UNITED STATES MARINE CORPS
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I MARINE EXPEDITIONARY FORCE ORDER 8600.1B

From: Commanding General, I Marine Expeditionary Force
To: Distribution List

Subj: STANDARD OPERATING PROCEDURES FOR MARINE EXPEDITIONARY UNIT, AVIATION COMBAT ELEMENT, AVIATION ORDNANCE (SHORT TITLE: SOP FOR MEU ACE AVNORD)

Ref: (a) COMNAVSURFPACINST 4080.1
(b) MARFORPAC ORDER 4080.2
(c) MCO P4030.19
(d) MCO 5104.3
(e) MCO 8020.10
(f) MCO 8023.3
(g) MCO 4790.2
(h) MCWP 3-2
(i) MCWP 3-21.1
(j) NAVAIR 00-25-100
(k) NAVAIR 00-80T-103
(l) NAVAIR 00-80T-106
(m) NAVAIR 00-80T-109
(n) NAVAIR 00-80T-115
(o) NAVAIR 01-1A-509
(p) NAVAIR 01-700
(q) NAVAIR 11-1-119
(r) NAVAIR 11-5A-17
(s) NAVAIR 11-140-12
(t) NAVAIR 11-85-1
(u) NAVAIR 11-100-1 Series
(v) NAVAIR 11-140-5
(w) NAVAIR 11-140-6.1
(x) NAVAIR 11-140-6.2
(y) NAVAIR 11-140-7
(z) NAVAIR 11-140-10 series
(aa) NAVAIR 16-1-540
(bb) NAVSEAINST 8020.6
(cc) NAVSEA OP 4
(dd) NAVSEA OP 5, VOL 1
(ee) NAVSEA OP 5, VOL 3
(ff) NAVSEA OP 1014
(gg) NAVSEA OP 2173 VOL 1
(hh) NAVSEA OP 2173 VOL 2
(ii) NAVSEA OP 3347
(jj) NAVSEA OP 3365 VOL 2
(kk) NAVSEA OP 3565
(ll) NAVSEA OP 4550
(mm) NAVSEA SW020-AC-SAF-010, VOL 1
(nn) NAVSEA SW020-AC-SAF-010, VOL 2
(oo) NAVSEA SW020-AC-SAF-010, VOL 3

(pp) NAVSEA SW020-AF-ABK-010
(qq) NAVSEA SW020-AF-HBK-010
(rr) NAVSEA SW020-AG-SAF-010
(ss) NAVSEA SW023-AH-WHM-010
(tt) NAVSEA SW050-AB-MMA-010
(uu) NAVSUP 409
(vv) NAVSUP 505
(ww) NAVSUP P-724
(xx) NAVSUP P-801
(yy) NAVSUP P-802
(zz) NWP 3-04.1
(aaa) NWP 3-04.2
(bbb) OPNAVINST 4790.2
(ccc) OPNAVINST 5102.1
(ddd) OPNAVINST 5530.13
(eee) OPNAVINST 8000.16
(fff) OPNAVINST 8023.24
(ggg) SECNAVINST 6210.2
(hhh) TW024-AA-ORD-010

1. Situation. The integration of fixed wing and rotary wing aircraft into a composite squadron and subsequently transitioning that squadron from shore-based operations to shipboard operations creates unique and complex challenges for a Marine Expeditionary Unit/ Air Combat Element(MEU/ACE) aviation ordnance division.

2. Cancellation. I MEFO P8600.1A.

3. Execution. This is the new I Marine Expeditionary Force Order and should be completely reviewed to ensure compliance.

4. Mission. Provide guidance and procedures with regard to the MEU/ACE aviation ordnance evolutions, concepts of Class V (A) logistics support, administrative requirements, and explosive safety policies to ensure a smooth transition with safe and efficient operations.

5. Administration and Logistics. This Order is applicable to all MEU/ACE deployed aboard amphibious warfare ships of the United Stated Pacific Fleets.

6. Command and Signal. Reviewed and approved this date.

LEWIS A. CRAPAROTTA

DISTRIBUTION: I, II

LOCATOR SHEET

Subj: STANDING OPERATING PROCEDURES FOR MARINE EXPEDITIONARY UNIT, AVIATION COMBAT ELEMENT, AVIATION ORDNANCE (SHORT TITLE: SOP FOR MEU ACE AVNORD)

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RECORD OF CHANGES

Log completed change action as indicated.

Change Number	Date of Change	Date Entered	Signature of Person Incorporating Change

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Chapter 4 INTERMEDIATE ("I" LEVEL) AND AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT (AIMD)

APPENDIX

Reports Required

	REPORT TITLE	ACTIVITY	DUE DATE	PARAGRAPH
Monthly Ordnance				
I.	Personnel Report	Parent MALS	25th of Month	1002
II.	Missing, Lost, Stolen or Recovered (MLSR) Report	CMC(POS10/LPP2)	As Required	1005
III.	Technical Publication Deficiency Report (TPDR)	Applicable Cognizant Field Activity (CFA)	As Required	1006
IV.	Daily Class V(A) Expenditure Report	MALS or Ship's Weapons Dept	Daily or As required	2005
V.	Monthly Class V(A) Expenditure Report	Parent MALS	3rd of Month	2005
VI.	Airborne Weapons Captive Carry Report	AWIS/web based	As Required	2012
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VIII.	Conventional Ordnance Deficiency Report, Explosive Event Report Explosive Mishap Report, Engineering Investigation Request (CODR, EMR, EI)	Applicable CFA AWIS/web based	As Required	3010
IX.	Monthly Serialized Weapons Inventory Report	Parent MALS	25th of Month	4005
X.	Product Quality Deficiency Report (PQDR)	Applicable Cognizant Field Activity (CFA)	As Required	4007

Chapter 1

General

1000. Scope. This order provides the Marine Expeditionary Unit's (MEU) Aviation Combat Element (ACE) with standardized procedures for aviation ordnance operations both ashore and afloat. Squadron commanders may employ additional safeguards and techniques to enhance their aviation ordnance operations. Should a conflict occur between this order and other applicable instructions the directive promulgated by higher authority shall govern until the conflict can be resolved. The uses of the words "shall, will, must and mandatory" indicate administrative or operational functions that are required. The use of the words "can, could, or should" indicate procedures that are recommended, but left to the discretion of the individual command.

1001. Responsibilities

1. Commanding Officers. The ACE Commanding Officer shall ensure that all ordnance-handling evolutions within the command are conducted safely. He or she shall also ensure that personnel whose duties involve control and accountability of Arms, Ammunition and Explosives (AA&E), and that those personnel who perform or supervise explosive operations are properly qualified and certified per reference (f).

2. Aviation Ordnance Officer. The MEU Aviation Ordnance Officer (6502) shall serve as a special staff officer to the MEU Commander for all aviation ordnance matters. When the ACE attaches to the MEU as a composite squadron, the MEU aviation Ordnance Officer shall be designated in writing by the ACE Commanding Officer and shall report to the ACE Commanding Officer on all matters involving Aviation Ordnance. Additional responsibilities include: serving as Explosives Safety Representative, Responsible Officer for AA&E accountability, Chairman of the Qualification/Certification Board, and responsible for conducting AA&E screening for all aviation ordnance personnel. During the periods the ACE is not composite to the MEU and the MEU is not supporting a I Marine Expeditionary Force (I MEF) exercise, the Aviation Ordnance Officer can be redirected at the discretion of I MEF Ordnance Office to support Weapons Training Instructor school, Integrated Training Exercise, and 3d Marine Air Wing (MAW).

3. Aviation Ordnance Chief. The ACE Ordnance Chief (6591) shall function as the primary manager of aviation ordnance personnel, Aircraft Mission Equipment/Aircraft Armament Systems, aircraft guns and Armament Weapons Support Equipment (AWSE) assigned to the unit. He will conduct liaison with all appropriate ACE, MEU, MALS and Ship personnel to obtain all support necessary to accomplish assigned tasks. The ACE Ordnance Chief shall be assigned in writing as the ACE Assistant Explosives Safety Representative. In the absence of an Aviation Ordnance Officer (MOS 6502), the ACE Ordnance Chief shall perform the duties as the ACE Explosives Safety Representative and shall ensure that all Explosive Safety Program requirements are adhered to. The MEU Ordnance Chief shall also be assigned as a board member of the Qualification/Certification program.

