

---

# Sector Antiair Warfare Coordinator Handbook

---



---

**U.S. Marine Corps**

DISTRIBUTION STATEMENT A: Approved for public; distribution is unlimited

DEPARTMENT OF THE NAVY  
Headquarters United States Marine Corps  
Washington, DC 20380-1775

1 August 1997

FOREWORD

The Marine air command and control system (MACCS) provides the Marine aviation combat element commander with the means to exercise control of those organic and nonorganic aviation assets that are necessary to support Marine air-ground task force (MAGTF) operations. Fleet Marine Force Manual (FMFM) 5-60, *Control of Aircraft and Missiles*, addresses basic planning considerations for MACCS operations, employment, and interoperability among MACCS and joint Service agencies.

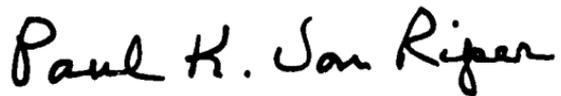
Marine Corps Warfighting Publication (MCWP) 3-25.6, *Sector Antiair Warfare Coordinator Handbook*, complements and expands on the information in FMFM 5-60 by focusing on the details of sector antiair warfare coordinator (SAAWC) operations and the role the SAAWC plays in MAGTF, joint, and multinational operations. Designated for MAGTF, naval expeditionary force, and joint force commanders and staffs, this publication highlights SAAWC—

- Organization
- Equipment
- Planning considerations
- Operational fundamentals
- Employment options

By investigating these areas, MCWP 3-25.6 provides the requisite information needed by commanders and staffs to understand and evaluate the operational principles and capabilities of various SAAWC employment options.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

A handwritten signature in black ink that reads "Paul K. Van Riper". The signature is written in a cursive, slightly slanted style.

PAUL K. VAN RIPER  
Lieutenant General, U.S. Marine Corps  
Commanding General  
Marine Corps Combat Development Command

DISTRIBUTION: 143 000013 00

# Sector Anti-air Warfare Coordinator Handbook

## Table of Contents

	Page
<b>Chapter 1. Fundamentals</b>	
Role	1-1
Tasks	1-2
Crew Organization	1-6
Crew Brief	1-9
<b>Chapter 2. System Description</b>	
Interim Sector Anti-air Warfare Facility	2-1
SAAWF Initiatives	2-7
<b>Chapter 3. Planning</b>	
Initial Planning	3-1
Intelligence Planning	3-3
Air Defense Specific Planning	3-4
Alternate Tactical Air Command Center/ Tactical Air Direction Center Planning	3-7
Joint/Multinational Operations Planning	3-8

---

## **Chapter 4. Operations**

Employment	4-1
Concept of Employment	4-2
Interagency Relationships	4-3
SAAWC Role in Amphibious Operations	4-5
SAAWC Role in Joint/Multinational Operations	4-7
SAAWC Role in the Alternate Tactical Air Command Center	4-8
SAAWC Role in Theater Missile Defense	4-9

## **Chapter 5. Training**

Individual Training	5-1
Crew Training	5-3
Unit Training	5-3
Evaluating Training	5-6

## **Appendices**

A Briefing Guide/Format	A-1
B Alternate Tactical Air Command Center Procedures	B-1
C Glossary	C-1
D References and Related Publications	D-1

# Chapter 1

## Fundamentals

Traditionally, personnel within the tactical air command center (TACC) and the tactical air operations center (TAOC) handled the bulk of the tasks associated with Marine air-ground task force (MAGTF) anti-air warfare operations, from planning through execution. Over the years, the flow of anti-air warfare operations information substantially increased in speed and volume. Consequently, the Marine Corps' sector anti-air warfare coordinator (SAAWC) concept evolved to enhance anti-air warfare operations and information flow in this dynamic area.

The SAAWC uses a staff of air defense experts to interface with the TAOC and the aviation combat element (ACE) commander's battlestaff in the tactical air command center. This interface allows the TAOC to focus on the real-time control of fighter aircraft and ground-based air defense weapons and the tactical air command center to concentrate on fighting the ACE as a whole. For simplicity, the SAAWC and his staff are referred to as the "SAAWC."

### ROLE

The SAAWC is the MAGTF's air defense battle manager. The SAAWC coordinates and manages all active air defense weapons (aircraft and ground-based air defense) within an assigned sector.

The SAAWC functions to the extent of authority delegated by the ACE commander.

The TAOC is an air command and control agency that executes air defense operations within an assigned area. The SAAWC is an extension of the TAOC, not a separate agency in and of itself. The SAAWC plans air defense operations, manages air defense resources, supervises the employment of air defense assets, and coordinates with higher and adjacent air defense agencies and activities. The fundamental difference between the TAOC and SAAWC responsibilities lies in the focus; *execution vice planning and coordination*. For more details on the TAOC, see MCWP 3-25.7, *Tactical Air Operations Center Handbook*.

## TASKS

The SAAWC participates in the initial planning process by—

- Establishing liaison with amphibious task force and/or joint force command aviation planners, as well as adjacent and subordinate units.
- Providing the ACE commander and the ACE commander's battlestaff with air defense operations expertise.
- Coordinating communications requirements with ACE/MAGTF communications planners.
- Recommending air defense courses of action to the ACE commander.

- Issuing directives, memorandums, or outline plans to subordinate units and hosting staff conferences or informal briefings as required.
- Conducting intelligence planning, which includes—
  - Developing intelligence requirements.
  - Obtaining and maintaining a complete enemy order of battle.
  - Establishing procedures for intelligence collection and dissemination.
  - Conducting electronic warfare planning, to include recommending emissions control (EMCON) procedures for inclusion in the electronic warfare appendix of the operations order.
- Recommending possible sites for the sector antiair warfare facility (SAAWF) (the SAAWC's suite of equipment) and the TAOC, early warning and control sites, and ground-based air defense units within the assigned sector based on a physical or map reconnaissance.
- Conducting air defense specific planning to support the ACE battlestaff in preparing the air defense portions of operation orders to include—
  - Assisting in the identification of critical assets and vital areas, and recommending MAGTF air defense priorities.
  - Coordinating the preparation of the ACE surveillance plan.
  - Establishing and coordinating air defense communications requirements.

- Recommending air defense control measures.
- Recommending the utilization of allocated air defense weapons platforms.
- Ascertaining availability of air-to-air missiles and surface-to-air missiles (SAMs) and providing recommendations for resupply plans.
- Coordinating establishment of airspace management/control procedures.
- Planning for the tactical redeployment/alternate siting of antiair warfare assets in response to changes in the surveillance plan, the threat, or the ground force positions.
- Identifying to the ACE/Marine air control group the need for airborne early warning aircraft to supplement radar coverage.

The SAAWC manages antiair warfare assets within an assigned sector, subject to the limits of authority delegated by the ACE commander, to include—

- Maintaining a thorough knowledge of the numbers, types, locations, and status of antiair warfare assets allocated to the sector.
- Coordinating with and briefing adjacent antiair warfare agencies on the air defense plan for the sector.
- Ensuring that rules of engagement and target identification criteria are fully understood by all those located at air command and control agencies, weapons platforms, and other antiair warfare assets within the sector.

- Setting air defense warning conditions for the sector.
- Setting air defense weapons control statuses for the sector.
- Activating and deactivating weapon engagement zones (WEZs) in the sector and allocating weapons platforms to active WEZs.
- Exercising launch authority, when delegated, over allocated air defense aircraft.
- Ensuring accurate status is maintained for all airborne air defense aircraft and disseminating aircraft statuses to higher and adjacent agencies as required.
- Ensuring that accurate status is maintained for all ground-based air defense units in the sector.
- Closely monitoring the status of all committed air defense weapons platforms and ensuring timely replacement of assets as required.
- Closely monitoring the operational status of Marine air command and control system (MACCS) anti-air warfare agencies in the sector and directing/recommending system reconfiguration (to include movement) of assets to ensure optimum surveillance and weapons engagement functions are maintained.
- Closely monitoring airspace management and control.
- Recommending airspace control procedure changes dictated by the tactical situation to the airspace control authority.
- Executing control of radar emissions as outlined in the ACE operation order's EMCON plan, making modification(s) as required by the tactical situation.

The SAAWC may assume portions of the tactical air command center's current operations section functions for a limited or specified duration should it become an operational casualty.

## **CREW ORGANIZATION**

The SAAWC uses a staff to accomplish the information flow essential to air defense battle management. The SAAWC normally exchanges information with the TAOC's senior air director and senior weapons director; and the ACE commander, senior watch officer, G-3 watch officer, senior air coordinator, and air defense coordinator at the tactical air command center. The SAAWC crew is normally a task-organized, ad hoc crew designed to meet each of the SAAWC's mission needs. A typical crew organization follows.

### **Sector Antiair Warfare Coordinator**

The SAAWC is the senior individual within the SAAWF and is responsible to the ACE commander for the effective management of air defense assets within the MAGTF's assigned area. The SAAWC must be experienced in air defense and thoroughly conversant on the capabilities and limitations of air defense assets within the SAAWC's assigned sector. The SAAWC normally coordinates with the ACE commander/senior watch officer over the command action net.

## **SAAWC Operations Officer**

The SAAWC operations officer facilitates the interface between the TAOC and the tactical air command center (TACC) as well as making recommendations to the SAAWC for the employment of air defense assets. The SAAWC operations officer coordinates with the TACC's air defense coordinator and the TAOC's senior weapons director over the air operations control net. When the SAAWF is collocated with the TAOC, the SAAWC operations officer will coordinate with the senior weapons director over an intercommunications system.

## **SAAWC Intelligence Officer**

The SAAWC intelligence officer provides the interface between the intelligence officers at various air defense units and the intelligence watch officer at the TACC. The intelligence officer is responsible for collecting, processing, and analyzing all available intelligence and disseminating that information throughout the TAOC. Based on available information, the intelligence officer may provide insight concerning probable enemy courses of action to the SAAWC.

## **SAAWC Ground-based Air Defense Representative**

The SAAWC ground-based air defense (GBAD) representative collects and manages information from supporting air defense units, the TAOC's missile controller, the SAAWC, and the SAAWC operations officer. The representative advises the SAAWC on the MAGTF's GBAD capabilities and employment; recommends GBAD states of alert to the SAAWC; and passes

intelligence information received from the GBAD units to the SAAWC and intelligence representative.

### **Aviation Representative**

When feasible, the SAAWC staff should be augmented by an aviation representative to provide specialist knowledge on matters concerning MAGTF aviation. When available, the aviation representative could assist the SAAWC and TAOC crew members on matters including fighter tactics; weapons parameters and load-outs; aircraft capabilities and limitations; tanker operations; and interpretation of threat tactics.

