



# **Amphibious Assault Ship LPH/LHA/LHD/MCS Aviation Class Enlisted Aviation Warfare Specialist (EAWS) Tutorial**



Welcome to the LHA Specific PQS questions and answers. This study guide was designed to aid instructors and students alike. All of the questions were answered from instructions and directives found in NAVEDTRA 43902-16, Personnel Qualification Standard (PQS), Enlisted Aviation Warfare Specialist (EAWS), Unit Specific for LPH/LHA/LHD/MCS Aviation Class

All study information was provided by the EAWS Coordinators and Instructors on board the mighty U.S.S. Saipan.

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Good luck and study hard!

**For questions or comments please contact:**

**[flygal46@yahoo.com](mailto:flygal46@yahoo.com)**

**AZ1(AW/NAC) Kimberly Herring  
DSN: 739-7800 ext 212  
817-782-7800 ext 212**

**[ds2146@saipan.navy.mil](mailto:ds2146@saipan.navy.mil)**

**AMCS(AW) Darryl W. Smith  
EAWS Coordinator, U.S.S. Saipan  
Commercial phone:**

**[blackcat@iname.com](mailto:blackcat@iname.com)**

**AE1 Thomas Coleman  
DSN: 492-6804**

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# **ENLISTED AVIATION WARFARE SPECIALIST (EAWS), UNIT SPECIFIC FOR LHA, AMPHIBIOUS ASSAULT SHIP**

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# 101: AMPHIBIOUS SHIPBOARD FUNDAMENTALS

The following questions apply to engineering:

101.1 Briefly describe the general duties and responsibilities of the following:

**a. Engineering Officer (CHENG)**

Head of the Engineering Dept responsible under the CO for the operation, care, and maintenance of all propulsion and auxiliary machinery, the control of damage, and upon request of the head of the dept concerned, accomplishment of repairs beyond their capabilities.

**b. Main Propulsion Assistant (MPA)**

Operation, care, and maintenance of the ship's propulsion machinery and such other auxiliaries as may be assigned.

**c. Damage Control Assistant (DCA)**

Ensures that ship personnel are trained to fight the ship during fire, flooding, etc.

101.2 Discuss the source of the following types of compressed air:

**a. High Pressure (HP)**

Compressed air between 600-5000 psi. Usually located in the auxiliary sections of engineering spaces.

**b. Ship's service Low Pressure (LP)**

Compressed air, usually between 100-125 psi. used to operate ship's whistle, siren, fresh water pressurizing, etc.

101.3 Discuss the function of the following components:

**a. Ship's service/emergency generators**

Generates auxiliary electricity.

**b. Switchboards**

Control/monitors/distributes power.

**c. Boilers**

Generates steam which provides electricity and propulsion.

**d. Evaporators**

Evaporation takes place when a liquid is changed into vapor or gas.

**e. Steam turbine, gear drive**

A turbine driven by steam from the boilers. Gear drive is attached to the turbine to reduce the speed to a manageable level to provide propulsion.

**101.4 State the purpose of the electro-hydraulic steering gear.**

This system drives the ship by use of electrical power from the bridge and then hydraulics turn the shaft.

**The following questions apply to deck/navigation:**

**101.5 Discuss the purpose of the following as applied to ground tackle:**

**a. Bit**

Makes a line fast that have been faired through chocks.

**b. Chock**

Smooth surface which mooring lines are led to prevent the from chafing.

**c. Cleat**

Used for belaying a line or wire.

**d. Capstan**

Used to heave in on mooring lines and wires.

**e. Chain marking**

Lets you know how much chain you have out on deck.

**f. Anchor**

Used to hold ships position.

**g. Chain stopper**

Used to secure the chain and anchor.

**h. Pelican hook**

Part of the stopper that actually secures the chain.

**i. Wildcat**

Used for hoisting and controlled lowering of the anchor.

**j. Anchor brake**

Keeps the chain from paying out.

**101.6 Discuss the following terms in regard to Replenishment at Sea (RAS):**

**a. Underway Replenishment (UNREP)**

Means of transferring fuel, ammo, and supplies from one vessel to the next.

**b. Vertical Replenishment (VERTREP)**

Same as UNREP, but by use of helicopters.

**c. Connected Replenishment (CONREP)**

Two ships steaming side by side while fuel hoses and wire are used to transfer fuel, ammo, supplies, and personnel.

**101.7 Discuss abandon ship procedures, including the following:**

**a. Who orders abandon ship**

Originated only by the Commanding officer or Senior Line Officer in Command.

**b. Word to be passed**

Direction and distance of nearest land, Inhabitants friend or foe, water temp.

**c. Actions of the crew**

Grab CO2 life jackets and muster at assigned Life Boat.

**d. Life rafts**

MK. 6, MOD 2, 25 man.

**101.8 Briefly discuss the duties of the following bridge watch personnel:**

**a. Officer of the Deck (OOD)**

Responsible to the commanding officer for the safe navigation of the ship.

**b. Conning Officer**

Orders course and speed changes for the ship and responsible to the OOD.

**c. Boatswain' s Mate of the Watch (BMOW)**

Responsible for the watch team.

**d. Helmsman/Lee Helmsman**

Steer the ship/makes changes to the ships speed.

**e. Lookout**

Scan the surface and air for contacts and reports any contacts to the OOD on the bridge.

**f. Quartermaster of the Watch (QMOW)**

Plots the courses and takes fixes as needed.

**101.9 Discuss the differences between emergency and standard breakaway.**

Same as standard just faster and no permission is asked for from the bridge.

**101.10 State the purpose of the following:**

**a. Special sea and anchor detail**

Used for mooring or anchoring evolutions; set for the safe navigation of the ship through channels, harbors, or heavily traveled waters.

**b. Low visibility detail**

Add to lookouts in areas where visibility is bad; set when the visibility has decreased beyond safe navigation of the ship, usually 3 NM or less and the bridge will sound one prolonged blast every two minutes from ship horn.

**c. Flight quarters**

Set when a ship wants to launch aircraft or move aircraft on flight deck/hanger deck.

**d. Restricted maneuvering**

Set for the safe navigation of the ship through channels, harbors, or heavily traveled waters.

