized Based on Mission. Amphibious forces may deploy with similar task organizations as mentioned above and can be quickly reinforced or augmented with other assets. No standard organization is applicable to all situations that may be encountered in an amphibious operation. The C2 capabilities of the amphibious force and LF facilitate the accomplishment of multiple and diverse missions and the integration of naval and joint forces.

4. Gaining/Maintaining Access. An amphibious operation requires the amphibious force to gain and maintain access for entry into the operational area. This access is critical to the success of an amphibious operation. Access may be granted by a nation as a result of previous military engagements or diplomatic agreements or actions and in other cases, it may have to be gained by shaping the operational area through supporting operations. For the latter circumstance, the JFC in conjunction with the JFMCC, and other component commanders employ their forces to establish the level of maritime and air superiority necessary for the amphibious operation to occur. The JFC and JFMCC may establish and employ a support force, which is a temporary organization comprised of initial and crisis response forces and SOFs, which assist in preparing the AOA or AOO for amphibious operations by conducting operations such as surveillance and reconnaissance, beach studies, military deception, seizure of supporting positions, naval mine countermeasures (NMCM), preliminary bombardment, underwater demolitions, and air interdiction. Integration of other naval components and SOF will enable complementary supporting operations. An amphibious force, in conjunction with other joint assets, must have the capacity to continuously support forces ashore during all phases of an amphibious operation.

SECTION II—EMPLOYMENT CONSIDERATIONS

15201 Sequence and Phasing of Amphibious Operations

Amphibious operations consist of distinct phases, though the sequence may vary, and phases tend to overlap.

1. Planning. The planning phase denotes the period extending from the issue of the amphibious initiating directive to embarkation. The conduct of an amphibious estimate by the staffs of CATF and CLF will generate a number of basic decisions on which early schemes of manoeuvre will be based. Although the planning phase exists in its own right, planning activity will be ongoing throughout the operation. The plan itself will be changed to reflect the changing situation during the movement phase, which will require continuous estimation on the part of both staffs.

2. Embarkation. The embarkation phase is the period during which the forces, with their equipment and supplies, embark in assigned shipping. The order in which personnel, vehicles and equipment are embarked in ships will reflect the intended scheme of manoeuvre developed during the planning phase. As the plan evolves it may be necessary to adjust the way in which the force is configured and therefore, have to reconfigure during re-embarkation or conduct a deliberate offload/reconfiguration when compositing forward deployed forces.

3. Rehearsal. The rehearsal phase is the period during which the prospective operation is rehearsed for the purpose of: (1) testing the adequacy of plans, the timing of detailed operations, and the combat readiness of participating forces; (2) ensuring that all echelons are familiar with plans; and (3) testing communications. Rehearsals also provide an opportunity to reconfigure embarked forces and equipment. Rehearsals may consist of actual landings or be conducted as command post exercises.

4. Movement to the AOA. The movement phase is the period during which the components of the AF move from the points of embarkation or a position of forward deployment to the AOA, possibly via rendezvous (RV), rehearsal and staging areas. This phase is deemed complete when all elements of the LF arrive in their positions within the AOA.

5. Shaping Operations. Shaping operations encompass activities that occur during nearly every phase of an amphibious operation to prepare the battle space for an amphibious operation. This phase tends to take place primarily during the movement phase and early portion of the action phase. The principal types of shaping operations are as follows.

- a. Supporting operations inside and/or outside the AOA/AOO.
- b. Amphibious advance force operations that take place prior to arrival of the amphibious force in the AOA/AOO.
- c. Pre-landing operations that take place after arrival of the amphibious force in the AOA/AOO.

6. Action. The action phase is the period that begins with the arrival of the AF in the AOA, encompasses the accomplishment of the mission, and ends with the termination of the amphibious operation.

7. Termination. The termination of the amphibious operation is predicated on the accomplishment of its mission or a change in the situation that renders that mission no longer achievable. When CATF and CLF are satisfied that the conditions for the accomplishment of the mission have been met, they will propose termination of the operation to the commander that initiated it.

- a. Examples of these conditions include, but are not limited to:
 - (1) Objectives are achieved.

- (2) Sufficient tactical and supporting forces have been established ashore to ensure the continuous landing of troops and material requisite for subsequent operations.
 - (3) Command, communications, and supporting arms coordination facilities have been established ashore.
 - (4) CLF has stated that he is ready to assume full responsibility for subsequent operations.
- b. Options at termination at a minimum include:
- (1) LF re-embarks and amphibious force reconstitutes for further amphibious operations.
 - (2) LF remains ashore and becomes the land component commander (LCC).
 - (3) LF remains ashore and transfer of authority (TOA) to ashore LCC.
 - (4) LF remains ashore and maintains relationship with the maritime component commander (who retains land space); while LCC operates as an adjacent force; moving up the coast with the LCC inland, and LF paralleling the coast and sustained from the sea.
 - (5) A combination of the above.
- c. Upon termination, the AOA will be disestablished. Within the parameters of the joint campaign, responsibility for control of the area previously covered by the AOA may be transferred to the JFC or another component commander, as appropriate.
- d. The common superior will provide instructions for command arrangements and organization after the termination of the amphibious operation. An aspect to consider is the requirement for amphibious ships to remain in the littoral waters of the former AOA to support LF's resupply or the sustainment of other forces from the joint force operating ashore (i.e., elements from the LCC), casualty regulating/evacuation operations, helicopter/tilt-rotor support operations and other supporting operations. If the LF remains ashore, its integrity needs to be preserved and it must not be regrouped or reassigned without the concurrence of the commander holding OPCOM. The phasing outlined above is the ideal sequence; it can be characterised by the acronym PERMSAT (planning, embarkation, rehearsal, movement, shaping, action, and termination). However, an amphibious force may deploy before a mission is defined. This is especially true of forces deployed for forward presence. In this case, the sequence of phases may occur in a different order (typically): embarkation, movement, planning, rehearsal, shaping, action, and termination.

15202–15210 Spare

SECTION III—COMMAND RELATIONSHIPS

15301 Organization

1. Amphibious Task Force (ATF). An amphibious task force is a task organization of naval forces and a landing force, with their organic aviation and other supporting forces, formed for the purpose of conducting an amphibious operation. Amphibious forces are task-organized based on the mission. No standard organization is applicable to all situations that may be encountered and thus the ATF consists of different types of forces and a variety of types of ships. It may also have fixed-wing and helicopter aircraft as well as landing craft.

2. Naval Forces. Naval assets are organized to employ offensive and defensive capabilities. Command relationships between these groups will be established in the initiating directive.

Possible naval forces that are part of the AF or support the AF may include:

a. Transport Group(s). A formed body of ships that provides for the embarkation, movement to the objective, landing and logistics support of the landing force. There may be one or more transport groups depending on the scale and nature of the operation. They comprise both amphibious and civilian shipping in which the LF may be embarked, including ships that host and operate landing means (aviation and landing craft) be employed in the ship-to-shore movement. Surface landing means may be organic or attached to the transport groups. Transport groups are formed to support the landing of the assault echelon (AE) and assault follow-on echelon (AFOE) in the main landing, and may be organized to support subsidiary landings. The number and type of ships in a transport group will vary according to its role and functions within the amphibious operation.

b. Screening Group(s). Screening groups typically consist of naval combatants assigned for the defence of the AF en route to the AOA and during operations in the AOA. Within the screening group, elements are task organized to provide specific functions; e.g., air and missile defence, surface warfare or antisubmarine warfare.

c. Fire Support Group(s). A fire support group typically consists of naval combatants assigned to support LF operations ashore by naval gunfire support (NGS) and guided missile support.

d. Naval Mine Warfare and/or Naval Mine Countermeasures Group(s). A NMW or NMCM group typically consists of naval units that conduct surface mine laying and/or NMCM and obstacle clearance operations, possibly as a part of the amphibious advance force.

e. Amphibious Advance Force Group(s). An amphibious advance force group typically consists of specialised forces/units that precede the main body to the AOA in order to conduct tasks in preparation for the action phase. These tasks may include, but are not limited to:

- (1) Intelligence, surveillance, target acquisition and reconnaissance (ISTAR).
- (2) Naval mine countermeasures/obstacle clearance operations.
- (3) Hydrographic operations.
- (4) Terminal guidance in support of assault waves (landing plan).

An advance force group may consist of elements from other groups within the amphibious force elements from the LF, for example a reconnaissance unit from the ground combat element, may also be included.

f. Control Group(s). A control group typically consists of personnel, ships, and craft designated by CATF to control movement ashore, fire support, and airspace management.

g. Carrier Strike Group(s). Carrier strike groups listed in the initiating directive or establishing directive assigned to or in support of the amphibious force provide air, surface, and subsurface protection and strike warfare. They establish local maritime and air superiority required to conduct the amphibious operation.

h. Riverine Forces. The riverine environment is an inland, coastal, or delta area comprising both land and water, characterized by limited land lines of communications (LOC). The area is likely to have extensive water surface and/or inland waterways (including lakes) that provide natural routes for transportation and communications and therefore major direct avenues of approach for inland objectives. It is three-dimensional, with surface, sub-surface, and air environments. Waterways serve as primary LOC and frequently constitute key terrain; to control this key terrain, forces operating in a riverine environment must be able to control all three environments (Review ATP 08, Volume II for further details).

(1) Riverine forces fall into three main categories; expeditionary (in support of naval or land operations), internal defence and in some nations, special operations. These categories are not in any way exclusive and riverine forces are often used outside of their pure element. In this publication we will only address the expeditionary category in support of amphibious operations. Some riverine forces have evolved to be able to accomplish more than the expected riverine offensive and defensive operations. They have been successfully adapted to undertake other missions in the broad maritime security operations (MSO) field such as security cooperation operations, maritime interdiction, force protection as well as humanitarian assistance/disaster relief (HADR) operations. In the end it is vital for the establishment of a local military superiority in areas of naval operations. The green and blue-water environment will most likely be directly commanded by the JFMCC. Likewise, as power is projected inland, command and control could be shifted after termination to the joint force land component commander (JFLCC) or in either case, the riverine forces will be assigned in command or supporting relationship to the appropriate battlespace commander.

3. Landing Force. The LF is the task organization of ground and aviation units assigned to an amphibious operation. Its commander is the CLF. The LF may consist of the following elements:

- a. A command element (CE).
- b. A ground combat (“manoeuvre”) element (GCE).
- c. A combat support (CS) element (e.g., landing force support party (LFSP), communication augments (afloat/ashore), intelligence, targeting/fire support, etc.).
- d. A combat service support (CSS)/combat logistics element (e.g., casualties (support/evacuation procedures), air delivery (responsibility and procedures), salvage, mortuary affairs, etc.).
- e. An aviation combat element (ACE).

4. Other Forces. Amphibious operations are often supported by task organizations that are not part of the ATF. These forces serve specific tasks, such as helping to protect the ATF or shaping the battle-space. Supporting naval, air, and SOF are assigned by the JFC or maritime/air/SOF component commander to protect the ATF (and LF, when landed) during the amphibious operation. The request for these forces may be originated by CATF or by the MCC, or even be tasked by the JFC himself. Specific instructions must cover the relationships of these forces with the ATF.

15302 Command and Control Relationships

Amphibious forces deploy with task organizations that can be reinforced or augmented with other assets. No standard organization is applicable to all situations. The C2 capabilities of CATF and CLF facilitate the accomplishment of multiple and diverse missions, and the integration with joint and multinational forces.

1. Designation of Commands. CATF and CLF are designated by the initiating directive. CATF is the Navy officer designated in the initiating directive as commander of an amphibious task force. CLF is the officer designated in the initiating directive to command the landing force. Irrespective of the size of the forces assigned, the CATF and CLF command the navy and landing force echelons for an amphibious operation. Commanders of subordinate task groups within the amphibious force, if they have not been named in the initiating directive, are designated by CATF or CLF, as appropriate.

2. Parallel Chains of Command. In amphibious operations the overall C2 relationships developed by the JFC or MCC needs to be flexible to account for the differing amphibious C2 structures used within NATO countries. The C2 relationships and organization described within this section may require modification to allow the amphibious force to accomplish its assigned mission. The organization and capabilities, C2 capabilities, battlespace assigned, and recommendations of subordinate commanders having close and continuous coordination during planning. The overall intent is not to limit the JFC's or MCC's ability to organize the force or to establish necessary C2 relationships (i.e., TACOM, TACON, or support), rather, to clearly describe how the various forces should carry out amphibious C2 whilst highlighting the need for flexibility in the development of C2 relationships between the CATF, CLF and other commanders.

The variety of amphibious C2 constructs utilised within NATO countries for the CATF and CLF include, but are not limited to: the CATF with overall authority, a support relationship between CATF and CLF, and an integrated CATF staff.

a. CATF with Overall Authority:

(1) In this C2 construct, the CATF provides for unity of command and is responsible for the operation and, except during the planning phase, is vested with commensurate authority over assigned forces to ensure the success of the operation. CATF, upon the commencement of the operation (usually on embarkation of the LF aboard AF ships, unless otherwise indicated in the initiating directive), assumes responsibility for the entire force and for the operation.

(2) Subject to the overall authority of CATF, responsibility for the conduct of operations ashore and for the security of all personnel and installations located within the AOO or AOA ashore, is vested in CLF. Regardless of rank, a forward-deployed afloat CLF will retain an equal status with the CATF for planning the amphibious operation. Operational control or TACON of the LF is vested in CATF as would be specified in the initiating directive for this construct.

(3) The CATF may delegate command authority to subordinate levels. CATF and CLF can, for example, agree during the planning phase to delegate command authority over elements of the LF to subordinate commanders (e.g., to the commander of an amphibious advance force that contains part of the LF). In these cases, CATF exercises his command authority through the commander of each subordinate command. Whenever CATF issues to such subordinate commanders an order affecting an LF element, CLF is informed and consulted prior to issuance of the order. When command authority over LF elements has been delegated below CATF's level, the relationships between such a commander and his related CLF element are in principle the same as those between CATF and CLF. The direct chain of command of each major group commander of the AF is re-established when the subordinate command is dissolved or when subelements of it are released

back to their normal (parent) command. If other components participate in amphibious advance force or attack group operations, the organization and principles expressed in would equally apply at the advance-force/attack-group level. A subordinate commander may be delegated when:

- (a) Simultaneous or near simultaneous actions are conducted in areas so widely separated as to preclude effective C2 by a single tactical commander.
 - (b) Separate operations are conducted by a detached faction of the amphibious force, such as the operations of an amphibious advance force with a corresponding LF.
- (4) The CATF with overall authority and responsibility for the amphibious operation is used by many NATO countries. Others, however, may establish a support or other relationship for the CATF and CLF as described in the next sections.

b. CATF and CLF Support Relationship:

(1) In this construct, a support relationship is established between the CATF and the CLF and is based on the complementary rather than similar nature and capabilities of the AF and LF. A support relationship is appropriate when one organization should aid, protect, complement, or sustain another force.

(2) In addition to an initiating directive, an establishing directive is normally issued to specify the purpose of the support relationship, the effect desired, and the scope of the action to be taken. The establishing directive is typically developed after the initiating directive. Normally, the CATF and CLF will develop a draft establishing directive during the planning phase to provide the specifics of the support relationship. The commanders within the amphibious force submit the draft establishing directive to the establishing authority for approval. The CATF and CLF will identify the events and conditions for any shifts of the support relationship throughout the operation, ideally during the planning phase, and forward them to the establishing authority for approval. It may also include, but is not necessarily limited to, the following:

- (a) Forces and other resources allocated to the supporting effort.
 - (b) Time, place, level, and duration of the supporting effort.
 - (c) Relative priority of the supporting effort. If there are many supporting efforts, this may, for example, include a prioritisation of those supporting efforts.
 - (d) Authority, if any, of the supporting commander(s) to modify the supporting effort in the event of an exceptional opportunity or an emergency.
 - (e) Degree of authority granted to the supported commander over the supporting effort.
 - (f) Force protection responsibilities afloat and ashore.
- (3) Unless limited by the establishing directive or the initiating directive, the supported commander has the authority to exercise general direction of the supporting effort. General direction includes the designation and prioritisation of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency. A supported commander may be designated for:
- (a) The entire operation.
 - (b) A particular phase or stage of the operation.

- (c) A particular function.
- (d) A combination of phases, stages, events, and functions.

(4) The CATF and CLF will identify the events and conditions for any shifts of the support relationship throughout the operation, ideally during the planning phase, and forward them to the establishing authority for approval. See Figure 15-1 for examples of when the relationship might shift between commanders. Except in cases of emergencies, no significant decision will be made by a commander in a chain of command that affects the plans, disposition, or intentions of a commander in another chain of command without prior consultation. In emergency situations, the commander making the emergency decision will notify corresponding commanders of the action at the earliest practicable time.

Note. *Timing of the transfer of authority will typically be mission/nation specific.*

(5) The supporting commander determines the forces, tactics, methods, procedures, and communication methods to be employed in providing this support. The supporting commander will advise and coordinate with the supported commander on matters concerning the employment and limitations of the support, assist in planning for the integration of the support into the supported commander's effort as a whole, and communicate support requirements throughout the supporting commander's organization. The supporting commander has the responsibility to ascertain the needs of the supported force and take full action to fulfil them within existing capabilities, consistent with priorities and requirements of other assigned tasks. The establishing authority is responsible for resolving issues when notified by either the supported or supporting commander that the supporting commander cannot fulfil the needs of the supported commander.

(6) The United States employs the support C2 structure for its AF and LF, which establishes a support relationship between the CATF and CLF.

Examples of Shifts in the Support Relationship	
Mission	Supported Commander
Assault	CATF, then CLF
Raid with coastal threat	CATF, then CLF, then CATF
Inland raid with no coastal threat	CLF
Demonstration	CATF
Withdrawal	CLF, then CATF
Foreign humanitarian assistance	CATF or CLF
*Actual supported-supporting commanders will be designated by the establishing authority based on the specific mission requirements.	
Legend CATF commander, amphibious task force CLF commander, landing force	

Figure 15-1. Example of Shifts in Support Relationship

c. Integrated CATF Staff:

- (1) The roles of the CATF and CLF are combined into one commander, who is supported by a combined naval and LF staff.
- (2) The AF staff regrouping functions and individuals from the land and naval components, augmented as necessary to form an integrated, cohesive, and collocated headquarters.
- (3) A land component composed of a tactical staff, a manoeuvre element, a field engineer capability, intelligence, surveillance and reconnaissance (ISR) assets, direct and indirect fire support elements, special elements (mission depending), and logistical support to include a role 1 medical capability.
- (4) A naval component comprising amphibious ships (to include complement augmented as necessary), landing craft, divers, logistical support and a role 2 medical capability and naval special operations elements (mission depending).
- (5) In order to rationalize the size of the AF staff while maintaining functionality and all capabilities; depending on the situation (e.g., a single-ship deployer) some of the ship's department staffs might be required to merge within the AF staff construct thus avoiding duplication by utilizing existent capabilities.
- (6) The CLF's staff is occupying primary functions within the AF headquarters, based on a judicious repartition of task/capability, and is working side-by-side with members of the naval staff and ship's company. In that respect, a plan must be devised to ensure a proper mix of CLF staff, naval staff and ship's company personnel. This plan is critically important as it helps create staff synergy by judiciously allocating the ship's physical spaces. This plan must also take into account the distribution of communication resources and networks.
- (7) The Netherlands may utilise a combined commander and staff for amphibious operations.