1002. Personnel Requirements

1. Troop List. The MEU ACE is a composite squadron consisting of MV-22 Osprey, CH-53E/K Sea Stallion, AH-1Z Viper, UH-1Y Venom, F-35B Lightning II,

and AV-8B Harrier aircraft, and is supported by detachments of Aviation Ordnance Marines from each type community. Also, the ship is augmented with Marine Aviation Logistics Squadron (MALS) personnel to provide intermediate level maintenance and aviation supply support to the deploying ACE. The MEU Troop List identifies squadron aviation ordnance (MOS 6531) personnel requirements, as well as, fixed-wing (FW) and rotary-wing (RW) MALS aviation ordnance (MOS 6541) personnel requirements. At the discretion of I MEF Ordnance Officer the personnel requirement can be tailored by I MEF Ordnance Chief in collaboration with the 3d MAW Ordnance Chief to meet unique aircraft requirements. This collaboration will be conducted prior to the MEU going composite, taking input from all the supporting MALS and the deploying MEU Ordnance Officer. MALS personnel will be assigned to the ship's Aircraft Intermediate Maintenance Department (AIMD) and Weapons Department, respectively. It is imperative that ordnance personnel assigned are adequately trained, qualified, and certified to ensure the safe, efficient performance of explosive operations both afloat and ashore in support of ACE operations. Any required deviations to this assignment of personnel must be coordinated between I MEF Ordnance Officer and the ship's company.

2. Qualification and Certification. Personnel shall be qualified and certified per reference (f) prior to performing any task involving ammunition or explosives.

3. Personnel Screening. Personnel whose duties involve control, accountability or handling of AA&E shall be screened prior to being assigned such duties per reference (f).

4. Licensing

a. Motor Vehicles. Personnel transporting hazardous material via motor vehicle shall be licensed in accordance with reference (dd) and (pp). They shall have a current medical examiner's certificate, a valid state driver's license, and a government motor vehicle identification card (SF-46) in their possession. The words "Explosive Driver" will be typed on the back of the SF-46. For applicable shipping regulations and vehicle inspection requirements, refer to references (qq) and (rr) respectively.

b. Material Handling Equipment (MHE). All operators of MHE shall be licensed to operate individual types of equipment per local instructions. For handling Ammunition and Explosives with MHE, aviation ordnance personnel must be qualified and certified for that work task per reference (f) and properly licensed in accordance with reference (ss).

c. Support Equipment. Personnel operating motorized or mechanically operated support equipment (i.e., Short Airfield for Tactical Support loader, bomb Hoist, etc.) will be properly trained and licensed per reference (ccc) and will be qualified and certified for the A&E handling work task per reference (f).

5. Explosive Physicals. Per reference (dd), all explosive drivers and personnel who are engaged in handling ammunition and explosives shall be given a physical examination. Personnel will be issued a valid explosive physical certificate and a record of the physical shall be entered in the Advanced Skills Management (ASM) system.

1003. Training Requirements

1. In-Service Training. Each MEU/ACE squadron shall establish an In-Service Training Program pertaining to all applicable types of explosives, weapons systems, and related armament equipment. Current lesson plans, records of training and certificates of completion shall be maintained as per reference (f), (g) and (bbb). All training shall be documented in ASM or the quarterly training documentation as required. To satisfy the unit's particular requirements, the training program must include both lectures and practical application training. In this respect, training conforms to two general types, formal and informal.

a. Formal. Formal in-service training, commonly referred to as technical training, is conducted in the classroom through use of approved lesson plans and all available training aids.

b. Informal. Informal in-service training, better known as On-The-Job training is practical instruction in the performance of tasks by means of demonstration under personal supervision in the work center or on the flight line/deck. Nearly every task that is undertaken presents an opportunity for on-the-job training and when the training involves A&E, it supports the training objectives required by reference (f).

2. Explosive Safety Training. While formal and informal in-service training will normally include training in the safety aspects of a particular task, at least one hour of formal training in general explosive safety policy and procedures is required monthly.

3. Fleet Weapons Support Team (FWST) Personnel Training Support. The FWST representatives provide on-site and on-call technical advice and training in the installation, operation, maintenance and modification of airborne weapons and weapons systems. FWST personnel can also assist in the investigation of weapons system deficiencies and in the planning, preparation and analysis of airborne weapon firing exercises.

4. Missile Assist Team (MAT). When loading/firing air launched guided missiles for training, the ACE shall obtain assistance from Naval Air Warfare Center Weapons Division FWST MAT personnel whenever possible. Procedures for requesting MAT assistance are contained in reference (eee). The ACE Aviation Ordnance Officer assists and acts as liaison with MAT personnel and other supporting agencies. The AVN Ordnance Chief is responsible for ensuring that the aircraft pre-operational checks are complete. The ACE shall submit an Airborne Weapons Firing Report after firing and the appropriate discrepancy report shall be submitted if a malfunction occurs.

1004. Qualification and Certification Program For Class V (A) AA&E.

1. Board Chairman. Commanding Officers are overall responsible for the implementation of this program. The Qualification/Certification Board Chairman duties are normally delegated to the ACE Aviation Ordnance Officer. In those units that do not have an Aviation Ordnance Officer (MOS 6502) assigned, assistance can be obtained through the chain of command for certifying ordnance personnel, i.e. the MALS Aviation Ordnance Officer.

Aircraft Maintenance Officers (MOS 6002/6004) may be assigned by the Commanding Officer as Board Chairmen for aviation maintenance personnel (airframes/seat shop and flight equipment) when required.

2. Certification Upgrades and Annual Reviews. The ACE Aviation Ordnance Officer may convene a Qualification/Certification board to upgrade personnel to a higher certification level or de-certification for cause if appropriate.

3. Personnel Certification Requirements. It is imperative that the Aviation Ordnance Officer assigned to the MEU/ACE for Western Pacific deployment ensures fully qualified and certified Marines are attached to meet mission requirements. At a minimum, the ACE requires at least one Quality Assurance Safety Observer (QASO) and one Team Leader (TL) for each type model series aircraft in the ACE. Also, at least one QASO and one TL from both the FW and RW MALS detachments are required. Additional QASOs and TLs may be necessary if the MEU/ACE will be conducting split-deck and/or shore based operations. Coordination with attaching units should be made accordingly for proper aviation ordnance personnel assignments to deploying MEUs.

1005. Control and Accountability Of AA&E. The safeguarding of AA&E requires continuous comprehensive accountability and control procedures. Training and operational losses dictate the need for command attention and procedures to assure strict AA&E and serialized ordnance equipment accountability during issue, receipt, transportation, handling, storage and expenditure. Reference (ddd) contains procedures for safeguarding AA&E items. All MEU ACE squadrons shall comply with these regulations for security of AA&E. In the instance of theft or unexplained disappearance of AA&E, the ACE shall initiate a Financial Liability Investigation of Property Loss in accordance with Marine Corps Bulletin 4440.04.

1006. Publications

1. Technical Publications Library (TPL). The Ordnance TPL will be managed and maintained per reference (k) and (ccc). Any deficiencies noted that might impact safe explosive operations shall be reported immediately by submission of a Technical Publications Deficiency Report.

2. Weapons/Stores Loading and Assembly Manuals

a. Airborne Weapons/Stores Loading Manuals. The Airborne Weapons/Stores Loading Manual provides a positive approach to improved safety and reliability in the loading of airborne conventional weapons/stores. Procedures listed therein are mandatory. Conventional weapons checklists are abbreviated procedures extracted from the appropriate Airborne Weapons/Stores Loading Manual and are intended for use in release and control checks, weapons/aircraft inspection, loading/downloading and arm/de-arming operations. Refer to reference (f) for a current listing of all effective checklists and changes.

b. Changes. Reference (f) is an index of weapons loading/assembly manuals and checklists. Marines must check for updates via NATEC website regularly. It provides using units with a list of the most current manuals and checklists, to include the latest changes. These manuals and checklists

are under constant and rapid revision that often renders one or the other obsolete. Hence, use of reference (f) and NATEC to ensure the latest information is on hand, is of particular importance.

3. Applicable Publications. Appendix A of this SOP provides a list of common technical manuals, instructions, and orders that pertain to the handling, storage, transportation, and management of Class V(A) ammunition and associated equipment. This list is not all inclusive and is provided as a general reference.

1007. Required Reports. The importance of submitting required reports on time cannot be over emphasized. All reports shall be compiled and dispatched in ample time to allow them to reach the controlling activity on or before the deadline date. For the MEU/ACE aviation ordnance division, Naval messages are the preferred method of submitting required reports, however, correspondence attached to electronic mail may be authorized by the controlling activity. A list of required reports can be found on page (V) of this order.