**101.11 State the three common types of man-overboard recovery.**

Air, Boat, Line.

**101.12 State the following characteristics for your ship:**

**a. Length**

(at waterline) 778 ft.

**b. Beam**

106 ft. 8 in.

**c. Draft**

(unballasted) 27 ft.

**d. Displacement tons**

40,000 tons

**e. Speed (knots)**

25+ knots

**The following questions apply to communications:**

**101.13 Discuss the purpose of the following visual communications.**

**a. Flags/pennants/day shapes**

Primarily used for transmitting tactical info between ships.

**b. Flashing light (directional/omni-directional)**

Utilizes Morse code by means of an interrupting light for communicating to one or more ships at a time.

**c. Semaphore**

Sends messages at short range using the positions of the senders arms.

**The following question apply to operations:**

**101.14 Briefly discuss the purpose of the ship' s navigation radar.**

Short range, 2 coordinate, narrow beam radars capable of good discrimination range and bearing for surface search surveillance and low flying aircraft. AN/SPS-67 is primary radar with 30 NM range, AN/SPS-64 is back-up radar with 12 NM range.

**The following question apply to administration:**

**101.15 State the purpose of the following bills:**

**a. Administrative**

Intended to be used to establish policies for assignment of personnel to duties, stations for specific evolutions/functions, by unit commanders in formulating administrative bills. (i.e. berthing and locker bill, general visiting bill, orientation bill, security bill, etc.)

**b. Operational**

To set forth policies and procedures concerning the ships operation, and to define the duties and responsibilities of ships personnel in regard to operational bills. (i.e. civil disaster bill, darken ship bill, emcon bill, heavy weather bill, etc.)

**c. Emergency**

Is to provide and organize prescribed procedures and assign responsibilities for controlling the effects of a major emergency or disaster suffered by the ship (i.e. collision, grounding).

**d. Special**

Assign responsibility for a promulgated procedures for defense against sneak/swimmer attack, evacuate civilians, prisoner of war, etc.

**e. Battle (Watch, Quarter and Station)**

Assign personnel and stations necessary to fight the ship. Each person in the division is listed by billet number displaying his/her assignments for battle, watch, operational, and emergency bills.

# 102: AIR DEPARTMENT FUNDAMENTALS

## 102.1 Describe what constitutes a full flight deck uniform.

Cranial (with goggles, and sound attenuators), Log sleeve shirt (flight deck jersey), Floatation vest (with distress light, whistle, dye marker), Pants, and steel toe safety shoes.

## 102.2 Discuss the purpose of a conflagration station.

Manned conflag stations serve as a fire watch for the hanger deck. They have the capability of actuating all fixed fire fighting systems on the hanger deck (i.e. sprinklers, water curtains, etc.). It is continuously manned during flight operations and when aircraft are spotted on the hanger deck. At least one conflag station will be manned during ordnance loading/unloading evolutions.

## 102.3 What is the purpose of the hangar bay deck edge doors?

Used to open and close the hangar deck openings through which aircraft are moved onto the deck-edge elevators. Doors can be opened or closed within 28 seconds and are controlled at either side of the door and a control at conflag stations.

## 102.4 Define the term flight quarters.

Called away when ship launches/recovers/re-spots aircraft.

## 102.5 Describe alert conditions for fixed-wing aircraft and helicopters.

Condition I – (alert 5) aircraft ready for launch within 5 mins.

Condition II – (alert 15) aircraft ready for launch within 15 mins.

Condition III – (alert 30) aircraft spotted and ready for launch within 30 mins.

Condition IV – (alert 60) aircraft spotted and ready for launch within 60 mins, can perform minor maintenance.

## 102.6 Discuss the following aircraft handling equipment:

### a. TD-1A/B tiedown chain

Used for securing parked aircraft/GSE aboard ship. Is an all purpose tiedown assembly. Has a safe working load of 10,000 pounds, during flight operations where time is vital, the ease and speed with which it may be attached to or removed from the aircraft/GSE makes it most desirable.

### b. Aircraft towbar

The ALBAR Universal Aircraft Towbar is the type most commonly used by the Navy today. It is designed for towing aircraft provided with fuselage and landing gear tow rings.

### c. NWC-4 universal wheel chock

Made of polyurethane material with adjustable blocks with molded-in tread which displaces liquids on the deck by a squeegee-type action.

**102.7 State the minimum personnel required to move an aircraft.**

6 minimum.

1 director (in front of the tractor), 1 tow tractor driver, 1 plane captain (brake rider), 2 wing walkers (one on each wing) chocks, 1 tail walker.

**102.8 Explain the functions of personnel wearing the following colored jerseys on the flight deck:**

**a. Yellow**

Aircraft handlers. In charge of flight deck and aircraft movement.

**b. Blue**

Plane handlers, elevator operators, messenger, chocks and chains, tractor drivers.

**c. Red**

Crash/Salvage, ordnance (black stripe, arm/disarm), EOD.

**d. Green**

Maintenance Personnel, arresting gear crew, catapult crew.

**e. Purple**

Fuels.

**f. Brown**

Plane captains responsible for specific plane, Line Captains

**g. White**

Admin, Safety (green stripe/cross), QA, Medical (red cross), ATO LSO, Lox crews.

**102.9 Explain the function of personnel wearing the following flight deck gear:**

**a. White jersey with red cross**

Medical

**b. Red jersey with black stripes**

Ordnance, arm – disarm.

**c. Cranial with three orange stripes**

Air Dept Officer(s), Supervisors – LPO, LCPO, EOD team members, Air Gunner.

**d. White helmet with blue jersey**

Elevator operator

**e. White jersey with green cross**

Safety

**102.10 State the responsibility of the Landing Signal Officer (LSO) for AV-8B.**

For visual control of all fixed wing aircraft in the terminal phase of the final approach and landing sequence.

**102.11 State the purpose of flight deck markings.**

To assist in the spotting of aircraft for launch and recovery, and to identify emergency stations available.