### **SAAWC Crew Chief**

When assigned, the SAAWC crew chief is responsible for the set-up, organization, and administrative functioning of the SAAWC in accordance with the SAAWC/SAAWC operations officer's direction.

### **SAAWC Plotters**

The SAAWC information plotters are responsible for maintaining timely and accurate information from which the SAAWC can make timely battle management decisions.

## **CREW BRIEF**

Crew briefs for the SAAWC staff are normally conducted prior to assuming watch and may be combined with the TAOC crew brief. The example of a SAAWC crew brief located at appendix A further defines the responsibilities of SAAWC crew members.



## **Chapter 2**

# **System Description**

Initiatives to develop a facility from which the SAAWC and the SAAWC staff can operate have resulted in a multiphase development, procurement, and fielding effort. An evolutionary interim SAAWF has been fielded to Marine air control squadrons to meet near-term SAAWC requirements.

### **INTERIM SECTOR ANTI-AIR WARFARE FACILITY**

The interim SAAWF is an adjunct to the AN/TYQ-23(V)1 tactical air operations module (TAOM). The SAAWF provides the equipment necessary for the SAAWC to perform anti-air warfare combat coordination functions.

### **Hardware Configuration**

The interim SAAWF consists of a gateway; four SPARC 20 workstations with monitors and expansion chassis for a 4.2 gigabyte hard drive and tape drive; a printer; a liquid crystal display with high-intensity overhead projector (5500 lumens) to provide large screen display capabilities; a personal computer for local area network/wide area network access; and transport cases.

## **Data Description**

The heart of the interim SAAWF is its gateway. The gateway provides access to the TAOM's digital data bus by ethernet connectivity. By accessing the TAOM's digital data bus via the gateway, the interim SAAWF is able to import data from the TAOM and use the TAOM's computers to process and display information on the interim SAAWF's workstations. Each workstation emulates the TAOM's operator console unit, including the air situation display and functional menu choices. The display provided within the interim SAAWF is the same display as is seen by the TAOC operator, except the emulation does not portray radar data.

## **Communications**

The interim SAAWF and the TAOC are electronically collocated; hence, certain communication assets may be shared. The interim SAAWF's gateway allows the SAAWF access to the TAOM's voice control bus. The SAAWC can access the TAOC's communications assets through voice control access unit emulation software resident on the interim SAAWF's workstations.

In addition to the communications afforded by the TAOMs, the SAAWF may include digital subscriber voice terminals, digital nonsecure voice terminals, commercial secure voice telephones, and stand-alone ultrahigh frequency, very high frequency, and high frequency assets to meet other SAAWC communications requirements.

## Shelter

The interim SAAWF configuration does not include its own shelter. Hence, many kinds of SAAWC shelters are being employed by Marine air control squadrons, including expandable shelters, tents, and high mobility, multipurpose wheeled vehicle variations. The most commonly used SAAWF shelter configuration consists of one or more rigid maintenance shelters that are included as part of the squadron's table of equipment. Regardless of the type of shelter considered for use, keys to determining its applicability include—

- Sufficient workspace to permit introduction of necessary communications equipment, situation display boards, and individual work areas.
- Controllable access.
- Transportable.
- Flexible enough in design to facilitate assumption of alternate TACC (Alt TACC) responsibilities, should the need arise.

## Situation Displays

The SAAWC requires numerous situation displays to maintain adequate awareness of the current air situation, plan utilization of air defense missions, and identify deficiencies in filling anticipated air defense requirements. Further, the SAAWC must have the assets required to assume the Alt TACC role, should the TACC become a casualty. These factors will drive the design of the situation display boards. The boards may be manual or automated, the latter using a personal computer-driven display.

Marine Corps Order (MCO) 3501.9B, *Marine Corps Combat Readiness Evaluation System (MCCRES)* outlines specific information elements that are required for display on the situation boards. An outline of some of the displays and their contents is provided below. Much of the information contained on these displays is available through the operator console unit emulation capability.

**Air Defense Mission Display.** This display contains relevant information from the air tasking order regarding scheduled air defense missions. The air defense mission display provides the SAAWC with a graphic, chronological display of scheduled air defense sorties which include combat air patrol (CAP), escort, sweep, and tanker missions. Examples of information listed on the air defense mission display include—

- Mission number.
- Aircraft call sign/type.
- Mission.
- Ordnance/fuel.
- Time on station.
- Time off station.
- Identification, friend or foe (IFF)/selective identification feature codes.
- Status (strip launch alert, airborne alert, etc.).
- Terminal control agency/CAP location.
- Terminal control frequency.

- Package designator.
- Routing information.
- Tanker availability/giveaway.

**Offensive Air Support Mission Display.** This display provides the SAAWC with a chronological depiction of scheduled offensive air support missions. It will list close air support, deep air support, air reconnaissance, electronic warfare, and offensive antiair warfare missions scheduled on the air tasking order. Information included on the offensive air support air tasking order mission display should mirror that information on the air defense mission display with particular care being taken to list both air-to-ground and air-to-air ordnance carried by the aircraft. This information will allow the SAAWC to have sufficient information available for recommendations to divert aircraft from offensive air support to antiair warfare roles if the need arises.

**Air Defense Situation Display.** The air defense situation display graphically presents the SAAWC with information on ongoing air defense actions. It allows the SAAWC access to real time information regarding the status of air defense weapons and support within the SAAWC's assigned sector. Information on the air defense situation display should include the current air defense warning condition and weapons control status; CAP/fighter engagement zones (FEZs) manning with the corresponding time remaining on station and weapons status for each event; GBAD status to include missile engagement zone (MEZ) status, pertinent information regarding surface-to-air weapons units within the SAAWC's sector (including states of alert, hot and cold missile inventories for Hawk, overall missile inventories for Stinger and Avenger, etc.); and tanker assets airborne with available fuel giveaway.

**Communications Status Display.** The communications status display lists information for the SAAWC that includes the net/circuit name, designator, type instrument, covered or plain voice status, frequency, and operational status.

**Equipment Status Display.** The equipment status display provides the SAAWC with detailed information concerning the operational status and location of higher, adjacent, and supporting units designated by the SAAWC. At a minimum, this display will include airborne early warning availability, time on station, and radar coverage as well as the status and location of other MACCS agencies. The equipment status display may also include information on airfield status and current weather conditions.

**Intelligence Display.** The intelligence display shows the SAAWC enemy and friendly order of battle information. Intelligence displays may include maps that graphically depict enemy ground forces locations; the locations of known or suspected enemy airfields with number and type of aircraft suspected at each airfield; and enemy SAM locations which include the number/type/range of each weapon; the friendly ground situation and scheme of maneuver; and information listing estimated flight times from enemy air bases to various probable targets of interest/vital areas.

**Air Situation Displays.** A near real time depiction of the air situation must be available to the SAAWC to allow for timely decisionmaking on future employment of air defense assets within the SAAWC's assigned sector. In addition to the air situation picture provided by the operator console unit emulator, the SAAWF may include a manual cross tell board to manually plot tracks of interest if the operator console unit emulator display is not available.

## SAAWF INITIATIVES

The SAAWF operational requirements document outlines specifics regarding the need for a standardized facility for the SAAWC. SAAWF initiatives are an evolutionary process in which a building-block approach to solving the SAAWF requirements will be used. Initiatives for procurement and development of this system are combined with the U.S. Air Force's combat integration center program.

### Description

Further SAAWF development will provide the SAAWC an enhanced capability to plan and supervise near-to-midterm anti-air warfare functions. The final SAAWF product will be designed to conduct the following functions.

**Intelligence Processing.** The SAAWF's intelligence processing capabilities will provide SAAWF operators with the ability to conduct intelligence preparation of the battlespace studies; prepare terrain analysis and radar coverage studies and diagrams; display enemy and friendly orders of battle; and receive and process near real time data from tactical intelligence broadcast system (TIBS) and tactical and related applications program (TRAP) sources.

**Air Defense Monitoring.** The SAAWF will provide the SAAWC the ability to monitor TAOC weapons control functions to include threat ranking (air and ground) targets; weapons cueing; weapons coordination; and weapons assignment and control.

**Automated Mission Monitoring.** The SAAWF will possess the capability to receive, display, store, parse, process, and forward

the air tasking order and airspace control order; deconflict airspace control measures; monitor resource status; and monitor the execution of missions and schedules.

**Air Defense Situation Monitoring.** The SAAWF will provide the SAAWC with an air situation display which will include local and remote air track data; passive sensor data; and tactical digital information link (TADIL) and surface-to-air weapons unit data.

**Friendly Ground Situation Display.** The SAAWF will be capable of receiving, storing, processing, and displaying ground track data information necessary to conduct antiair warfare operations.

**Missile Defense Display.** The SAAWF's capabilities for theater missile defense (TMD) will include receiving and displaying theater missile data from local and remote sources; displaying a correlated view of missile and air track data; transmitting missile track data to appropriate TMD agencies and disseminating appropriate missile warning information; and receiving and displaying missile defense unit locations and associated engagement zone information. These capabilities will be introduced to the SAAWF commensurate with TMD upgrades to the TAOMs.

**Alt TACC Functioning.** The SAAWF's design will facilitate the SAAWC's ability to assume and function as the Alt TACC.

## **Capabilities and Design**

The SAAWF's design is intended to make maximum practical use of existing technology. Its design is based on using the TAOM's data base and communications assets through integration with the TAOC over its digital data and voice communications busses.

**Capabilities.** SAAWF capabilities will include—

- Remoting workstations at least 400 meters from its host TAOM.
- Operations from either inside a shelter or in an existing workspace.
- Voice and data communications connectivity with senior, adjacent, and subordinate air defense agencies using the TAOC's voice communications bus and/or externally introduced communications devices (e.g., remote radios or telephones). This capability will include local/wide area network access.
- Access to electronic intelligence data via the TIBS/TRAP networks or other appropriate media.
- Air tasking order/airspace control order access from the contingency theater automated planning system (CTAPS).
- Movement by transportation assets organic to the Marine air control squadron.

**Design.** The SAAWF is designed to enhance and standardize the SAAWC's ability to manage and direct air defense (and limited offensive anti-air warfare) operations. The SAAWF's design may include the following components.

**Shelter.** A hardened shelter may be used to provide the space necessary for SAAWF operations and transportation and storage of SAAWF equipment.

**Gateway.** The gateway is the equipment which converts SAAWF equipment signals to the TAOM's digital data bus message format. The gateway may be connected to the host TAOM via

fiber-optic cable and carry both the digital data bus and voice communication bus information.