3. Parallel Chains of Command. The interrelation of LF tasks during the planning for and execution of the amphibious operation requires the establishment of parallel chains of command and corresponding commanders of components of the AF at all levels of the AF organization. The following fundamental considerations govern the application of such a system of parallel command.

15303 Operational Areas

1. Amphibious Objective Area.

An AOA is a three-dimensional, geographical area (delineated for C2 purposes in the initiating directive for an amphibious operation) within which is located the objective(s) to be secured by the amphibious force. This area must be of sufficient size to ensure accomplishment of the amphibious force's mission and must provide sufficient area for conducting necessary sea, air, and land operations—but not be so large as to be beyond the CATF's control capability or ability to defend. If the initiating directive does not designate either the AOA or the amphibious force's objectives, the CATF and CLF will determine the necessary amphibious force objective(s) and request the associated AOA to accomplish the assigned mission. Some of the factors that determine the size of the AOA are listed in Figure 15-2.

2. Position and Relationship of the AOA with Other AOOs.

The AOA is a control measure designed to maximise the safety of the amphibious force while allowing it to complete its mission with as little restraint as possible. CATF and CLF must have the situational awareness necessary to prevent fratricide and ensure effective engagement of the enemy within the AOA. This continues until the termination of the amphibious operation and disestablishment of the AOA.

- a. The responsibility for coordinating establishment of the AOA rests with the operational-level commander who issued the initiating directive. Prior to issuing the initiating directive for the amphibious operation, including provisions for establishment of the AOA, he will consult affected/concerned commands/regional commands to ensure coordinated effort of Allied forces in the objective area.
- b. An alternative to establishing an AOA is the establishment of an AOO with a high-density airspace control zone (HIDACZ). See AJP-3.3.5 for further details.

1. Location of amphibious force objectives.
2. Location and size of landing beaches and landing zones.
3. Topography and hydrography.
4. Friendly force weapon/sensor ranges and capabilities.
5. C2 capabilities of the amphibious force.
6. Composition, size, and disposition of amphibious force and anticipated follow-on forces, including coalition and joint forces.
7. Enemy weapons/sensor ranges and capabilities.
8. Enemy force disposition.
9. Sea echelon area.

Figure 15-2. Factors that Determine the Size of the AOA/AOO with HIDACZ

15304 Command Relationships During Planning

1. Regardless of the command relationship construct used, when the initiating directive is received, unique relationships are observed during the planning phase. The CATF, CLF, and other commanders of the amphibious force are coequal in planning matters regardless of rank. Planning decisions should be reached on a basis of common understanding of the mission, objectives, and tactics, techniques, and procedures (TTP) and on a free exchange of information. Any differences between commanders that cannot be resolved are referred to the next higher command level applicable in the operation for decision.
2. CATF, in close coordination with the CLF, is responsible for the preparation of the overall ship-to-shore movement and landing plan designed to support the LF scheme of manoeuvre.
3. Since immediate responsibility for the conduct of LF operations ashore is vested in CLF, the planning and execution of the landing are of his utmost concern. AF participation consists generally in providing support for the LF. This involves the analysis of LF proposals to determine their feasibility from the standpoint of the remainder of the AF. The capability of providing necessary support is a primary factor in evaluating and concurring in proposed LF plans and concepts. To guide LF operations ashore during the action phase, the CLF and staff develop the LF plan for operations and the scheme of manoeuvre ashore. During the initial preparation of the operation plan (OPLAN), based on the CLF's guidance and intent, the LF staff develops the LF concept of operations (CONOPS) ashore which consists of the fires support plan, employment of the LF aviation, the engineer breaching plan, and the concept of logistics support. This is the essential framework on which the OPLAN development is designed to support.
4. CLF commands are the landing force support party. CATF directs naval beach group (NBG) elements to form the beach party and to report to CLF for planning. Navy beach party commanders, as subordinates of the LFSP, retain command of navy units ashore.

15305 Advance Force and Pre-Landing Operations

The joint force commander/joint force will shape the battlespace prior to the arrival of the ATF, however, these shaping operations are not advance force operations. The difference is that the advance force is a temporary organization **within the amphibious task force**, which precedes the main body to the AOA. Its function is to participate in preparing the objective for the main assault by conducting such operations as:

1. MCM operations with emphasis on clearing routes, obstacles, and mines in the transport areas, fire support areas, and sea approaches to the landing beaches.

2. Hydrographic reconnaissance of the landing beaches and seaward approaches.
3. Reconnaissance and surveillance of ATF objectives, landing beaches, landing zones, DZs, and high speed avenues of approach into the objective.
4. Neutralization or destruction of adversary high value assets.

CATF designates the advanced force commander and CLF designates either an advanced force landing commander or reconnaissance commander, depending on the mission.

Pre-landing operations comprise those operations conducted **by the ATF** upon its arrival in the AOA and **immediately prior to the commencement of the landing**. As with the advance force operations, it is conducted by forces organic to the ATF.

15306–15309 Spare

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PART VI OTHER

Chapter 16—Maritime Logistics and
Replenishment at Sea

Chapter 17—Chemical, Biological,
Radiological, and Nuclear
(CBRN) (name change
from NBC)

Chapter 18—Force Protection

Chapter 19—Unmanned Systems

Chapter 20—Maritime Information Warfare

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CHAPTER 16 Maritime Logistics and Replenishment at Sea

SECTION I—LOGISTICS

16000 General

At the tactical level, the purpose of logistic support is to ensure the provision, sustainment and recovery of a combat unit, thus enabling the maintenance of combat capability and allowing the commander to deliver effect at the time and place of their choosing. It is through maximization of sustained combat effectiveness that logistics provides the foundation of combat power. Logistic support includes medical and repair capabilities, movement of personnel, and the transport of the fuel, lubricants, ordnance, spare parts, food and other provisions and the many stores required for missions. The art of logistics is how to integrate the strategic, operational and tactical sustainment efforts within the JOA. The NATO logistics support concept has been established in response to changing national force structures and the NATO evolving enhanced mission spectrum. These concepts must be aligned and consistent with the principles defined within AJP-04, Allied Joint Doctrine for Logistics.

16001 Principals

In order for the commander to execute their responsibilities efficiently, the logistic principles detailed in AJP-04 must be observed. These are:

a. Foresight. Logistic foresight is the ability to predict and manage critical logistics constraints to the commander's freedom of action. Logistic planning should analyse the probable course of future operations and forecast the likely requirement for personnel, materiel, equipment and services. It should also address how the required resources are to be provided and moved into, around and returned from the JOA. Gaining effective logistic foresight, particularly when information is limited, will require a clear understanding of the commander's intent, access to N2 and N3 information and close liaison with N3 and N5 staffs. It must also be understood that tactical logistics activities will often have a direct impact on operational or even strategic level activities and logisticians should ensure that future plans are fully integrated with operational plans.

b. Economy. Logistic assets are often expensive and in short supply. Accordingly, mechanisms must be in place to ensure that they are used in the most effective and efficient manner possible, keeping in mind operational imperatives. This includes the consideration of in-theatre stocks, the expected operational tempo, lines of communication, and expected re-supply lead times. Mutual support structures and mechanisms, such as multinational logistic organizations and host-nation support (HNS), should be in place to achieve economies of scale, increase reserve capacity/capability and improve the overall quality of support. The goal is to achieve these advantages while simultaneously minimizing procurement and operational costs. As such, every effort should be made to deploy at maximum sustainability levels across all classes of supply and draw on national or Allied support enablers (i.e., port agency contracts, afloat support assets etc.) en-route to or in the AOO. This can include basic foodstuffs, fuel, water and other items if available and of sufficient quality, along with contracting equipment from local suppliers within the host nation. This will ease the strain and demands on the long-distance military logistical tail, enabling better support in providing vital munitions, key military equipment, spares and personnel.

c. Cooperation. Joint and multinational operations require a cooperative approach to logistics from planning to execution. Tactical logistics planning should consider what joint enablers are available to assist in maintaining sustainability whilst being careful not to overlook that cooperation flows in two directions and there may be requirements to contribute resources to other units as well as receiving vital support from other components. Close liaison with the group logistic coordinator (GLC) will ensure that opportunities to access joint logistics enablers are maximised. It is also vital that logisticians understand and accurately utilise the established C2 and rapid response (R2) requirements set in the OPTASKLOG GLC.

d. Flexibility. Tactical plans must be established with the knowledge that unexpected events will dictate changes to the plan and concept of execution. As a result, flexibility is important particularly when developing logistic plans, which must respond quickly and efficiently to even minor changes in the operational scenario. Additionally, no single support concept will suit all situations; concepts must allow for unexpected or unusual scenarios. For instance, despite the advantages often provided through multinational logistics, it is possible that the most appropriate support concept for a particular operation may be through national support structures. The logistic concept must be flexible enough to allow for this. Thus, formal structures and plans must be developed generically, with sufficient flexibility built-in to allow tailoring to match the changing requirements of different JOAs or missions. To ensure this works on operations, logistical structures should be fully implemented and tested both in advance and at every exercise opportunity.

e. Simplicity. In order to ensure that logistic arrangements are as robust and as readily understood as possible, they should be simple. Simple reporting mechanisms will ensure the accurate and efficient dissemination of information to all those who require it. Different forms and paths for logistical requests and convoluted plans for storing and shipping must be avoided. Success will come from early detailed planning, simplicity, careful control, constant monitoring and transparency in the logistics chain enabled through close liaison with all stakeholders.

16002 Logistic Planning

1. Logistic planning, conducted in the early stages of operational planning, enables coherent and co-ordinated planning activity to be driven from an early stage. It constitutes a functional assessment of the logistic capabilities of the contributing nations. The logistics plan gives the commander the opportunity to modify his operational plan based on the supportability of his courses of action. Thus, the logistic considerations are an integral part of the planning process. Items to be considered when determining a logistic plan include mission and likely tasks, concept of operations, national requirements, and compatibility and interoperability of systems.

2. The overall aim of logistic support planning for operations and exercises is to:

- a. Define the logistics support concept.
- b. Determine the organization and structure required to support the operation or exercise afloat and ashore.
- c. Identify the requirements (including sustainability levels), short falls and necessary arrangements to deploy, support and sustain NATO maritime operations.
- d. Determine the availability of Allied or coalition military logistics enablers (i.e., strategic or tactical air and afloat support assets).

- e. Determine the availability of and requirements for HNS, contractor support, or port agency services.
- f. Identify the requirements and arrangements for redeployment, to include the preparation for recovery of additional force elements, including personnel and equipment from the area of operations to the home base.

16003 Afloat Support

1. Maritime force elements routinely access three levels of support in order to achieve the sustainability needed to meet operational requirements:

- a. Organic.** Organic support is that logistic support contained within warships and afloat support shipping.
- b. Host-Nation Support.** Where appropriate, the Maritime Component will utilise HNS for requirements such as port services, shore based accommodations, transportation, food and water.
- c. Re-supply.** Re-supply is the support required in order to replace the expenditure of the classes of supply not held organically or available through HNS. Due to the limited availability of air and sealift assets, this type of logistic support is the most challenging. In order to meet Joint force integration and prioritisation requirements, maritime force logisticians will need to closely liaise with the GLC to enable adequate support arrangements.

2. A further advantage of afloat support is the availability of RAS. This means of transferring a wide variety of items (including equipment, personnel, fuel, water, ammunition and general stores) whilst units are underway either by rafting, line, aircraft or small boat. This provides greater flexibility for units that are underway and engaged in operations outside the range of shore based services. Whilst this requires detailed planning and careful management, it does allow both flexible afloat support and increased use of Joint Sea Basing. Unlike dedicated naval auxiliary shipping, many merchant vessels used by navies in times of crisis may lack the ability to transfer liquids or other items by line transfer. However they can still be used to conduct RAS using helicopters and boats to transfer a variety of general stores.

16004 Maritime Logistic Nodes

1. The principle nodes of the maritime logistics operational pipeline are the advance logistic support site (ALSS) and forward logistic site(s) (FLS). A brief description of these nodes is provided below and their actual use in theatre will be determined through the strategic and operational logistics planning conducted by the force or group logistic coordinators. If an ALSS or FLS is to be established within the AOO, details of their capabilities and C2 arrangements for their operation will be included in the OPTASKLOG FLC/GLC accordingly:

- a. ALSS.** An ALSS is an expeditionary logistic support organization that is task organized to facilitate the delivery of shore-based logistic support to forces, primarily afloat but also ashore. It is the primary maritime entry and departure point for passengers, mail and cargo (PMC) moving within an operating area. The ALSS is normally established at or near a secure airfield or seaport not in close proximity to the operating forces. The ALSS acts as the hub of a 'hub and spoke' distribution network that includes FLSs as spokes. An ALSS should also possess the requisite medical capability to accept battle casualties and to hold such casualties until they can be returned to duty or evacuated by national medical evacuation systems. Besides maritime forces afloat, the ALSS is also capable of supporting special warfare units, shore-based aviation units, medical facilities, MCM units and other shore based maritime organizations. ALSS staffing and equipment is made up from a combination of member military forces, HNS and contracted support. The ALSS normally moves critical PMC to and from its FLSs, using intra-theatre airlift or ground transport. PMC may also be delivered direct to the multinational maritime force (MNMF) where feasible.

b. FLS. A FLS is the forward-most shore-based transshipment point that provides the bridge between an ALSS and forward-deployed maritime units. An FLS is typically established at an airfield or seaport that is close to the main area of operations. Like the ALSS, the FLS is task organized and staffed with functional capabilities derived from member nation military and host nation sources. The FLS organization must remain flexible and agile as it may be called upon to relocate as the operation area and supported forces afloat change location. While the range of support offered by an FLS is normally less than that offered by an ALSS, its capabilities can range from very austere to near those of an ALSS, including a supporting seaport.

2. Full details on concept of operation organization responsibilities activation and operation of ALSS and FLS are contained within ALP-4.1.

16005 Forward Maintenance and Repair

Damage can occur to vessels operating within a MNMF as a result of a variety of circumstances, not just as a consequence of battle damage from engaging an enemy. Normal wear and tear, non-battle damage such as from collision, catastrophic failure of machinery, etc., may require emergent repair. Whilst initial diagnosis and repair activities will draw on organic and national resources, access to wider military engineering resources or HNS support arrangements within the AOO might be available through liaison with the GLC or Group Repair Co-ordinator (RC). Ideally, the RC should have at his disposal in-theatre Forward Maintenance and Repair (FMR) or Battle Damage Repair (BDR) facilities which can provide limited first and second level repair to damaged MNMF units as defined in ALP-4.1. The availability of FMR/BDR services and detailed instructions regarding the reporting of damage or defects will be included in the OPTASKLOG GLC.

16006 Logistic Reporting

The information contained in logistic reports can be critical to the success or failure of an operation. The reports must provide sufficient detail to enable commanders at all levels to appraise their logistic capability in peacetime operations, and assess force sustainability in Non Article 5 Crisis Response Operations (NA5CRO) as well as in combat operations. Logistic reports may take the form of status reports, statement of requirements or instructions or they may provide input to assessment reports made by higher authorities. Whatever form they take, it is absolutely critical that logistics reports are accurate, meaningful and timely. It must be borne in mind that reports at the tactical level do not necessarily reflect the same information needed at the operational or strategic level. Detailed guidance on the content and structure at all levels of the hierarchy of logistic reporting is contained in Chapter 4 of ALP-4.1 and operation specific detail on reporting requirements will be promulgated in the OPTASKLOG GLC. It is through this process, which starts with tactical-unit level that ultimately provides the commander with an accurate picture of sustainability and associated logistics requirements for the current operation.

16007–16009 Spare

SECTION II—REPLENISHMENT AT SEA

16200 Objectives

- a. To allow maritime forces at sea to remain in the operating area as long as possible, the technique of RAS is the primary means of sustaining afloat units while deployed. It is accomplished by means of rigs between ships or transfer by helicopter. These operations are used for fuel, food, personnel, mail, spare parts, and ammunition.
- b. Replenishment operations must be accomplished within the existing operational tempo, in order to deliver in due-time all necessary logistic support and minimise operational impact on force organization and activities.
- c. See ATP/MTP-16, Replenishment at Sea, for additional instructions and procedures.

16201 Command

RAS is accomplished under OTC responsibility. Depending on force organization and respective seniority, the OTC should consider the recommendations of subordinate commanders within the task organization. Points to be considered are:

- a. Position and time of rendezvous.
- b. General direction of movement during replenishment.
- c. Course and speed during replenishment.
- d. Civilian shipping and other traffic in the OA.
- e. Danger areas.

16202 Operational Considerations

Replenishment at sea could have a significant impact on current operations tempo and must be considered in the planning process. Flight operations, time-distance factors, and potential threats should be taken into account. Replenishment operations can last for many hours and can put afloat units at risk during restricted manoeuvring. Operational elements include:

- a. Discretion needs: EMCON, lights.
- b. Possible enemy interferences.
- c. Joining of forces.
- d. Alert state.
- e. Weapons status.
- f. Weather considerations.

16203 Communications

- a. Messages used for managing RAS are issued from the MTMS.
 - 1. OPSTAT RASREQ.** For use by combatant ship to signal its requirements, either direct to the supplying ship or to the OTC. In either case, the requirements must be submitted in a timely fashion.
 - 2. OPTASK RAS.** For use by the OTC to promulgate the replenishment programme.
 - 3. OPSTAT RAS.** For use by supplying ships to provide customer ships with details of rigs and types of stores that can be delivered from respective transfer stations.
 - 4. OPSTAT UNIT.** For use by all ships to promulgate details of transfer stations.
 - 5. OPSTAT CARGO.** For use by supplying ships to report cargo remaining to the OTC after an RAS operation and on changing operational control.
- b. Tactical communications are available by UHF, but also, in a more discreet manner, by flags or flashing light signals.
- c. Technical communications during the replenishment could be conducted by sound-powered telephones, megaphones, portable radio, or hand signals with paddles.

16204 Other Ships

- a. Civilian manned fleet auxiliaries from some NATO navies are able to conduct replenishment at sea.
- b. Certain merchant tankers could have replenishment capabilities, mainly by the astern method.
- c. Command relationships are described in ATP-16.

CHAPTER 17 Chemical, Biological, Radiological, and Nuclear Defence

17000 Hazards from Nuclear Bursts

At the outset of warfare, it will be necessary to assume that any attack on a large or important formation may be nuclear, and the possibility of a surprise attack by a nuclear-capable enemy cannot be discounted. The effects of a nuclear burst will vary widely with the type of burst, yield, depth of water, and meteorological situation. Specific geographical information pertaining to the characteristics, effects, plotting, and forecasting of nuclear bursts can be found in ATP-45 (series). The most significant hazards are:

- a. Light flash, thermal radiation, and initial nuclear radiation effects, including transient radiation effects on electronics (TREE).
- b. Electromagnetic pulse (EMP).
- c. Blast and underwater shock.
- d. Residual radiation.

17001 Types of Bursts

a. Exoatmospheric or High-Altitude Bursts. These occur at or above 30 km altitude. They will produce EMP over large areas of the earth's surface and may damage electronic equipment. Magnetohydrodynamic disturbances in the ionosphere may affect long-range communication (HF). Disruption may last up to several hours, pending yield and height of burst.

b. Air Burst. This occurs within the atmosphere where the fireball does not touch the surface. Significant fallout will not occur, but blast and thermal effects will be maximised in the area of weapon effects.

c. Surface Burst. This occurs within the atmosphere where the fireball touches the surface, producing a significant amount of fallout.

d. Underwater Burst. This will produce predominantly shock and base surge. The effects will be modified by depth of burst, seabed reflection, and surface refraction.