**102.12 State the purpose of the following flight deck edge scupper markings and describe the appearance of each:**

**a. Aqueous Film-Forming Foam (AFFF)**

Located throughout the flight deck and ship to put out fires. The station is painted green. An 18" x 18" green square with white letters "AFFF". These markings show the location of the fog foam/light water stations (AFFF) aboard ships in case of fire or other emergency. An 18" wide green stripe with 3" high white letters "AFFF" painted up and over the deck edge wheel stop combing.

**b. Saltwater station**

An 18" red triangle with a yellow "W" painted in the middle. An 18" wide red stripe with 3" high yellow "W" centered painted up and over the deck edge wheel stop combing.

**c. CO2**

A white circle 18" in diameter, with a red CO2 bottle painted in the center with CO2 painted on it. A 12" wide red stripe with 3" high white "CO2" centered painted up and over the deck edge wheel stop combing.

**d. PKP**

A white circle 18" in diameter, with 5" letters "PKP" painted in red. A 12" wide red stripe with 3" high white "PKP" centered painted up and over the deck edge wheel stop combing.

**e. Halon**

Red with white letters "HALON".

**102.13 Discuss the function of the Aircraft integrity watch.**

Is responsible to the CDO/OOD for the security of all aircraft and equipment on the flight and hangar decks, aviation fuels system, and for the observance of all safety precautions.

**102.14 Discuss the following crash and salvage equipment:**

**a. Shipboard TAU II**

Frame-mounted units designed for shipboard use. TAU is mounted on rear of a tow tractor for flight deck use and on a suitable cart or trailer for hangar deck use. TAU II contains 80 gallons of AFFF premixed solution and 200 pounds of PKP.

**b. A/S 32A-P16A**

Shipboard fire-fighting and rescue vehicle manned by a three-man crew. Designed to carry 375 gallons of AFFF solution and 200 pounds of PKP, which can be used simultaneously or independently of each other.

**c. A/S 32A-36A (AACC)**

Cranes are capable of operating aboard ship in inclement weather and are required to lift crashed/damaged aircraft from various locations and attitudes and move with load on a pitching and rolling deck to a designated area within a safe parking zone. Cranes are capable of operating without loss of capabilities during moderate sea conditions. AACC has a 25 ton minimum lift and roll capacity at a clear outreach of 20 feet with a 25 foot hook lifting height and a 35 ton capacity at a clear outreach of 13.5 feet with a minimum 25 foot hook lifting height.

**d. Crash dollies**

Used in moving crashed or immobile aircraft. Unit can be configured many different ways to meet the demands of each salvage operation. An assortment of metal pallets, padding, and banding material is maintained to build different height variations for various types of salvage operations.

**e. Forklift/padded boom**

Used with a crash forklift to prevent further structural damage to crashed aircraft during lifting operations. It can be inserted under ordnance pylon stations, jack points, or other structurally sound aircraft members.

**102.15 State the purpose of aviation fuels watch.**

To ensure that all fuel systems and stations are secured or safely operated.

**102.16 Define the acronym AFOSS and its use.**

Aviation Fuels Operation Sequencing System. Step by step instructions on how to use fueling equipment, pump rooms, used for training of non-qualified personnel on steps to operate systems.

# 103: OPERATIONS FUNDAMENTALS

## 103.1 List the effects of the following weather phenomena on flight operations:

### a. Lighting and electrostatic discharge

Lighting can do severe structural damage to aircraft, as well as damage to electrical systems including instruments, avionics, and radar. Lighting also poses a threat to pilots and crew, some of these effects are flash blindness, hearing loss from shock waves. Some aircrews have experienced mild electrical shock and minor burns. Aircraft build up static electricity as they fly through clouds and precipitation, as well as solid particles such as dust, haze and ice. The larger and faster the aircraft the greater the charge it generates. These discharges usually cause only minor physical damage and indirectly affects some electrical circuits.

### b. Hail

Hail is one of the worst hazards of thunderstorm flying, it occurs during the mature stages of cells having a strong updraft. The larger a storm the more likely it is to have hail. Hail is not only found inside of storms, it has been encountered as high as 45,000 ft and in clear air and maybe carried up to 10 miles downwind of the storm core. Hail can occur anywhere in a thunderstorm, but it is usually found beneath the anvil of a large cumulonimbus.

### c. Icing

Icing should be expected where temperatures are at or below freezing. Temperature ranges for icing are 0 c to -40 c and 0 c to -10 c is where the most severe icing occurs. Since the freezing level is also the zone where heavy rainfall and turbulence most frequently occur, this particular altitude appears to be the most hazardous. Sever damage to the structure is possible due to decreases in lift and increases weight.

### d. Turbulence

Thermal & Mechanical; Thermal is caused by wind shear produced by surface heat raising aircraft. Mechanical is effect of wind shear caused by physical features, aircraft can go up or down.

### e. Fog/stratus

Stratus clouds and fog occur at or near the surface and can seriously restrict visibility at low levels. For this reason aircraft operations can be delayed, particularly for landings and takeoffs. Fog and stratus are significant to the pilot, which limits them flying under VFR rules, because ceilings and visibility are generally very low to permit navigation by visual references.

## 103.2 State the weather criteria for the following launch/recovery conditions for fixed-wing and helicopters:

### a. Case 1

Advisory control – aircraft will not encounter instrument meteorological condition. FW – 3,000' ceiling/5 statute miles visibility; Helo – 1,000' ceiling/3 statute miles visibility.

### b. Case 2

Positive control – aircraft may encounter IMC on depart/recovery. FW – below Case 1 but not less than 1,000' ceiling/5 statute miles visibility; Helo – below Case 1 but not less than 500' ceiling/1 statute mile visibility.

### **c. Case 3**

Positive control overall – anticipated the aircraft will encounter IMC on depart/recovery. FW – below Case 2 and 30 minutes after sunset to 30 minutes before sunrise; Helo – below Case 2 however with a visible horizon helicopters may work in the tower DLQ pattern.

#### **103.3 Explain the function of the plane guard helicopter.**

During most flight operations, a dedicated SAR helo remains in starboard delta pattern to respond in case a rescue is required.

#### **103.4 Discuss the following Helicopter Direction Center (HDC) positions:**

##### **a. Approach control**

Assumes control of inbound aircraft from the Marshall controller. Passes control of aircraft to final controller when the aircraft reaches approximately 6 miles inbound.