***CTAPS Remote Terminal and Air Tasking Order Processor Program.*** The CTAPS remote terminal will allow the SAAWC to receive and forward air tasking order and airspace control order information received over the CTAPS network. The air tasking order processor program will enable the CTAPS air tasking order to be edited and transmitted to the TAOC over the gateway. This information will automatically be introduced to the TAOC's air tasking order data base, thus eliminating the need for operators to manually enter this information into the TAOC's data base.

***Operator Displays.*** The SAAWF will include up to eight operator displays which will emulate the TAOM's operator console units. The displays will possess all operator console unit functionality with the exception of displaying radar/IFF and jam strobe data. The displays will provide TMD correlation data to include the missile's track, launch point, and predicted impact point. An additional large screen monitor may also be included to provide a display of the current air situation.

***TIBS/TRAP Information.*** Several devices are being evaluated to provide the SAAWF with access to real time intelligence information, including the air defense system integrator and the commander's tactical terminal. The goal of this initiative is to provide the SAAWF with a capability to receive the real time intelligence information and display and correlate that data with traditional data-linked air traffic information.

## **Common Aviation Command and Control System**

Upon the end of its service life, the SAAWF will be replaced by the common aviation command and control system (CAC<sup>2</sup>S) and its associated communications suite. This system, which will be fielded to MACCS agencies and designed to fit each of their missions, will provide the MACCS agencies with a standardized hardware suite that includes a server, workstations, TADIL processors, radar processors, communications equipment, etc., required for the SAAWC's mission. CAC<sup>2</sup>S's software will consist of standardized common components (to ease maintenance and logistics efforts) along with specific applications to meet the functional needs of each MACCS agency.



## Chapter 3

# Planning

Sector air defense and TAOC employment planning responsibilities are divided between the SAAWC staff and TAOC crew members. However, because these functions closely parallel one another, efforts are usually combined. MCO 3501.9B, *MCCRES*, outlines specific planning requirements for these two agencies. Though the planning phases outlined below may occur in sequence, the preponderance of the steps will be conducted concurrently.

### INITIAL PLANNING

After receipt of an initiating directive from the MAGTF commander (in situations involving amphibious operations) or after receiving an operation plan's initiating order, the SAAWC and TAOC staffs will begin the initial planning phase. Considerations for the initial planning phase are—

- Establishing early liaison and initiating coordination efforts with amphibious task force and joint force planners and coordinating with adjacent and subordinate units for operational execution.
- Identifying communications requirements to subordinate, adjacent, and higher level circuits with the ACE/MAGTF communications planners. These requirements should include

identification of desired connectivity, encryption hardware and software, and authentication materials.

- Coordinating all frequency requirements (voice, data, radars) for subordinate, adjacent, and higher level circuits with the ACE/MAGTF communications planner.
- Providing input to the initial estimate of landing force aviation requirements. This initial estimate should include the number and type of aircraft available, the control agencies necessary, and the logistic support required. Some of the air defense allocations can be deduced from the aviation capabilities of the force involved, estimates of enemy air threat, and the general mission of the landing force.
- Providing air defense missile and aircraft control specialist input to the aviation estimates of supportability for all assigned operations. This input should summarize significant aviation aspects of the situation as they might influence any course of action proposals and to evaluate and determine how aviation units can best be employed to support the contemplated landing force courses of action. The estimate is prepared by the ACE commander, assisted by his staff and subordinate elements. The end product of the aviation estimates of supportability will include a recommended course of action to the ACE commander. At a minimum, the aviation estimates of supportability will include—
  - The contemplated course(s) of action that can best be supported by the ACE.
  - Salient disadvantages of less desirable courses of action.

- Significant aviation limitations (to include command and control) and problems of an operational or logistical nature.

## **INTELLIGENCE PLANNING**

SAAWC intelligence planning focuses on ascertaining enemy orders of battle and capabilities. Intelligence planning considerations will include—

- Obtaining preliminary aviation intelligence estimates and detailed aviation intelligence estimates.
- Developing intelligence requirements in the form of simple, concise requests.
- Determining the TAOC and SAAWC staff's requirements for maps, charts, photographs, and other graphic aids.
- Obtaining a complete enemy order of battle which includes information regarding threat missiles, aviation assets, electronic warfare, and naval and ground force capabilities.
- Determining prescribed intelligence collection and dissemination procedures to include timeliness of distribution, usability of form, pertinence, and security of gathered information.
- Requesting the overhead times for applicable enemy satellite systems.
- Requesting information regarding an estimate of the enemy's time lag in processing, developing, distributing, and acting upon overhead photography or satellite information.

## AIR DEFENSE SPECIFIC PLANNING

The SAAWC and TAOC staffs will normally augment the ACE with several air defense specialists to assist in preparing the MAGTF operations order. Critical decisions, including air defense apportionment and planning to achieve air superiority, must be addressed and answered during this phase. The preliminary site selections for air defense agencies (TAOC, Hawk) are also finalized. Other planning efforts include—

- Recommending/determining the identification of critical assets, vital areas, and air defense priorities.
- Establishing coordination for and preparation of the ACE surveillance plan. The ACE surveillance plan provides the foundation for all subsequent air defense operations and should consider all available means (electronic or visual) to detect, identify, and track air vehicles in the MAGTF's assigned area of operations. While the location of individual elements of the surveillance system (TAOC and Hawk radars, CAPs, airborne early warning, Stinger teams, etc.) will be influenced by many operational and topographical factors, every effort should be made to provide detection capabilities at all altitudes throughout the area of operations, with particular emphasis on likely threat avenues of approach. Overlapping and redundant surveillance coverage should be achieved where possible, and a reliable, swift, and redundant communications plan should also be devised for rapid dissemination of aircraft detections.
- Establishing and coordinating air defense communications requirements with ACE planners to ensure continuous anti-air warfare information flow.

- Determining the operational procedures used to integrate airborne early warning into the overall air defense system (e.g., orbit areas, cross tell procedures, data links, or communications).
- Recommending air defense control measures including WEZs and return to force procedures for inclusion in the MAGTF operations order.
- Recommending employment options or air defense weapons platforms (radar/nonradar fighters, Hawk, Avenger, and Stinger) to the ACE.
- Ascertaining the availability of air-to-air missiles and SAMs, and then providing input to SAM unit commanders for the development resupply plans.
- Coordinating with MAGTF/amphibious task force/joint planners on establishing airspace management and control procedures.
- Planning for the tactical redeployment/alternate siting of anti-air warfare assets in response to changes in the surveillance plan, the threat, or the ground force positions.
- Identifying the need for airborne early warning platforms to supplement the MACCS's radar coverage.
- Participating in the preparation of the air defense appendix to the MAGTF operations order based on an analysis of the enemy air order of battle and own systems' capabilities and limitations. The air defense appendix should include—
  - Centralized/decentralized operations procedures.
  - Autonomous operations procedures.

- Rules of engagement.
- Air defense warning conditions.
- Air defense states of alert.
- Air defense weapons control status.
- Air defense identification procedures.
- Command and control agency casualty plans/procedures.
- WEZ configuration (MEZ/FEZ layouts).
- Tanker track location(s) and fade plans.
- Crossover zones and methods of coordination/deconfliction.
- Return to force procedures.
- EMCON measures.
- Track telling/cross tell procedures.
- Data link configuration, connectivity, and priority.
- Communication prioritization.
- Control procedures.
- Agency casualty plans.

## ALTERNATE TACC/TACTICAL AIR DIRECTION CENTER PLANNING

Continued operations depend on established detailed agency casualty plans. Although the TAOC is responsible for assuming the role of the Alt TACC if the TACC becomes a casualty, the SAAWC also has an important role in the assumption of TACC current operations section functions. Planners should bear in mind that assumption of Alt TACC responsibilities will impact on TAOC and SAAWC functioning, typically resulting in a commensurate degradation of capabilities for the period that it performs as the Alt TACC. An established standing operating procedure is useful in ensuring SAAWC and TAOC personnel are prepared for assuming the Alt TACC role. An example of an Alt TACC standing operating procedure is located at appendix B. Planning considerations for assumption of Alt TACC/tactical air direction center (TADC) functions should include—

- Predetermining procedures to initiate assumption of the Alt TACC role should the TACC become a casualty.
- Establishing procedures and delineating functions to be performed by various MACCS agencies in the event of a TACC casualty.
- Designating an Alt TACC facility.
- Determining additional communications nets required by the Alt TACC.
- Identifying personnel and communication augmentation required by the Alt TACC.

- Establishing predetermined SAAWC and TAOC crew responsibilities for assuming the Alt TACC role.
- Ensuring adequate situation displays are available should the TAOC assume the Alt TACC role.

## **JOINT/MULTINATIONAL OPERATIONS PLANNING**

### **Coordination Requirements**

A MAGTF representative must be included during air operations planning for joint/multinational operations (e.g., development of joint air operation plan, airspace control plan, air defense plan, etc.) to address the MAGTF's antiair warfare capabilities and requirements and to ensure MAGTF support of the joint/multinational force while providing necessary support to the MAGTF. The ACE commander, the ACE commander's staff, and the MACCS, as the MAGTF's air operations and antiair warfare experts, provide this information along with identifying MAGTF capabilities and requirements relative to airspace control and air defense operations. Specifically, joint and multinational operational plans must—

- Integrate and complement the mission of the joint force.
- Ensure interoperability of equipment and personnel.
- Ensure the common use and understanding of terminology.
- Allow responsiveness and the massing of firepower whenever and wherever needed.

- Identify the proper liaison and staff/agency representation between joint force components. (Representatives from each component must enable and improve information flow and provide expertise.)
- Outline procedures for airspace control and air defense degradation.
- Facilitate transition from peacetime conditions to hostilities.

## **Integration**

Air operations, airspace, and air defense planning are integrated with the joint force's planning cycle. Inputs from all components must be consolidated and integrated into the joint air operations plan, the airspace control plan, and the air defense plan. The airspace control and air defense plans are part of the joint air operations plan and must be included in the joint force operation plan. The airspace control order is published and disseminated based on guidelines established in the airspace control plan. Normally addressing a 24-hour period that corresponds with the joint air tasking order, the airspace control order may be issued as part of the air tasking order or as a separate document.



## **Chapter 4**

# **Operations**

The SAAWC functions as an integral part of the MAGTF's air defense effort. In this regard, due consideration must be provided to the selection of SAAWF locations and the makeup of the SAAWC.