17002 Flash and Initial Radiation Effects

Light flash, thermal radiation, and initial gamma radiation are of relatively short duration. Gamma radiation damages all living organisms and some material, but material damage by some other weapon effect, such as blast, is nearly always more significant. Ships must rely on their own protective measures to shield against effects of light flash and thermal radiation and to reduce the effects of gamma radiation. The effects of initial radiation on electronics (i.e., TREE), may be very great, especially on digital systems. Electronics start to be affected at 105 centigrays/sec, and this may well be the only effect that a small nuclear weapon would have on a ship. User checks are the only way of ascertaining whether or not electronic equipment has been affected.

17003 Electromagnetic Pulse

The EMP produced by high/low air bursts has strong magnetic and electronic fields that exist for only a fraction of a second. These fields can induce large, transient currents that may burn out electronic equipment or produce transient signal overloads and spurious signals on communication nets and computer-driven systems. The EMP hazards depend on burst altitude and yield. For low-altitude bursts, damage from other weapon effects will predominate. For high-altitude bursts, computer and communication system upsets, caused by large transient signals injected into antennas and equipment cables, may occur at ranges where no damage is produced by other nuclear effects. Communication disruption as a result of interference with the ionosphere may last several hours.

17004 Blast and Underwater Shock

These hazards will have velocities in excess of the velocities of sound in air and water, allowing little time, if any, for manoeuvring. They are the most damaging to ships and parked aircraft and so determine the action to be taken prior to and immediately after burst. High-velocity surface winds and high-water waves may be encountered beyond the radius of heavy to moderate blast damage, traveling at velocities well below the speed of sound. Since the severity of these hazards decreases rapidly with distance from ground zero and time after detonation, manoeuvres to increase the range from surface zero will greatly reduce damage.

NOT RELEASABLE.

17005 Base Surge

Surface or subsurface bursts will produce a dense radioactive cloud or mist in the vicinity of ground zero and a pool of highly contaminated water at the ground. This radioactive cloud or mist is called base surge. The area of the base surge expansion must be avoided for at least 30 minutes and, if conditions merit, for 90 minutes, even though it will tend to become invisible after about 4 minutes. The size of the base surge will be governed by many factors, such as the depth of burst and weapon yield. The contaminated pool of water at ground zero will be smaller than the area of the base surge but will present a hazard that can last longer. It may preclude re-entering the ground zero area for as long as 3 hours.

17006 Residual Radiation

In surface and some underwater bursts, radioactive material is sucked up into the mushroom cloud; some of this will return to the surface later as local fallout in the sector that is down the effective downwind (EDW) from ground zero. This will cover varying distances up to several hundred miles, depending on wind conditions at various levels, and will broaden as it moves. Manoeuvres to avoid this fallout must therefore be based on the EDW. Should it be necessary to pass through fallout, washdown or prewetting systems, if available, should be activated and passage delayed as long as possible. The longer passage is delayed, the less hazardous fallout will be, because of the relatively short half-life of most fission products. There is little danger in steaming through water where fallout has ceased.

17007 NOT RELEASABLE**17008–17009 Spare**

Table 17-1—NOT RELEASABLE

Figure 17-1—NOT RELEASABLE

17010 Basic Concept of Defence

Evasive manoeuvring is an essential element of nuclear warfare defence. Ships, whether acting independently or in formation, must take such individual and collective action as may be required to avoid, to the maximum practicable degree, the immediate and residual hazards resulting from a nuclear detonation. Basic predictions for defence against fallout are contained in ATP-45 (series). Table 17-2 provides an aide-memoire to the command of a ship for the correct reaction to a nuclear attack. The warning time for such an attack, especially from a submarine, may be under 2 minutes. This would give time to cancel relaxation to the gastight and watertight conditions of the ship, but may not allow a change in the manning or material state to be made. Due consideration must be given to this before ordering a higher degree of readiness.

17011 General Tactical Considerations

In a nuclear war, the most suitable nuclear defence disposition would be one where not more than one ship would suffer sinking or severe damage from a single burst. Maintaining such a disposition may not be tactically feasible considering the many factors involved, such as primary mission, geographic area, weather, forces assigned, and relative importance of other potential threats. The OTC should select a force disposition that effects the best compromise of all factors involved in a particular situation. When the probability of nuclear attack exists there are a number of principles that should be considered.

NOT RELEASABLE.

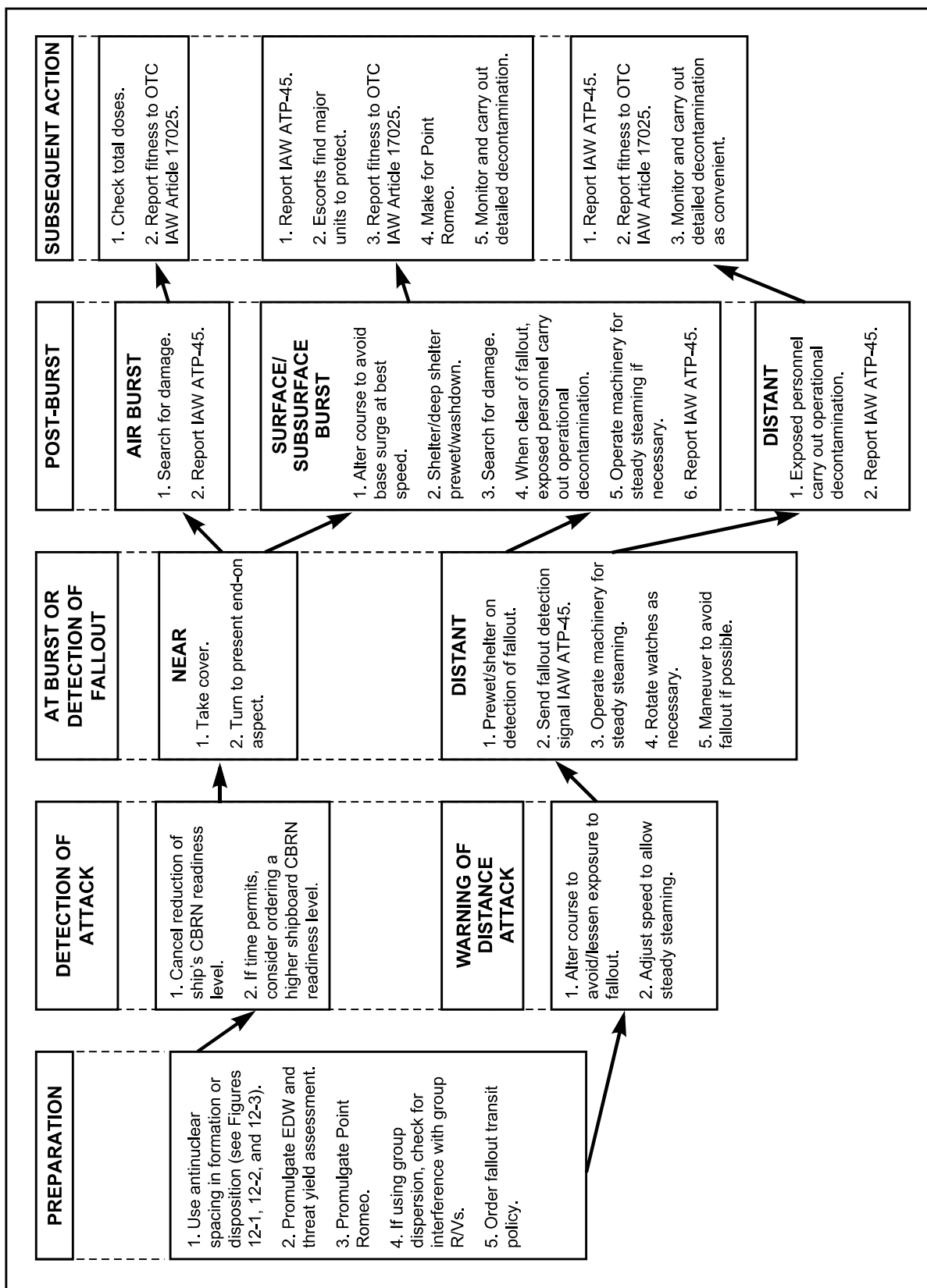
Figure 17-2—NOT RELEASABLE

17012 NOT RELEASABLE

Figure 17-3—NOT RELEASABLE

17013 NOT RELEASABLE

Table 17-2. Nuclear Attack Aide-Memoire (Nuclear)



17014 Principles Affecting Convoy Formations

Ships in convoy should have simple and concise instructions concerning action to be taken in the event of a nuclear attack. It is important that orders and instructions to ships in convoy should be issued and understood before the convoy forms up. This is best done at the convoy conference. The size of the convoy and other factors permitting, wide spacing of columns and ships in column is recommended. If possible, the spacing of ships in columns and between columns should not be reduced below 1 mile. Random formations should be considered in order to prevent easy recognition by the enemy.

NOT RELEASABLE.

17015 Action Prior to Nuclear Attack

a. Establishment of Formation Rendezvous (Point Romeo). OTCs of formations are to promulgate a formation rendezvous at which ships can re-form following dispersal. OTCs of dispositions are to be kept informed of the position of the formation rendezvous. If no Effective Downwind Message (EDM) is issued, a signal from ATP-01, Vol. II, may be used.

b. Promulgation of Fallout Information. In the absence of reports from shore authorities, the OTC will promulgate information to the formation in the form of a naval effective downwind message, expanded to include information on Point Romeo. Details are in ATP-45 (series).

c. Operational Readiness for Fallout Transit. The OTC should state well in advance the required operational readiness for his units should a fallout transit become inevitable. The OTC should specify AAW, ASW, and ASUW degrees of readiness and the degree of readiness for engineering, stating the maximum speed required for fallout transit. The OTC should also nominate guard ships (e.g., radar, sonar, and EW guards), as many ships will be limited in operational performance during the transit. In general, the OTC should re-examine the principles of readiness in Chapter 1 to match the problem associated with fallout transit.

17016 Tactics Following a Nuclear Attack

Tactics to be employed and considerations are in Table 17-2.

17017–17019 Spare

17020 Selection of Formation Rendezvous

Point Romeo should be established relative to the formation centre, and the course and speed of the rendezvous must be indicated. When a disposition incorporates more than one formation, each formation should promulgate its own Point Romeo. Whenever possible, Point Romeo should be up the EDW from the formation centre and at a distance equal to the area of immediate contamination plus the diameter of the formation. In determining the position of Point Romeo, the OTC must consider the following factors:

- a. Direction and strength of EDW.
- b. Expected yield of the weapon.

- c. Threat.
- d. Expected time for the force to re-form.
- e. Direction in which the force is required to steam.
- f. Dose rate and total doses that are acceptable.
- g. Navigational restrictions.
- h. Positions of other formations.

17021 NOT RELEASABLE**17022–17024 Spare****17025 Report on Operational Efficiency**

After an attack all ships are to report their operational efficiency to the OTC. All ships must report their capacity to:

- a. Complete immediate operations.
- b. Undertake a subsequent operation without delay (i.e., without rest, hospitalization, or decontamination). (Table 17-3 may prove useful.)

17026–17030 Spare**17031–17039 Spare****17040 Biological Hazards**

Biological warfare (BW) agents can be produced with little difficulty in a relatively short time. They can be produced covertly using dual-purpose technology by those of modest education, using limited tools and space. An adversary could use a production facility to manufacture prescription drugs one day and be producing these agents the next day. BW agents are also relatively easy to obtain. Naturally occurring viruses and bacteria that cause disease are obtainable from soil, water, animal reservoirs, clinical specimens, and research labs. Toxins are biologically derived but display markedly different characteristics from other BW agents. They more closely resemble chemical agents than biological agents in the way they cause an effect but are like other BW agents in detection difficulty. Under favourable meteorological conditions, a robust BW agent can remain effective after traveling hundreds of miles downwind and covering very large areas. The primary aim of a BW agent attack is to produce disease or sickness (not necessarily lethal) by the inhalation or ingestion of agents and thereby compromise the fighting capacity of the ship. The impact of BW agents on the mission of a ship will vary according to the type of agent used, its concentration, and method of delivery. Toxins may have an immediate effect on any unprotected, exposed personnel. Other BW agents that require an incubation period will probably not have an immediate incapacitating effect.

Table 17-3. Commander's Guide on Radiation Exposure States, Dose Levels, Probable Tactical Effects¹, and Risk of Exposure Criteria

Total Cumulative Dose [A] (cGy) ⁽²⁾ before additional dose [B]	RES Category ⁽³⁾	Probable Initial Tactical Effects After Exposure ⁽⁴⁾	Single Additional Exposure Criteria ⁽⁵⁾
No Exposure—0	R0	None	Negligible Risk—75 cGy Moderate Risk—100 cGy Emergency Risk—125 cGy
Greater than 0 but not greater than 75 ⁽⁶⁾	R1	Up to 1% incidence of LI ⁽⁷⁾ .	Negligible Risk if A+B ≤ 75 cGy Moderate Risk if A+B ≤ 100 cGy Emergency Risk if A+B ≤ 125 cGy
Greater than 75 but not greater than 125 ⁽⁶⁾	R2	Up to 5% incidence of LI ⁽⁷⁾ .	Any further exposure will exceed a negligible risk (A+B ≥ 75 cGy) and could exceed a moderate risk (A+B ≥ 100 cGy)
Greater than 125	R3	More than 5% incidence of LI expected for the group, increasing with increased dose for short exposure times ⁽⁷⁾ . Group probably not able to perform complex tasks; and sustained effort will be hampered. Additional effects information are found within Annex C and D of STANAG 2083 (Ed7) ⁽⁸⁾ .	Any further exposure will exceed the Emergency Risk limit (A+B ≥ 125 cGy)
Notes:			
(1) Injury or exposure to other harmful agents may affect response to nuclear radiation.			
(2) The figures in this column may be subject to change in light of future medical knowledge.			
(3) Risk levels are graduated within each RES category in order to provide more stringent criteria as the total nuclear radiation dose accumulated becomes more serious.			
(4) Any radiation dose which induces nausea and vomiting makes it difficult to wear the mask, consequently increasing the vulnerability to chemical hazards.			
(5) Risk levels are defines as:			
Risk Level		% Incidence of Latent Ineffectiveness ⁽⁹⁾	
Negligible		1	
Moderate		2.5	
Emergency		5	
(6) If a unit's dose within RES category R1 or R2 is unknown, the unit's dose is assumed to be the midpoint of that category.			
(7) Latent effectiveness (LI) is the casualty criterion defined as the lowest dose at which personnel will:			
(a) Become combat ineffective (less than 25% capable) at any time within 6 weeks post exposure followed by death or recovery, or;			
(b) Become performance degraded (i.e., 25-75% capable) within 3 hours post exposure and remain so until death or recovery.			
(8) Appropriate serials from Annex C of STANAG 2083 (Ed 7) may be appended to RES category R3 to provide additional effects information at nations' discretion.			
(9) For healthy, rested, well-fed adults with no previous exposure (i.e., uninjured and fresh troops).			
(10) Radiation exposure state (RES) categories may be useful in making the report required by Article 17025.			
(11) Primary source of this table: STANAG 2083 (Edition 7) dated 02 September 2009.			
(12) Abbreviations: cGy –centigray; RES – radiation exposure state; LI – latent ineffectiveness.			

17041 Survival of Agents

Factors which affect the ability of microorganisms to exist are:

- a. **Light.** All light, especially sunlight, giving ultraviolet rays, shortens the life of most organisms.
- b. **Humidity.** Organisms vary in their response to humidity.
- c. **Temperature.** Low temperature generally enhances the survival of microorganisms; the effective life of some microorganisms diminishes with rising temperature. Temperature gradients will also contribute to how quickly clouds of agents disperse.

17042 Wind

The speed and direction of the wind in relation to the target will be used to determine the release point for an attack. Adverse wind conditions may cause postponement of an attack beyond acceptable tactical limits.

17043 General Tactical Considerations

In planning biological warfare defence measures, the following should be taken into account:

- a. By their very nature, BW agents lend themselves to covert delivery methods. These agents can be delivered by emission from aircraft, ships, submarines, missiles, or land-based sources. Lack of detection/warning equipment makes identification of the type and source of such attacks very difficult and the initial attack may pass unnoticed.
- b. Unless a detection system is fielded and operated, the first indication may be symptoms of infection, which can be delayed for days after exposure.
- c. Defence against biological attack places greater reliance on the medical organization for detection, classification, treatment of casualties, and preventive actions to contain the spread of infection and contamination.
- d. The reduction in effectiveness of biological warfare agents caused by heat and light means that the most likely time of attack will be during night hours when wind conditions are favourable. When it is addressed that there is a threat of biological warfare attack, OTCs should endeavour to ensure that personnel are protected particularly during the hours of darkness.
- e. As stated above, a robust biological warfare agent can remain effective after traveling hundreds of miles downwind and covering very large areas. Because of this large area coverage capability, an attack using BW agents has the potential to be effective against reinforcement shipping. The use of BW agents in the sabotage role also presents a hazard to ships in harbour or anchorage.

17044 Detection Methods

There is, at present, no means of detecting a biological attack. It is most important that medical personnel are made aware of the threat so that they may adopt a suspicious outlook toward any signs that an attack might have been made (e.g., a sudden widespread onset of an epidemic, rather than a slow buildup).

17045 Protection

a. In the absence of any means of detection, protective measures must be based on meeting any possible attack fully prepared. When intelligence indicates the existence of a biological warfare threat, respiratory protection should be adopted by collective or individual means. It is recommended that all ships should close down to the maximum extent, in the same way as for a chemical or nuclear threat, and that respirators should be worn continuously by all exposed personnel.

b. If installed, a ship's deck washdown system is the most effective countermeasure available against a BW attack if activated in a timely manner. BW agents that strike a ship already covered with a flowing film of water are normally washed overboard. When the tactical situation allows, running a zigzag course helps clear the ship of pools of water as the ship heels. It also improves the distribution of the washdown system by varying the direction of the relative wind. BW agents that impact on dry surfaces are not as easily removed.

c. On non-collective protection system (CPS) ships or non-CPS compartments on CPS ships, proper setting of ventilation systems will provide some protection against a BW attack. The setting of Circle WILLIAM will assist the ship in keeping some BW agents from entering the ventilation ducting. Care should be taken to ensure that contamination is not trapped inside the ship when Circle WILLIAM is invoked. The use of Circle WILLIAM will have a significant impact on the ship's warfighting capability due to heat stress for the Sailors and the potential of overheating mission critical equipment.

Note. If so designated, Circle WILLIAM fittings are normally open but are secured to prevent the spread of CBRN contaminants through the ventilation system. They are marked with a black W in a black circle. The ship's damage control assistant recommends which of these fittings to close.

17046 Hygiene

While the primary aim of biological attack is to infect target personnel individually, infections caused by some biological warfare agents can be transmitted from person to person. Therefore, the maintenance of high standards of personal and communal hygiene is important. When it is suspected that an attack has occurred, strict personal hygiene should be observed, only well-cooked or canned food should be eaten, and only properly packaged medical supplies used. (See AMedP-6 Edition 4.)