##### **b. Marshall control**

Flights entering helicopter direction control zone are normally turned over to the marshall controller for further clearance to the marshall pattern.

##### **c. Assault control**

Responsible for same as Departure control and controls aircraft conducting airborne ship to shore movement of troops and supplies during amphibious operations.

##### **d. Departure control**

Normally exercises advisory control, with a shift to close control as required by weather conditions, upon request, or when the assigned departure is not adhered to.

##### **e. Final control**

Responsible for controlling aircraft on final approach until pilot reports see you or meatball, or reaches approach minimums.

#### **103.5 State the frequency ranges and function of the following:**

##### **a. High Frequency (HF)**

3 MHz – 30 MHz (3000 – 30,000 Khz), long range communication.

##### **b. Very High Frequency (VHF)**

30 MHz – 300 MHz, Line of site communication (i.e. ship to ship).

##### **c. Ultra High Frequency (UHF)**

300 MHz – 3000 MHz (3 GHz), Line of site communication (i.e. ship to military aircraft).

#### **103.6 State the effects of Emission Control (EMCON) on aviation operations.**

Positive comms control of aircraft is waived and radio transmissions between aircraft and ship board control are held to the minimum necessary for safety of flight.

**103.7 State the purpose of the air plan.**

To publish flight operations for the next 24 hours.

**103.8 State the purpose of the Unmanned Aerial Vehicle (UAV).**

Provides operational forces with a means to provide target acquisition, strike control, and damage assessment for battle and surface action groups through reconnaissance and surveillance.

# 104: AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT (AIMD) FUNDAMENTALS

## 104.1 Explain the purpose of the Aviation Life Support System (ALSS) rotatable pools.

Items provided to prevent disruption of production schedules because time required to receive replacement from supply.

## 104.2 State the purpose of an Aeronautical Equipment Service Record (AESR).

An insert to the basic aircraft logbook used as a service record for various aircraft equipment such as power plants, propellers, and apu's.

## 104.3 Discuss the responsibility of the Emergency Reclamation Team (ERT).

Assist supported activities by providing expertise and equipment not authorized at O-level maintenance.

## 104.4 Discuss the basic purpose of Support Equipment (SE). [ref. a, p. 7-4]

All equipment required to launch, arrest, guide, control, direct, inspect, test, adjust, etc. to get aircraft up and flying.

## 104.5 Discuss the basic functions of the following SE:

### a. Mobile Electronic Power Plant (MEPP)

Used to provide AC and DC electrical power for servicing, starting and maintenance of aircraft.

### b. Aircraft spotting dolly

Used to move aircraft in tight quarters such as hangar deck.

### c. Aircraft tow tractor

Used to tow aircraft and support equipment designed to be towed.

## 104.6 Discuss the basic scope and categories of Aviation Weapons Support Equipment

(AWSE) Program.

Support equipment required on deck for the safe handling, movement, installation, configuration, arming, loading, and downloading of air-launched weapons, airborne armament systems, or weapon related components. There are three subcategories; armament support equipment (ASE), weapons support equipment (WSE) and logistics support equipment (LSE).

- a. ASE includes all equipment whose primary function is to support the installed aircraft systems and is used primarily by an AIMD or SQN. (i.e. bomb hoists, weapons loaders, etc.)
- b. WSE includes all equipment whose primary function is to support ordnance components or weapons. WSE is divided into two categories; weapons handling equipment and weapons test equipment. (i.e. hoisting beams, weapons skids, etc.)
- c. LSE consists of equipment used for packaging, bulk handling storage, or stowage and transportation of weapons and weapon components within the weapon logistics cycle. LSE includes weapons packaging equipment, ship loading or underway replenishment equipment, installed shipboard or shore based equipment, and industrial materials handling equipment. (i.e. containers, pallets, etc.)

# 105: SUPPLY DEPARTMENT FUNDAMENTALS

## 105.1 Define the following acronyms:

### a. ASD

Aviation Support Division

### b. SRS

Supply Response Section

### c. CCS

Component Control Section

### d. RAM/RPOOL

RAM (repairable asset management)/RPOOL (repair pool) – inventory management of repairable assets.

## 105.2 Discuss the basic functions of the following units of SRS:

### a. Requisition Control Unit (RCU)

RCU is responsible for receiving material requests from OMA and IMA and maintaining associated files and reports.

### b. Technical Research Unit (TRU)

TRU is responsible for conducting in-depth technical research to identify material ordered by customers.

### c. Program Management Unit (PMU)

PMU is responsible for processing and expediting high priority requisitions.

### d. Material Delivery Unit (MDU)

MDU is responsible for the delivery of material to the customer within the established time frame. They are also responsible for picking up material from the customers and forwarding them to supply or maintenance.

## 105.3 Discuss the basic functions of the following CCS units:

### a. Document Control Unit (DCU)

DCU is responsible for maintaining control of repairable items and associated documents received from OMAs or IMAs.

### b. Supply Screening Unit (SSU)

SSU is responsible for processing repairable items from the IMA. The unit also performs carcass tracking functions of items that are confirmed BCM and shipped to the DOP or the hub.

### c. Local Repair Cycle Assets (LRCA)

LRCA is responsible for the receipt, storage, issue, and accountability of repairable assets under the control of ASD/SSC.

#### **d. Awaiting Parts Unit (AWPU)**

AWP is responsible for receiving, storing, and controlling all repairable items in an AWP status from IMA.

#### **105.4 Discuss the following:**

##### **a. Federal Logistic (FEDLOG) data**

FED LOG contains information provided ML-N, Management List-Consolidated (ML-C), List of Items Requiring Special Handling (LIRSH), Master Repairable Item List (MRIL), and Navy Item Control Number (NICN). FED LOG can be used to cross-reference (part) numbers and NSN; Identify Source of Supply; Obtain management data required for procurement, requisition, stowage, and issue of material; Determine proper freight standards for an item; Obtain logistics information.