### **EMPLOYMENT**

SAAWC employment and the degree of authority delegated to the SAAWC depend on the size of the force deployed, the extent to which the TAOC will interface with other joint agencies, and the sector responsibilities placed on the TAOC. The severity of the threat, tempo of operations, and the air operation's focus of effort also influence this delegation of authority, as well as political considerations regarding the conduct of operations and rules of engagement. The SAAWC maintains responsibility for coordinating operational employment of all air defense assets assigned; GBAD commanders retain command responsibility for their respective units. The SAAWC should not burden the operational crew of the TAOC nor represent critical node or bottleneck in the information flow between the TAOC and the TACC's air defense coordinator (ADC) and senior air coordinator. When planning SAAWC employment, the SAAWC should ensure that a site is selected within close proximity to the TAOC to facilitate access to the TAOC communications and mobile electric power assets.

When the MAGTF has a very large or physically separated area of airspace to defend or more than one TAOC is employed and each has a particular sector of responsibility, more than one SAAWC may be designated. The SAAWC normally operates from the SAAWF which is either collocated with or integrated into the TAOC. Collocation allows the SAAWC access to TAOC communications nets to extract needed battle management information, minimizing the need for additional communications assets. The TACC plans for, allocates, and provides antiair warfare assets for the SAAWC to manage and commit to current air defense operations. The SAAWC uses these assets to conduct current operations and provides recommendations to the TACC for detailed planning for future operations.

## CONCEPT OF EMPLOYMENT

The need for a SAAWC depends on the MAGTF's area of operation, tempo of air operations, and air and missile threat. The SAAWC will task-organize a staff to meet those air defense managerial needs applicable to the situation and will thus be capable of supporting operations across the spectrum of MAGTF operations to include operational maneuver from the sea, sustained operations ashore, and other expeditionary operations.

### Marine Expeditionary Force

One or more SAAWCs are usually used to support Marine expeditionary force (MEF) air operations as the MEF's airspace may be divided into sectors and subsequently assigned to separate SAAWCs. Coordination of the MEF's active air defense efforts within a particular sector will fall under the responsibility of that

sector's SAAWC. In amphibious operations, the SAAWC typically begins operations commensurate with the TAOC.

### **Marine Expeditionary Unit**

The reduced level of air activity normally associated with a Marine expeditionary unit (MEU) and the air command and control functions provided to the MEU by Navy forces preclude the necessity for a Marine SAAWC. However, air defense personnel may be deployed with a MEU to assist in airspace management planning and to execute functions.

## **INTERAGENCY RELATIONSHIPS**

### **SAAWC/TACC**

The SAAWC is responsible to the TACC for providing updates to the status of air defense resources and aircraft and support (i.e., tanker) aircraft. The SAAWC reports expected deficiencies in the execution of MAGTF air defense operations and provides recommendations and/or requests for agency movement, replenishment of assets, etc., to fulfill anticipated air defense needs. The SAAWC is also responsible to the TACC's SWO for advising and appraising the SWO on current and future air defense operations. Further, if the authority for establishment of sector air defense warning conditions and/or weapons release conditions and strip alert launch authority is not delegated to the SAAWC, the SAAWC will recommend changes to these statuses based on the threat or will request aircraft launch from the TACC. In turn, the TACC provides the SAAWC with the status of air defense aircraft, to include changes to the air tasking order, information

affecting rules of engagement, and broad guidance for conducting air defense operations.

## **SAAWC/TAOC**

The SAAWC is the MAGTF's air defense battle manager. The SAAWC acts as an extension of the TAOC for planning and supervising air defense efforts within a designated sector or region. The TAOC is the SAAWC's principal agent for implementing the MAGTF's air defense plan. The TAOC provides the SAAWC with the current status of air defense and aerial refueling missions, status of GBAD units, the current threat situation, and other pertinent data necessary for the SAAWC to effectively manage MAGTF air defense assets. The SAAWC provides the TAOC with information regarding the SAAWC's intentions and management of air defense assets.

## **SAAWC/Marine Air Traffic Control Detachment**

The SAAWC coordinates with the Marine air traffic control detachment (MATCD) for base defense zone operations and, if required, to ascertain information regarding the status of air defense aircraft. The MATCD provides the SAAWC with information concerning the base defense zone status and, when necessary, information concerning aircraft departure and recovery.

## **SAAWC/Direct Air Support Center**

Interface between the SAAWC and the direct air support center (DASC) will be primarily limited to coordination for diverting aircraft from air-to-ground to air-to-air roles and establishing

airspace control measures/fire support control measures that affect the air operations of either agency.

## **SAAWC ROLE IN AMPHIBIOUS OPERATIONS**

During an amphibious operation, MACCS air command and control facilities, whose functions parallel those of the Navy's air control agencies afloat, are established ashore. Once operational ashore, these MACCS agencies initially operate in a standby status, monitoring appropriate communications circuits and acquiring situational awareness in preparation for assuming control of their particular air control functions. Normally, once a particular MACCS facility (DASC, TAOC, etc.) is completely operational, to include appropriate equipment and communications circuits, the commander, landing force will request from the commander, amphibious task force that control of that function be passed from the appropriate naval agency afloat to the MACCS agency ashore. After passage of a particular control function ashore, the naval agency afloat will continue to monitor appropriate communications circuits and remain ready to resume active control, in the event this becomes necessary. The operation order will state exactly what prerequisites must be met prior to accomplishing the passage of control ashore and how the passage of control ashore will be accomplished. This information may be outlined in checklists located within the appropriate operations order.

### **Antiair Functions Ashore**

Once established ashore, the SAAWC will manage the MAGTF's antiair warfare assets for the landward (or other assigned) sector of the amphibious objective area (AOA). The SAAWC will

provide antiair warfare coordination between the MAGTF and the commander, amphibious task force's antiair warfare commander or TACC.

The MAGTF's SAAWC does not have the same relationship with the antiair warfare commander as do the Navy's sector antiair warfare commanders. Unlike the antiair warfare commander or Navy sector antiair warfare commanders, the MAGTF's SAAWC is not a commander, but a coordinator. The SAAWC maintains a staff relationship with the antiair warfare commander, but reports to (i.e., is under the command of) the MAGTF commander through the ACE commander.

If the situation arises where the antiair warfare commander directs the MAGTF's SAAWC to commit MAGTF antiair warfare resources to missions which conflict with the MAGTF commander's apportionment guidance or to act in a manner inconsistent with the ACE commander's allocation and tasking, the SAAWC must refer the antiair warfare commander's direction to the ACE/MAGTF commander for resolution. As the MAGTF's air defense battle manager, the SAAWC normally has no command authority to direct MAGTF assets to missions for which they were not tasked. Only the ACE or MAGTF commanders have that authority.

### **Airspace Management Functions Ashore**

Once the MAGTF's TACC is established ashore (initially as a TADC) and it is prepared to assume control of all aviation functions within the AOA, the commander, landing force will request from the commander, amphibious task force that sector airspace management functions be phased from afloat to ashore. Once control is passed to the Marine TACC, it will assume the antiair

warfare coordination functions between the MAGTF and the anti-air warfare commander previously conducted by the MAGTF's SAAWC. The MAGTF's SAAWC will then reassume the normal role of intra-MAGTF air defense battle manager. The MAGTF's SAAWC may also be referred to as the landing force SAAWC or the Marine SAAWC.

### **SAAWC ROLE IN JOINT/MULTINATIONAL OPERATIONS**

The MAGTF's area of operations is designated by the joint force commander. Usually, the MAGTF requests an airspace sector to better support the MAGTF effort. It should be noted that the MAGTF may not always be provided an airspace sector to manage. It may be impractical for the joint force commander to assign airspace when the MAGTF's battlespace is either too small or too constricted relative to the joint operations area. It may also be impractical when the MAGTF does not possess adequate air command and control assets in theater to perform necessary airspace management functions. Scenarios such as these may preclude employment of the TAOC, SAAWC, and other MACCS elements.

As the MACCS's senior agency, the Marine TACC will normally provide the MAGTF's interface with other Service/country air command and control agencies in joint/multinational operations. The ACE commander may delegate authority to the SAAWC to provide the MAGTF's interface with a Navy anti-air warfare commander or with a regional air defense commander (RADC) when working joint/multinational operations.

The MAGTF may be assigned an air defense sector by the area air defense commander. In these situations, the MAGTF commander will normally designate the ACE to perform regional or sector air defense responsibilities. In turn, the SAAWC will normally serve as the ACE commander's agent for performing RADC or sector air defense commander functions within the designated sector.

### **SAAWC ROLE IN THE ALTERNATE TACC**

Should the Marine TACC become a battle casualty, or while the Marine TACC is displacing, the TAOC is normally expected to perform as the Alt TACC. However, TAOC crews typically have neither the experience nor training to assume all TACC battlestaff functions. Alt TACC functions concentrate on execution of the current air tasking order and do not include planning the employment of Marine aviation beyond the existing air tasking order cycle. The SAAWC and his staff will normally assume the TACC's current operations section functions regarding execution of the Marine air tasking order while the TAOC normally assumes the TACC current operations section's agency coordination and integration functions. This allows the SAAWC to concentrate on air tasking order management while the TAOC crew controls and coordinates ongoing current operations. This arrangement will normally only be for a short duration (i.e., until the end of the crew watch or end of the air tasking order cycle), at which time the Marine TACC will assume its full functions. In cases where the Alt TACC is activated for periods in excess of those described above, significant personnel and communications augmentation would be required for the Alt TACC to function. At any time when the TAOC assumes Alt TACC functioning, a commensurate degradation of TAOC functionality should be expected.

Examples of requirements for operating as an Alt TACC are located at appendix B.

## **SAAWC ROLE IN THEATER MISSILE DEFENSE**

Evolving technology in the production of theater missiles, which include theater ballistic missiles and cruise missiles, and their relative affordability (as compared to aircraft) has facilitated the introduction of these weapons into several Third World countries. Enhancements to the accuracy and range of these weapons systems have further delineated these instruments as significant threats to the MAGTF. Traditionally, anti-air warfare (including offensive anti-air warfare and air defense) focused on attacking enemy aircraft (before and after launch), airfields, air defense systems, and air surveillance radars. Cruise missiles are also considered a traditional anti-air warfare threat. However, theater ballistic missiles pose new challenges to traditional anti-air warfare operations. Due to their ballistic trajectories (as opposed to the relatively flat trajectories of aircraft and cruise missiles), altitudes reached during flight, small radar cross sections, and mobility of their launchers, traditional anti-air warfare methods needed modification to defend against this threat.

### **Joint Theater Missile Defense**

Joint theater missile defense is the integration of joint force capabilities to destroy enemy theater missiles before and after they launch. Joint theater missile defense also includes the disruption of enemy theater missile operations through mutually supporting passive missile defense; active missile defense; attack operations; and command, control, communications, computers, and intelligence (C<sup>4</sup>I) measures.