17047 Decontamination

Overall decontamination will not be required after an actual or suggested attack, although the use of intermittent prewetted washdown is recommended. Contaminated clothing and spaces should be dealt with in accordance with national instructions. If decontamination has to be undertaken on spaces such as the sick bay, cleansing station, and galley, formalin and hypochlorite are effective wide-spectrum germicides. Personnel cleansing is similar to that used for any other kind of contamination.

17048–17049 Spare**17050 Chemical Warfare**

a. From the outset of conventional warfare, it must be assumed that chemical weapons could be used against NATO naval forces. They could be used simultaneously with conventional weapons. The possibility of covert chemical attack prior to commencement of general hostilities cannot be discounted. The effects of chemical attack will vary widely depending on the agent used, its method of delivery, and meteorological conditions.

b. Chemical weapons are most effective against unprotected personnel.

c. One of the advantages of chemical weapons is that they cause the defender to wear protective clothing, thereby increasing his stress factor and reducing his efficiency. These effects can also be caused by the mere threat of attack unless the defender has adequate and reliable protective devices. Therefore, it is imperative that collective protection be used to full effect to allow maximum possible relaxation of CBRN personnel under threat conditions and after an attack.

17051 Delivery of Chemical Agents

Chemical attack against ships may be delivered as:

- a. The warhead of a weapon aimed to hit the target and breach the citadel.
- b. A vapor cloud released upwind of the target or through which ships may have to transit.
- c. A spray released above the target by aircraft, bombs, shells, or missiles.

17052 Nature of Chemical Agents

The group of nerve agents is odorless, colourless, tasteless, and, for all practical purposes, invisible. Blister agents, blood agents, and choking agents may also be invisible, but each has a characteristic odor. Even with chemical detectors, the first indication of attack may be the onset of symptoms in personnel. With washdown systems operating, some chemical agents may still be absorbed into paintwork, and the subsequent vapor hazard could last for several days.

17053 Environmental Effects

a. The travel of toxic clouds and the persistence of chemical agents are influenced by meteorological conditions as follows:

(1) Wind. Air stability, wind speed, and turbulence are the major factors governing agent concentration, while wind direction determines the downwind hazard. Optimum wind speed for toxic clouds is between five and eight knots. Vapor concentration and persistency of liquid agents decrease as wind speed increases.

(2) Temperature. At high air temperatures, liquid agents evaporate faster, and the dosage received could be larger and more quickly absorbed.

- b. Some types of chemical agent are fully effective under arctic conditions.
- c. Agents delivered in the warhead of a weapon aimed to hit the target are relatively unaffected by meteorological conditions.

17054 Threat to Naval Forces

a. General Single-Spray Attacks. These attacks against one or more fully protected naval ships on open sea are not likely; chemical clouds (aerosols) in maritime areas, however, are apt to drift around for hours at levels where they pose no danger to ships but where they are a serious and unexpected threat to unprotected naval aircrews during low-level operations. In general, chemical attacks against shipping will be executed supplementary to conventional weapons attacks.

b. Coastal Operations. Concentrating ships in harbour and inshore waters where their manoeuvrability is restricted increases their susceptibility to chemical attack and the likelihood of enemy success. The embarkation and disembarkation phases of amphibious operations are particularly susceptible to chemical attack, since the ships will be at least in a relaxed state of close-down condition.

c. Open-Ocean Operations. A well-protected and well-trained naval force should be capable of prolonged operations in a toxic environment. The threat of, or an attack by, chemical agents could reduce the effectiveness of such a force. The success of a chemical attack, which will be most likely from weapons aimed to breach the citadel, will depend on the preparedness of individual units, protection devices, and the formation chosen.

17055 General Tactical Considerations

In spite of threatened or actual chemical attack, the force must continue its mission with its disposition being dictated by the most serious threat present in a multithreat situation.

17056 OTC's Considerations

When a chemical threat exists, the OTC should:

- a. Order an appropriate degree of readiness and establish a washdown policy.
- b. Consider possible changes to the disposition in view of prevailing and forecast wind direction and speed.
- c. Consider the desirability of stationing a ship or ships with automatic detection equipment upwind of the force.
- d. Station ships to avoid multiship contamination.
- e. Establish a helicopter haven and fixed-wing aircraft diversion airfields.
- f. Consider the desirability of continuing aircraft and flight deck operations.
- g. Determine the necessity for scheduling underway replenishment operations in view of the need to protect personnel and the risk of contamination if upper deck loads must be struck below.

17057 Chemical Attack

- a. If a chemical threat is deemed to exist, a chemical attack must be assumed when:
 - (1) A ship comes under fire.
 - (2) Hostile or unidentified low-flying aircraft are sighted.
 - (3) Suspicious mist, smoke, droplets, splashes, or odors are noticed.
 - (4) Personnel suffer any of the symptoms of chemical agent poisoning.
 - (5) Any chemical detection system or device indicates the occurrences of chemical attack.
- b. A unit observing any of the above is to broadcast the alarm to the force. The OTC shall manoeuvre the force or order ships to manoeuvre independently to avoid further contamination, depending on searoom and the tactical situation. Guidance to individual ships is given in Table 17-4. Reports are to be made in accordance with ATP-45 (series).

Table 17-4. Chemical, Biological, Radiological and Nuclear Aide-Memoire (Chemical)

Preparation	Detection of Attacking Vehicle	Detection of Chemical Attack	Post-Attack	Subsequent Action
1. Consider effect of wind speed and direction on disposition and, if possible, avoid multiple-ship contamination. 2. Decide pre-wet policy and crash shutting down of ventilation. 3. OTC establish helicopter haven and/ or fixed-wing aircraft diversion airfield and realistic alert states, turn-around, and re-arm times in light of threat. 4. Personnel outside the citadel wear full protective clothing, keeping respirator and gloves within reach, and carry personal issue of drug therapy. NOTE: To conserve stocks, protective suits should not be worn unless a strong probability of liquid chemical attack exists. 5. Order taking of nerve agent pretreatment labels. 6. Order material measures. 7. Minimise aircraft and stores on deck. Cover where possible with a chemical agent-resistant material.	1. Cancel relaxations. Assume first degrees of NBCD readiness. 2. Respirators and gloves to be within reach inside citadel and worn outside. 3. Launch or strike down aircraft on deck. 4. All pre-wetting ON until Threat Warning RED, then OFF during attack to allow use of CIWS. 5. Reduce ship's ventilation to minimum required to reduce chance of possible spread of contamination.	VAPOR OR LIQUID 1. Get clear at best speed if searoom permits. 2. All pre-wetting ON if CIWS not required. Manoeuvre to make pre-wetting effective. 3. All personnel put on respirators. 4. Make attack report in accordance with ATP-45. CITADEL BREACH 1. All personnel put on respirators and gloves. 2. Control damage. 3. Restrict movement of men and spread of contamination. 4. Make attack report in accordance with ATP-45.	1. Report fitness to OTC. 2. Monitor citadel boundaries internally. 3. Washdown for 20 minutes. 4. Manoeuvre/ forced roll to ensure efficient coverage, then change detector papers and decontaminate; reset chemical alarm and detector units. NOTE: The removal of respirators is a command decision.	1. Complete operational decontamination. 2. Order relaxations. 3. Report to OTC.

17058 Aircraft Operations

The operation of aircraft under a chemical threat warrants careful consideration. The employment policy is the OTC's decision and will depend on the threat situation. Reaction and turn-around times are likely to be increased by the need for aircrews and flight deck personnel to wear protective clothing and requirements for washdown.

17059 Contamination of Aircraft

a. Aircraft should only be on deck when necessary for operational reasons. Although external contamination of aircraft is unlikely to affect their ability to fly, it will result in many contamination control problems that will reduce the speed and efficiency of their operations. If the operational situation permits, steps to avoid contamination should be taken. When chemical attack is imminent or has taken place, the following actions should be taken as appropriate:

- (1) Stow aircraft in hangars with doors shut and lift raised.
- (2) Cover all openings and intakes on aircraft, paying particular attention to the internal atmosphere of the aircraft.
- (3) Launch aircraft to a helicopter haven or fixed-wing aircraft diversion airfield outside the likely area of contamination (e.g., take aircraft under cover).

b. Commanding officers must thoroughly weigh recommended precautions and protective measures under chemical threat against the required operational availability of own ship's aircraft.

17060 CBRN Threat Levels and Responsibilities

The risk to the joint force depends on the CBRN threat and the vulnerability of the force given its situation and CBRN defence capabilities. Table 17-5, taken from AJP-3.8, Allied Joint Doctrine for Comprehensive Chemical, Biological, Radiological, and Nuclear Defence, presents descriptions of the four standard NATO threat levels for adversary CBRN weapons and devices. The commander combines information that he has received concerning the existing or expected CBRN threat with an analysis of the vulnerability of his forces to that threat to decide upon all necessary risk mitigation measures, including the appropriate shipboard readiness level/CBRN dress state (Table 17-6).

Table 17-5. CBRN Weapons or Devices—Threat Levels

CBRN WEAPONS OR DEVICES – THREAT LEVELS		
Threat Level	Code	Description
LOW	 Green	A State or non-State actor has been identified who may possess either the capability or intention of targeting NATO forces or individuals. Although it is possible, there are no other indications of use.
MEDIUM	 Yellow	A State or non-State actor has been identified as possessing both the capability and intention of targeting NATO forces or individuals.
SIGNIFICANT	 Orange	A State or non-State actor has been identified as possessing both the capability and intention of targeting NATO forces or individuals, and will likely attempt to do so in the near term.
HIGH	 Red	A State or non-State actor has been identified as possessing both the capability and intention of targeting NATO forces or individuals within a specific time frame and/or against a specific target.

Table 17-6. Shipboard CBRN Defence Readiness Levels

Shipboard CBRN Readiness Level/Dress State	Individual Protective Equipment (IPE)—Items of Dress				Other Shipboard CBRN Protective Measures
	Respirator	Suit	Foot Protection	Hand Protection	
ZERO	Individual protective equipment (IPE) onboard and inventoried; all personnel sized and assigned IPE; conduct recurring training to insure proficiency in donning IPE.				– Long term vaccinations in place; – CBRN information management system in place but dormant
ONE	Issued and readily available	Issued and readily available	Issued and readily available	Issued and readily available	– CBRN information management system in place but dormant
TWO	Carried	Readily available	Readily available	Carried	– Set condition MODIFIED ZEBRA; – Activate detectors; – CBRN information management system active
THREE	Carried	Worn	Worn	Carried	– Set condition ZEBRA – Activate intermittent washdown (if available) – CBRN information management system active
FOUR	Worn	Worn	Worn	Worn	– Set condition CIRCLE WILLIAM – Activate continuous washdown (if available) – CBRN information management system active

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CHAPTER 18 Maritime Force Protection

18000 Introduction

During peacetime or in crisis situations, as well as in war, there are a considerable range of situations in which naval forces, or naval units acting independently (e.g., ships at anchor or at berths, naval forces in coastal and confined waters, while under way, other) represent an attractive target, particularly in the realm of asymmetric threats, where they face considerable vulnerability in the event of a direct or clandestine attack, sabotage or criminal activity, conducted from the land, sea or air and performed by hostile groups or extremist organizations, generally operating independently of governments in complex regional scenarios.

Such actions are capable, by design or fault, of achieving disproportionate effects, thus gaining the instigator an advantage probably not attainable through conventional means. The impact may or may not be catastrophic against the immediate target. The wider and true impact may be on public opinion, Allied policy or military effectiveness.

Additionally, the expeditionary nature of Allied operations will require naval forces to operate in a complex environment without a discernible front line or rear area, relying on organic capabilities and available Allied joint forces or host nation (HN) support to provide adequate force protection (FP). FP measures greatly contribute to deter potential attackers from their intentions.

The aim of this chapter is to provide tactical guidance to the OTC regarding asymmetric threats and covers the issues that should be considered when planning for FP, whether independently, or in association with Allied joint forces. The term FP used throughout this chapter is primarily associated with the defence against asymmetric threats.

FP is a standing requirement for the operational security of naval forces while conducting the maritime manoeuvre in response to asymmetric threats. Therefore, it is applicable to ships in harbour, at anchor, or operating at sea. Nevertheless, it may be also considered during movements in open waters namely when there are COIs or CCOIs.

NOT RELEASEABLE.

18001 The Threat

The following paragraphs define the asymmetric threat by means of some of its intrinsic characteristics, namely the foreseeable group identities and motivations, the achievable goals, the exploitable platforms and the associated weapons that can be connected with an asymmetric attack or action against a naval force. The list does not pretend to be fully exhaustive and it's understood that given the nature of the asymmetric threat all naval intelligence agents must permanently revise the listed items, namely those that can directly affect the normal conduct of maritime operations.

Identities and Motivations. The following are the foreseeable group identities and motivations related with asymmetric attacks:

- (1) Terrorist activity, conducted either by trans-national, state-sponsored, indigenous or non-aligned groups.
- (2) Sabotage (military/civilian activity).
- (3) Espionage (military/civilian activity).
- (4) Direct military raid.

- (5) Criminal activity.
- (6) Propaganda in order to provoke violent demonstrations against unit or aggressions against crewmembers ashore.
- (7) Other asymmetric attacks (e.g., cyberattacks).

Goals. The following are possible goals, which can be achieved through current possible asymmetric actions:

- (1) Attempt against physical integrity of personnel;
- (2) Cause unrecoverable damage on individual units;
- (3) Steal military or other relevant information or cause unrecoverable loss on physical and logical CIS infrastructure;
- (4) Affect crew and citizens morale;
- (5) Promote propaganda through the media.
- (6) Affect political will to continue maritime operations in area.

Platforms. The following are possible platforms, which can be used to conduct an asymmetric action, grouped by environment:

(1) Underwater Threats.

- (a) Attacking underwater or submerged vehicle, such as ROVs, AUVs, UUVs or semi-submersibles.
- (b) Swimmer or diver, with or without swimmer delivery capability, aiming to lay charges on the hull, seabed or pier or carrying explosives on a suicide mission.

(2) Surface Threats.

- (a) Small boats (fast and slow), with emphasis on fast inshore attack craft (FIAC) (manned or unmanned), targeting a vessel to deliver a bomb or providing a platform to execute standoff weapon attack.
- (b) Radio-controlled boats containing explosives.
- (c) Jet ski or windsurfer carrying suicide attacker.
- (d) A commercial or leisure vessel that has been hijacked and is subsequently used to ram a ship, which can be underway, at anchor or alongside.
- (e) Bomb attack by commercial harbour craft like barges, pontoons, tugs, or pilot craft coming alongside.
- (f) Small boats with demonstrators, showing hostile intent against naval units.

(3) Land Threats.

- (a) Landward attack, including firing positions in direct line of sight or mortar attack, mobile vehicles.
- (b) Bomb attack.
- (c) Gunman and drive-by shooting or grenade attack on the ship.
- (d) Harbour demonstrations or riots.
- (e) Stealth intrusion onboard.
- (f) Kidnap, or attacks on members of the ship's company ashore.

(4) Air Threats.

- (a) Aircraft (manned or unmanned).
- (b) Suicide planes and micro-lights.
- (c) Para gliders and hang-gliders.
- (d) Radio controlled/model aircraft or UAVs.
- (e) Balloons.

(5) Information Operations Attacks on Command and Control.

- (a) Electronic and electromagnetic attack through CIS infrastructure.
- (b) Electromagnetic jamming in order to make communication between naval units, or between OTC and naval authorities or HN, impossible.
- (c) Disinformation toward local press or authorities, or toward naval units in order to create anger or fear.
- (d) Any kind of cyberattacks in order to create confusion or disruption of C2.

(6) Nuclear, Biological, Chemical or Radiological.

- (a) Aerosols and liquids.
- (b) Attacks on food, water and/or personnel.

Weapons. The following are possible weapons, which can be used to conduct an asymmetric attack:

- (1) Limpet mines.
- (2) Conventional mines, demolition charges or improvised explosive devices (IEDs), manually attached to the ship's hull, seabed or underwater surrounding area.
- (3) Drifting mines or IEDs.

- (4) Underwater bomb vehicles (either suicide or unmanned).
- (5) Surface crafts manned (suicide or not) and unmanned laden with explosives. This could be either FIAC or large vessels (such as fuel barges, pilot boats, tugs, floating pontoons, etc.).
- (6) Car bombs (either suicide or abandoned). The most powerful delivery method is the vehicle bomb delivered in a car, truck or fuel tanker hijacked for just this purpose.
- (7) Walk-on and run-on bomb (delivered by suicide bombers).
- (8) Postal bombs delivered in mail boxes or envelopes.
- (9) Grenades and explosive/incendiary improvised thrown devices.
- (10) Light firearms, such as pistols and light machine guns (LMGs).
- (11) Cold steel arms.
- (12) Human bomb.
- (13) Mortar firing.
- (14) Heavy machine guns (HMGs);
- (15) Guided standoff weapons, such as short-range guided missiles antitank guided missile/man-portable air defence system.
- (16) Standoff weapons, such as antitank or personnel rocket propelled grenades.
- (17) Aircraft (suicide or unmanned/laden or not with explosives).
- (18) Logical weapons.
- (19) CBRN weapons in direct attack or sabotage by clandestine intrusion. This could also be associated with vessels, aircraft and stealth means of intrusion/sabotage.

18002 NOT RELEASABLE

18003 Threat Assessments

A good indication of self-protective measures required will be gained from consideration of a likely attacker's aim and his planning factors. These will include:

- a. The availability and method of targeting that can be utilised.
- b. The availability and nature of weapons.
- c. The likely level of training and experience coupled with the degree of understanding of the maritime environment.
- d. Any geographical or situational restraints that reduce a potential target's movements. This will dictate where attacks are likely to be most successful from the attacker's perspective.
- e. Oceanographic and environmental conditions, particularly weather and sea state, may constraint the attacker's ability to operate, particularly in open waters, and reduce his situational awareness and weapon effectiveness.

The assessment of attacker's capabilities, targeting ability, training, experience and availability of weapons are the responsibility of intelligence agencies and should be available to the OTC prior to a transit in confined waters or choke point, harbour or anchorage visit and approach transit. The assessment of risk based on the threat assessment, location, weather conditions, and own assets' criticality should be within the capability of the OTC. The type of target is likely to influence the choice of weapons and method of attack. However, it must be remembered that what might seem a logical method to our minds is not necessarily the way the attacker might think. Beware to the unexpected or illogical approach.

18004–18009 Spare

18010 Command and Control

a. Command Responsibilities. At the strategic and operational level, the OPCON authority is responsible to issue the security alert state for the force or unit acting independently in a designated AOO. At the tactical level, the OTC has the overall responsibility to promulgate policies and plans to provide adequate FP for units in transit, at anchor or in harbour. These will include, when applicable, the appropriate liaison with HN, thus providing consistency in applying FP measures. It is important that authorities and, responsibilities for FP be clearly articulated at all levels of command.

b. Considerations on the Delegation of FP Functions. Although FP is an OTC responsibility, as defined by the functions in Tables 2-2 and 2-16, situations will arise where the lack of command and control capabilities to exercise some of those functions (e.g., for units conducting port visits while the OTC remains at sea) and the need to maintain close liaison with HN authorities, will advise the delegation of FP to a better suited unit.

c. The Force Protection Coordinator. The FPC should be designated in particular circumstances (for example, when units are in harbour or at anchor, or conduct inshore transits in the absence of the OTC), thus allowing more effective C2 of FP aspects of operations.

d. Host Nations. HNs are usually eager to provide visiting ships with adequate security and will go to considerable lengths to ensure attacks are not carried out in ports under their jurisdiction. At the initial planning phase, consultation and arrangements with HNs will be conducted by the operational-level commander. It is vital for visiting ships to forge a close liaison with the HN authorities. This may take the form of a visit in advance to discuss any security concerns, and the establishment of liaison for the duration of the port visit, by means of HN liaison officers. The OTC or FPC must be involved in the off-board security arrangements to ensure they are satisfactory, to reinforce where necessary, and to agree on responses to incidents.