##### **b. Aviation Consolidated Allowance List (AVCAL)**

AVCAL is a retail requirements package providing the range and depth of aviation material that ships are authorized to carry in order to support maintenance actions that are anticipated during work ups and extended deployments.

##### **c. Aircraft Maintenance Material Readiness List (AMMRL) Program.**

The AMMRL is an overall program that provides the data required for effective management of support equipment.

##### **d. Individual Material Readiness List (IMRL)**

The IMRL is a consolidated allowance list of authorized quantities of SE items. These are items required by an activity to perform its assigned maintenance level functions.

#### **105.5 Discuss the purpose of the Aircraft Material Readiness Report (AMRR).**

A means of informing the chain of command off the ship as to the status of embarked aircraft, flight hours flown, and any parts that require assistance in expediting.

# 106: WEAPONS FUNDAMENTALS

## 106.1 State the objective of the Non-Nuclear Ordnance/Explosive Handling Qualification Program.

To improve operational effectiveness of fleet and shore activities through training and compliance with directives, checklists, loading manuals, and NAVAIR/NAVSEA directives.

## 106.2 Explain the purpose of the following conditions:

### a. Hazards of Electromagnetic Radiation to Ordnance (HERO)

Functional characteristics of electrically initiated ordnance cause hazards of HERO. The ordnance electroexplosive devices may be accidentally initiated or their performance degraded by exposure to RF environments.

### b. Emission Control (EMCOM)

Ordnance items classified as HERO unsafe are protected from electromagnetic radiation by putting them in a completely enclosed all-metal container. EMCOM is set to minimize the RF exposure to the ordnance.

## 106.3 State the purpose of performing a stray voltage check.

Stray voltage checks are performed to prevent the accidental activation of ordnance caused by static electricity.

## 106.4 Define and discuss the following acronyms:

### a. AIM

Air-launched, intercept-aerial, guided missile.

### b. AGM

Air-launched, surface-attack, guided missile.

### c. RIM

Ship-launched, intercept guided missile.

### d. ATM

Air-launched, training guided missile.

### e. CBU

Cluster bombs.

## 106.5 Discuss the following missile guidance terms:

### a. Active

Target illumination is supplied by a component carried in the missile, such as a radar transmitter. The radar signals transmitted from the missile are reflected off the target back to the receiver in the missile.

**b. Semi-Active**

The missile gets its target illumination from an external source, such as a transmitter carried in the launching aircraft. The receiver in the missile receives the signals reflected off the target, computes the information, and sends electronic commands to the control section.

**c. Passive**

The directing intelligence is received from the target (i.e. heat from exhaust, radar transmitters, etc.)

**106.6 Discuss the purpose of the weapons elevators.**

Provides a safe and efficient means for you to handle weapons and weapons components among the magazines and the various assembly, staging, and arming areas within the ship.

**106.7 Explain the difference between hung ordnance and unexpended ordnance.**

Hung ordnance is that ordnance which accidentally remains attached to the aircraft after an attempt to release it from the rack, while unexpended ordnance is that ordnance which has not been fired.

**106.8 State the purpose of color coding in regards to ammunition. [ref. a, p. 12-2]**

Identifies the use or explosive hazards of the ammunition; however, sometimes it has no meaning.

**106.9 Explain the two types of LFORM ammunition: [ref. d, p. 3-26]**

**a. Class V(A)**

Aviation AMMO

**b. Class V(W)**

Ground AMMO

**106.10 Discuss the typical stowage for LFORM ammunition. [ref. c, pp. 2-31 thru 2-43]**

LFORM cargo accommodates palletized unit loads and are located on the 2<sup>nd</sup> platform, holds 4, 5, 9, & 10; and lower holds 4, 5, & 9.

**106.11 What is the purpose of the NAVSEA OP 4, Ammunition Afloat. [ref. d, p. 1-1]**

Provide guidance to all personnel concerned with ammunition operations of units afloat and to provide a source for a continuing, aggressive accident prevention program within the handling ammunition handling areas.

# 201: AIR DEPARTMENT SYSTEMS

## 201.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard illustration of this system or the actual equipment, identify and discuss the following system and system components.

### 201.1.1 Primary Flight Control (PRI-FLY):

#### a. State the duties and responsibilities of the following personnel:

##### 1. Air Officer (Air Boss)

Responsible to the Commanding Officer for all aircraft handling, launching, recovering, V.L.A. and servicing. Responsible for visual control of all aircraft operating in control zones (5NM radius, surface to 2,500').

##### 2. Assistant Air Officer (Mini Boss)

Assist AIR BOSS with his/her responsibilities/duties, and functions as departmental training coordinator.

#### b. Identify the stations manned during PRI-FLY.

Flight deck control, V-4 fuels control, Hanger deck control, Combat cargo, Medical BDS, ASE, Engineering (elevator rooms), Ops.

### 201.1.2 Aircraft handling/crash and salvage:

#### a. Identify the stations manned in flight deck control.

Aircraft handling officer, WeeGee board operator, phone talker, fuels phone talker, combat cargo, squadron maintenance representative, and ordnance representative.

#### b. State the duties and responsibilities of the Aircraft Handling Officer.

Make sure all operations on flight/hanger deck are done safely and effectively.

#### c. Discuss the duties and responsibilities of the aircraft crash, salvage, and rescue party.

Responsible for flight deck fire fighting, rescue, clearing flight deck crashes, and maintaining all crash and fire fighting equipment.

#### d. Discuss the duties and responsibilities of the following:

##### 1. Crash and Salvage Officer (ie. Air Boss)

For the organization, supervision and training of aircraft crash and salvage team.

##### 2. Flight Deck Supervisor.

Assists the flight deck officer in aircraft movement in preparation for launch, recovery and re-spot evaluations. Readiness of flight deck personnel, equipment (fire fighting), salvage.

### **3. Landing Signal Enlisted (LSE).**

Responsible for the safe launch/recovery of helicopters.

### **4. Vertical Short Take-off and Landing Launch Officer (ie AV-8 Launch Officer).**

Responsible for the safe launch/recovery of AV-8 aircraft.