**Passive Defense.** Passive defense measures reduce the vulnerability and minimize the effects of damage caused by enemy theater missiles attack. They include theater missiles early warning; nuclear, biological, and chemical protection; and countersurveillance. Passive defense also includes such measures as deception, camouflage and concealment, hardening, electronic warfare, mobility, dispersal, redundancy, recovery, and reconstitution. Passive defense is the responsibility of unit commanders at all echelons.

**Active Defense.** Active defense operations protect against a theater missile attack by destroying theater missiles airborne launch platforms and/or destroying theater missiles in flight. These operations include multi-tiered defense in-depth against enemy theater missiles through multiple engagements. Air, land, sea, space, and special operations assets are used to conduct multiple engagements. Active defense operations also include active electronic warfare that disrupts the enemy's remote or on-board guidance systems. The joint force commander normally assigns overall responsibility for joint theater missile defense active defense operations to the area air defense commander (AADC) (if the joint force commander designates an AADC). Active defense forces are under the operational control of their component commanders.

**Attack Operations.** Attack operations destroy, disrupt, or neutralize theater missile launch platforms and communications. Attack operations also destroy, disrupt, or neutralize theater missile logistics structures and reconnaissance, surveillance, and target acquisition platforms. TMD attack operations also include offensive actions taken by air, land, sea, space, and special operations forces. The joint force commander normally assigns responsibility for joint theater missile defense attack operations outside component commanders' areas of operations to the joint force air

component commander (JFACC) (if the joint force commander designates a JFACC). The joint force commander normally tasks component commanders to conduct joint theater missile defense attack operations within their assigned area of operations.

**Command, Control, Communications, Computers, and Intelligence.** C<sup>4</sup>I for joint theater missile defense operations must use existing joint and Service C<sup>4</sup>I systems and resources. TMD C<sup>4</sup>I is an integrated system of doctrine, procedures, organizational structures, facilities, communications, computers, and supporting intelligence. TMD C<sup>4</sup>I includes missile warning and cueing of defense systems by missile warning sensors and ground stations. C<sup>4</sup>I provides command authorities at all levels with timely and accurate data and systems to plan, direct, and control TMD operations.

### **Doctrinal and Operational Parallel**

Theater air defense includes operations against traditional air breathing targets, unmanned aerial vehicles, and theater missiles. Like joint TMD operations, theater air defense consists of active defense, passive defense, attack operations, and C<sup>4</sup>I functions. TMD operations within the theater air defense umbrella should be transparent to operators. That is, TMD should be treated in the same manner as operations against traditional air breathing targets, but on a more compressed timeline. The challenge with conducting TMD should be more mechanical than functional.

The functional aspects of joint TMD, outlined in Joint Publication 3-01.5, *Doctrine for Joint Theater Missile Defense*, has been incorporated into Marine Corps anti-air warfare doctrine resulting in the following doctrinal and operational parallels:

**Joint Theater Missile  
Defense Function****USMC Aviation Function**

Active defense	Antiair warfare (active air defense)
Passive defense	Antiair warfare (passive air defense)
Attack operations	Antiair warfare (offensive antiair warfare)
C <sup>4</sup> I	Control of aircraft and missiles

**SAAWC TMD Operations**

TMD for the MAGTF presents new challenges as compared to the characteristics of traditional antiair warfare problems. Theater missiles, in particular cruise missiles, have the ability to attack the MAGTF from any direction, thus making probable enemy air avenues of approach difficult to predict. Further, the 360-degree threat may strain air surveillance efforts. TBMs pose a series of unique problems. The relatively short duration from launch detection to impact and limited resources to engage ballistic missiles demand a time-critical decisionmaking process. Further, the ability for transporter erector launchers to rapidly redeploy after the ballistic missile has launched further complicates TMD attack operations. To enhance the MAGTF's response to TBM attacks, the SAAWC—

- Recommends rules of engagement that address theater missiles and incorporates the rules of engagement into appropriate operation plans and orders.
- Ensures that TMD capabilities are addressed in regard to the defense of the MAGTF's vital area(s)/air defense priorities.
- Examines alternatives for TMD attack operations. Assigning the SAAWC authority to divert aircraft to attack transporter

erector launchers within the MAGTF area of operations is an option. However, all attack alternatives must be discussed and weighed against the MAGTF commander's intent, focus of effort, and (deep) target prioritization. When short-range ballistic missiles have been launched, artillery, air, or ground forces may be used to engage the launcher. In all cases, TMD attack operations must be coordinated with the affected fire support control activity.

- Develops swift, reliable, and redundant methods to disseminate TBM warning information to higher, adjacent, and subordinate elements/agencies.



## **Chapter 5**

# **Training**

Every Marine Corps leader has the responsibility to establish and conduct technical and tactical training necessary to enable the Marines in the unit to successfully accomplish the unit's mission. The complexities of amphibious, joint, and multinational operations highlight the importance of individual, crew, and unit level training for SAAWC staff members.

### **INDIVIDUAL TRAINING**

SAAWC training requirements are standardized by MCO P3500.19, *Training and Readiness (T&R) Manual*. It specifies training events and position requirements necessary for these personnel to attain position designations within the SAAWC regimen. No formal schools are available for specific SAAWC training, but several schools are available to assist in preparing for positions within the SAAWF.

#### **Weapons and Tactics Instructor Course**

The Weapons and Tactics Instructor (WTI) Course is a 6-week graduate-level school held at Marine Corps Air Station, Yuma, Arizona. It is designed to provide students advanced training and practical application on planning and execution of the six functions of Marine aviation. Students receive specific instruction in MACCS and TAOC planning considerations and SAAWC/TAOC

operational execution. The WTI course is the primary formal training vehicle for SAAWC operations officers. Prerequisites for attendance include TAOC senior air director qualification with MEF-level exercise experience. Upon completion of the WTI course, officers are eligible for military occupational specialty (MOS) 7277 WTI designation.

### **Air Defense Control Officers Senior Course**

Conducted at the Air School, Marine Corps Communications-Electronics School, Marine Corps Air Ground Combat Center, Twentynine Palms, California, the 2-week Air Defense Control Officers Senior Course (ADCOSC) is designed to provide MACCS field grade officers (MOS 7202) with instruction on TAOC and air defense capabilities and limitations. Conducted as a symposium, the ADCOSC provides insight to air defense operations and planning considerations and provides attendees with opportunities to plan and execute simulated MEF operations.

### **WTI Commanders Course**

Held at Marine Corps Air Station, Yuma, Arizona, the 3-day WTI commanders course provides field grade officers with an opportunity to examine and discuss issues affecting the MACCS and considerations for MACCS employment.

### **On-the-Job Training**

SAAWC-level academic training is outlined in MCO P3500.19A, Volume V, chapters 12 and 13. Volumes I and V impact on individual training and qualification criteria for MACCS personnel.

Tracking of individual readiness is computed by the aviation training and readiness information management system.

## **SAAWC Position Qualifications and Designations**

All SAAWC-related qualifications and designations are considered special qualifications and fall under MCO P3500.19A 600-level series training events.

### **CREW TRAINING**

Marine Corps leadership principles stress training Marines as a team—to act as one entity. As such, meaningful crew training is the basis for effective SAAWF operations. However, the SAAWC crew requires significant simulation support to conduct crew training drills. A typical crew training drill for SAAWF personnel would include simulation from TAOC, TACC, GBAD, and higher and adjacent agency simulators. This drill can be accomplished through agency simulations. Crew training for SAAWC personnel is best accomplished when conducted concurrently with a TAOC or TACC crew training exercise.

### **UNIT TRAINING**

Unit training involves that training required to prepare the TAOC to perform its wartime mission. Unit training can take on many forms, including command post exercises, simulated exercises, and field training exercises. During unit training, Marine air control squadron personnel are intimately involved in preparing training plans and coordinating with higher, adjacent, and subordinate command and control and support elements. Whereas

command post exercise and field training exercise evolutions are generally conducted at the Marine aircraft wing or higher level, unit participation in MACCS-level training can be accomplished at low dollar costs while maintaining an effective, stimulating forum geared toward MACCS integration training. Examples of this type of training include the Marine aviation planning problem (MAPP) and MACCS integrated simulated training exercise (MISTEX).

### **Marine Aviation Planning Problem**

MAPP exercises are low-cost, low-overhead training involving exercises which portray military situations on maps and overlays that may be supplemented with or replaced by sand tables or terrain models. MAPP exercises allow commanders to train their staffs to perform special integration and control functions. MAPPs are suitable for command and control training from the Marine aircraft wing level down to the crew or section level but are most often conducted at the Marine air control group level. MAPPs are especially useful for multiechelon staff training when commanders want to involve a minimum number of Marines yet fully exercise staff procedures and techniques. MAPP exercises are particularly effective for determining control and support requirements to support possible contingencies.

### **MACCS Integrated Simulated Training Exercise**

The MISTEX is a Marine air control group locally produced exercise which involves detailed preparation of a simulated scenario and its subsequent execution at the MACCS level. MISTEXs are excellent vehicles for MACCS agencies to practice inter-MACCS coordination yet minimize the dollar costs in producing a full-

scale exercise using actual aircraft. The key to the MISTEX is the production of a challenging, realistic exercise situation; full integration of all units; a dynamic master scenario events listing scenario; and a responsive simulated program. The MISTEX can serve to prepare units for upcoming field training exercises or contingencies. Individual Marine participation in filling a crew position during a MISTEX is a T&R requirement for position qualification.

### **Joint Service Training Exercises**

Similar to the MISTEX, joint service training exercises (JSTEs) provide integrated systems training that incorporates the challenges of integrating the MACCS in the joint arena. JSTE validates interoperability concepts and tactics and provides a unique training opportunity without incurring excessive costs. JSTE scenarios have been developed to support joint training for probable contingency operations worldwide. JSTE scenarios and associated materials for joint training are controlled by and available from Forces Command (J3/JTAO), Atlanta, Georgia.

### **Other Unit Training**

In addition to command post exercise and simulated exercise type training, the Marine air control squadron often deploys to the field to participate in field training exercises. Field training provides a unit with the most beneficial training opportunities available: living and operating in conditions similar to those expected in wartime. The key to successful field deployments is to ensure that detailed planning is conducted and that all Marines involved are sufficiently challenged and provided opportunities to demonstrate their technical, tactical, and leadership abilities.