18011 Force Protection Functions

a. Planning

(1) Planning Process. FP planning is a cyclical process, which assesses the mission criticality of all assets; assesses threats, vulnerabilities and risks; and prescribes appropriate controls and measures to reduce or mitigate these vulnerabilities and risks. This process includes a threat-vulnerability and risk analysis.

(2) Planning Steps. Although not inclusive, the FP planning process normally includes the following steps:

(a) Mission Analysis. Identify the assigned and implied tasks through mission analysis.

(b) Criticality Assessment. Identify those assets that are critical to mission success.

(c) Threat Assessment. Determine likely threats to those assets that are critical to mission success.

(d) Vulnerability Assessment. Identify vulnerabilities that could be exploited by the threat and thereby affect mission success.

(e) Risk Assessment. Determine the risks to mission success from an assessment of the ability of the threat to exploit identified vulnerabilities.

(f) Risk Management. Identify and implement appropriate FP measures to reduce vulnerability or threat likelihood/impact and thereby reduce risk to a level acceptable to command.

(g) Continuous Risk Assessment. Calculate and monitor the residual risk or gaps in order to manage the mission.

(h) Incident Response and Recovery. Identify and implement incident response and recovery measures, including developing and implementing emergency response and recovery plans.

(i) Supervise, Plan, and Review. Reassess and maintain FP measures throughout the mission.

(j) Capabilities and Resources. Identify capabilities and available resources to implement the required FP measures, including manning and readiness states. Liaise and complement with HN support, where available and applicable. Identify and implement off-board security arrangements to ensure they are satisfactory and reinforced where necessary.

(k) Command, Control, and CIS. Identify special requirements and local constraints.

(3) The FP Plan. The outcome of the planning process is the FP plan, promulgated by means of an OPTASK FP HARBOUR, issued by the OTC, when naval forces are alongside or at anchor. Additionally, fan OPGEN/OPTASK's may be used and should include the necessary paragraphs for FORCE PROTECTION in the surface and subsurface environments.

b. Coordination

(1) NOT RELEASABLE.

(2) Force Protection Levels. FP levels, described in Article 18013, form the basis for detailed planning and arrangements regarding readiness, personnel, weapons and protective measures. In association with the implementation of the FP levels, the OTC will promulgate a set of dedicated internal protection measures (IPROMs) tailored to fulfil the operational requirements of the tactical scenario where the force is operating. Units' commanding officers are to implement policies and guidance through internal protection and security plans in order to accomplish within-force IPROMs. In addition, units can always raise these measures if deemed necessary, keeping the OTC informed (FPC/CWC/PWC's if delegated). Under permission from OTC may request to reduce internal measures, indicating those IPROMs the unit is unable to comply with and the reason for it.

R

(3) and (4) NOT RELEASABLE.

c. Direction and Tasking

(1) Direction. FP guidance must be clearly articulated in OTC's policies, orders, plans, directives, and instructions, and disseminated and delegated in a timely manner. It is important that guidance be passed rapidly to subordinates, to ensure that each level of command understands the OTC's intent. It is important that provision be made within a force, as well as in individual ships, for an organization to coordinate defence and establish degrees of readiness against the threat. Command responsibilities are described in Chapter 2.

(2) Internal Protection Measures. The approach to developing protective measures for assets should be based on a systematic process resulting in an integrated protective system. The protective system focuses on protecting specific assets against defined threats, to acceptable levels of protection. The system is organized in depth and contains mutually supporting elements coordinated to prevent gaps or overlaps in responsibilities and performance.

(3) and (4) NOT RELEASABLE.

(5) Preplanned Responses. When implementing reactions to an expected threat, they can be aggregated in one common set of IPROMs, tailored as a preplanned response, aiming for timely coordination and execution of asymmetric threat defence.

(6) through (8) NOT RELEASABLE.

(9) Rules of Engagement. ROE are a primary method of authorizing FP measures. Associated directives and instructions regarding ROE and other coordinating instructions must be synchronized with FP measures.

(10) Tasking. Maximum use should be made of standardized formats for operation orders, OPLANs, and other forms of directives for disseminating FP-specific guidance and information. Nevertheless the preferred tasking method will be by means of an OPTASK FP HARBOUR or an OPGEN/OPTASK's issued by the OTC (FPC/CWC/PWC's if delegated).

(11) The Force Protection Operations Centre (FPOC). A FPOC should be established on board the OTC's flagship, if FP functions not delegated, or, otherwise, on board the FPC. Following are the operational requirements for the unit hosting a FPOC:

- (a) Accurate RMP available, with ability to exchange RAP with CRCs.
- (b) Voice communications established with all force units.
- (c) Ability to effectively direct FP weapons under the limits imposed by ROE or self-defence and extended self-defence.
- (d) Ability to record events and decisions taken, including those concerning warnings conducted on suspected and hostile contacts.

18012 Security Alert States

a. and b. NOT RELEASABLE.

c. Ordering Alert States. The security alert states and/or selected security measures may be ordered by the appropriate signals from ATP-01, Vol. II.

d. NOT RELEASABLE.

18013 Force Protection Levels

a. To simplify the FP posture against the threat, the OTC will implement force protection levels (FPLs) that form the basis for detailed planning and arrangements regarding readiness, personnel, weapons, protection measures, and other factors like external support and liaison with local authorities.

b. FPLs and the associated measures provide commanders with a common mechanism to counter an identified threat to their respective forces, to increase vigilance and reduce risk. FPLs may be implemented throughout the Alliance to apply to all NATO commands, or locally in response to a local threat. FPLs complement the NATO security alert states. See the NATO Crisis Response System Manual (NCRSM) for more information on the NATO security alert states.

c. To achieve this, five levels of force protection are defined. Each level has IPROMs associated with it, with a commensurate scaling of manned weapons, lookouts and other escalating protection measures that would correlate the established security alert state, threat warning and other available indications and warnings.

d. The implementation of these FPLs would vary for different types of vessels (due to different weapon fits and numbers of ships in company), and, in addition, detail could be varied within each FPL for each occasion of implementation. This variation will allow the OTC to have pre-planned degrees of response that can be adopted quickly yet retain the flexibility to cover all eventualities.

18014 Relationship Between Security Alert States and Force Protection Levels

a and b. NOT RELEASABLE.

18015 Definitions of Force Protection Levels

- a. FP Level 5.** Normal security measures. These measures apply when there is no expected threat against Allied assets.
- b. FP Level 4.** These measures apply when there is an increased general threat, the nature and extent of which are unpredictable, against Allied assets and when the circumstances do not justify the full implementation of the measures contained in a more vigilant FPL. It may be necessary, however, to implement certain selected measures from more vigilant FPL, as a result of intelligence received, or as a deterrent. The measures outlined in FPL 4 must be applied with care to permit sustainability.
- c. FP Level 3.** These measures apply when there is an increased and more predictable threat against NATO assets. It must be possible to maintain these measures for a period of weeks without causing undue hardship, without affecting operational capability, and without aggravating relations with local authorities.
- d. FP Level 2.** These measures apply when intelligence is received indicating that some form of unlawful action or attack is imminent against the Alliance. The implementation of this FPL for more than a short period will disrupt and inconvenience normal operations.
- e. FP Level 1.** These measures apply after an unlawful action or attack has occurred.

18016 Implementation of Force Protection Levels

- a. Declaration of FP Levels.** The declaration of a FPL and the implementation of IPROMs may be ordered by a joint force commander, the OTC (FPC/CWC/PWC's if delegated) or a commanding officer. Any such declaration must be based upon the threat assessment. Declaration of or changes in a FPL must be reported by the most expedient means and subsequently confirmed via message to subordinate units and to higher-level commanders.
- b. NOT RELEASABLE.**
- c. Exemptions.** A local commander may change a FPL to increase the vigilance directed by higher command, but may not change a FPL to reduce the vigilance directed by higher command without obtaining permission through the chain of command. All unconfirmed information received should be referred to superiors in the chain of command and appropriate Alliance operations and intelligence authorities for authentication.

18017 Force Protection Level Developing Process

- a. through c. NOT RELEASABLE.**

18018–18019 Spare

CHAPTER 19 Unmanned Systems

19000 Overview

Historically, maritime unmanned systems have been used as platforms for the collection of intelligence, surveillance, and reconnaissance. However, there has been a dramatic increase in the use of MUS in tactical missions. It has become common place in many mission areas to see imagery from a MUS including reconnaissance or providing laser designation for manned aircraft. MUS have enhanced the situational awareness of unit-level commanders by providing more accurate and immediate over-the-horizon targeting and battle damage assessment. The adaptability, versatility, and cost effectiveness of MUS continue to expand the commander's warfighting capability and have become indispensable to successful maritime operations.

19001 Background

Allied forces have a history of successfully operating MUS in maritime environments. In the years since the Gulf War, MUS have proliferated rapidly throughout the armed forces. Several ship-based/ship-capable MUS are currently being employed by nations and can be operated by either military personnel or in some cases by contractors with varying degrees of supervision/oversight by military personnel.

19002 Types of Unmanned Systems

Unmanned aircraft system is defined as a self-propelled air vehicle whose operation is either fully autonomous (pre-programmed or real time adaptive mission control) or under minimal supervisory control.

Unmanned surface vehicle is defined as a self-propelled surface vehicle whose operation is either fully autonomous (pre-programmed or real time adaptive mission control) or under minimal supervisory control.

Unmanned undersea vehicle is defined as a self-propelled submersible whose operation is either fully autonomous (pre-programmed or real time adaptive mission control) or under minimal supervisory control.

19003 Ship-based Missions

Ship-based MUS can be a powerful ISR tool for the combined force maritime component commander (CFMCC). This section provides an overview of ship-based MUS operations in support of a variety of maritime mission sets. See Figure 19-1 for key concepts.

19004 Mine Countermeasures

MCM mission requirements are driven by the maritime forces need to rapidly establish safe operating areas, transit routes and SLOC. MUS can provide capability in a number of MCM mission areas including detection, classification, localization, jamming and neutralizing operations. In addition, MUS can provide commanders with intelligence on minefields, obstacles, and fortifications on the beach and inland areas.

KEY CONCEPTS
MUS are particularly effective in the Fix, Track, and Assess phases of Dynamic Targeting.
MUS crewmembers should receive the same threat recognition and rules of engagement training as their manned aircrew counterparts.
MUS provide valuable support to a variety of air, surface and subsurface missions.
MUS can be used as spotters for naval fire missions.
Conducting transit operations while flying MUS requires careful pre-planning.
Ship-based MUS have a proven track record in maritime security operations.
Extended covert surveillance of suspect vessels makes MUS a valuable tool when conducting SW, MIO and VBSS.

Figure 19-1. Key Concepts

19005 Expeditionary and Amphibious Operations

In a naval context, expeditionary warfare describes an operation initiated from the sea, usually on short notice, consisting of forward deployed, or rapidly deployable, self-sustaining naval forces tailored to achieve a clearly stated objective. Perhaps the best known form of expeditionary warfare is the amphibious operation. Table 19-1 provides a brief summary of supporting roles that an embarked MUS could fill in support of amphibious warfare. Amphibious operations take place across the range of military operations and often provide support to other maritime operations.

19006 Maritime Security Operations

One of the major aspects of any MSO effort is the task of locating, identifying, and tracking vessels. AIS is a valuable tool in MSO, significantly reducing force tasking and the number of vehicles queried. MUS equipped with AIS are obviously a force multiplier for this mission.

MUS equipped with radar, AIS, or ESM can assist in sorting out the surface picture. MUS equipped with EO/IR systems can be used to identify vessels and track contacts of interest.

Maritime security operations describe the actions of naval forces to combat sea-based terrorism and other illegal activities. MUS provide a decisive advantage with over the horizon ISR and data link capability. In addition, MSO may require inspections and, if necessary, boardings of vessels, known as visit, board, search and seizure (VBSS). Extended covert surveillance of suspect vessels makes MUS a valuable tool when conducting SW, MIO, and VBSS. Employment of MUS to gather critical data can help minimise risk to personnel and high-value assets during these operations.

Table 19-1. US Support Missions for Amphibious Warfare

ARG/MEU MISSION	POTENTIAL US SUPPORT
Amphibious Assaults, Raids and Demonstrations (pre-assault reconnaissance)	Conduct reconnaissance of beach approach lanes to identify topography, obstacles, and other potential hazards, as well as civilian and enemy activity in landing zones and other objective areas. Provide non-obtrusive tactical reconnaissance of helicopter ingress/egress routes and helicopter landing zones (HLZs).
Amphibious Assaults, Raids and Demonstrations (ship-to-shore movement)	Contribute to common tactical picture; provide over watch to craft in their assault lanes, craft landing zones (CLZs), etc. Assist in identifying any unknown surface craft posing threat to assault waves; detect initial enemy reactions.
Amphibious Assaults, Raids and Demonstrations (fire support)	Provide pre/post-strike reconnaissance, spotting for indirect fires (NSFS and shore-based), and post-attack bomb damage assessment (BDA).
Tactical Recovery of Aircraft and Personnel (TRAP) Missions	Locate and assess condition of downed aircraft, survey HLZs, ingress/egress routes, and provide warning of approaching threats. Maintain updates on survivor's position and status.
Non-Combatant Evacuation Operations (NEO)	Surveillance of key NEO collection points, landing zones, and main evacuation routes. Indications of potential hostile reactions, unruly crowds, etc.
Humanitarian Assistance/ Disaster Relief Operations (HA/ DR) and Defence Support to Civil Authorities (DSCA) missions	Initial damage assessment, trafficability, assessment for main supply routes, locating groups of survivors requiring assistance. IR capabilities can be particularly effective in assisting with the location of survivors during periods of darkness.
Strike Warfare	Pre- and post-attack target damage assessment.

19007 Counter-Piracy

MUS support for this mission area could include maritime surveillance of suspect vessel, VBSS support, and identifying possible pirate shore sites from among numerous littoral fishing villages. MUS can be used to establish pattern of life (POL) data for suspected bases or mother ships. They can provide security over watch of suspected pirate vessels and/or seized vessels. If a vessel is confirmed hostile, they can aid in targeting and engagement. Like any other ISR mission conducted against shore sites, MUS operations within territorial seas may (depending on the ROE and geopolitical situation) have to be coordinated with the host nation ahead of time.

19008 Antisubmarine Warfare

MUS, specifically UUVs are a force multiplier for ASW operations and can operate in a variety of conditions including foul weather and high sea states, deep and shallow water, tropical and arctic environments and day and night operations. Additionally, UUVs operate fully submerged with potentially low acoustic and electromagnetic signatures. In particular, they offer robust capability in the “Hold at Risk” scenario where MUS can monitor submarines that exit a port or choke point.

19009 Transit and Passage Operations

While all ships enjoy complete freedom of movement and operation on and over the high seas, navigational rights are restricted within recognized territorial seas, straits, and archipelagic seas. A vessel conducting innocent passage may not launch and recover aircraft (including MUS). Vessels conducting transit passage (in a United Nations Convention on the Law of the Sea (UNCLOS) Article 38 international strait) must proceed continuously and expeditiously from one end to the other of the strait in normal modes of operation—which could include overflight by a MUS in company. Vessels conducting archipelagic sea lane (ASL) transit are subject to generally the same restrictions as in transit passage.

So, while a warship may not have its MUS loiter independently over a strait or archipelagic sea lane, it may be appropriate for a warship to operate a MUS while in transit to assist with force protection. Both the transiting warship and the MUS must exercise due regard for the safety of navigation while performing a continuous and expeditious transit. In any case, mission planners should ensure that the pre-programmed lost link rally point is located outside of territorial seas and the strait and/or archipelagic sea lane.

19010 Search and Rescue

Narrow field of view (FOV) parameters limit the ability of a MUS to conduct visual searches in SAR situations. However, there are still a number of ways in which a MUS could aid an on-going SAR effort. While a MUS makes a less than ideal daytime visual search platform over a wide area, it can be used effectively to search the immediate area around a SAR datum. Additionally, its IR capabilities may make the MUS a useful asset for an IR datum search being conducted at night. The MUS can also assist in a SAR mission by serving as a communications relay platform.

If a survivor in the water has been located by other search means, but rescue will be delayed pending arrival of suitable recovery platforms, a MUS can be used to maintain visual contact with the survivor. It could also be used to keep track of floating debris fields which, though not the primary focus of the SAR, might prove useful to an accident investigation if recovered later.

19011 Naval Surface Fire Support

Fire support missions can come in a variety of forms, to include battlefield air interdiction (BAI), CAS, artillery, and NSFS. These actions can be carried out individually or as part of a complex combined arms mission executed from the supporting arms coordinating centre (SACC) or a fire support coordination centre ashore. They may be pre-planned missions designated on an ATO, or missions conducted in reaction to emerging battlefield intelligence. In each instance, the MUS can provide valuable support. A MUS can be used as a passive observer, providing pre- and post-strike imagery, or it can take a more active role in assisting with attack execution.

The current set of ship-based MUS are likely to be treated as direct support assets, meaning that mission tasking is unlikely to come from beyond the naval component. The one important exception to this rule are those occasions where MUS are supporting SOF missions.

19012 Counter-FAC/FIAC Mission

A reasonably inexpensive collection of small boats, if not properly identified and engaged, could inflict serious damages to vessels possessing superior firepower. FAC and FIAC can be described as small craft built to operate in shallow coastal waters that pack an offensive punch that is potentially deadly to large combatants. Tonnage varies from 300 pound personal watercraft to 200 ton (or greater) guided missile patrol craft. Speed capabilities are typically greater than 30 knots. Weapons vary from small arms, to surface-to-surface missiles (SSMs) and SAMs, or they may be loaded with explosives and employed as waterborne improvised explosive devices (WBIED).

Any ship-based MUS is capable of providing valuable assistance to Find, Fix, Track, and Assess phases of targeting.

Specific ways in which MUS can assist the SUWC/SCC and individual ships defending themselves during a FAC/FIAC encounter include:

- Observation of potential embarkation/marshalling points and anticipated avenues of approach.
- Imagery of raid formations and rough estimates of attacking force size and composition.
- VID of larger FAC participating in the raid.
- Visual evidence of armament being carried by FAC/FIAC crews.
- Observation of information/activities which can aid the SUWC/SCC or ship's tactical action officer (TAO)/commanding officer with ROE and hostile intent determinations.
- Positional updates on swarm and advisories of erratic manoeuvring or sudden course changes.

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Chapter 20 Maritime Information Warfare

20000 Information Warfare

Information warfare emphasises the importance of information as a cross-cutting function that formulates the backbone of other warfare areas. Principle warfare commanders will be required to fight in an increasingly complex information environment (IE) and therefore must consider the application of IW across the full spectrum of operations: warfighting, maritime security and defence engagement. Commanders will need to defend their use of the IE to enable freedom of action and their ability to conduct offensive and defensive activities within the IE.