1008. Readiness Review Conferences. Typically, four Readiness Review Conferences (RRC) will be conducted during the milestone process. Although aviation ordnance personnel participation in all four conferences is not required, it is beneficial to the Aviation Ordnance Officer and Aviation Ordnance Chief to attend. This is an excellent opportunity to liaison with Commander Naval Surface Forces, United Sates Pacific Fleet, the Ship's Weapons Department, AIMD and the Aviation Supply Department to ensure all the logistics, maintenance, personnel and training milestones are on track. Naval Surface Force, U.S. Pacific Fleet will release a message announcing the dates and location for each RRC.

Chapter 2

CLASS V(A) AMMUNITION

2000. Class V(A) Management. All Class V(A) aviation ordnance aboard amphibious ships is structured to support MEU/ACE training as well as combat expenditures. Due to the critical requirements of Class V(A) to ACE operations, its high cost and unique logistics characteristics, proper accountability and management of Class V(A) is of the utmost importance. All class V(A) stored aboard amphibious ships will be established and outlined per reference (a). The current reference provides amplifying policies and procedures specific to the ACE.

2001. Class V(A) Maintenance Responsibilities

1. Organizational Level (O-Level). ACE O-Level maintenance responsibilities for Class V(A) aviation ordnance consists of visual inspection, installation of required components, aircraft loading/downloading, arming/de-arming, cleaning, assembly/disassembly, requesting/receipting/turning in of munitions, compliance with Notices of Ammunition Reclassifications (NAR) issued by the NAVSUP Global Logistics Support (NAVSUP GLS), and the management of the Non-Combat Expenditure Allocation (NCEA).

2. Intermediate Level (I-Level). The ship's Weapons Department and the MALS Detachment have I-Level maintenance responsibility for Class V(A) aviation ordnance. Responsibilities include packaging/palletizing, breakout, visual inspection and cleaning, assembly/disassembly of munitions, transportation, issue/receipt of munitions to and from the ACE, compliance with NARs, and any applicable technical directives and the management of the NCEA.

2002. Class V(A) Allowances

1. Non-Combat Expenditure Allocation. At the beginning of the Fiscal Year (FY), 3d MAW Ordnance will compute the MEUs' NCEA utilizing the average NCEA expenditure for the past three years for each ordnance item. This NCEA will be administratively managed by I MEF Ordnance who will facilitate the MEUs' NCEA augment requests and pre-positioning requests (where STP items fall short of NCEA items).

a. The MEU/ACE shall not exceed their NCEA without prior approval from I MEF. Possession of physical assets alone is not authority for expenditure. NCEA augment requests will be sent to I MEF Ordnance with NALC, nomenclature, quantity on hand, quantity requested, justification, and impact if the augment is not granted. MEU/ACE personnel must work closely with I MEF Ordnance to ensure pre-position of munitions is completed prior to the date it is needed.

b. Pre-position requests must be submitted no later than 90 days before the munitions are required for use (Continental United States operations). Remaining balances at the end of a MEU's deployment will either be redistributed to another MEU or returned to 3d MAW for use.

c. All MEU expenditures will be managed by I MEF Ordnance via Ordnance Information System (OIS). A copy of all NCEA issues resolved by I MEF Ordnance will be provided to 3d MAW for tracking purposes.

2. Mission Load Allowance (MLA). References (a) and (b) promulgates the Class V(A) MLA loaded aboard Landing Helicopter Assault (LHA), Landing Helicopter Deck (LHD) and Landing Platform Deck (LPD) class amphibious ships. The MLA for LPD class ships consists of five days of ammunition (DOA) for rotary-wing aircraft. The MLA for LHA/LHD class ships contains 15 DOA for the AV-8B detachment and ten DOA for rotary-wing aircraft. An additional three DOA for AV-8B aircraft is loaded aboard Combat Logistics Support ships for replenishment as required. Class V(A) contained in the MLA is for contingency requirements only and will not be issued for training expenditure. The MLA also contains Cartridge Actuated Devices (CADS)/Aircraft Escape Propulsion System (AEPS) that are utilized in aircraft safety of flight and egress systems. CADS/AEPS are available to replace items that are expended due to emergency use or are otherwise rendered unserviceable. MLA CADS/AEPS are not intended to replace expired items. There is a milestone requirement to replace CADS/AEPS that will expire during the six-month deployment prior to departure from CONUS. Use of the MLA requires authorization of the Numbered Fleet Commander via Naval Message.

3. Sustainment Training Package (STP). Reference (a) and (b) promulgates the Class V(A) STP for MEU/ACE training expenditures. Each LHA/LHD class ship has a Class V(A) STP loaded to support the ACE's NCEA. The quantities contained in the STP are the minimum required to sustain aircrew training for a six-month deployment. STP ammunition is assigned a Project Code of 876 (For Training Use) so that only specified ammunition or suitable substitutes that are approved for training expenditure will be loaded into the ship's STP allowance. The ACE is authorized to expend all STP ammunition for training provided that the ACE does not exceed its NCEA. Existence on the ship does not constitute authority to expend. Additionally, the ACE should carefully screen its NCEA and STP allowances to ensure that any NCEA quantities that exceed the STP allowance are expended prior to the deployment or ensure coordination is made with the ship to preposition additional assets on board prior to deployment. The status of the STP and MLA allowances can be tracked via the ship's periodic Ammunition Shortfall Report messages.

2003. Class V (A) Contingency Support. The MEU/ACE's initial combat capability with regard to Class V(A) is derived from the MLA loaded aboard LHA/LHD and LPD class amphibious ships and provides the ACE with 15 DOA. The Class V(A) MLA is owned and managed by Commander Pacific Fleet, and requisitions to fill MLA requirements are submitted from the individual ship's Weapons Department to the NAVSUP Global Logistics Service (GLS)/Ammunition Pacific(AMMOPAC) prior to deployment to the area of responsibility (AOR). Once in the USPACOM AOR, the Commander, U.S. Naval Forces Pacific has Class V(A) munitions availability sourcing through pre-positioned war reserve material requirements (PWRMR). Seventh Fleet maintains sole authority for the issuance of PWRMR stocks on hand in the AOR. Commander, Naval Forces (CNF), delegates the responsibility for receipt, issue, distribution, control, transportation, and replenishment of Class V(A) to the Commander, Seventh Fleet (COMSEVFLT). AMMOPAC is the single point of entry for all U.S. Navy and Marine Corps Class V(A) requisitions requiring support from ammunition stocks ashore or afloat in the Pacific or CONUS ammunition stocks. Hence, ships in the Pacific AOR submit requisitions to replenish contingency stocks directly to AMMOPAC. AMMOPAC sources requirements from in theater stocks by passing the requisitions to the appropriate ashore ammunition depots or CLF ships in the PAC AOR. Shortfalls that cannot be filled from in-theater stocks are passed to AMMOPAC for sourcing from CONUS storage activities.

2004. Class V(A) Training and Exercise Support

1. Daily Requests Afloat. Requests for Class V(A) are submitted to the ship's Weapons Department afloat in accordance with the ship's local instructions. Sufficient lead-time for requisitions is essential to ensure aviation ordnance is available and delivered on time.

a. Delivery/Expenditure/Turn-in Documentation. The supporting ship will provide delivery/expenditure/turn-in documentation with the ordnance to ensure proper accountability and tracking. Prior to signing for any ordnance, qualified personnel shall perform a weapons inspection in accordance with the applicable checklist and verify serviceability by cross checking the items against the NAR manual and cross-reference file.

b. Unexpended Ordnance and Retrograde. The ACE shall turn in unexpended ordnance and retrograde items at the end of each day's flight operations. Unserviceable ordnance shall be clearly marked as to its condition and reason for being unserviceable.