## EVALUATING TRAINING

The success of individual, crew, and unit training must be qualitatively measured to identify training deficiencies and create a baseline for designing future training. In the case of unit training, identified needs should be stated as training objectives for upcoming exercises. The MCCRES is a key evaluation tool used to identify unit training needs. The MCCRES is a standardized, Headquarters Marine Corps-directed evaluation program designed to measure a unit's warfighting readiness. The MCCRES specifies mission performance standards which agencies are expected to perform during their wartime mission. Though formal unit evaluations which are reportable to Headquarters Marine Corps are required every 2 years, units are highly encouraged to conduct informal MCCRES evaluations each time crew- or unit-level training is conducted. By employing the MCCRES standards as a baseline for training, units can easily identify training needs and orient their training toward improving on previously identified training deficiencies.

## **Appendix A**

# **Briefing Guide/Format**

### **OPERATIONS BRIEF**

The operations brief should be developed based on planning conducted at the MACCS planning staff level. As such, it will incorporate specifics from the commander's brief. However, it must be appropriately tailored for the SAAWC. In addition, this operations brief should incorporate specific issues beyond the scope of the commander's brief which are required for effective SAAWC employment.

This brief is designed to provide the Marine air control squadron operations officer/TAOC detachment commander a standardized and comprehensive, yet concise, format to brief the SAAWC for an operation or exercise. This briefing format will then allow SAAWC crews to develop and present their crew briefs prior to execution.

The format for this operations brief is not designed to script every possible item that could be included in a SAAWC crew brief, nor do all the items listed have to be included. The individual developing and presenting this brief must analyze the information presented in the commander's brief, determine which information is critical to the SAAWC's mission accomplishment, and tailor the brief to meet these needs. The operations brief is provided in the following outline format.

## General Situation

### Enemy Forces

- Ground forces disposition:
  - Enemy troop locations
  - Forward edge of the battle area
  - Projected movements
- Locations of known/suspected air bases
- Number, type, and variant of aircraft:
  - Fixed-wing
  - Rotary wing
  - Unmanned aerial vehicles
- Possible load outs/ordnance/delivery techniques:
  - Air-to-surface missiles (antiradiation missiles [general/theater])
  - Precision guided munitions (forward looking infrared radar/television/laser/command)
  - Iron bombs
  - Nuclear, biological, and chemical attack capabilities
  - Infrared countermeasures capabilities

- Enemy air capability to target air defense priorities
- Electronic warfare threat:
  - Airborne/ground electronic warfare support systems/capabilities
  - Airborne/ground electronic attack systems/capabilities
- Locations/systems/capabilities of SAM threat
- Surface-to-surface threat to command and control and air defense priorities
- Special operations/terrorist threat
- Expected air threat axis and likely avenues of approach
- Expected times of attack
- Most likely enemy courses of action

### **Friendly Forces**

- Airfields and locations/divert
- Aircraft mission, locations and loadouts:
  - Fixed-wing
  - Rotary wing
- Unmanned aerial vehicles
- Command and control agencies, capabilities, and locations

### **Commander's Intent**

- Focus effort/friction areas
- Strengths to exploit
- Vulnerabilities enemy may exploit
- SAAWC/TAOC role in antiair warfare

### **Joint/Multinational Interoperability Issues**

- Interface with JFACC/airspace control authority/AADC
- Airspace control area/sectors
- Air defense area/region/sectors
- Interface with International Civil Aviation Organization and host-nation air traffic control facilities
- Air tasking order input and receipt means/procedures

### **Command, Control, and Communications Employment Plan**

- Air defense priorities
- Surveillance coverage and radar contracts
- Responsiveness to the threat
- Destruction area (base defense zone/MEZ/FEZ/cross-over zones/points/joint engagement zone)

- Data links:
  - Connectivity/configurations
  - Interface control unit/interface coordination officer (ICO)
- Manual cross tell procedures
- Orbit areas (airborne early warning/CAP/tankers/close air support stacks/electronic attack/electronic warfare support)
- Routing (minimum risk routes [MRRs]/fade/bugout/IFF on and off line)
- Airspace coordination areas
- Additional airspace control measures
- Navigation aids (tactical air navigation systems [TACAN]/very high frequency omnidirectional range/nondirectional beacon)
- Lane duck procedures
- CAP management and control
- Tanker management and control
- Airborne early warning/airborne agency coordination procedures
- Aircraft handover procedures
- Initial air defense warning condition/weapons control status
- Initial states of alert (aircraft/Hawk/Stinger/air defense artillery)

- Initial GBAD/CAP mode of control:
  - Authority to change mode
  - Procedures for autonomous operations
- Rules of engagement:
  - Identification authority
  - Engagement authority
  - Identification criteria:
    - Friendly
    - Hostile
  - Commit criteria
  - Self-defense criteria
  - Impact of night on rules of engagement
- Tactical recovery of aircraft and personnel/medical evacuation:
  - Assets/locations
  - Casualty collection points
  - Zones/safe areas
- Communications:
  - Planned and exceptions

- Current period for communications-electronics operating instructions
- Critical information flow
- Communications assignments:
  - Frequencies/call signs
  - Required communications nets to be monitored
  - Prioritization for restoration
- Data link specifics:
  - Data link reference point/unit system coordinate center
  - Net control station
  - Frequencies/nets/call signs
  - Addresses (batteries/participating units/reporting units)
  - Track blocks
- Crypto change times
- EMCON/electronic protection plan to include radiation control (RADCON) and ZIPLIP procedures
- Codewords
- Required reports (equipment/frequency interference reports/meaconing, intrusion, jamming, and interference [MIJI] to include required times or time of event)

- Air tasking order distribution to subordinate agencies
- Intelligence connectivity
- Casualty procedures:
  - Functional degradation
  - Data link and voice communications
- Delegation of authority:
  - CAP launch
  - WEZ activation/deactivation
  - RADCON management

## **Time Hack**

## **Questions**

## **SAAWC CREW BRIEF**

Held prior to sitdown, the SAAWC crew brief may be combined with the TAOC crew brief or, in situations where a combined brief is not feasible, conducted separately. When conducted separately from the TAOC crew brief, the normal SAAWC crew briefing order is—

- Intelligence representative
- GBAD representative
- SAAWC operations officer
- SAAWC

### **Intelligence Representative**

- Sector overview
- Friendly ground situation:
  - Significant events over past 12 hours
  - Expected scheme of maneuver/actions for next 12 hours
  - Control measures
  - Forward edge of the battle area/forward line of own troops
  - Fire support coordination line
  - Phase lines

- Enemy situation:
  - Ground:
    - Troop locations and concentrations
    - Special operating forces activity/rear area threat assessment
    - Significant events during previous 12 hours.
    - Expected events over next 12 hours
  - Air:
    - Locations of known or suspected airbases
    - Number and type aircraft at each base
    - Operational status of airbases and aircraft
    - Projected flight times from enemy airfields to MAGTF vital area(s)
    - Significant activity during past 12 hours:
      - Aircraft losses
      - Targeting
      - Air defense/interceptor activity
    - Tactics
    - Weaponneering:
      - Precision munitions

- Air-to-air ordnance and load-outs
  - High-speed antiradiation missile capabilities and profiles
  - Projected vulnerability windows
  - Surface-to-air weapons:
    - Known/suspected locations
    - Type weapon and range
  - Electronic attack capabilities
  - Surface-to-surface threat:
    - Known/suspected locations
    - Range capabilities
    - Warhead capabilities
  - Nuclear, biological, and chemical capabilities and means of employment
- Weather; 12/24-hour forecast
  - Coordination procedures with electronic intelligence and other intelligence collection agencies
  - Alt TACC responsibilities
  - Communications
  - Reports required

## **GBAD Representative**

- GBAD unit overview:
  - Locations
  - Relationship to vital areas/defense of MAGTF air defense priorities
  - Operational status
  - Missiles available
  - Missile resupply status
- MEZ orientation:
  - Locations
  - Status
  - Terrain effects on threat detection/engagement
- Stinger concept of employment (direct support versus general support)
- Projected displacements/movements
- Alternate sites
- GBAD units' casualty procedures
- Cross-service/nation coordination procedures
- Communications (internal and external)

- Reports required
- Alt TACC responsibilities

### **SAAWC Operations Officer**

- Sector overview:
  - Area overview
  - MACCS locations
  - Friendly airfield locations
  - Threat axis
  - Vital areas/air defense priorities
  - FEZ/CAP locations
  - Tanker tracks
- Review of air tasking order:
  - Scheduled anti-air warfare missions
  - Preplanned
  - Alert (type and status) and launch authority
  - Anti-air warfare aircraft primary and alternate load-outs
  - Identified gaps in anti-air warfare schedule and initiatives to remedy situation

- Tanker flow
- Offensive air support aircraft available for possible divert missions
- CAP/FEZ manning plan and priority
- Sector air defense agencies' operational status:
  - TAOC(s)
  - Early warning and control site(s)
  - Other Service/nation's air surveillance units
- Adjacent sector(s) responsibilities and capabilities
- Coordination procedures with higher/adjacent air defense agencies
- Rules of engagement
- Air defense warning and weapons release conditions:
  - Authority to set conditions
  - Premise of setting conditions
- Air defense units' casualty plan(s)/succession of responsibilities
- Communications (internal and external)
- Reports required
- Alt TACC responsibilities

## SAAWC

- ACE commander's intent/main effort
- Vulnerabilities in friendly air defense plan and actions/measures to minimize effects of attack
- EMCON/RADCON measures:
  - Authority to set conditions
  - Effects on surveillance plan
- Command relationships
- Status of phasing control ashore checklist
- SAAWC casualty procedures
- Communications (internal and external)
- Alt TACC procedures:
  - Assumption of responsibilities
  - Personnel and communication augmentation
  - Delegation of functions to other MACCS agencies
- Sitdown time and crew relief schedule
- Debrief time and location



## **Appendix B**

# **Alternate Tactical Air Command Center Procedures**

This appendix is a sample standing operating procedure for SAAWC and TAOC Alt TACC functional procedures. Information is based on requirements listed in MCO 3501.9B for the TAOC.

The SAAWC and/or TAOC may be required to assume the Alt TACC role when the Marine TACC/TADC cannot perform all or part of its mission. Activation usually occurs when—

- TACC/TADC is an operational casualty. The TACC's declaration as an operational casualty is the most severe situation in which the SAAWC and TAOC would be required to assume the Alt TACC role. The unexpected loss of functions may occur when the TACC/TADC sustains either significant equipment loss, damage, or personnel casualties.
- TACC/TADC movement/echelon. When the TACC/TADC would not maintain an austere manual capability during its movement and subsequent build-up to full operational capability, the SAAWC and TAOC may function as the Alt TACC.

## ROLE

The Alt TACC provides limited TACC/TADC operational functions for command continuity when the TACC/TADC becomes a casualty for a limited or specified period of time. This highlights two key limitations of the Alt TACC.