20001 Command and Control in Information Warfare

a. The IWC is both a supporting and supported commander and assists the OTC/CWC in IW related mission areas and taskings in theater. The IWC is responsible to the CWC to create, plan and execute effects to influence, disrupt, corrupt, or deny the decisionmaking of adversaries while protecting friendly forces. The IWC continuously assesses the IE to support warfare commanders' objectives in accordance with CWC direction. Because the IWC is either in a supportive role or is being supported by the other PWCs, it is important to understand that they IWC must be capable of providing or maintaining sufficient tactical awareness to manage the information operations for the force. In the early stages of any operation, it is estimated that the IWC will be in the supported role principally concentrating his main efforts on the day-to-day functions and administrative responsibilities such as setting up networks and communications links as well as ensuring defensive cyber protocols are in-place, well understood and practiced. These two functional areas are called: assured C2 and battlespace awareness. However, due to the uniqueness of the IWC, he will also have functions whereby he is shaping the battlespace and thus require other warfare commanders to assist in the execution of those duties assigned. This functional area is called integrated and joint operations. Some examples of the IWC as the supported commander include but are not limited to:

- (1) Countertargeting, EMCON/OPSEC, electromagnetic manoeuvre warfare, TACSIT management and assessment, defensive cyber operations, and maintaining the strategic to tactical level narrative; and
- (2) Coordinating the taskings of the EW and surveillance air assets as part of the IWC functions in the intelligence preparation of the battlespace.

b. The IWC additionally supports the operational level efforts to achieve electromagnetic spectrum control. The IWC must be able to sense and exploit the electromagnetic spectrum, at the same time maintain the forces' electromagnetic agility and conduct electromagnetic fires. The IWC must maintain the ability to assess and shape the IE, maintain information superiority, develop and execute information operations effects and integrate those actions into the TG's scheme of manoeuvre. This close coordination between the warfare commanders is vital to the IW plan. As MIW warfighting concepts evolve to counter the adversaries' IW capabilities, it will be more evident that the IWC will need to be in a supported role vice supporting role. The pressure on the TG, through the technological developments of the adversary have resulted in the emergence of an increasingly complicated IE, which is contested not only by our adversaries, but by all other parties. This presents NATO opportunities to exploit, but also is a threat to our ability to defend. The IWC must adapt the conduct of operations, from the strategic to the tactical level of war. He must effectively understand and fight in not only the maritime, land, air and space domains, but also the IE that is dynamic, operating in sometimes limited or denied environments as a result of an adversaries' or TG's action.

20002 Information Technology

The emphasis in maintaining interoperability amongst NATO is a critical enabler to achieving decision superiority. The IWC must maximise the use of the TG's technology based solutions. The

IWC needs to understand how to optimise sensor acquisition, fusion, and information dissemination across the battlespace. As systems and their availability in maritime platforms develop, it will become increasingly apparent that the provision of equipment to connect to an increased mass of information is a far too simplistic approach to the problem. The skill and discipline of the IWC is to reduce the excessive grappling of information through the application of warfare procedures and plans that maximise the exploitation of that information and achieve information superiority and decision advantage. Technology must support the information flow in a timely manner to inform decisive military decisions and actions that generate a battle-winning effect on the adversary.

20003 Information Environment

The IWC needs to develop a comprehensive understanding of the IE to plan and conduct IW. The IE must therefore be an important consideration when identifying the commander's critical information requirements (CCIRs) and allocating resources. In order to identify those CCIRs, the IWC must fully understand what information-related capabilities are available in the TG, what and how systems supports the exchange of information to meet the CCIR and/or how does one access that specific piece of information in order to fight in any one of the battlespaces.

20004 Information Superiority

Information superiority is the competitive advantage gained through the continuous, directed and adaptive employment of relevant information functions, capabilities and behaviours. It is critical to mission success and treats information as a centre of gravity which can be exploited, defended and attacked. It enables the commander to better understand the situation and make decisions quicker and better than their adversary, thus maintaining the tactical advantage. The commander can then shape the IE to their advantage and to the disadvantage of their adversary. This can increase the commander's freedom of action and manoeuvre whilst limiting the adversary's. Unable to keep pace, the adversary will be presented, and ideally overwhelmed, with new problems before they can solve current ones.

20005 Assured Command and Control

Assured C2 protects our systems, our understanding, and our will and ability to operate in the IE. Assured C2 is the set-up, establishment, and the protection of existing networks and communications links and the resumptions of infected systems/files/databases. The commander's information exchange requirements must be coordinated through the operational and tactical level units. Due to the all-pervasive nature of the IEs and cyberspace operations, defensive information measures and resumption plans must be implemented with equal proficiency to ensure assured C2.

20006 Battlespace Awareness

Battlespace awareness (BSA) and its components are critical to all operations. It is the commander's tactical understanding of the strategic, operational and tactical environment in which the TF/TG is operating. The IWC ensures that BSA is provided to the commander in order for him to understand the tactical situation and accomplish a mission. BSA also enables the commander to adjust any scheme of manoeuvre while/if the situation develops. Failure to prioritize BSA activities increases the chances of mission failure by increasing the likelihood of the adversary seizing the initiative placing the force in an unfavourable condition. BSA encompasses intelligence and METOC analysis, the COP and fusion of all tactical data obtained from sensors, organic and non-organic, as well as the strategic understanding gained from joint task force commanders, regional operational commanders and other information found within operational plans and directives.

20007 Maritime Information Warfare—Integrated and Joint Operations

The maritime force must be proactive, but more importantly agile to react to a change in the IE and commander's plans to achieve mission effects. The IWC within maritime information warfare facilitates

the relationships relative to the strategic, operational and tactical levels of command when conducting NATO missions and operations in order to achieve success in the IE. NATO's approach to joint operations at all levels will integrate a full spectrum approach through the various levels of command down to the tactical level. The joint targeting process will be applied to ensure integration of IRCs with the other lethal and non-lethal means. For those information activities developed at the strategic level, and planned at the operational level, it is up to the IWC to formulate and then execute plans in accordance with the OTC scheme of manoeuvre.

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SECTION I—GLOSSARY

Terms and Definitions from AAP-06 are in italics.

acknowledgement. *A message from the addressee informing the originator that his communication has been received and understood.*

acoustic countermeasures (ACM). That division of acoustic warfare involving actions taken to prevent or reduce an enemy's effective use of the underwater acoustic spectrum. Acoustic countermeasures involve intentional underwater acoustic emissions for deception or jamming.

acoustic protective measures (APM). That division of acoustic warfare involving actions taken to ensure friendly effective use of the underwater acoustic spectrum, despite the enemy's use of acoustic energy. Acoustic protective measures involve anti-acoustic warfare support measures and anti-acoustic countermeasures, and may not involve underwater acoustic emissions.

acoustic warfare (AW). *In an underwater environment, the use of acoustic energy to provoke, exploit, restrict or prevent hostile use of the acoustic spectrum and the implementation of any measures taken to restrict its use to friendly forces.*

acoustic warfare support measures (AWSM). *In an underwater environment, actions taken to search for, intercept and identify radiated acoustic energy for the purpose of exploiting such radiation.*

Note: The use of these measures involves no intentional underwater acoustic emission and is generally not detectable by hostile forces.

active electronic protective measures. *Detectable measures, such as altering transmitter parameters as necessary, to ensure effective friendly use of the electromagnetic spectrum.*

active mine countermeasures. Countermeasures directed toward the destruction of mines after they have been laid—including minesweeping, minehunting, and explosive ordnance disposal operations.

advance. The distance gained by a ship in the direction of the original course while turning.

airborne alert. *A state of aircraft readiness wherein combat-equipped aircraft are airborne and ready for immediate reaction.*

airborne early warning (AEW). Air surveillance provided by AEW aircraft equipped with search and height-finding radar and communications equipment.

air controller. *An individual especially trained for and assigned the duty of the control (by use of radio, radar, and other means) of such aircraft as may be allotted to him for operation within his area.*

air corridor. *A restricted air route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces.*

air resource element coordinator (AREC). The officer who is assigned responsibility for coordinating the employment of organic air assets other than those assigned to the helicopter element coordinator.

aircraft control unit (ACU). *A unit with facilities and personnel, including controllers, for conducting aircraft control and which exercises tactical control of aircraft or a unit(s).*

aircraft handover. *The process of transferring control of aircraft from one controlling authority to another.*

air-to-air refuelling (AAR) towline. The line along which a tanker aircraft will be stationed for the purpose of refuelling combat aircraft.

airway. *A control area or portion thereof established in the form of a corridor marked with radio navigational aids.*

alert state. The maximum time in minutes required to bring an aircraft or weapons system (or part of it) to immediate availability.

altitude. The vertical distance of a level, a point, or an object considered as a point, measured from mean sea level.

anti-air warfare area. An area prescribed by the OTC which is kept under constant surveillance and within which any air threat is opposed.

antisubmarine warfare commander (ASWC). The officer delegated some or all of the OTC's detailed responsibilities for antisubmarine warfare, and granted the tactical control authority to accomplish the associated missions and tasked to carry out those responsibilities. In ASW operations with SSN(DS) in the direct support role, the ASWC is that officer who has tactical control of the ASW assets, including the SSN(DS).

antisubmarine warfare free area (ASWFA). *In naval warfare, a waterspace management area in which no friendly submarines are operating and in which there are no restrictions on the use of antisubmarine weapons.*

antisurface ship missile (ASSM). Any missile (ASM, SASS, SSM, USM) used in the role of attacking surface units.

approach corridor. A safety corridor established for direct return of friendly aircraft through the vital area, including missile engagement zones if necessary.

approach sector. A safety sector more flexible than an approach corridor established for direct return of friendly aircraft through the vital area, including missile engagement zones if necessary, and normally designated in conjunction with the stationing in the sector of a tacan-equipped approach control picket.

area operations. *In maritime usage, operations conducted in a geographical area and not related to the protection of a specific force.*

associated support. *In naval usage, operations in which a designated unit operates independently of a specified force or group, but is tasked to provide contact information to, receive intelligence from and, if authorized, to cooperate and coordinate operations with the supported force. Tactical control of the unit remains with the assigning authority who coordinates tasking and movement of the unit in response to the requirements of the supported force commander.*

asymmetric attack. Actions undertaken by state or non-state parties to circumvent or negate an opponent's strengths and capitalise on perceived weaknesses through the exploitation of dissimilar values, strategies, organizations and capabilities. Such actions are capable, by design or fault, of achieving disproportionate effects, thus gaining the instigator an advantage probably not attainable through conventional means.

asymmetric threat. *A threat emanating from the potential use of dissimilar means or methods to circumvent or negate an opponent's strengths while exploiting his weaknesses to obtain a disproportionate result.*

authentication. *A security measure designed to protect a communication system against fraudulent transmissions.*

axis. A reference line originating at formation or disposition centre used for stationing units or formations respectively.

barrier combat air patrol. A patrol of fighter aircraft employed between a force and an objective area as a barrier across the probable direction of enemy attack. Used as far from the force as control conditions permit, to give added protection against raids along the most direct approach routes.

barrier line. The line formed by a series of static devices or mobile units arranged for the purpose of detecting, denying passage to, or destroying enemy submarines.

base course. A reference course or direction desired to be made good when evasive steering is being carried out.

base speed. The speed resulting along the base course when evasive steering is being carried out.

bearing. The horizontal angle measured clockwise from a reference direction to a specified direction.

blind bombing zone. *A restricted area (air, land, or sea) established for the purpose of permitting air operations, unrestricted by the operations or possible attack of friendly forces.*

bomb lines. Lines designated over land areas by ground forces which can be identified easily by terrain features in order to delimit attacks by friendly aircraft.

brevity code. *A code which provides no security but which has as its sole purpose the shortening of messages rather than the concealment of content.*

NOT RELEASABLE

cavitation speed. The speed for an individual ship at which propeller blade cavitation is the predominant factor in the ship's acoustic signature.

Cartesian coordinate grid. The grid (Cartesian coordinate) used for rapid reporting of position in a form compatible with ADP systems (see Chapter 2 for detailed description).

chaff. *Strips of frequency-cut metal foil, wire, or metallized glass fibre used to reflect electromagnetic energy, usually dropped from aircraft or expelled from shells or rockets as a radar countermeasure.*

chain of command. *The succession of commanding officers from a superior to a subordinate through which command is exercised.*

chainsaw. A two-phase AAW tactic designed to provide threat detection and engagement at extended ranges from the Battle Group.

change of operational control (CHOP). *The date and time (Greenwich Mean Time/Greenwich Civil Time) at which the responsibility for operational control of a force or unit passes from one operational control authority to another.*

checkpoint. *Geographical location on land or water above which the position of an aircraft in flight may be determined by observation or by electronic means.*

checksum digits. The summation of the numbers in positions, courses, speeds, and times to avoid confusion caused by errors in transmission of RATT signals.

circular formation. A tactical arrangement of units stationed on concentric circles and oriented clockwise from a formation axis to provide flexibility of manoeuvre while at the same time retaining protection from air and subsurface threats.

close ASW action. An action in which one or more ASW units attempt to engage an enemy submarine from within the TDA.

code word. *A word which has been assigned a classification and a classified meaning to safeguard intentions and information regarding a classified plan or operation.*

column. A line in which ships form directly ahead or astern of the line guide.

combat air patrol (CAP). *An aircraft patrol provided over an objective area, the force protected, the critical area of a combat zone, or in an air defence area, for the purpose of intercepting and destroying hostile aircraft before they reach their targets.*

command. *The authority vested in a member of the armed forces for the direction, coordination, and control of military forces.*

command system. The command system is formed by the chain of command and includes the means necessary to distribute orders and collect, evaluate, and disseminate information.

communications intelligence (COMINT). *Intelligence derived from electromagnetic communications and communication systems by other than intended recipients or users.*

composite warfare commander (CWC). *That officer to whom the officer in tactical command has assigned some or all of his authority and responsibilities for the overall direction and control of the defence of his force.*

confusion. Measures taken to make an enemy's target identification and selection more difficult.

consolidation. The transfer of all types of cargo between replenishment ships to enable some of them to be emptied so that they can return to base or reload.

contact lost. *A target tracking term used to signify that a target believed to be still within sensor coverage is temporarily lost but the termination of track plotting is not warranted.*

contact mine. *A mine detonated by physical contact.*

contact report. *A report indicating any detection of the enemy.*

control. *The authority exercised by a commander over part of the activities of subordinate organizations, or other organizations not normally under his command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated.*

control ship. The ship in a replenishment unit that controls the operation.

convergence zone. The annular zone, which occurs in the deep ocean, where spread sound rays refracted from the depths arrive concentrated near the surface. The repeated occurrence of these zones as concentric annuli to several hundred miles from the sound source depends on the refraction of sound rays at depth and the reflection of these rays at the surface.

convoy. *A number of merchant ships or naval auxiliaries, or both, usually escorted by warships and/or aircraft, or a single merchant ship or naval auxiliary under surface escort, assembled and organized for the purpose of passage together.*

convoy escort. *An escort to protect a convoy of vehicles from being scattered, destroyed or captured.*

convoy route. *The specific route assigned to each convoy by the appropriate routing authority.*

coordination. The establishment in operations, according to a changing situation, of an orderly correlation in time and place of planned actions in order to achieve the best overall result. In the maritime environment, the term coordination may include certain specified control functions.

course made good over the ground (COG). The direction in which a ship has proceeded, measured between two geographic positions.

course made good through the water (CTW). The direction in which the ship is proceeding, resulting from the effect of weather but not the effect of current or tidal stream on the signalled or base course.

critical angle towed-array system (CATAS). A towed-array system whose depth is dependent upon towing ship speed and the length and weight of the towing cable only.

crossover zone. The airspace between a missile engagement zone and a fighter engagement zone to separate the two for anti-air warfare and air coordination purposes.

customer ship. *The ship in a replenishment unit that receives the transferred personnel and/or supplies.*

damage control. *In naval usage, measures necessary aboard ship to preserve and re-establish water-tight integrity, stability, manoeuvrability, and offensive power; to control list and trim; to effect rapid repairs of materiel; to limit the spread of, and provide adequate protection from, fire; to limit the spread of, remove the contamination by, and provide adequate protection from, toxic agents; and to provide for care of wounded personnel.*

data link. A communication link suitable for transmission of data.

data link reference point (DLRP). A geographic reference position representing the origin of a Cartesian coordinate system in which track positions are reported within a force.

datum. *Any numerical or geometrical quantity or set of such quantities which may serve as reference or base for other quantities. Where the concept is geometric, the plural form is "datums" in contrast to the normal plural "data".*

datum error. An estimate of the degree of accuracy in the reported position of datum.

datum time. The time when contact with a submarine or suspected submarine was lost.

deception. *Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce him to react in a manner prejudicial to his interests.*

deck alert. An aircraft alert state expressing the time in minutes required for a specified number and type of aircraft to become airborne after the order to launch has been given.

defence in depth. In maritime operations, the stationing of mutually supporting units or formations designed to absorb and progressively weaken an attack, prevent initial observations of the whole formation or disposition by the enemy, and allow the officer in tactical command to manoeuvre to oppose the threat.

degree of readiness. The amount of operational capability of a unit which is currently available.

delegation of authority. *An action by which a commander assigns to a subordinate commander a clearly stated part of his authority.*

deliberate attack. *A type of offensive action characterized by preplanned coordinated employment of fire power and manoeuvre to close with and destroy or capture the enemy.*

departure point. *A navigational check point used by aircraft as a marker for setting course.*

depressed towed-array system (DTAS). A towed-array system which is taken to desired depth by a towed body or depressor.

detection. *The discovery by any means of the presence of a person, object or phenomenon of potential military significance.*

direction. The process of planning, decisionmaking, establishing priorities, formulating policies, and imposing decisions.

direct support. *1. The support provided by a unit not attached or under the command of the supported unit or formation, but required to give priority to the support required by that unit or formation. 2. In maritime usage, operations related to the protection of a specific force by other units, normally under the tactical control of that unit.*

dispersion. *The spreading of troops, materiel, establishments, or activities which are usually concentrated in limited areas to reduce vulnerability.*

disposition. *1. Distribution of the elements of a command within an area, usually the exact location of each unit headquarters and the deployment of the forces subordinate to it. 2. A prescribed arrangement of the stations to be occupied by the several formations and single ships of a fleet, for any purpose, such as cruising, approach, maintaining contact, or battle.*

disposition axis. A reference line for stationing two or more formations in relation to each other.

dissemination. The timely conveyance of intelligence in a appropriate form and by any suitable means, to those who need it.

distance. The space in yards between ships in a line.

distraction. Measures taken to offer alternative targets to a weapons control or missile homing system so that a false target is selected.