2. Shore-Based Exercise Support

a. Ship to Shore. The MEU/ACE may be tasked to provide support for shore-based exercises while deployed in the WESTPAC Theater of operations. Class V(A) support for these exercises is derived from the ship's STP allowance, requiring movement of STP ammunition from the ship to a shore-based deployment site. These evolutions must be coordinated with the ship's Weapon's Department well in advance. To ensure safe and efficient operations ashore, adequate support must also be planned and arranged for, such as trucks, material handling equipment (MHE), airborne weapons support equipment (AWSE), etc. The LHA/LHD class ships have limited quantities of AWSE available for shipboard use only, but due to storage space limitations, have no organic AWSE available for use ashore. It is imperative that the MEU/ACE considers the lack of an organic AWSE package in their planning. The MEU/ACE must be prepared to operate ashore, independent from ESG support. Lack of vehicle and equipment support is not only unsafe, but may preclude the Aviation Ordnance division's ability to meet mission requirements.

b. Logistics Support. Logistics Support requirements are coordinated through the MEU S-4 and may be obtained from the MEU Service Support Group (MSSG) and/or host nation support.

c. Administrative and Reporting Procedures. Prior to movement of Class V(A) ashore, a qualified ACE Ordnance Marine must sign the appropriate receipt document(s) (normally a DD Form 1348-1) for all aviation ordnance issued by the ship's Weapons Department. Once ashore, daily expenditure reports will be transmitted to the ship's Weapons Department throughout the exercise. The daily expenditure reports are used as the basis for the ship's daily Ammunition Transaction Reports (ATR) and ensure timely submission of the ATRs.

d. Unexpended Aviation Ordnance. Unexpended aviation ordnance remaining after an exercise produces the greatest challenge. Any unexpended aviation ordnance remaining after an exercise must be transported back to the supporting ship. The ACE Ordnance personnel ashore will maintain all packaging and retrograde materials in a serviceable condition to ensure that unexpended ordnance is returned in its original containers. They will also

ensure that sufficient banding material/equipment and material condition code tags are available to facilitate proper sentencing. Coordination with the ship's Weapons Department is essential to ensure that necessary storage space will be available on the ship(s). Therefore, when planning shore-based exercises, requests for pre-positioned Class V(A) should be kept to the absolute minimum to ensure all Class V(A) will be expended. Additionally, as with moving aviation ordnance from ship to shore, the ACE Ordnance personnel will comply with unexpended aviation ordnance procedures and inspection requirements.

e. Agricultural Inspection Requirements. Unexpended aviation ordnance ashore must be thoroughly inspected prior to preparation for transportation back to the ship. In addition to the normal aviation ordnance inspection requirements contained in the weapons inspection sections of the weapons loading and assembly manuals, aviation ordnance that has been stored on foreign soil is also subject to United States Department of Agriculture (USDA) inspections. Aviation ordnance and its associated shipping containers must be free of animal and soil contaminants or pest infestations. For more information on USDA regulations, refer to SECNAVINST 6210.2 (Medical Service Quarantine Regulations of the Armed Forces).

3. Pre-position Requests in the Western Pacific

a. Support Responsibility. For deployments and exercises in the WESTPAC, Class V(A) logistics support is the responsibility of COMSEVENTHFLT who delegates this responsibility to AMMOPAC. Any ashore training exercise in the WESTPAC Theater poses unique logistic challenges for aviation ordnance. There are few sites on foreign soil, which have site approval to operate and execute ordnance peculiar training. Moreover, since CNF uses available magazine space in the Pacific for war reserve requirements, there is very little room available for training stocks and virtually all training aviation ordnance must be shipped from CONUS. Given the frequent schedule changes for the MEU when deployed in the WESTPAC, the MEU/ACE may never have the opportunity to expend the requested items. This results in an unnecessary financial expenditure for the transportation into and out of deployment sites. Due to these limitations, pre-position requests in the WESTPAC AOR are heavily scrutinized to ensure the requirement is valid. Hence, shore-based training exercises should be supported from the ship's STP whenever possible.

b. Request Procedures. In order for munitions to be positioned in advance of planned exercises, requests shall be submitted from the MEU to COMSEVENTHFLT at least 120 days prior to the required delivery date (RDD). Information addressees on any requests shall include COMNAVSURFPAC//N411//, COMMARFORPAC//ALD//, COMSEVENTHHFLT//AMMOPAC//, CG I MEF//G3//, //CG THIRD MAW//ALD//, the ship, and the parent MALS. It should be noted that positioning Class V(A) in foreign countries requires diplomatic clearance (usually 21 days in advance) and that the deployment site has existing infrastructure to accept munitions and has been approved for Class V(A) storage and operations by CNF. It is imperative that the ACE coordinate with the MEU to determine planned exercises while in theater in order to meet the 120-day positioning request requirement. It must be determined if the site is approved (licensed) for ordnance evolutions. If the site has not been approved, CNF must obtain approval prior to the shipment of any ordnance to that site. The ACE must be able to provide ordnance personnel at the site

prior to the arrival of Class V(A) to receive and provide appropriate security for the items. The level of planning required for WESTPAC ashore exercises easily exceeds planning for similar CONUS evolutions.

c. Administrative and Reporting Requirements. The ship is still required to provide ATR support to the MEU/ACE ashore, even when Class V(A) is pre-positioned. Once the MALS Detachment or ship's ordnance personnel have received the Class V(A) ashore, all receipt documents will be forwarded to the ship's Weapons Department for incorporation into the inventory accounting system. Daily expenditure reports will be transmitted to the ship throughout the exercise.

2005. Expenditure Reporting

1. Ammunition Transaction Reports (ATR). Accountability of Class V(A) ammunition is managed through the Ordnance Information System (OIS). OIS is structured for 100 percent accountability of the worldwide Class V(A) inventory. Accountability is maintained by ATRs that are submitted by Navy and Marine Corps users. Reference (ww) contains policy and guidance for the submitting of ATRs. Responsibility for submission of ATRs for Class V(A) expenditures reported by the MEU/ACE resides with the parent MALS in CONUS or the ship's Weapons Department afloat. ATRs are submitted via Naval message to NAVAMMOLOGCEN MECHANICSBURG PA with info copies to COMMARFORPAC//ALD//, CG I MEF//G3//, COMNAVSURFPAC N42/N423M//, CG THIRD MAW//ALD//, the parent MALS (for ship's ATRs), the MEU and the ACE. The ship's ATRs shall report expenditures against the MEU's unit identification code (UIC).

2. Daily Expenditure Reports. Daily expenditure reports are submitted from the ACE to the issuing activity (Parent MALS in CONUS, Ship's Weapons Department deployed) via a locally produced delivery/ expenditure/turn-in forms. It is imperative that these reports are accurate since the data is used to produce the MALS/Ship's ATR.

3. Monthly Expenditure Reports. The ACE Class V(A) expenditures shall be reported monthly, in accordance with local instructions, to the parent MALS with copies to I MEF Ordnance and the chain of command. These reports are submitted via Naval message (or E-mail if local instructions permit) and negative reports are required. The monthly expenditure report serves as a "check and balance" between the ship's ATRs and the ACE's expenditure tracking to ensure accurate reporting.

2006. Notice of Ammunition Reclassification (NAR). Ammunition is, on occasion, reclassified due to quality evaluations, surveillance testing malfunctions, and reported discrepancies. NAVSUP GLS publishes the TWO24-AA-ORD-010 (NAR manual) semi-annually in October and April. The NAR manual contains specific instructions for NARs and a listing of all ammunition that has been reclassified as unserviceable, suspended, or limited use by Navy Ammunition Logistics Code (NALC), Lot/Serial Number, Condition Code NAR number, and remarks. NAVSUP GLS publishes supplements to the NAR manual via Naval message as required. NARs are numbered sequentially throughout each fiscal year. Prior to receipting for any ammunition, ACE or MALS Det ordnance personnel shall verify its condition by use of the NAR manual and a NAR cross reference file. Whenever doubt exists concerning the proper classification of an item, request clarification through the NAVSUP GLS

and/or the chain of command. MEU/ACE Commanders and ACE AVN ordnance officers will ensure compliance with NAR requirements. Specific details on NAR administration and cross-reference file procedures can be found in the NAR manual.

2007. Physical Security. When the ACE is deployed ashore, Class V(A) ammunition shall be properly safeguarded at all times. This includes items staged in Forward Arming and Refueling Points (FARP) and advanced base Ammunition Supply Points (ASP). Physical security of all Class V(A) will be in strict compliance with reference (ddd)and any other local regulations that may be applicable at the deployment site. In situations where armed guards are required, the ACE Commander shall assign a guard force or request guard force personnel from the MEU. All personnel assigned to safeguard Class V(A) shall receive adequate training in security regulations, the use of Deadly Force and familiarization firing with the weapon they are to be armed with.

2008. Delegation of Authority. ACE Commanders shall designate in writing those aviation ordnance and aircraft maintenance personnel who are authorized to receipt for and request Class V(A). ACE AVN Ordnance Officers (MOS 6502) assigned in writing as ROs may designate personnel to receipt for and request Class V(A) if the assignment specifically includes such authority. A copy of this designation letter shall be forwarded to the ship's Weapons Department. It must be understood that personnel may be authorized to both request and receipt for ammunition, but they are not authorized to do so for the same transactions. For any transaction the same person cannot request and sign receipt for ammunition. Submit all Class V(A) requests per the issuing activity's local instructions.

2009. AA&E Storage. The storage of AA&E includes the compatibility group segregation, net explosive weight quantity-distance requirements, ventilation, temperature control, security, and all other conditions necessary for maintaining A&E at various storage facilities. AA&E shall be stored in magazines or areas designed, designated, isolated and approved for the specific materials being stored. This includes Ready Service Lockers (RSLs), which are available aboard amphibious ships for use by the ACE. RSL keys shall be in the custody of responsible personnel and an RSL access list shall be published in writing. Specific requirements for the proper storage and security of ammunition afloat are contained in reference (dd) and the ship's Ordnance Handling Bill. When operating ashore, refer to reference (dd) and (ee).