#### **201.1.3 Aircraft launch/recovery equipment:**

##### **a. Discuss the purpose of the following flight deck lights/equipment:**

###### **1. Flight deck status lights**

Red flashing (foul deck)

Green (ready deck)

Amber (standby launch and recovery)

Blue (HERO)

###### **2. Vertical Short Take-off and Landing (V/STOL)**

Training/STOL (white)

FWD port, port, stab, athwart ship edge lighting, (white)

Safe parking (red)

Vertical dropline lights (red)

###### **3. Hover Position Indicator (HPI)**

Optical landing aid

###### **4. Wave-off Cut Light system**

Optical landing aid

#### **201.1.4 Identify the stations manned in hangar deck control.**

Spotting board operator, phone talker, elevators, conflag stations.

#### **201.1.5 Briefly describe the organization of the aviation fuels division.**

Three separate parts of V-4; 1 – below decks, 2 – flight deck, 3 – Quality Assurance.

#### **201.1.6 Briefly discuss the purpose of the following equipment as applies to the JP-5 Quality Surveillance Program:**

##### **a. Combine Contaminated Fuel Detector (CCFD)**

Tests fuel for sediment and water.

**b. Flash point tester**

Test fuel for flash point.

**c. Fuel System Icing Inhibitor (FSII) test kit**

Tests fuel for an additive used and designed for fuel to keep any water caused by condensation from freezing.

**201.2 PRINCIPLES OF OPERATION – None to be discussed.**

**201.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

**201.4 SYSTEM INTERFACE – None to be discussed.**

**201.5 SAFETY PRECAUTIONS**

**201.5.1 Discuss the three causes of nearly all aircraft handling mishaps/incidents.**

1. lack of trained personnel
2. Disinterest.
3. Lack of communication.

**201.5.2 Discuss general safety precautions that must be observed during launch/recovery operations.**

Only authorized personnel on deck, in catwalks, and on elevators during launch and recovery operations.

**201.5.3 Discuss general safety precautions that must be observed during fueling/defueling.**

Ensure the aircraft and fueling station are properly grounded, fuel hoses are in good repair and not obstructed, sufficient fire fighting equipment is within reasonable distance.

**201.5.4 Discuss the importance of raising and lowering the ship's antennas.**

Antennas shall be de-energized prior to lowering/raising.

# 202: OPERATIONS SYSTEM

## 202.1 SYSTEM COMPONENTS AND COMPONENT PARTS

### 202.1.1 State the service that the Meteorology and Oceanography (METOC) office provides for flight operations.

The dissemination of weather forecasts for aircraft operations including present forecast in immediate area of operation.

### 202.1.2 Helicopter Direction Center (HDC):

#### a. Discuss the function of HDC

Coordinates all matters pertaining to flight ops.

#### b. Identify positions manned during flight operations

AOCC sup, Approach, Marshall, Departure, Final, Assault, Status board plotters/ship-shore comm.

#### c. Briefly discuss how an air plan is developed

After assessing inputs and translating requirements, sortie or events are assigned to each of the various aircraft types. Events are assigned numeric/alpha numeric sequences to differentiate between various events and aircraft.

### 202.1.3 Discuss the function of the Combat Information Center (CIC).

All matters pertaining to combat ops and aircraft under CIC. Also execution of tactical orders for ship and ACE during battle.

### 202.1.4 Discuss the responsibilities of the Tactical Air Control Center (TACC).

Control of all air ops and air space control in the AOA/AOR.

### 202.1.5 State the duties of the Combat Cargo Officer (CCO).

Principal advisor to the ship's CO and special staff officers. To the ship's XO on matters pertaining to embark and debark of USMC and other services forces.

## 202.2 PRINCIPLES OF OPERATION – None to be discussed.

## 202.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

## 202.4 SYSTEM INTERFACE – None to be discussed.

## 202.5 SAFETY PRECAUTIONS – None to be discussed.

# **203: AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT (AIMD) SYSTEM**

## **203.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **203.1.1 State the basic function of the Intermediate Maintenance activities (afloat).**

Shall accomplish those management, staff, and production functions applicable to shore activities even though the organizational structure is changed.

### **203.1.2 Discuss the basic organizational structure of the AIMD (afloat).**

### **203.1.3 Discuss the basic functions of the Aeronautical Material Screening Unit (AMSU).**

All components received by the IMA are processed through AMSU to determine whether or not the unit is within the test, check or repair capability of the IMA.

### **203.1.4 Discuss the purpose of the Consolidated Meteorology and Calibration (METCAL)**

Program for LHA, LHD, and MCS.

Establish policy and assign responsibilities for the operation and control of the FCA segment of the METCAL program to ensure tractability of all measurements to the NIST.

### **203.1.5 Discuss the purpose of the Support Equipment (SE) Training and Licensing Program.**

Proper operation of SE is the key to safe, efficient aircraft and equipment maintenance. To ensure the Navy has developed a training and licensing program for all SE. The training is split into 2 phases with the first being proper training in the operation and maintenance of SE. The second phase is training and qualification of personnel in the proper operation of SE for the particular aircraft/equipment maintenance functions for which they will use the SE.

### **203.1.6 Discuss the all hands responsibility of the SE Misuse/Abuse Program.**

When an individual(s) misuses or abuses support equipment, they can create a dangerous/unsafe condition for others and themselves or cause extensive property damage to the SE. Anyone witnessing SE misuse/abuse is expected to prepare and forward a SE Misuse/Abuse report (OPNAV 4790/108) to the activity that owns the support equipment listing all details regarding the SE misuse/abuse.

## **203.2 PRINCIPLES OF OPERATION – None to be discussed.**

## **203.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

## **203.4 SYSTEM INTERFACE – None to be discussed.**

## **203.5 SAFETY PRECAUTIONS – None to be discussed.**

# **204: SUPPLY SUPPORT CENTER (SSC) SYSTEM**

## **204.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **204.1.1 Explain the basic responsibilities of the Aviation Support Division (ASD).**

Acts as a direct link between the AIMD officer and the Supply officer. Responsible for effective supply support of organizational maintenance activities and IMAs. Single point of contact for maintenance activities requiring direct supply support.