diversion. *A change made in a prescribed route for operational or tactical reasons. Except in the case of aircraft, a diversion order will not constitute a change of destination.*

division. *A tactical unit/formation as follows: a. a major administrative and tactical unit/formation which combines in itself the necessary arms and services required for sustained combat, larger than a regiment/brigade and smaller than a corps; b. a number of naval vessels of similar type grouped together for operational and administrative command, or a tactical unit of a naval aircraft squadron, consisting of two or more sections; c. an air division is an air combat organization normally consisting of two or more wings with appropriate service units. The combat wings of an air division will normally contain similar type units.*

drifting mine. *A buoyant or neutrally buoyant mine free to move under the influence of waves, wind, current, or tide.*

electromagnetic spectrum. *The entire and orderly distribution of electromagnetic waves according to their frequency or wave length. Note: The electromagnetic spectrum includes radio waves, microwaves, heat radiation, visible light, ultraviolet radiation, x-rays, electromagnetic cosmic rays and gamma rays.*

electronic countermeasures (ECM). *That division of electronic warfare involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum through the use of electromagnetic energy. There are three subdivisions of electronic countermeasures: electronic jamming, electronic deception and electronic neutralization.*

electronic deception. *In electronic countermeasures, the deliberate radiation, re-radiation, alteration, absorption or reflection of electromagnetic energy in a manner intended to confuse, distract, or seduce an enemy or his electronic systems.*

electronic intelligence (ELINT). *Intelligence derived from electromagnetic non-communications transmissions.*

electronic jamming. *The deliberate radiation, reradiation or reflection of electromagnetic energy with the object of impairing the effectiveness of hostile electronic devices, equipment or systems.*

electronic neutralization. *In electronic countermeasures, the deliberate use of electromagnetic energy to either temporarily or permanently damage enemy devices which rely exclusively on the electromagnetic spectrum.*

electronic order of battle (EOB). *A list of emitters used by a force or in a scenario with specific information on the electromagnetic characteristics, parameters, locations and platforms of these emitters.*

electronic protective measures (EPM). *That division of electronic warfare involving actions taken to ensure effective friendly use of the electromagnetic spectrum despite the enemy's use of electromagnetic energy. There are two subdivisions of electronic protective measures: active electronic protective measures and passive electronic protective measures.*

electronic warfare (EW). *Military action that exploits electromagnetic energy to provide situational awareness and achieve offensive and defensive effects.*

electronic warfare support measures (ESM). *That division of electronic warfare involving actions taken to search for, intercept, and identify electromagnetic emissions and locate their sources for the purpose of immediate threat recognition. It provides a source of information required for immediate decisions involving electronic countermeasures, electronic protective measures, and other tactical actions.*

EMCON plan. The plan ordered by an OTC to effect his emission policy and implement emission control.

emergency signals. A means of promulgating a threat requiring an expeditious or immediate action as a result of either a subjective tactical decision or an automatic response, thereby sacrificing some measure of evaluation.

emission control (EMCON). *Selective control of emitted electromagnetic or acoustic energy. The aim may be twofold; a. to minimize the enemy's detection of emissions and exploitation of the information so gained; b. to reduce electromagnetic interference, thereby improving friendly sensor performance.*

emission policy (EP). The policy which states what electromagnetic and acoustic emissions may be allowed.

endurance. *The time an aircraft can continue flying, or a ground vehicle or ship can continue operating, under specified conditions; e.g., without refuelling.*

escape course. Ships steer 90° away from fallout axis at maximum speed in order to leave the fallout hazard area before fallout arrival.

escort. A combatant unit(s) assigned to accompany and protect another force or convoy.

estimated time of arrival (ETA). The time of arrival at the entrance to the harbour (passing breakwaters), or, when point X is established, the time of arrival at point X. For aircraft, it is the time of arrival from an airfield, target, CAP station, and so forth.

estimated time of departure (ETD). The time of passing the entrance to the harbour (passing breakwaters), or, when point A is established, the time of passing point A. For aircraft, it is the time of departure from an airfield, target, CPA station, and so forth.

evasion. *Measures taken either to avoid or escape detection, or to break contact with a hostile or potentially hostile unit.*

fighter engagement zone (FEZ). The airspace beyond the cross-over zone out to limits as defined by the OTC, taking into account the fighter's combat radius and effective weapon range.

fleet. An organization of ships, aircraft, Marine forces, and shore-based activities all under the command of a commander or a commander-in-chief who may exercise operational as well as administrative control.

flight operations course and speed. The course and speed used by a ship when launching or recovering aircraft.

flotilla. An administrative or tactical organization consisting of two or more squadrons together with such additional ships as may be assigned as flagships or tenders.

formation. *An ordered arrangement of two or more ships, units, or aircraft proceeding together under a commander.*

formation centre. A position designated by the OTC as the centre of a formation, normally the geometric centre; station zero in a circular formation; also, the point of origin of a formation axis.

full command. *The military authority and responsibility of a commander is to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within*

national services. Note: the term “command” as used internationally, implies a lesser degree of authority than when it is used in a purely national sense. No NATO or coalition commander has full command over the forces assigned to him since, in assigning force to NATO, nations will delegate only operational command or operational control.

furthest-on-circle. An expanding circle centred on a datum or search centre of which the radius at any one time is a command estimate of maximum submarine travel from datum plus datum error.

GRASSHOPPER. A procedure to allow a transiting surface force, at short notice, the maximum freedom for the use of ASW weapons by minimizing the size of a SAA or JTAA in the quickest possible way.

grid lock. The procedure in the CCG system that is employed to reduce errors in reporting caused by errors in the estimated position of the reporting unit.

grid origin. The centre of the grid in the CCG system from which X and Y coordinates originate; it is based on a geographic reference position.

guard-ship. *A ship detailed for a specific duty for the purpose of enabling other ships in company to assume a lower degree of readiness.*

guide. A ship on which other ships take station when forming up or keep station when formed; usually, the ship on which all units of a formation (or all formation guides of a disposition) take and keep station. Also see ATP-01, Vol. II, for further details.

hard kill. In ASMD hard-kill measures are those which directly damage a missile by impact.

height. *The vertical distance of a level, a point, or an object considered as a point, measured from a specific datum.*

helicopter action group (HAG). A unit comprised of two or more helicopters which are assigned to counter a particular surface threat.

helicopter dipping sonar. A sonar transducer deployed and recovered by a maritime patrol helicopter.

helicopter element coordinator (HEC). The officer who is assigned responsibility for the coordination of employment of organic helicopters other than those retained by the AREC.

helicopter windline screen. A helicopter screen provided for a carrier temporarily during flight operations, relative to the carrier's track into the wind.

HOVERTAC. An attack conducted by a dipping helicopter on its own target while maintaining sonar contact.

identification. The assignment of one of six standard identities, based upon available data and the determined identification criteria.

identification criteria. Criteria laid down by the OTC or delegated authority to determine which standard identity can be assigned to a detected contact based on the available localization and recognition data.

identification safety range (ISR). 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 enemy.

independent. *A merchant ship under naval control sailed singly and unescorted by a warship.*

influence mine. *A mine actuated by the effect of a target on some physical condition in the vicinity of the mine or on radiations emanating from the mine.*

inner defence zone (IDZ). A circle around each CV used to coordinate fighter and missile engagements.

inner defence zone coordinator (IDZC). The TDS tasked to coordinate fighter and missile engagements within the IDZ.

integrated operations. Operations under which a designated unit is attached to a specific task force/group under tactical command (TACOM) and tactical control (TACON) of the OTC of the specified task force/group. Upon receiving TACOM, the OTC assumes the responsibility for all operations and safety of the assigned unit. Operational control (OPCON) remains with the assigning authority.

intercepting search. *A type of search designed to intercept an enemy whose previous position is known and the limits of whose subsequent course and speed can be assumed.*

joining. 1. The procedure whereby an aircraft commander transfers tactical control of his aircraft to the officer in tactical command. 2. A ship or group of ships which have sailed independently and subsequently rendezvous with a main body or convoy.

NOT RELEASABLE

Joint Restricted Frequency List (JRFL). A listing of frequencies which map the use of the EM spectrum within the area of responsibility. The JRL is composed of Taboo, Protected, and Guarded Frequencies.

kill line. The kill line is a line around nominated friendly forces, promulgated by the OTC/PWC, stating the range by which it is desired that the enemy has been engaged.

large ship. *A ship over 137 metres (or 450 feet) in length.*

line. A formation in which ships are formed along a straight line extending in any direction from the line guide but not directly ahead or astern.

line of bearing. A line in which ships form in a straight line on a line guide in any direction except ahead, astern, or abeam.

link. *In communications, a general term used to indicate the existence of communications facilities between two points.*

localization. The determination of positional information and the movements of a contact.

loose line abreast. A formation in which ships stay within 15 degrees of the Guide or ship indicated relative to the base course.

NOT RELEASABLE

magnetic anomaly detector (MAD). A device which detects the presence of magnetic materials by recording the distortions they produce in the normal magnetic field of the earth.

main body. Any group of warships and naval auxiliaries, or a single ship escorted by warships and/or aircraft, and not designated a convoy.

material torpedo countermeasures. Noise reduction methods, decoys, noisemakers, jammers, degaussing equipment, and so forth, designed to reduce the effectiveness of torpedoes once they have been fired.

maximum effective torpedo firing range (METFR). This is the maximum distance at which a torpedo may be fired with a reasonable probability of achieving the desired result. This must include the submarine's ability to obtain adequate fire control information.

maximum sonar speed. The maximum speed at which an individual ship can proceed without unacceptably degrading its sonar performance.

maximum speed. The highest speed at which a ship is capable of proceeding when using full power.

MEADOW. A static submarine haven effective only during the period, and in the area, that Operation GRASSHOPPER is in effect.

mercantile convoy. A convoy consisting of merchant ships controlled by the naval cooperation and guidance for shipping (NCAGS) organization.

military convoy. *A land or maritime convoy that is controlled and reported as a military unit. A maritime convoy can consist of any combination of merchant ships, auxiliaries or other military units.*

military grid. Two sets of parallel lines intersecting at right angles and forming squares; the grid is superimposed on maps, charts, and other similar representations of the surface of the earth in an accurate and consistent manner to permit identification of ground locations with respect to other locations and the computation of direction and distance to other points.

minehunting. Techniques for countering mines by mine hunters, based on determining the positions of individual mines and concentrating countermeasures on those positions (includes mine location and disposal).

minesweeping. *The technique of searching for, or clearing mines using mechanical or explosion gear, which physically removes or destroys the mine, or produces, in the area, the influence fields necessary to actuate it.*

missile engagement zone (MEZ). The airspace around a SAM ship in which missiles may be given freedom of operation.

moving haven (MHN). A moving area of specified dimensions established about a submarine or surface ship, extending about the ordered position along the track, and which is designated for use in transit by the unit to prevent attack by friendly forces in wartime and to prevent or minimize submerged interference among friendly forces in peacetime.

naval cooperation and guidance for shipping (NCAGS). *The provision of NATO military cooperation, guidance, advice, assistance and supervision to merchant shipping to enhance the safety of participating merchant ships and to support military operations.*

normal speed. The speed at which ships are to proceed if a signalled speed has not been ordered.

NOT RELEASABLE

notice. The alert state in hours for a ship's propulsion system.

officer in tactical command (OTC). *In maritime usage the senior officer present eligible to assume command or the officer to whom he has delegated tactical command. When a task organization is established, the senior commander present of that organization becomes OTC unless otherwise ordered.*

oiler. *A naval or merchant tanker specially equipped and rigged for replenishing other ships at sea.*

operational command (OPCOM). *The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control as the commander deems necessary. Note: It does not include responsibility for administration.*

operational control (OPCON). *The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not include the authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control.*

operational speed. The highest speed at which ships will be required to proceed during a particular operation or during a stated period.

operation order. *A directive, usually formal, issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation.*

optimum sonar speed. The speed for an individual surface ship at which, over a period, it can achieve a maximum swept area with its sonar in the prevailing environmental conditions.

order. *A communication, written, oral, or by signal, which conveys instructions from a superior to a subordinate.*

outer defence zone (ODZ). An area encompassing the AAW surveillance area outside the IDZ to a range equivalent to the maximum sensor range of assets stationed outside the IDZ.

outer defence zone coordinator (ODZC). Unit tasked to coordinate the outer air battle and all CAP entering the ODZ. The ODZC is normally an AEW aircraft.

passive EPM. *Undetectable measures, such as those in operating procedures and technical features of equipment, to ensure effective friendly use of the electromagnetic spectrum.*

passive mine countermeasures. Measures intended to localize the threat, locate the minefield, and reduce the risk to shipping. These measures are not concerned with the physical destruction of mines.

patrol. *A detachment of ground, sea, or air forces sent out for the purpose of gathering information or carrying out a destructive, harassing, mopping up, or security mission.*

picket. A unit operating outside the outer limits of screen sectors and under the tactical control of the OTC (or screen commander if delegated); it is stationed in a designated position with reference to the appropriate axis, or in a geographic position for a specific purpose, such as air warning.

picture compilation. All actions and activities aimed at compiling a plot.

NOT RELEASABLE

NOT RELEASABLE

NOT RELEASABLE

NOT RELEASABLE

position and intended movement (PIM). A reference position established by the OTC at a given time and a forecast of the course(s) and speed(s) expected to be made good over the ground.

precedence. *A designation assigned a message by the originator to indicate to communication personnel the relative order of handling and to the addressee the order in which the message is to be noted.*

prevention of mutual interference. *1. Procedures to prevent interferences between active or between active and passive electromagnetic or acoustic sensors of friendly forces.*

2. In submarine operations, a system of procedures to prevent, on the one hand, submerged collisions between friendly submarines, between submerged submarines and friendly ship towed bodies or between submerged submarines and any other underwater object, and, on the other hand, interferences with any underwater event.

probe. Any aircraft which carries out the visual identification of a specific target which has previously been located by another means.

prudent limit of endurance. *The time during which an aircraft can remain airborne and still retain a given safety margin of fuel.*

QQ. The standard position in the force for the centre of the front of the main body or convoy when not in circular formation.

radar coverage. *The limits within which objects can be detected by one or more radar stations.*

radar picket. *Any ship, aircraft, or vehicle, stationed at a distance from the force protected, for the purpose of increasing the radar detection range.*

radio silence. *A condition in which all or certain radio equipment capable of radiation is kept inoperative.*

range. *The distance between a given point and an object or target.*

receiving ship. *In replenishment at sea, the ship that receives the rig(s).*

recognition. *The determination of the nature of a detected person, object or phenomenon, and possibly its class or type. This may include the determination of an individual within a particular class or type.*

recognition confidence level. The degree of probability with which the recognition level is established.

recognition level. The level to which a contact must be recognized as to platform type, class, or individuality.

recognized picture. A compiled plot which satisfies the established criteria: the result of the picture compilation process.

reconnaissance. *A mission undertaken to obtain, by visual observation or by other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.*

reference position. The OTC's promulgated estimate of his navigational position at a given time.

release criteria. Criteria laid down by the OTC or delegated authority to be satisfied before weapon employment is authorized.

replenishment at sea (RAS). *Those operations required to make a transfer of personnel and/or supplies when at sea.*

replenishment course and speed. The course and speed ordered by the OTC for the replenishment unit's guide.

replenishment ships. Ships loaded with or supplying certain supplies and services to warships at sea.

replenishment unit. A group of ships consisting of one or more delivering ships with one or more receiving ships replenishing and ships in waiting and/or lifeguard stations.

restricted area. *1. An area in which there are special restrictive measures employed to prevent or minimize interference between friendly forces. 2. An airspace of defined dimensions, above the land areas or territorial waters of a state, within which the flight of aircraft is restricted in accordance with certain specified conditions.*

route. *The prescribed course to be travelled from a specific point of origin to a specific destination.*

safety lane. *Specified sea lane designated for use in transit by submarines and surface ships in order to prevent attack by friendly forces.*

safety sector. An airspace in the AAW area in which aircraft are safe from attack by friendly fighters, missiles, or self-defence weapons.

safety zone. *An area (land, sea, or air) reserved for non-combat operations of friendly aircraft, surface ships, submarines, or ground forces.*

scene-of-action commander (SAC). The officer who assumes tactical control of assigned units in a limited area, operating against a specific contact or datum. (Until such time as a SAU is formally detached, the first unit reporting contact by any means (sonar, radar, visual, or ESM) shall be deemed to be the scene of action commander.)

screen. *An arrangement of ships, aircraft, and/or submarines to protect a main body or convoy.*

screen centre. The point on which screen units are stationed, normally QQ or ZZ.

screen unit. A surface ship, fixed-wing aircraft, helicopter, or submarine employed in a screen.

search and attack unit (SAU). The designation given to a unit separately organized or dispatched from a formation to search for and attack submarines.

search centre. The origin or reference point of an ASW search when established at a point other than datum.

sector. *An area designated by boundaries within which a unit operates, and for which it is responsible.*

sector method. The method of stationing units by designating sectors defined by boundaries and depth limits from screen centre.

sector screen. A screen in which individual units are assigned particular sectors of responsibility according to their sensors and capabilities.

seduction. Measures taken to break or move an enemy weapon control or missile homing system away from its selected target.

self-identification. The indication by any act or means of your own friendly character or individuality.

self-protection mine countermeasures. All countermeasures, active or passive, taken by ships underway for their self-protection.

SELFAC. An attack conducted by a dipping helicopter on its own target after the helicopter has broken dip.

sensor. An equipment which detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected, or modified by objects.

sequence number. The number allocated to a ship by a unit commander to indicate its position in the line.

shadowing. The observation of an enemy unit or force, usually as a sequel to surveillance or reconnaissance, for the purpose of reporting its composition, location, movement, and any other relevant information.

shipping cooperation point. *A location where naval cooperation and guidance for shipping staff gather and disseminate information on local merchant shipping and naval operations and provide the means to brief merchant ships on risks, routing and protective measures.*

shore bombardment lines. *A ground line established to delimit bombardment by friendly surface ships.*

signalled course. The true course which is being or which is to be steered.

signalled speed. The speed in knots at which the Guide has been ordered to proceed.

signals intelligence (SIGINT). *The generic term used to describe communications intelligence and electronic intelligence when there is no requirement to differentiate between these two types of intelligence, or to represent fusion of the two.*

signature. The characteristic pattern of the target displayed by detection and identification equipment.

significant track. *In air defence, tracks of aircraft or missiles which behave in an unusual manner which warrants attention and could pose a threat to a defended area.*

Silent SAM. An AAW tactic that places a long-range SAM ship in a silent posture. The tactical picture is provided by an AEW aircraft via Link. When directed or when preplanned responses dictate, the Silent SAM ship engages the raid under attack based on Link data.

situation report. *A report giving the situation in the area of a reporting unit or formation.*

small ship. *A ship of 137 metres (or 450 feet) or less in length.*

soft kill. In ASMD soft-kill measures use devices such as ECM, chaff, or decoys to neutralize the missile.

sonobuoy. *An acoustic device, used mainly for the detection of submarines which, when activated, transmits information by radio.*

speed made good over the ground (SOG). The average speed at which a ship has covered the distance between two geographic positions.

speed made good through the water (STW). The result of the effect of weather but not the effect of current or tidal stream on the signalled or base speed.

speed of advance (SOA). *In naval usage, the speed expected to be made good over the ground.*

splash point. The point where a single weapon or the first weapon fired of a pattern should enter the water to have the highest probability of destroying the target; its location depends on target course, speed, and depth, and the characteristics of the weapon after it has entered the water.

squadron. An administrative or tactical organization consisting of two or more divisions of ships, plus such additional ships as may be assigned as flagships or tenders.

standard distance. Unless otherwise ordered, 500 yards between small ships in a line and 1,000 yards between a large ship and any other ship, large or small, in a line.

static havens. Specified sea areas for noncombat operations, including ship and submarine sanctuaries announced by theater, fleet, or equivalent commanders and exercise areas reserved for submarine operations and training in noncombat zones.

station. The position ordered by the OTC for a unit of a force when in formation or for a formation that is part of a disposition.

stationing speed. A speed slower than operational speed, specified for reasons of fuel economy.

subdivision. A tactical organization of ships within a division.

submarine action area (SAA). *A waterspace management area that contains one or more friendly submarines which are the only units that may use antisubmarine weapons within that area.*

submarine exercise area coordinator. *An authority who publishes permanently established national submarine exercise areas and lanes which have been agreed by the nations concerned.*

NOT RELEASABLE

submarine movement advisory authority. *The authority who monitors movements of submarines and ships operating variable depth sonar or towed arrays within his area of responsibility and advises the submarine operating authorities and, if necessary, units concerned, of possible mutual interference.*

submarine notice (SUBNOTE). *A message report originated by a submarine operating authority providing operational and movement instructions for submarines in peace and war, including transit and patrol area information.*

submarine operating authority. *The naval commander exercising operational control of submarines.*

NOT RELEASABLE

submarine patrol area (SPA). *A stationary area established to allow submarine operations unimpeded by submerged mutual interference.*

submarine safety lanes. Specified sea lanes used exclusively for submarines in transit to and from assigned patrol zones.

supplying ship. *The ship in a replenishment unit that provides the personnel and/or supplies to be transferred.*

support. *The action of a force, or portion thereof, which aids, protects, complements, or sustains any other force.*

support force. A force tasked by a higher authority to aid, protect, complement, or sustain another force.

surface action group (SAG). A unit comprised of surface ships, which may be supported by fixed-wing aircraft or helicopters, formed to counter a surface threat. Unless the OTC has designated a SAG commander, the senior of the commanding officers is the SAG commander.

surveillance. *The systematic observation of aerospace, surface or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means.*

surveillance combat air patrol. A patrol of fighter or attack aircraft employed over a hostile surface force for the purpose of countering the SSM threat.

surveillance towed array system (SURTAS). A towed-array system primarily designed for use in area ASW operations. It is normally a very long array designed to operate at low speed for low-frequency detection of a submarine's radiated noise.

sweep. An offensive mission by fighter aircraft to seek out and destroy enemy aircraft and other targets of opportunity in an allocated area of operations.

tactical bomb lines. Bomb lines prescribed by a troop commander beyond which he considers that properly coordinated bombing would not endanger his forces.

tactical command (TACOM). *The authority delegated to a commander to assign tasks to forces under his command for the accomplishment of the mission assigned by higher authority.*

tactical control (TACON). *The detailed and, usually, local direction and control of movements or manoeuvres necessary to accomplish missions or tasks assigned.*

tactical diameter. The distance along the perpendicular between the path of a ship on the original course and the path of the same ship when steadied on an opposite course after turning through 180° with a constant rudder angle.

tactical doctrine. The fundamental principles guiding the application of tactics.

tactical instructions. Directions and orders available for the execution of tactics.

tactical procedures. Prescribed modes (and methods) of implementing tactical instructions.