2010. AA&E Handling. The handling of AA&E from its arrival into storage through loading aboard an aircraft is a difficult and dangerous task for all personnel concerned. The nature of the material demands that prescribed safety precautions be rigidly observed at all times regardless of operational tempo. Improper, rough or careless handling of AA&E may cause a malfunction or accident, which could result in material damage or loss of life. Accordingly, all personnel shall be trained, qualified and certified to handle AA&E per reference (f). Refer to references (gg) and (hh) for information on approved handling equipment for AA&E.

2011. Shipping, Transportation, and Embark Of Explosives

1. Ground Shipment. Reference (rr) contains instructions for the preparation and shipment of AA&E, including the use of all required

documentation, for the accomplishment of ground shipments. An explosive driver and an assistant explosive driver are required for ground transportation of AA&E. All vehicles, including Host Nation support vehicles, must conform to explosive safety transportation requirements. Prior to shipment, all AA&E shall be certified for shipment by qualified ACE personnel.

2. Air Shipment. When transporting Class V(A) to or from the ship via air, compliance with reference (c) and (vv)is mandatory. Prior to shipment, all AA&E shall be certified for transportation utilizing Special Handling Data/Certification DOD Form 1387-2. This includes Aviation Life Support System (ALSS) explosive devices contained in pilot survival vests. The ACE S-4 should have designated and qualified personnel to certify hazardous cargo.

2012. Captive Air Training Missiles (CATMs). CATMs that are necessary to meet ACE training requirements during the WESTPAC deployment shall be requested from, and provided by, the parent MALS. The MALS shall also provide the appropriate CATM shipping container in the event that the CATMs are required to be cross-decked to another ship or returned to a depot facility for maintenance. Prior to scheduled deployment the parent MALS and ACE AVN ordnance officer shall ensure the transfer of the CATM missiles from the parent MALS to the Ships Weapon Department (for storage, accountability, and unscheduled maintenance requirements-if required) and also ensure the transfer back of these assets to the parent MALS at completion of the scheduled deployment. For training and safety purposes, all CATMs shall be treated as tactical missiles during loading/downloading and arming/dearming evolutions aboard ship. The breakout, loading, or captive flight of tactical missiles from the MLA for training is not authorized. Submit Captive Carry Reports per reference (eee) as required.

2013. Airborne Weapons Firing Reports. The MEU/ACE Operations Officer/Department is responsible for ensuring that Airborne Weapons Firing Reports are completed and submitted by aircrew when applicable. Normally, these reports are required upon firing/expenditure of missiles, guided bomb units and cluster bomb units. Refer to reference (eee) for specific reporting criteria.

Chapter 3

EXPLOSIVE OPERATIONS AND SAFETY

3000. Explosive Safety Program

1. Background. The MEU/ACE trains continuously with AA&E. The storage, handling, assembly, loading, and transportation of these items are inherently dangerous. Therefore, it is imperative that MEU/ACE Commanders implement an active explosive safety program designed to minimize the potential risks involved with AA&E operations. Two key elements of the program are written SOP and an Explosive Safety Officer (ESO) as well as Assistant ESO assigned in writing to provide the necessary oversight of the program. Refer to reference (e) for guidance on Explosive Safety Program requirements.

2. Explosive Safety Factors. Effectiveness and safety result from properly trained personnel using approved ordnance handling equipment in accordance with established procedures under constant supervision. Accident prevention is affected more by the quality of the professional competence demonstrated by key individuals than by any other consideration. The close personal attention by qualified aviation ordnance supervisors is required. The main factors that contribute to explosive mishaps are high tempo operations combined with haste and inattentiveness, taking unnecessary risks, lack of supervision and disregard for established explosive safety procedures.

3. Shipboard Safety Factors. Aviation Ordnance operations aboard amphibious ships present the most dynamic and potentially hazardous environment in the Naval service due to the mix of RW and FW armed aircraft operating on a common flight deck. It is imperative that supervisors are constantly aware of the certification levels of each ACE Ordnance loading team member for each work task being conducted in support of ordnance operations. This is an on-going and progressive requirement that mandates the development of a comprehensive training program on each type aircraft for RW, TR, and FW personnel.

4. An Active Program. It is the responsibility of all supervisory personnel to ensure that their subordinates are instructed in, understand, and carry out the applicable explosive safety precautions involved with a particular explosive operation. All personnel, regardless of rank or experience, are required to report unsafe conditions as they occur and warn others of known or potential hazards.

3001. Explosive Safety Representative (ESR).

The ACE Commanding Officer shall designate an ESR and an Assistant ESR in writing. These designees will be responsible for the implementation and oversight of the unit's Explosive Safety Program. The Aviation Ordnance Officer (MOS 6502) shall be designated as the ESR. The Assistant ESR will be a Staff Non-Commissioned Officer; however, highly qualified Sergeants may be assigned if necessary.

3002. Weapons Loading Evolutions

1. Aircraft Weapons Authorizations. The aviation ordnance that an aircraft may carry varies with the performance and structural design of the aircraft and characteristics of the aviation ordnance items. Before aviation ordnance

is authorized for carriage and release by an aircraft it is subjected to extensive flight-testing. The results of flight-testing determine what restrictions are placed on the aircraft with regard to aviation ordnance combinations, release speeds, dive angles, minimum release altitudes, and which aircraft stations can carry aviation ordnance. When items are approved for carriage and release on a particular model aircraft, the information is incorporated in the aircraft Naval Air Training and Operating Procedure Standardization (NATOPS))Flight/Tactical Manual. This manual is intended to be the basic authority for use of aviation ordnance on each aircraft. Requests for deviations from the NATOPS manual will be submitted and forwarded in accordance with the appropriate NATOPS waiver process.

2. Authorized Loading/Downloading Areas. Information on authorized loading/downloading areas for a particular weapon can be found in references (k), (l), (zz), (aaa) and local air station/ship SOPs. When operating ashore, most forward firing and high explosive items must be loaded in the designated Combat Aircraft Loading Area (CALA). This requires prior coordination to ensure that the aircraft are positioned in the CALA to allow ample time to load the aircraft before the designated launch time. All maintenance should be completed and the aircraft shall be ready for flight prior to loading. The only maintenance actions authorized on a loaded aircraft can be found in applicable Safety NATOPS manuals.

3. Record Keeping. Accurate records of load configurations shall be maintained in order to correctly determine daily expenditures and captive carry information. Records should also include quantity, type, and serial numbers of aircraft armament equipment in the event that inadvertent jettison of the equipment or an aircraft mishap occurs. Aviation Ordnance Delivery/Expenditure Record sheets shall be completed per local ship or MALS instructions and retained.

4. Certification of Safe For Flight (SFF). SFF shall be documented on paragraph 8 of the Aircraft Inspection and Acceptance Record (OPNAV Form 4790/141, Part A) which is maintained in the Aircraft Discrepancy Book (ADB). SFF inspections shall be completed on all aircraft carrying any weapons/stores by aviation ordnance personnel certified at the Quality Assurance level for each weapon/store loaded.

3003. Weapons Assembly

1. Personnel Support. The ship's Weapons Department provides weapons assembly support to the ACE afloat. MALS Det aviation ordnance personnel deploy with the MEU/ACE and augment the ship's Weapons Department and AIMD, respectively, to provide Intermediate Level support for weapons and equipment. However, when the ACE operates ashore, only the MALS Det personnel provides weapons assembly support to the ACE. Therefore, these Marines must be released from the AIMD and Weapons Department to deploy ashore. For this reason, it is imperative that the ACE Ordnance Officer conducts prior coordination with the ships Ordnance Handling Officer (OHO) to ensure those personnel assigned to AIMD also have the opportunity to train with the Weapons Department in order to maintain weapons assembly proficiency in accordance with reference (f). The ACE Ordnance Officer and Ordnance Chief should coordinate with the MALS Ordnance Det Non-Commissioned Officer In Charge (NCOIC) and the respective Department Heads to ensure MALS Det personnel training requirements are current.

2. Qualification/Certification. The MALS Ordnance Det NCOIC is responsible to the ACE AVN Ordnance Officer and AVN Ordnance Chief for matters pertaining to MALS ordnance personnel Qual/Cert issues. The MALS Ordnance Det NCOIC shall ensure that personnel remain current in all work tasks for the levels of certification required to support United States Marine Corps peculiar aviation ordnance evolutions ashore.