### **204.1.2 State the basic responsibilities of SRS and CCS.**

SRS serves as the point of contact for satisfying maintenance material requirements, maintain all files/registers, deliver matl/parts to customers, provide status to customers, research material requirements. CCS is responsible for repairables management by accounting for repairables stored in LRCA storage areas, in the IMA repair cycle, and those being processed for shipment to DRPs; store/manage AWP items and control requisitions for AWP assets.

### **204.1.3 State the goal of the Navy Physical Inventory Program.**

To establish and continuously improve the inventory accuracy and accountability of material in the stock system.

### **204.1.4 State the purpose of the Advanced Tractability and Control (ATAC) Retrograde Depot Level Repairables (DLR) Program.**

Is to improve control of all repairable assets turned in for repairs (carcass tracking).

## **204.2 PRINCIPLES OF OPERATION – None to be discussed.**

## **204.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

## **204.4 SYSTEM INTERFACE – None to be discussed.**

## **204.5 SAFETY PRECAUTIONS – None to be discussed.**

# 205: COMBAT SYSTEMS

## 205.1 SYSTEM COMPONENTS AND COMPONENT PARTS

### 205.1.1 Discuss the five types of bombs.

- 1) General Purpose (low drag general purpose) - used in most bombing operations. (i.e. Mk 80 series).
- 2) Laser Guided bomb – modified to detect and steer towards a target illuminated by a laser beam.
- 3) Destructors – modified to be used as a land or sea mine.
- 4) Bomb cluster – Air to-surface free fall weapon for delivery from low or high speed aircraft, that breaks up into clusters for more effective range of explosion.
- 5) Practice bomb – Simulated the ballistic properties of an actual weapon. Various types to simulate weight and characteristics of its functional counterparts. NO explosive filler. Provides training for pilots and ground handling crews.

### 205.1.2 Briefly explain the purpose of the following:

#### a. Sidarm (AGM-122)

Short range, air-to-ground, antiradiation missile that is designed to detect, home on, and destroy or disable enemy radar.

#### b. Maverick (AGM-65)

Laser guided, rocket-propelled, air-to-ground missile. Used against fortified ground installations, armored vehicles, and surface combatants.

#### c. Sidewinder (AIM-9)

Supersonic, air-to-air weapon with passive infrared target detection, proportional navigation guidance, and torque-balance control systems.

#### d. Gun systems

M61A1 is a six barrel, rotary-action, automatic gun based on the machine-gun design of Richard J. Gatling. Gun is hydraulically driven, electrically controlled, and can fire M50-series ammunition at 4,000 to 7,200 rounds per minute. Used for air-to-air and air-to-ground firing.

#### e. General purpose bombs

Low-drag general purpose bombs are used in most bombing operations.

## 205.2 PRINCIPLES OF OPERATION – None to be discussed.

## 205.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

## 205.4 SYSTEM INTERFACE – None to be discussed.

## 205.5 SAFETY PRECAUTIONS

**205.5.1 Discuss the general safety precautions that must be observed during weapons handling.**

1. Ensure HERO/EMCOM is set.
2. Ensure only qualified personnel are supervisors and handling ordnance.

# 206: AMPHIBIOUS WARFARE (AMW) MISSION AREA

## 206.1 SYSTEM COMPONENTS AND COMPONENT PARTS

Referring to a standard print of this system or the actual equipment, identify the following system components and component parts and discuss the designated items for each:

**A. What is its purpose?**

**B. Where is it located?**

**C. What is the maximum capacity?**

### 206.1.1 Planning phase:

- a. Ship to shore movement [ref. c, p. 3-1] A
- b. Planning sequence [ref. b, p. ix-3] A
- c. Messages (OPTASK amphibious) [ref. c, p. M-1] A

### 206.1.2 Embarkation phase: [ref. d, pp. D-1 thru D-14]

#### a. Aircraft used

1. UH-1 AC  
Utilized for troop transport, MEDEVAC and cargo movement. 2 – 4 crewmembers, 4 – 8 passengers.
2. AH-1W AC  
Attack helo used for air support, armed escort, etc. 2 crewmembers.
3. CH-46D AC  
Medium lift assault helo used for troop transport, cargo movement, MEDEVAC, SAR and VOD. 3 – 5 crewmembers, 14-25 passengers.
4. CH-53E AC  
Heavy lift helo used for troop transport, heavy cargo movement and VOD. 3 crewmembers, 55 passengers.
5. AV-8B AC  
Fighter attack used for close/deep air support, anti-surface/air support, armed recon/escort missions.

#### b. Landing craft used [ref. c, para. 1. 5. 4]

1. Landing Craft Air Cushion (LCAC) AC  
Move troops/equipment from ship to shore.
2. Landing Craft Utility (LCU) AC  
Move troops/equipment from ship to shore.
3. Landing Craft Mechanized (LCM) AC36  
Move troops/equipment from ship to shore.
4. Lighter Amphibious Resupply Cargo (LARC) AC
5. Amphibious Assault Vehicle (AAV) AC

### **206.1.3 Rehearsal phase:**

- a. Rehearsal [ref. b, p. XII-1] A**

### **206.1.4 Movement phase:**

- a. Amphibious Objective Area (AOA) [ref. c, p. 6-1] A
- b. Sea Echelon Area (SEA) [ref. c, p. 3-42] A
- c. Fire Support Area (FSA) [ref. c, p. 3-42] A
- d. Landing area [ref. c, p. 3-42] A
- e. Landing zone [ref. e, p. K-5]

### **206.1.5 Assault phase:**

- a. Final operations for approach A**

1. Surf Observations (SUROBS) [ref. f, ch. 10, para. 1005] A
2. Modified Surf Index (MSI) [ref. f, ch. 11] A
3. Illumination Index (moonrise/set) [ref. d, p. 2-9] A

### **206.1.6 Conventional landing craft operation terms: [ref. c]**

- a. Assembly circles [para. 4. 3. 4. 2. 1] A
- b. Debarkation station [para. A.1] A
- c. Wave forming circles [para. 4. 3. 4. 2. 2] A
- d. Control to the line of departure [para. 4. 3. 3. 1. 2] AB
- e. Boat lane [para. 4. 3. 3. 1. 2] AB