### Limited Functions

The Alt TACC is designed to assume only those functions associated with the TACC/TADC's current operations section. The Alt TACC is responsible for coordinating and supervising the execution of the current day's air tasking order. Alt TACC functions do not include promulgation and distribution of air tasking orders.

### Limited Operations

The Alt TACC is designed to function for only a limited or specified period. Alt TACC operational periods should be measured in terms of hours (i.e., through the end of the crew watch or to the completion of the current air tasking order) rather than days. The SAAWC and TAOC are limited by both the personnel and equipment required to support sustained Alt TACC operations. TACC/TADC functions are returned to the TACC/TADC once it is able to perform its functions manually.

## PREREQUISITES

Assumption of the Alt TACC role is contingent on certain circumstances and events occurring as outlined below.

## TACC/TADC Operational Casualty

The TACC/TADC must be declared an operational casualty. Confirmation may be received from higher headquarters or from adjacent agencies. When MACCS agencies have lost communications with the TACC/TADC for a preplanned, specified period, the SAAWC and TAOC will initiate procedures necessary for assuming the Alt TACC role. Before assuming the Alt TACC role, the TAOC will initiate the following actions:

- Attempt to contact the TACC/TADC on all required nets to include secondary paths and circuits.
- Contact other MACCS agencies who have direct communication with the TACC/TADC (i.e., the DASC and MATCDs) and request they attempt to contact the TACC/TADC on applicable communications circuits.
- Request the TAOC's systems control and technical control facilities contact the Marine aircraft wing systems control facility to confirm or deny that the TACC/TADC is a casualty.
- Direct an airborne aircraft to attempt contact with the TACC/TADC on radio circuits which the TACC/TADC is required to monitor.
- If the above actions do not result in contact with the TACC/TADC by any agency the TAOC will assume the Alt TACC role.

## **Notification by the TACC/TADC Prior to Loss of Functions**

When the TACC/TADC is planning movement to a new/alternate location, the TACC/TADC may coordinate with the SAAWC/TAOC to designate a period in which the Alt TACC will be activated. This situation allows for a coordinated phasing of Alt TACC functions to the SAAWC and TAOC, thus facilitating the assumption of TACC/TADC operational functions.

### **ALT TACC FUNCTIONS**

Upon assuming the Alt TACC role, the SAAWC and TAOC will assume certain functions associated with the TACC/TADC current operations section. These functions include—

- Coordinating MAGTF air defense efforts with joint/multi-national Service agencies.
- Integrating of MACCS data link participants with joint/multi-national Services.
- Acting as the operational point of contact for execution of the daily air tasking order.
- Coordinating with Marine aircraft groups to ensure adequate aviation resources are available to execute the air tasking order and to determine availability of additional aircraft sorties to meet immediate aviation requirements.
- Managing MAGTF aviation resources to include strip launch and divert authority to meet immediate aviation requirements.

- Establishing EMCON postures for the MACCS commensurate to the radio-electronic threat.
- Processing and coordinating search and rescue and tactical recovery of aircraft and personnel efforts within the assigned area of operations.
- Realigning/retasking aircraft to meet changes in both the air and ground threat or the MAGTF commander's intent.
- Maintaining current friendly and enemy ground and air situation information to include the ground, air, and missile orders of battle.

## ALT TACC FACILITY

The Alt TACC will normally be located within the SAAWC facility.

### Situation Displays

Situation displays are used to provide the Alt TACC staff with a means to monitor the current and projected air and ground situation. A typical Alt TACC will include the following situational displays.

**Air Defense.** The air defense situation display provides information concerning the current status of both airborne and GBAD assets.

**Air Tasking Order Displays.** Air tasking order displays are used to graphically display and to provide tracking of the current air tasking order. Generally, an air defense and air support air tasking order display will be included in the Alt TACC facility.

**Communications Display.** The communications display normally includes a listing and location of communications nets located within the Alt TACC facility and various unit call signs.

**Status Display.** The status display provides information concerning the operational status of various MACCS agencies.

**Cross Tell Display.** The cross tell display is used to graphically depict the current air situation. The cross tell board may either augment or be used in lieu of an automated (data link) presentation in the Alt TACC facility.

**Intelligence Displays.** Intelligence displays are maintained by the squadron's intelligence Marines and will include a depiction of the enemy ground order of battle, air order of battle, and missile order of battle. In addition to enemy information, intelligence Marines will also provide maps and status information concerning the friendly ground situation and scheme of maneuver, air assets by location, and missile locations for SAM units.

## **Communications**

Upon assuming the Alt TACC role, certain communications nets not normally guarded by the SAAWC/TAOC must be activated. An exact delineation of nets the Alt TACC needs to guard is exercise/operation specific. However, certain nets are generic to any situation.

**Tactical Air Request/Helicopter Request (TAR/HR) Net(s).** These nets provide a means for forward ground combat elements to request immediate air support. Intermediate ground combat echelons monitor the net and may approve, disapprove, or modify the request. After the request has been filled, the DASC uses the net to brief the requesting agency on the details of the mission. Damage assessments are also passed on this net. Other net participants include terminal controllers and the force fires coordination center/fire support coordination center. The TAR net may be designated for use in either the high or very high frequency spectrum.

**Tactical Air Direction (TAD) Net(s).** TAD nets provide a means to direct aircraft in the conduct of offensive air support missions and for the DASC to brief support aircraft on target information or assignment. Normally a very high or ultrahigh frequency net, TAD nets are also monitored by terminal air controllers (e.g., forward air controller [airborne], tactical air coordinator [airborne], tactical air control party).

**Direct Air Support Net.** The direct air support net provides a means for the DASC to request direct air support aircraft from the TACC/TADC. In addition to requesting direct air support aircraft, the direct air support net may be used to report/request aircraft stationing, fuel and ordnance states, and the progress of ongoing direct air support missions. High frequency emissions are the normal medium used for the direct air support net.

**Airboss Connectivity.** Communication between the Alt TACC and the airboss is essential to provide the airboss with information concerning air tasking order changes and to determine aircraft status or availability from the Marine aircraft groups.

**Digital Communications.** Responsibilities concerning data link management or participation requirements should be outlined in

the applicable OPTASKLINK. Data link networks may require reconfiguration following a TACC/TADC casualty.

## **ALT TACC MANNING AND RESPONSIBILITIES**

Upon notification that the TAOC will assume the Alt TACC role, SAAWC and TAOC crew members will take on additional responsibilities associated with the Alt TACC function.

### **SAAWC**

The SAAWC will assume the duties as the ACE SWO until another SWO is designated or until the TACC/TADC is prepared to reassume its duties. Therefore, the SAAWC will be responsible for coordinating and executing all aviation tasks occurring within the MAGTF's area of operations. The SAAWC will also be responsible for overall coordination of the Alt TACC crew.

### **SAAWC Operations Officer**

The SAAWC operations officer will assume the responsibilities normally associated with the TACC/TADC's ADC and tactical air watch officer (TAWO). The SAAWC operations officer is responsible for planning and allocating air defense aircraft to air defense control units within the area of operations. Further, he is responsible for recommending changes to the SWO (SAAWC) regarding EMCON, air defense, and weapons release conditions. The SAAWC operations officer will also coordinate directly with the airboss to determine the current status and/or availability of fixed-wing assets to either meet the current air tasking order's requirements or to meet changes in the threat situation.

## **GBAD Representative**

The GBAD representative will assist the SAAWC operations officer in executing his tasks.

## **SAAWC Plotters**

The plotters will continue to track the fixed-wing air tasking order and maintain the cross tell board.

## **SAAWC Intelligence Officer**

The intelligence officer will assume the responsibility of coordinating intelligence dissemination within the MACCS.

## **Senior Air Director**

The SAD will coordinate TAOC crew functions and provide additional Marines to man the Alt TACC. The SAD will also coordinate directly with and advise the SAAWC on the current status of all air activity within the area of operations.

## **Senior Weapons Director**

The senior weapons director (SWD) will coordinate with and advise the SAAWC operations officer on all matters pertaining to the threat's air activities. In the absence of a SAAWC operations officer, the SWD will assume those functions of the TACC/TADC ADC.

## **Senior Traffic Director**

The senior traffic director will continue to monitor the DASC handover net and will establish communications for rotary wing check-ins. The traffic section in conjunction with the SAAWC operations officer is responsible for coordinating directly with the DASC to maintain timely information concerning the status of close air support and assault support missions.

The traffic section will be responsible for guarding the direct air support and TAD net(s). The direct air support net is normally the key coordination net between the TACC/TADC and the DASC. The TAD net(s) is used to both monitor the status of fixed-wing aircraft assigned close air support missions and to provide aircrew with briefs prior to conducting their close air support missions.

When additional radio net operators are not available, the traffic section will assume responsibility for monitoring the TAR net and maintaining the current status of ongoing and pending tactical air requests.

## **Surveillance Identification Director**

The surveillance identification director will assume those functions normally associated with the TACC/TADC's ICO and the track data coordinator. Primary and secondary assignment responsibilities for these tasks are normally outlined in the OP-TASKLINK. These functions may include assignment/designation of primary surveillance areas for military radar units, designation/maintenance of track production areas, assumption of track data coordination functions, reconfiguration of digital data

links to ensure a comprehensive air picture is maintained, and coordination with data link participants external to the MACCS. Other data link machine functions may need to be assumed to include acting as the TADIL A net control station or gridlock reference unit. The surveillance identification director will also coordinate manual cross tell responsibilities for surveillance agencies within the area of operations.

## **Net Operators**

Additional net operators will be required to monitor the TAD, direct air support, and TAR/HR nets. If a sufficient number of Marines are not available in the current TAOC crew manning, additional operators will be called in to augment the additional radio monitoring requirements.

## **Rotary Wing Functions**

Tasks associated with monitoring and coordinating the rotary wing air tasking order's execution will normally be delegated to the DASC. The DASC, in turn, will be responsible for reporting to the Alt TACC the current status and projected shortfalls of assault support functions. If not already authorized, the DASC will be delegated strip launch authority for assault support missions and divert authority for immediate medical evacuation missions. The functions of the TACC/TADC's assault support watch officer (ASWO), which include direct coordination with the rotary wing Marine aircraft group(s), will also be delegated to the DASC.

## **AUGMENTATION**

In those situations where the Alt TACC is expected to function for an extended period of time or in situations where adequate coordination can be accomplished prior to the TAOC assuming Alt TACC functions, both communication and personnel augmentees may be required/requested.

### **Communications Augmentation**

The requirement for additional communications equipment and operators is situationally dependent. Projected requirements for long-haul and multi-channel communications assets and necessary needlines should be considered during the planning cycle. Further, depending on the TAOC's requirements for air-to-ground communications, additional ultrahigh frequency assets may also be required to perform Alt TACC functions.