3. Ordnance Evolutions Ashore. The MALS AVN Ordnance Det NCOIC is responsible for coordinating all logistics support necessary to perform weapons assembly operations ashore in a safe and efficient manner. Only authorized tools, support equipment and applicable weapons assembly manuals/checklists will be used during assembly operations. All explosive safety regulations will be complied with regarding ordnance handling, transportation, storage, grounding and electronic emissions control.

3004. Arming/De-arming Procedures

1. General. Due to the extreme noise present during aircraft launching operations, the arming/de-arming of weapons is normally accomplished without verbal communication between the aircrew and the arming crew. With the hazards involved with aviation ordnance and flight line/deck operations, it is imperative that the pilot, arming supervisor, and arming crew understand each other without question. Therefore, arming crews and aircrews shall be familiar with standard arming and safing signals contained in references (k), (ll), (zz), (aaa) and the Aircraft loading manual.

2. Arming/De-arming (Arm/De-arm) Areas. Arming and de-arming of weapons loaded aboard aircraft shall only be accomplished in authorized areas. Refer to local air station or ship SOPs for designated arm/de-arm areas.

3. Arm/De-arm Procedures. All procedures directed by the arm/de-arm checklist for a particular weapon shall be strictly adhered to. No aircraft shall depart the arm/de-arm area until cleared by the ordnance safety observer. Any indication that a weapon or weapon system is not safe for flight, nor safe to return to the flight line, will necessitate aircraft shutdown and notification of proper authority, i.e., ordnance OIC/NCOIC or Explosive Ordnance Disposal (EOD) as the situation dictates.

4. Jammed Gun Procedures. If a jammed gun is discovered during the de-arm evolution the jam shall be cleared per the appropriate Gun Jam Clearing Checklist. Gun jams are required to be cleared in the CALA with the aircraft pointed in the safest possible direction by EOD personnel. Refer to local air station or ship SOPs for designated gun jam clearing areas for each type of ammunition.

3005. Extreme Weather Conditions. No ordnance evolution shall be conducted during severe weather conditions as defined by references (k),(cc),(ee),(zz) and station/ship instructions. Aircraft already loaded and not requiring arming procedures may taxi and launch at the discretion of the Commanding Officer. Loaded aircraft requiring arming procedures shall not be armed until the storm has passed. Aircraft landing during a storm that require de-arm procedures shall remain in the de-arming area until the extreme weather threat has passed.

3006. Aircraft Fueling Operations. References (k), (l) and (m) must be strictly adhered to while fueling/refueling aircraft loaded with ordnance. Hot refueling and ordnance hot loading of aircraft must be done in accordance with references (k), (l) and (m). Aviation Life Support Systems (ALSS) and aircraft peculiar CADs are excluded from this restriction. Aircraft loaded with dummy ordnance, practice ordnance containing only flash or impact signal cartridges, training missiles without live warheads and motors, internally carried pyrotechnics and SUS charges, aircraft peculiar cartridge actuated devices, de-armed internally mounted guns loaded with target practice ammunition, and USMC aircraft loaded with sympathetically initiated decoy flares and chaff operating on Marine Corps Air Stations are excluded from this requirement. During MEU work up cycles, it is common for the ACE to travel to other airfields to participate in training exercises where the hot refueling of aircraft is required. Verify current reference (m) authorized stations regarding hot refueling of USMC aircraft with external safing switches and loaded with sympathetically initiated decoy flares.

3007. Hazards of Electromagnetic Radiation to Ordnance (HERO). Reference (kk) discusses the sources and effects of Radio Frequency (RF) environments on Electro-Explosive Devices (EED) and ammunition, their susceptibility and the required safe operating procedures to prevent accidental initiation by RF energy. These precautions and procedures shall be strictly adhered to. Each air station or ship will promulgate an Electronic Emissions Control (EMCON) Bill delineating all hazardous areas of electromagnetic radiation aboard the air station or ship. The ACE Ordnance Officer/Chief must be cognizant of all HERO conditions that exist and the approved handling areas and procedures for HERO unsafe and susceptible munitions. Every effort shall be made to minimize RF energy exposure to aviation ordnance during all explosive operations. Hand-held radios shall not be allowed around aviation ordnance loading/downloading evolutions without applicable HERO conditions being in effect.

3008. Explosive Site Approvals. Site approvals are required for all permanent magazine storage or vehicle staging areas. Ammunition storage facilities established during combat operations do not require prior site approval. However, field storage sites for training exercises or permanent sites established after a combat operation do require a site approval. Any field storage for training aboard an established installation must be approved by the installation commander. Refer to references (e) and (dd) for more information on site approvals.

3009. Exemptions and Waivers. Many situations involving contingency or operational requirements can only be satisfied by deviating from established explosive safety criteria. An exemption is long-term authority (up to five years) to deviate from mandatory explosive safety criteria for recurring readiness or operational requirements. A waiver is temporary authority (up to two years) to deviate from mandatory explosive safety criteria for recurring readiness or operational requirements. An event waiver is an approved deviation on a case-by-case basis for a particular evolution for a limited period to meet a non-recurring readiness or operational requirement. Refer to references (e) and (dd) for more information.

3010. Deficiency and Mishap Reporting. Any accident, incident, malfunction or deficiency involving aviation ordnance, explosives, armament equipment,

airborne weapons support equipment or ordnance related publications shall be reported to the appropriate Cognizant Field Activity (CFA) with information copies to the chain of command. Procedures for reporting accidents, malfunctions, and incidents referred to as Explosive Event Reports (EER), Explosive Mishap Reports (EMR) and Conventional Ordnance Discrepancy Reports (CODR) are contained in reference (ccc). Product Quality Deficiency Reports (PQDR) and Technical Publication Deficiency Reports (TPDR) will be accomplished per reference (eee).

3011. Explosive Safety Inspections (ESI). The implementation of an effective Explosive Safety Program requires all echelons of command to establish an adequate regimen of inspections. The ACE ESO will continually monitor the unit's explosive safety posture on a periodic basis as determined by the Commanding Officer. The following paragraphs provide a brief description of some common ESIs that the ACE may be subjected to.

1. Quarterly Audits. The quarterly audit performed by the ACE's Quality Assurance Division will include some elements related to explosive safety, particularly the Qual/Cert program.

2. Wing Inspections. The 3d Marine Aircraft Wing will conduct a bi-annual Aviation Logistics Maintenance Advisory Team (ALMAT) inspection. Some explosive safety elements are included in this inspection and the ACE may be subjected to this inspection.

3. Aviation Ordnance Safety Assessment. COMNAVSURFPAC will conduct an aviation ordnance safety assessment on each MEU/ACE that deploys aboard ship during the work-up cycle.

4. Naval Sea Systems Command (NAVSEA). The Naval Ordnance Safety and Security Activity (NOSSA) /Marine Corps Systems Command (MARCORSYSCOM) are chartered by NAVSEA to conduct an ESI on all air stations. This is normally accomplished on a 24-month cycle. All tenant units aboard an air station at the time of the inspection are also subject to the ESI.

5. Naval Safety Center (NSC). If desired by the ACE, the NSC Explosives and Weapons Division will provide Explosive Safety Program briefs and explosive safety training assist visits upon request.

3012. Explosive Ordnance Disposal (EOD). EOD support is resident aboard all air stations; however, it is not resident aboard every ship. For stations or ships that do have EOD support available, the ACE Aviation Ordnance Officer may be tasked to provide EOD personnel with aircraft and weapons familiarization training as required. All ACE ordnance personnel shall be familiar with the procedures for contacting EOD, and EOD telephone numbers should be co-located with other emergency numbers. EOD shall be contacted immediately in cases when known defective or unsafe ordnance exists, or when the disposition of defective ordnance cannot be readily ascertained by ACE ordnance personnel. If unsafe or defective ordnance is present on a ship that does not have EOD support, all necessary safety precautions will be placed in effect until EOD support becomes available.

3013. Depleted Uranium (DU) Awareness

1. Authorization For Use. The MLA for LHA/LHD class ships could contain PGU-20/U 25MM API ammunition (NALC: A979). This ammunition is used by the AV-8B aircraft with the GAU-12 gun system. The A979 projectile is black in color with a red tip for identification and contains a DU penetrator for use against armored targets. The Navy Radioactive Material Permit (NRMP) #13-00164-L1NP authorizes possession and use of DU ammunition for combat operations only. The NRMP does not authorize firing of DU ammunition for training, testing, or any other noncombatant use. The NAR manual also prohibits A979 from peacetime/ training operations. If ACE ordnance personnel should ever receive DU ammunition from the ship for a training mission, it shall be returned immediately and the ACE AVN Ordnance Officer/Chief shall be notified.