NOT RELEASABLE

tactical towed array system (TACTAS). A towed-array system primarily designed for use in ASW support operations. Its passive acoustic performance is optimized for submarine detection at higher tow speeds.

target acquisition. *The detection, identification, and location of a target in sufficient detail to permit the effective employment of weapons.*

target combat air patrol. A patrol of fighter aircraft maintained over an enemy target area to destroy hostile aircraft and to cover friendly shipping in the vicinity of the objective area in amphibious operations.

target radar. A radar, the detection of which would indicate the presence of enemy forces or that an attack is probable.

task designator. The number assigned to a task force, task group, or task element.

task element. A component of a task unit organized by the commander of the task unit or higher authority for accomplishing a specific task.

task force. *A component of a fleet organized by the commander of a task fleet or higher authority for the accomplishment of a specific task or tasks.*

task group. A component of a task force organized by the commander of the task force or higher authority for accomplishing specific tasks.

task organization. The organization of forces for operational purposes to provide the necessary flexibility for meeting changing operational requirements while retaining a clear indication of the chain of command.

task unit. A component of a task group organized by the commander of a task group or higher authority for accomplishing specific tasks.

threat and target emitters. A threat emitter is an emitter, normally associated with a weapon system, the detection of which might indicate that an attack on the force is imminent or in progress. A target emitter is an emitter, the detection of which would indicate the presence of enemy forces.

threat radar. A radar, the detection of which would indicate that an attack on the force is imminent or in progress.

threat warning. A means by which a commander can rapidly promulgate the evaluated type and degree of threat and specify the likelihood of attack.

time late of datum. The elapsed time between datum time and the arrival of a unit at datum.

time of attack. Time of arrival of the first weapon in the target area.

TOMCAT. A surface picket or picket group which is responsible for early identification of friendly aircraft returning, and for acting as a reference point for such aircraft when they proceed through the AAW area.

torpedo danger area (TDA). An area which encompasses and extends beyond a submarine contact threat datum furthest-on-circle or area-of-uncertainty by a distance equal to the threat submarine's METFR. This parameter is used by surface forces to maintain safe stand-off distances during ASW prosecutions and submarine avoidance actions.

NOT RELEASABLE

torpedo interference area (DOGBOX). An area within which units may interfere with or be endangered by ASW homing torpedoes.

track. 1. To display or record the successive positions of a moving object. 2. To lock on to a point of radiation and obtain guidance therefrom. 3. To keep a gun properly aimed, or to point continuously a target-locating instrument at a moving target. 4. The projection on the surface of the earth of the path of a spacecraft, aircraft or ship, the direction of which path at any point is usually expressed in degrees from North (true, magnetic, or grid).

transfer station. A ship's designated area equipped for replenishment at sea.

TT. The standard position in the force for the present position of the originator of the message.

turning circle. The path of a ship with a constant rudder angle.

turn-together. A manoeuvre in which all ships turn simultaneously, maintaining their true bearings and distances from the Guide.

type organization. The organization of units normally of the same type into flotillas/groups, squadrons, divisions, and subdivisions mainly for administrative and logistic purposes.

unit. A ship, aircraft, or submarine; or a small group of ships and/or aircraft acting as an entity.

urgent attack. An attack delivered with maximum rapidity against an enemy submarine located in a position such that it is considered an immediate threat, or as a measure to counter an enemy torpedo attack.

UTM. The grid used for naval bombardment and similar purposes, especially when ground forces and other forces are jointly engaged.

variable depth sonar (VDS). The term is normally used to describe a sonar whose transducer is towed beneath the parent ship with the object of improving sonar detection ranges. Helicopter and submarine sonars, although variable in depth, are not usually included.

vectored attack (VECTAC). Attack in which a weapon carrier unit (air, surface, or subsurface) not holding contact on the target, is vectored to the weapon delivery point by a unit (air, surface, or subsurface) which holds contact on the target.

voice call sign. A call sign provided primarily for voice communications.

war reserve modes (WRM). Characteristics or operating procedures of equipment or systems which are held in reserve for war or crisis.

WATCHDOG. A surface picket whose main task is AAW.

watch zone. A sector in which the assigned ship is responsible, subject to no overriding weapon coordination instructions from the AAWC, to ensure that air attacks on the unit or force do not take place unopposed.

waterspace management. *In naval warfare, a system of procedures for the control of antisubmarine weapons to prevent inadvertent engagement of friendly submarines.*

weapon danger area. An area measured in degrees either side of the weapon firing bearing and extending to the maximum safe range and maximum safe trajectory height of the weapon in use. For torpedoes, a specific area based upon weapon entry point.

weapon danger zone. In ASW operations, an area in which friendly units may be endangered by a friendly ASW weapon. The area comprising the weapon danger zone is based upon the type of weapon, method of employment, run pattern of a properly operating weapon, and estimated acquisition range. Upon launch of an ASW torpedo, this area may be designated a DOGBOX.

weapon release point. The point where a single weapon or the first weapon fired on a pattern is released so that it enters the water at the splash point. For aircraft attacks, it allows for the aircraft's direction, speed, and altitude of approach, and the characteristics of the weapon.

weapon(s) system. *A combination of one or more weapons with all related equipment, materials, services, personnel and means of delivery and deployment (if applicable) required for self-sufficiency.*

wheel. A manoeuvre to alter course in such a manner that all ships will be in their former relative positions on completion of the manoeuvre.

XX. The standard position in the force established by the OTC on which a search, enemy reporting, and so forth, is to be based.

YY. The standard position in the force for the present position of the addressee of a message.

zero time. The exact hour immediately preceding the time of execution of a tactical action or manoeuvre from which time measurement is recorded and reported in minutes. (If the time of execution is exactly an hour, that time will be zero time.)

ZIPPO plan. A plan which provides for preplanned reactions to various maritime warfare threats.

ZZ. The standard position in the force for the centre of the force (not to be used in a convoy).

SECTION II—LIST OF ACRONYMS AND ABBREVIATIONS

AAR	air-to-air refuelling
AAW	anti-air warfare
AAWC	anti-air warfare commander
AC	air coordinator
ACA	airspace control authority
ACM	acoustic countermeasures
ACO	airspace coordination order
ACP	Allied communications publication
ACU	aircraft control unit
ADC	air defence commander
AEW	airborne early warning
AF	amphibious force
AIMT	air interdiction of maritime targets
AIS	automated identification system
ALSS	advance logistic support site
AOA	amphibious objective area
AOC	air operations centre
AOI	area of interest
AOO	area of operations
AOP	area of probability
AOR	area of responsibility
APM	acoustic protective measures
ARCN	air reporting and control net
AREC	air resource element coordinator
ARM	antiradiation missile

AS	associated support
ASMD	antiship missile defence
ASSM	antisurface ship missile
ASUW	antisurface warfare
ASUWC	antisurface warfare commander
ASW	antisubmarine warfare
ASWACU	antisubmarine warfare aircraft control unit
ASWC	antisubmarine warfare commander
ASWFA	antisubmarine warfare free area
ATF	amphibious task force
ATO	air tasking order
AUV	autonomous underwater vehicle
AW	acoustic warfare
AWNIS	Allied Worldwide Navigational Information System
AWSM	acoustic warfare support measures
BDA	battle damage assessment
BW	biological warfare
C&R	coordination and reporting
C2	command and control
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAOC	combined air operations centre
CAP	combat air patrol
CASP	coordinated air/sea procedures
CATAS	critical angle towed-array system
CATF	commander amphibious task force
CBRN	chemical, biological, radiological and nuclear
CBRNE	chemical, biological, radiological, nuclear, and explosive

CMSC	cruise missile strike coordinator
CCG	Cartesian coordinate grid
CCOI	critical contact of interest
CFMCC	combined force maritime component commander
CHOP	change of operational control
CIS	communication and information systems
CLF	commander landing force
CMSC	cruise missile strike coordinator
COA	course of action
COI	contact of interest
COMINT	communications intelligence
COMPLAN	communication plan
COMSEC	communications security
CONOPS	concept of operations
COP	common operational picture
CORTAC	corrected tactical
CPA	closest point of approach
CRC	control and reporting centre
CRO	crisis response operation
CSAR	combat search and rescue
CSG	carrier strike group
CSP	communications security protection
CSW	course and speed made good through the water
CTF	commander task force
CTG	commander task group
CTU	commander task unit
CWC	composite warfare commander
DCG	deception group

DF	direction finding
DLRP	data link reference point
DNCS	data net control station
DS	direct support
DTAS	depressed towed-array system
DTG	day-time group
EAW	electronic and acoustic warfare
ECB	expendable communications buoy
ECM	electronic countermeasures
EDW	effective downwind
EEI	essential elements of information
ELINT	electronic intelligence
ELSEC	electronic security
EMC	electromagnetic compatibility
EMCON	emission control
EMI	electromagnetic interference
EMP	electromagnetic pulse
EMSEC	emission security
EO	electro-optical
EOB	electronic order of battle
EP	emission policy
EPM	electronic protective measures
ESG	expeditionary strike group
ESM	electronic warfare support measures
ETA	estimated time of arrival
ETD	estimated time of departure
EW	electronic warfare

EWC	electronic warfare coordinator
EWCC	electronic warfare coordination cell
FACA	force air coordination area
FADIZ	fleet air defence identification zone
FADIZ C	fleet air defence identification zone coordinator
FEZ	fighter engagement zone
FIAC	fast inshore attack craft
FL	flight level
FLC	force logistic coordinator
FLS	forward logistic site
FP	force protection
FPB	fast patrol boat
FPC	force protection coordinator
FPL	force protection level
FPOC	force protection operations centre
FRU	firing unit
FTC	force track coordinator
FTC-A	force track coordinator air
FTC-S	force track coordinator surface
FTC-SS	force track coordinator subsurface
FW	fixed-wing
Georef	World Geographic Reference System
GLC	group logistic coordinator
GPS	global positioning system
GRU	grid reference unit
HAG	helicopter action group
HCU	helicopter control unit

HEC	helicopter element coordinator
HF	high frequency
HIDACZ	high-density airspace control zone
HIFR	helicopter in-flight refuelling
HLZ	helicopter landing zone
HN	host nation
HNS	host-nation support
HQ	headquarters
HRP	helicopter reference point
HVU	high-value unit
IAW	in accordance with
ICAO	International Civil Aviation Organization
ID	identification
IDZ	inner defence zone
IDZC	inner defence zone coordinator
IE	information environment
IED	improvised explosive device
IFF	identification, friend or foe
IFR	instrument flight rules
IMC	instrument meteorological conditions
IMO	International Maritime Organization
IPROM	internal protective measures
IR	infrared
ISP	identification safety point
ISR	identification safety range
ITU	International Telecommunication Union
IW	information warfare

JAA	joint action area
JAAWSC	joint anti-air warfare support and coordination
JAOC	joint air operations centre
JF	joint force
JFC	joint force commander
JOA	joint operations area
JRFL	joint restricted frequency list
LAAWC	local anti-air warfare coordinator
LAC	launch area coordinator
LACAS	local air coordination area
LASWC	local antisubmarine warfare coordinator
LCC	land component commander
LDR	low data rate
LF	landing force
LFSP	landing force support party
LLA	limiting lines of approach
LLTR	low-level transit route
LOC	lines of communications
LPI	low probability of intercept
LRI	limited range intercept
LTV	leadthrough vessel
MACA	maritime air control authority
MAD	magnetic anomaly detector
MADVEC	magnetic anomaly detector verification
MARCOM	Allied maritime command
MAS	maritime air support

MATCONOF	materiel control officer
MATELO	Maritime Air Telecommunications Organization
MCC	maritime component commander
MCM	mine countermeasures
MCMV	mine countermeasures vessel
METFR	maximum effective torpedo firing range
MEU	mission essential unit
MEZ	missile engagement zone
MGRS	military grid reference system
MHN	moving haven
MHQ	maritime headquarters
MICO	maritime interface control officer
MIJI	meaconing, intrusion, jamming and interference
MIO	maritime interdiction operation
MIOC	maritime interdiction operations commander
MISREP	mission report
MLA	mean line of advance
MMSI	maritime mobile service identity
MNLC	multinational logistic commander
MNMF	multinational maritime force
MOVREP	movement report
MPA	maritime patrol aircraft
MRL	maritime rear link
MRO	military response option
MSC	major subordinate commander
MSFZ	missile seeker free zone
MSL	mean sea level

MSO	maritime security operations
MSTZ	missile seeker tight zone
MTF	message text format
MTMS	maritime tactical message system
MUS	maritime unmanned systems
MW	mine warfare
NAC	North Atlantic Council
NAD	non-acoustic detection
NATO	North Atlantic Treaty Organization
NBG	naval beach group
NCAGS	naval cooperation and guidance for shipping
NCS	network control station
NEDB	NATO Emitter Database
NEO	non-combatant evacuation operation
NMCM	naval mine countermeasures
NMW	naval mine warfare
NMWC	naval mine warfare coordinator
NSC	NATO Shipping Centre
NTDS	naval tactical data system
OAB	outer air battle
OCA	operational command authority
ODZ	outer defence zone
ODZC	outer defence zone coordinator
OPCOM	operational command
OPCON	operational control
OPDEC	operational deception
OPGEN	operations general

OPLAN	operation plan
OPORD	operational order
OPSEC	operations security
OPTASK	operation task
OSC	on-scene commander
OSSC	on-scene surveillance coordinator
OTC	officer in tactical command
OTH	over-the-horizon
OTHT	over-the-horizon targeting
PIM	position and intended movement
PMI	prevention of mutual interference
PRF	pulse repetition frequency
PROTAC	proposed tactical (amendment message)
PSR	predicted sonar range
PU	participating unit
PWC	principal warfare commander
QRS	quick reference system
RADC	regional air defence commander
RADFREQ	radar frequency
RADHAZ	radiation hazards
RAP	recognized air picture
RAS	replenishment at sea
RATT	radio teletype
RF	radio frequency
RMP	recognized maritime picture
ROE	rules of engagement
ROV	remotely operated vehicle

RSI	radiation status indicator
RSP	recognized surface picture
RTC	reduced tactical communication plan
RTF	return to force
RW	rotary wing
SAA	submarine action area
SAAWC	sector anti-air warfare coordinator
SAC	scene-of-action commander
SACEUR	Supreme Allied Commander Europe
SAG	surface action group
SAGC	surface action group commander
SAM	surface-to-air missile
SAR	search and rescue
SASS	surface-to-air in the surface-to-surface mode
SASWC	sector antisubmarine warfare coordinator
SAT	submarine advisory team
SATCOM	satellite communications
SAU	search and attack unit
SC	screen commander
SCAR	strike coordination and reconnaissance
SCC	sea combat commander
SCP	shipping cooperation point
SCZ	ship control zone
SEAC	submarine exercise area coordinator
SEAD	suppression of enemy air defences
SEC	submarine element coordinator
SGSA	submarine-generated search area

SHF	super-high frequency
SIF	selective identification feature
SITREP	situation report
SITSUM	situation summary
SLCM	sea-launched cruise missile
SLOC	sea lines of communications
SLOT	submarine-launched one-way tactical (buoy)
SMAA	submarine movement advisory authority
SOA	speed of advance
SOCA	submarine operations coordinating authority
SOF	special operations force
SOLAS	safety of life at sea
SPA	submarine patrol area
SPM	self-protective measure
SRAD	susceptibility radiation hazard designator
SSIXS	submarine satellite information exchange subsystem
SSL	submarine safety lane
SSM	surface-to-surface missile
STW	strike warfare
STWC	strike warfare commander
SUBNOTE	submarine notice
SUBOPAETH	submarine operating authority
SUS	sound underwater signal
SUWC	surface warfare commander
SW	surface warfare
TACAN	tactical air navigation
TACC	tactical air control centre

TACOM	tactical command
TACON	tactical control
TACSIT	tactical situations
TAS	towed array sonar
TCM	torpedo countermeasures
TDA	torpedo danger area
TDL	tactical data link
TDS	tactical data system
TDZ	torpedo danger zone
TE	task element
TF	task force
TG	task group
NOT RELEASABLE	
TLAM	Tomhawk land and attack missile
TMA	target motion analysis
TOO	theatre of operations
TOT	time on target
TPL	target priority list
TPT	third-party targeting
TRAD	transmitter radiation hazard designator
TRU	target reporting unit
TSR	tactical sonar range
TTY	teletype
TU	task unit
UAV	unmanned aerial vehicle
UHF	ultrahigh frequency
URG	underway replenishment group

USW	undersea warfare
UTM	universal transverse Mercator
UWT	underwater telephone
VBSS	visit, board, search and seizure
VDS	variable depth sonar
VECTAC	vectored attack
VHF	very high frequency
VID	visual, identification
VMF	variable message format
VSTOL	vertical and short takeoff and landing
VTOL	vertical takeoff and landing
WMD	weapons of mass destruction
WSM	waterspace management

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