### **Personnel Augmentation**

The TAOC is not organized to perform Alt TACC functions for an extended period. Therefore, if the TAOC is expected to assume Alt TACC functions for a period longer than normally expected (i.e., beyond the end of the crew watch or air tasking order day) the TAOC will require augment personnel from other units. When requesting augments, the TAOC should specify that sufficient personnel should be provided to man two 12-hour crews. The augments would include—

- SWO - one per crew.
- Intelligence representatives - two per crew.

- TAWO - one per crew.
- ASWO - one per crew.
- Air support officers - one per crew.
- Plotters - two per crew.
- Radio net operators - two per crew.

## UNIT TASKS

In preparation for assumption of Alt TACC responsibilities, the following should be accomplished.

### **Administrative Officer**

The squadron administrative officer will assist the operations officer in preparing any messages requiring release when assuming Alt TACC responsibilities becomes necessary.

### **Intelligence Officer**

The squadron intelligence officer will—

- Maintain current information concerning both friendly and threat ground, air, and missile orders of battle and ensure this information is posted in the SAAWC facility.
- Coordinate with the TACC/TADC on intelligence matters impacting on future friendly ground operations.

- Prepare to act as the intelligence dissemination point for the MACCS in the event the TACC/TADC becomes a casualty.

### **Operations Officer/TAOC Detachment Commander**

The MACS operations officer/TAOC detachment commander will—

- Coordinate with the TACC/TADC regarding probable actions to take if the TACC/TADC becomes an operational casualty.
- Ensure the SAAWC facility is functionally designed and prepared to meet Alt TACC requirements.
- Determine and request (if necessary) Alt TACC personnel augmentation when the TAOC is to assume Alt TACC functions for an extended period.
- Coordinate with the communications-electronics officer to ensure required Alt TACC nets are designated in the radio guard chart or Annex K to the appropriate operations order.
- Ensure Alt TACC procedures are included as an integral portion of each TAOC crew brief.

### **Services/Supply Officer**

The services/supply officer will coordinate with the operations officer/TAOC detachment commander concerning Alt TACC requirements.

## Communications-Electronics Officer

The communications-electronics officer will—

- Coordinate with the operations officer to ascertain and designate additional operational net requirements should the TAOC be required to assume the Alt TACC role.
- Determine additional communications augmentation required for assuming Alt TACC responsibilities.
- Ensure alternate voice and data communications paths designated in Annex K are sufficient to meet MACCS requirements should the TAOC assume the Alt TACC role.
- Plan for and prepare to activate needlines to air bases and joint/multinational Service agencies in support of Alt TACC operations.



## Appendix C

# Glossary

### Section I Acronyms

AADC	area air defense commander
ACE	aviation combat element
ADC	air defense coordinator
ADCOSC	air defense control officers senior course
Alt TACC	alternate tactical air command center
AOA	amphibious objective area
APP	Allied Procedural Publication
ASWO	assault support watch officer
AWACS	airborne warning and control system
C <sup>4</sup> I	command, control, communications, computers, and intelligence
CAC <sup>2</sup> S	common aviation command and control system
CAP	combat air patrol
CTAPS	contingency theater automated planning system
DASC	direct air support center
EMCON	emission control
FEZ	fighter engagement zone
FMFM	Fleet Marine Force manual
FMFRP	Fleet Marine Force reference publication
GBAD	ground-based air defense
HR	helicopter request
ICO	interface coordination officer
IFF	identification, friend or foe
JFACC	joint force air component commander

JSTE	joint service training exercise
MACCS	Marine air command and control system
MAGTF	Marine air-ground task force
MAPP	Marine aviation planning problem
MATCD	Marine air traffic control detachment
MCCDC	Marine Corps Combat Development Command
MCCRES	Marine Corps Combat Readiness Evaluation System
MCO	Marine Corps Order
MCWP	Marine Corps warfighting publication
MEF	Marine expeditionary force
MEU	Marine expeditionary unit
MEZ	missile engagement zone
MIJI	meaconing, intrusion, jamming, and interference
MISTEX	MACCS integrated simulated training exercise
MOS	military occupational specialty
MRR	minimum risk route
NWP	naval warfare publication
OPTASKLINK	operational task data link
RADC	regional air defense commander
RADCON	radiation control
SAAWC	sector anti-air warfare coordinator
SAAWF	sector anti-air warfare facility
SAC	senior air coordinator
SAD	senior air director
SAM	surface-to-air missile
SIMEX	simulated exercise
STD	senior traffic director
SWD	senior weapons director
SWO	senior watch officer
T&R	training and readiness
TACAN	tactical air navigation system
TACC	tactical air command center
TAD	tactical air direction

TADC	tactical air direction center
TADIL	tactical digital information link
TAOC	tactical air operations center
TAOM	tactical air operations module
TAR	tactical air request
TAWO	tactical air watch officer
TBM	theater ballistic missile
TIBS	tactical intelligence broadcast system
TMD	theater missile defense
TRAP	tactical and related applications programs
UNAAF	Unified Action Armed Forces
WEZ	weapon engagement zone
WTI	weapons and tactics instructor

## Section II Definitions

### A

**active air defense** - Direct defensive action taken to nullify or reduce the effectiveness of hostile air action. It includes such measures as the use of aircraft, air defense weapons, weapons not used primarily in an air defense role, and electronic warfare. (Joint Pub 1-02)

**air defense** - All defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (Joint Pub 1-02)

**airspace control authority** - The commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area. (Joint Pub 1-02) Also called ACA.

**airspace control order** - An order implementing the airspace control plan that provides the details of the approved requests for airspace control measures. It is published either as part of the air tasking order or as a separate document. (Joint Pub 1-02) Also called ACO.

**airspace control plan** - The document approved by the joint force commander that provides specific planning guidance and procedures for the airspace control system for the joint force area of responsibility. (Joint Pub 1-02) Also called ACP.

**area air defense commander** - Within a unified command, subordinate unified command, or joint task force, the commander will assign overall responsibility for air defense to a single commander. Normally, this will be the component commander with the preponderance of air defense capability and the command, control, and communications capability to plan and execute integrated air defense operations. Representation from the other components involved will be provided, as appropriate, to the area air defense commander's headquarters. (Joint Pub 1-02) Also called AADC.

**area of operations** - An operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (Joint Pub 1-02) Also called AO.

**area of responsibility** - 1. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. 2. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. (Joint Pub 1-02) Also called AOR.

## B

**base defense zone** - An air defense zone established around an air base and limited to the engagement envelope of short-range air defense weapons systems defending that base. Base defense zones have specific entry, exit, and identification, friend or foe procedures established. (Joint Pub 1-02) Also called BDZ.

## J

**joint force air component commander** - The joint force air component commander derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas. (Joint Pub 1-02) Also called JFACC.

**joint operation** - An operation carried on by a force which is composed of significant elements of the Army, Navy or the Marine Corps, and the Air Force, or two or more of these Services operating under a single commander authorized to exercise unified command or operational control over joint forces. Note: A Navy/Marine Corps operation is not a joint operation. (FMFRP 0-14)

**joint theater missile defense** - The integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or to otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive

missile defense; active missile defense; attack operations; and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those that are aimed at targets outside the continental United States. (Joint Pub 1-02) Also called JTMD.

## S

**sector antiair warfare coordinator** - An individual designated by the aviation combat element commander to function as his air defense battle manager. He functions to the extent of authority delegated to him by the aviation combat element commander. The sector antiair warfare coordinator is responsible for coordination and management of all active air defense weapons (aircraft and surface-to-air weapons) within his assigned sector. (FMFRP 0-14) Also called SAAWC.

## T

**tactical air command center** - The principal Marine Corps air command and control agency from which air operations and air defense warning functions are directed. It is the senior agency of the Marine air command and control system which serves as the operational command post of the aviation combat element commander. It provides the facility from which the aviation combat element commander and his battlestaff plan, supervise, coordinate, and execute all current and future air operations in support of the Marine air-ground task force. The tactical air command center can provide integration, coordination, and direction of joint and combined air operations. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called Marine TACC.

**tactical air operations center** - The principal air control agency of the Marine air command and control system responsible for airspace control and management. It provides real time surveillance, direction, positive control, and navigational assistance for friendly aircraft. It performs real time direction and control of all anti-air warfare operations, to include manned interceptors and surface-to-air weapons. It is subordinate to the tactical air command center. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called TAOC.

**theater missile** - A missile, which may be a ballistic missile, a cruise missile, or an air-to-surface missile (not including short-range, non-nuclear, direct fire missiles, bombs, or rockets such as Maverick or wire-guided missiles), whose target is within a given theater of operation. (Joint Pub 1-02)

## **Appendix D**

# **References and Related Publications**

### **Allied Procedural Publications (APPs)**

- 4 Allied Maritime Formatted Messages  
(Volume II, Appendix 4)

### **Joint Publications (Joint Pubs)**

- 0-2 Unified Action Armed Forces (UNAAF)
- 1-02 Department of Defense Dictionary of Military and  
Associated Terms
- 3-0 Doctrine for Joint Operations
- 3-01.5 Doctrine for Joint Theater Missile Defense
- 3-52 Doctrine for Joint Airspace Control in the Combat  
Zone
- 3-56.1 Command and Control for Joint Air Operations

## Naval Warfare Publications (NWP)

- 3-01.01 (C) Antiair Warfare (U)
- 3-09.11 Supporting Arms in Amphibious Operations
- 3-56 (C) Composite Warfare Commander's Manual (U)

## Navy and Marine Corps White Paper

. . . From the Sea: Preparing the Naval Service for  
the 21st Century

## Fleet Marine Force Manuals (FMFMs)

- 1 Warfighting
- 3-1 Command and Staff Action
- 3-30 Communications
- 5-1 Organization and Function of Marine Aviation
- 5-50 Antiair Warfare
- 5-60 Control of Aircraft and Missiles
- 5-70 MAGTF Aviation Planning

## Fleet Marine Force Reference Publications (FMFRPs)

- 0-14 Marine Corps Supplement to the DOD Dictionary  
of Military and Associated Terms
- 5-57 Multi-Service Procedures for AWACS Ground-  
Based Air Defense Operations
- 5-71 Aviation Planning Documents

**Marine Corps Orders (MCOs)**

- P3500.14E Training and Readiness (T&R) Manual, Vol I
- P3500.19A Training and Readiness (T&R) Manual, Vol V
- 3501.9B Marine Corps Combat Readiness Evaluation System (MCCRES), Vol VIII

**(reverse blank)**