2. DU Hazards and Safety Precautions. When storing, transporting and handling DU ammunition for combat operations external radiation exposure from DU is generally not a concern since there is generally little direct skin contact with bare DU metal or long personnel exposures in close proximity to large quantities of DU. Internal radiation exposure can be of concern if inhaling or ingesting small particles of uranium. The potential for internal contamination exists from handling severely damaged DU ammunition or from firing ranges that have been impacted by DU ammunition. If damage to DU ammunition occurs due to a handling mishap or a gun jam, and ACE ordnance personnel suspect DU components may be exposed, personnel should clear the area and contact EOD immediately. If EOD support is not readily available and immediate action is required to save lives, aid the injured, fight fires, or otherwise control further damage, every precaution should be taken to avoid direct contact with, or inhalation of, DU material. Any event that involves theft, loss, fire, explosions or accidents with DU ammunition must be reported to the chain of command immediately. Store and handle DU ammunition in accordance with references (ee) and (dd). Transportation regulations are found in reference (rr). For more information on DU safety, including reporting procedures, refer to reference (d).

Chapter 4

INTERMEDIATE ("I" LEVEL) AND AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT (AIMD)

4000. Objective. A weapons systems maintenance philosophy that emphasizes correct maintenance procedures, thorough quality assurance, and effective supply support are paramount to achieving overall ACE readiness objectives. The ultimate goal of the ACE AVN ordnance division is to combine knowledge and experience with a planned maintenance and supply concept to improve readiness, sustainability, and the overall quality of the ACE's weapon systems and associated equipment.

4001. Types of Maintenance. Weapons system maintenance on aircraft and associated equipment is divided into two major headings: "preventive" and "corrective".

1. Preventive Maintenance. Preventive maintenance is the care and servicing needed to maintain equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects. Proper performance of maintenance under the planned maintenance system, utilizing the Maintenance Instruction Manuals (MIMs), Maintenance Requirement Cards (MRCs), and other applicable instructions will serve to contain system maintenance in the preventive category.

2. Corrective Maintenance. Unforeseen failures can occur in any part of a weapons system. Corrective maintenance is the action performed as a result of a system failure in order to restore an item to a specified condition. Corrective maintenance of the weapons system includes automatic and manual systems tests, fault isolation and component removal and installation.

4002. Levels of Maintenance. Reference (bbb) divides maintenance into three major levels:

1. Organizational Level (O-Level). O-Level maintenance includes those maintenance functions normally performed by the ACE ordnance division on a day-to-day basis in support of its missions. It includes weapons system inspections, servicing, lubrication, adjustment, corrective and preventative maintenance, incorporation of O-Level technical directives, record keeping and maintenance data collection.

2. Intermediate Level (I-Level). I-Level maintenance is performed by MALS Det and/or AIMD personnel designated to support the ACE's organizational activities. It consists of repair or replacement of unserviceable parts, calibration, manufacture of some parts, technical assistance, maintenance data collection and incorporation of I-Level technical directives.

a. Aircraft Intermediate Maintenance Department (AIMD). The AIMD aboard the LHA/LHD/LPD amphibious ships is manned and equipped with the necessary personnel and maintenance facilities to provide limited I-Level maintenance support to the embarked aircraft. This includes weapons system assemblies and aircraft armament equipment.

b. Marine Aviation Logistics Squadron (MALS). The ship's AIMD is augmented with personnel and equipment from a MALS. The MALS support is derived from the ACE's parent MALS. The MALS will provide pre-deployment planning to ensure that the required personnel, facilities, support equipment, and other intermediate maintenance services are available to support the embarked ACE.

3. Depot Level (D-Level). D-Level maintenance is done on aircraft and equipment that requires major overhaul or is beyond the capability of the O-Level or I-Level activities. Only specified activities are authorized for D-level Maintenance.

4003. Airborne Weapons Support Equipment (AWSE). The applicable Individual Material Readiness List (IMRL) for each of the ACE's type aircraft contains a list of all support equipment required to support maintenance and operations, including Airborne Weapons Support Equipment (AWSE). AWSE is support equipment specifically designed to transport, handle, configure or load/download aviation ordnance or weapon systems. The maintenance, calibration (if applicable), inventory control, and reporting of AWSE is essential to achieve optimal readiness. The LHA/LHD class ships have limited quantities of AWSE available due to storage space limitations. LHA/LHD class ships have quantities of AWSE available for shipboard use only, but due to storage space limitations, have no organic AWSE available for use ashore. To fill this capability gap, the MEF Aviation Ordnance Officer/Chief will work with each MEU to identify their AWSE requirements. Requirement identification should be in conjunction with MEU embark conferences in order to account for required space on the boat. I MEF will task 3d MAW to make the required AWSE available to be embarked with the MEU and/or flown in to the designated location via ULN. Because the MEU will be the end users of the AWSE, the MEU must enter the ULN data via the Time Phased Force Deployment Data (TPFDD) process. When the need for the AWSE arises, the MEU will activate the ULN, 3d MAW will be notified and the gear will be consolidated at the designated APOD to be flown to the specified location. MEU ACE aviation ordnance personnel must coordinate the use of required vehicle and forklift support needed to operate ashore.

4004. Aircraft Mission Equipment (AME)/ Aircraft Armament Systems (AAS). AME/AAS encompasses all equipment that is permanently or temporarily attached to an aircraft, which allows for the carriage and release of airborne weapons or stores. It includes bomb racks, pylons, missile launchers, and their associated adapter or interface components.

1. AME/AAS Categories

a. Aircraft Inventory Material. Aircraft inventory items are semi-permanently attached to an aircraft and are transferred with the aircraft from one controlling custodian to another. This can include bomb racks, pylons, or missile launchers that could affect the structural or aerodynamic integrity of the aircraft if removed.

b. Mission Oriented Material. Mission oriented items are AME/AAS assigned to and maintained by the I-Level maintenance activity (IMA) and

issued to O-Level activities to meet specific mission requirements. The parent MALS will sub-custody the required mission oriented AME/AAS to the ACE for the duration of the deployment. Under no circumstances shall AME/AAS be sub-custodied from the ACE to the Ship's AIMD.

2. AME/AAS Planning Factors. In order to meet any possible contingency the ACE must embark with its full allowance of AME/AAS based on the type and quantity of aircraft assigned.

3. AME/AAS Maintenance. All AME/AAS requires some degree of maintenance at the O, I, and D-Levels. The level designated to perform each required task is dependent upon manpower availability, skill levels, complexity, support equipment requirements, parts and cost. NAVAIR technical manuals provide the maintenance requirements and procedures for each type of AME/AAS. Source, maintenance, and recoverability (SM&R) codes are assigned to each assembly and sub-assembly to readily tell the user which level of maintenance stocks, uses, repairs, and disposes of each part. Proper maintenance, inspection, and testing of AME/AAS is essential to ensure safe and effective delivery of airborne weapons to the intended target.

4005. Naval Small Arms

1. Planning Factors. Reference (eee) is the basic policy for planning factors and contains the official gun allocations for a given aircraft. Naval Small Arms shall be sub-custodied to the ACE from the parent MALS prior to deployment based on the specified planning factors for the type and quantity of aircraft assigned to the ACE. A responsible officer assigned in writing will sign for Aircraft Crew Served Weapons in accordance with-the parent MALS instructions. Once signed for, the RO takes responsibility for security and accountability of the weapons.

2. Reporting Requirements. The ACE with Aircraft Crew Served Weapons assigned shall perform a monthly serialized inventory on all Aircraft Crew Served Weapons and associated equipment to include gun mounts. Results of the monthly inventory are forwarded to the parent MALS with copies provided to I MEF, 3d MAW and MALS-16 in accordance with local instructions.

3. Maintenance Requirements. Periodic inspections, cleaning, organizational maintenance and corrosion control is required for all Aircraft Crew Served Weapons. Refer to the appropriate NAVAIR technical manual for each type weapon for specific instructions. Proper maintenance and cleaning is paramount to ensure safe, reliable weapons operation.

4. Aerial Gunners. Only certified Aerial Gunners (AG) will be issued Aircraft Crew Served Weapons to perform aerial gunnery missions. AG's will sign for and maintain custody of assigned Aircraft Crew Served Weapons until mission completion. AGs will ensure proper weapon cleanliness, servicing, and adjustments are in accordance with applicable NAVAIR Weapons Loading Checklists before and after each mission. Servicing, repair, or jam clearing of weapons in flight shall be limited to those actions approved and defined in the appropriate NAVAIR weapons checklists.

5. Physical Security. While the ACE is in a deployed status, the physical security of all Aircraft Crew Served Weapons shall be in strict compliance

with reference (ddd) and any other local regulations that may be applicable aboard the ship or deployment site. In situations where armed guards are required, the ACE Commander shall assign a guard force and ensure that all personnel assigned receive training in security regulations, the use of Deadly Force and familiarization firing with the weapon they are to be armed with.

4006. Corrosion Control. The detection and correction of corrosion in the earliest stages of development will prevent flight mishaps, reduce weapons system malfunctions, and increase readiness. This is especially important at sea due to the highly corrosive nature of salt water. As a preventative measure, the frequency of periodic corrosion inspections will normally be increased during at sea periods. Corrosion recognition and reporting is an all hands responsibility. Refer to references (o) and (aa) for specific guidance.

4007. Product Quality Deficiency Reporting (PQDR). The PQDR program provides maintenance activities with a standard system of reporting unsatisfactory or substandard quality of new or newly reworked material. Report all material received defective or unserviceable per current editions of references (bbb) and (eee).

4008. Aviation Supply. Material/supply support is essential for maintaining readiness. Various allowance lists are maintained by the MALS and Ship's supply departments which are based on historical usage rates to ensure the MEU ACE can maintain aircraft and equipment to meet its assigned missions. During the Milestone process prior to deployment, it is imperative that ACE ordnance personnel coordinate with ship and MALS supply departments to ensure adequate parts support will be available for the embarked weapons systems. A summary of allowance lists follows:

1. Consolidate Shipboard Allowance List (COSAL). The COSAL is a technical and supply document tailored to suit an individual ship or MALS material support requirements. It is a coordinated listing of spares, repair parts, and consumable allowances. The COSAL is prepared by Navy Inventory Control Point (NAVICP) Mechanicsburg, PA for mechanical, electronic, and ordnance equipment.

2. Aviation Consolidated Allowance List (AVCAL). The AVCAL is a consolidated list of aeronautical material tailored to an individual ship to support the embarked MEU/ACE based on the type and quantity of aircraft assigned. It is normally prepared by NAVICP Philadelphia, PA under direction of COMNAVAIRPAC.

3. Pre-Expended Bin (PEB). The PEB is stocked with low cost, high usage items and the allowance is based on documented parts usage by the Supply Department's Master stock List Report. Parts that meet PEB criteria may be added to the allowance after proper usage has been documented and the Commanding Officer's approval has been granted.

Appendix A

AVIATION ORDNANCE RELATED REFERENCES

COMNAVSURFPACINST 4080.1	Landing Forces Operational
MARFORPAC ORDER 4080.2	Reserve Material (LFORM) Aboard Amphibious Ships of the U.S. Atlantic Fleet
MCO P 4030.19	Preparing Hazardous Materials For Military Air Shipments
MCO 5104.3	Marine Corps Radiation Safety Program
MCO 8020.10	Ammunition and Explosive Safety Policies, Programs,Requirements and Procedures for Class V Material
MCO 8023.3	Qualification/Certification Program for Class V Ammunition and Explosives
MCO 4790.20	Individual Training Standards System(ITSS) Maintenance Training and Evaluation Program
MCWP 3-2	Aviation Operations
MCWP 3-21.1	Aviation Ground Support
NAVAIR 00-25-100	Naval Air Systems Command Technical Manual Program Reference
NAVAIR 00-80T-103	NATOPS, Conventional Weapons Handling Procedures Manual Ashore
NAVAIR 00-80T-106	NATOPS, LHA/LPH/LHD
NAVAIR 00-80T-109	NATOPS, Aircraft Refueling
NAVAIR 00-80T-115	NATOPS, Expeditionary Airfields
NAVAIR 01-1A-509	Cleaning and Corrosion Control
NAVAIR 01-700	Airborne Weapons/Stores Manuals
NAVAIR 11-1-119	Ammunition for Navy 20MM and 25MM Aircraft Guns

NAVAIR 11-5A-17	Aircraft General Purpose Bombs, Fire Bombs, Practice Bombs, Fuzes and Associated Components
NAVAIR 11-140-12	Aircraft Rocket Systems, 2.75" & 5.0"
NAVAIR 11-85-1	Aircrew Escape Propulsion Systems
NAVAIR 11-100-1 Series	Cartridges and Cartridge Actuated Devices for Aircraft and Equipment
NAVAIR 11-140-5	Bomb Assembly Manual
NAVAIR 11-140-6.1	Air Intercept Missiles Assembly Manual
NAVAIR 11-140-6.2	Air To Ground Missiles Assembly Manual
NAVAIR 11-140-7	Pyrotechnics and Expendable Countermeasures Assembly Manual
NAVAIR 11-140-10 series	Guided Bomb Units (GBUs)
NAVAIR 16-1-540	Aircraft Weapons Systems Cleaning and Corrosion Control
NAVSEAINST 8020.6	Naval Explosives Safety Program
NAVSEA OP 4	Ammunition Afloat
NAVSEA OP 5, VOL 1	Ammunition and Explosive Ashore
NAVSEA OP 5, VOL 3	Ammunition and Explosives Ashore Advanceed Bases
NAVSEA OP 1014	Ordnance Safety Precautions
NAVSEA OP 2173 VOL 1&2	Handling Equipment for Weapons and Explosives
NAVSEA OP 3347	Navy Ordnance Safety Precautions
NAVSEA OP 3365 VOL 2	Hazards of Electromagnetic Radiation to Ordnance (HERO)
NAVSEA OP 3565	Electromagnetic Radiation Hazards
NAVSEA OP 4550	Handling/Stowage of Ammunition

SW020-AC-SAF-010, VOL 1, 2, & 3	Transportation and Storage Data for Ammunition, Explosives and Related Hazardous Materials
SW020-AF-ABK-010	Motor Vehicle Driver's Handbook for Ammunition and Explosives
SW020-AG-SAF-010	Navy Transportation Safety for Hazardous Materials
SW050-AB-MMA-010	Pyrotechnics, Screening, Marking, and Countermeasure Devices
NAVSUP 409	MILSTRIP/MILSTRAP Guide
NAVSUP 505	Preparing Hazardous Material for Military Air Shipments
NAVSUP P-724	Conventional Ammunition Management
NAVSUP P-801	Ammunition, Unserviceable, Suspended and Limited Use
NAVSUP P-802	Navy Ammunition Logistics Codes
NAVSUP P-805	Navy and Marine Corps Conventional Ammunition Sentencing
NWP 3-04.1	Helicopter Operating Procedures for Air Capable Ships
NWP 3-04.2	Shipboard V/STOL Aircraft Operating Procedures
OPNAVINST 4790.2	Naval Aviation Maintenance Program
OPNAVINST 5102.1	Mishap Investigation and Reporting
OPNAVINST 5530.13	Physical Security Instruction for Arms, Ammunition and Explosives (AA&E)
OPNAVINST 8000.16	Naval Ordnance Maintenance Management Program (NOMMP)
OPNAVINST 8023.24	Navy Explosives and Ammunition Qualification/Certification

OPNAVINST 8023.20	Policies/Procedures for Requesting Waivers of and Exemptions from Explosive Safety Requirements
SECNAVINST 6210.2	QUARANTINE REGULATIONS OF THE ARMED FORCES
TW024-AA-ORD-010	Ammunition, Unserviceable, Suspended and Limited Use

Appendix B

RECOMMENDED AIRBORNE WEAPONS SUPPORT EQUIPTMENT DATA

NOMEN	QTY	LENGTH	WIDTH	HEIGHT	WEIGHT (EA)
ADU-511A/E	6	34.62	4.87	7.25	40.00
ADU-875	1	28.00	16.00	10.00	150.00
ADU-876/E	16	49.50	29.50	9.50	250.00
AERO 58A (F)	12	25.25	5.00	9.38	18.64
AERO 58A (R)	12	25.25	5.71	9.38	19.84
AERO 64A	12	28.81	6.61	1.81	14.00
A/M32K-10	6	207.00	90.00	38.00	5500.00
A/S32K-1E	2	202.00	142.00	43.50	6700.00
GUN CRDL	2	49.00	22.00	10.00	90.00
HLU-256/E	6	51.56	1.75	4.75	21.00
MHU-61A/E	2	51.63	16.00	32.50	125.00
MHU-63/E	12	60.50	12.25	9.00	102.00
MHU-65/E	7	60.50	20.00	9.25	125.00
MHU-125A/E	6	64.00	18.00	6.20	60.00
MHU-158	2	65.00	4.25	N/A	25.00
MHU-188/E	2	46.50	5.00	2.75	40.00
PAL CONS	2	54.00	54.00	54.00	500.00
CART	1	76.00	38.00	20.00	150.00
MHU-191	4	130.00	26.00	14.06	204.00
PA150/151 /CNU-726	2	70.75	29.4	43	850