### **206.1.7 Communication/equipment:**

- a. Flags [ref. c, app. C] A
- b. Markers [ref. c, app. C] A
- c. Signs [ref. c, app. C] A
- d. Lights [ref. c, app. C] A37
- e. Alpha net [ref. a, p. 4-5] A
- f. Bravo net [ref. a, p. 4-5] A
- g. Command net [ref. c, p. 4-13] A

## **206.2 PRINCIPLES OF OPERATION**

**206.2.1 State the order given by the Commander Amphibious Task Force (CATF) to commence the ship-to-shore movement. [ref. c, p. 4-2]**

## **206.3 PARAMETERS/OPERATING LIMITS**

**206.3.1 State the service that the Meteorology and Oceanography (METOC) office provides for amphibious operations. [ref. d, p. 8-6]**

## **206.4 SYSTEM INTERFACE**

**206.4.1 How do the following contribute to amphibious operations:**

- a. Well deck control [ref. e, p. 3-1]
- b. Ballast control [ref. e, p. 3-1]
- c. Stern gate [ref. e, p. 3-1]
- d. Landing craft refueling [ref. g, p. VI-3]

**206.5 SAFETY PRECAUTIONS – None to be discussed.**

# **208: AIR TO SURFACE WARFARE (ASW) MISSION AREA**

## **208.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **208.1.1 Discuss the following detection systems:**

#### **a. Surface combatants' ship.**

SLQ-32, SPS 49, SPS 48, TAS Mk-23, CIWS

#### **b. Electronic Countermeasures (ECM) (active and passive)**

SLQ-32 – Passive operations are those that cannot be directly detected by the enemy. To avoid detection (make invisible). Active operations are actions taken that the enemy can detect. They prevent effective use of the enemy's equipment. Electronic jamming to interfere with radar and communication.

#### **c. Surface search**

Primary surface search radar SPS-67 and secondary SPS-64.

### **208.1.2 Discuss the following direction system:**

#### **a. Surface combatants' ship.**

MK-95 NSSM director, CIWS

### **208.1.3 Discuss the following delivery systems:**

#### **a. AV-8B**

Carries Maverick missiles for ground support, has limited air-to-air heat seeking missiles AIM-9.

#### **b. AH-1W**

Ground support and escorts, tank killing missiles.

#### **c. UH-1N**

Personnel carrier and may have a machine gun mounted.

### **208.1.4 Discuss the following destruction devices:**

#### **a. Missiles (AGM)**

(air-to-ground) Used on radar, ground installations, and ships.

#### **b. Bombs**

Free falling explosive, either unguided or guided.

#### **c. Rockets**

No guidance system, used on anything. Just aim and shoot.

#### **d. Aircraft guns**

M61 A1 fires 4,000 rpm at gun low and 6,000 rpm at gun high.

## **208.2 PRINCIPLES OF OPERATION – None to be discussed.**

## **208.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

## **208.4 SYSTEM INTERFACE – None to be discussed.**

## **208.5 SAFETY PRECAUTIONS – None to be discussed.**

# **209: POINT-DEFENSE/COUNTERMEASURES SYSTEM**

## **209.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **209.1.1 Discuss the basic function of the following:**

#### **a. .50 caliber mounts**

Navy's largest small arm machine gun utilized for small boat attack.

#### **b. 25mm chaingun**

Ship's small boat and lightly armored aircraft attack weapon.

#### **c. Close-In Weapons System (CIWS)**

Close range defense for anti-ship cruise missile, fixed/rotary wing aircraft attack, and surface targets.

#### **d. Electronic Countermeasures (ECM)**

Basic rule is that for each weapon used by one side, a counter weapon will be developed by the other side (i.e. radar jammers).

#### **e. NATO Seasparrow Missile system**

Semi-active, uses input from another source (TAS MK 23). Effective range 9 miles. Rapid reaction, light weight surface to air system.

#### **f. MK 32 GMWS (RAM)**

Passive, fire and forget one transition IR to RF, uses infra red and ECM (radiation). Looks for IR/RF targets, engaging RF first then IR. Quick reacting, close in self-defense system.

#### **g. AV-8B**

USMC/VSTOL fighter attack including close air support, deep air support, and anti-surface anti-air, armed reconnaissance and armed escort missions. Ordnance includes 25mm, rocket pods, air-to-air missiles, air-to-surface missiles, bombs.

#### **h. AH-1W**

USMC attack helicopter for close air support, armed escort for assault helicopters, and anti-tank, anti-helicopter and limited anti-aircraft missions. Ordnance includes 20mm, gun pods, rocket/missile pods, anti-tank, air-to-air missile.

#### **i. FIM-92 Stinger**

Hand held surface-to-air close in self-defense system utilizing infra red , fire and forget systems.

## **209.2 PRINCIPLES OF OPERATION – None to be discussed.**

## **209.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

## **209.4 SYSTEM INTERFACE – None to be discussed.**

## **209.5 SAFETY PRECAUTIONS – None to be discussed.**

# **210: BATTLE FORCE INTERMEDIATE MAINTENANCE ACTIVITY (BFIMA)SYSTEM**

## **210.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **210.1.1 Discuss the function and organization of BFIMA.**

To maximize the Battle Force's ability to operate and sustain itself at sea through improved repair capabilities and material self-sufficiency and strengthen Battle Force material readiness to conduct Navy/joint/combined operations from the sea.

### **210.1.2 Discuss the function and organization of Assault Readiness Group Intermediate Maintenance Activity (ARGIMA) and how it relates to BFIMA.**

The Amphibious Readiness Group IMA (ARGIMA) is intended to function as an independent entity when the ARG is detached from the Carrier Battle Force.

### **210.2 PRINCIPLES OF OPERATION – None to be discussed.**

### **210.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

### **210.4 SYSTEM INTERFACE – None to be discussed.**

### **210.5 SAFETY PRECAUTIONS – None to be discussed.**

# **211: AIR COMBAT ELEMENT SYSTEM**

## **211.1 SYSTEM COMPONENTS AND COMPONENT PARTS**

### **211.1.1 Discuss the organization and function of the Air Combat Element (ACE).**

**A single composite squadron composed of elements from various shore based squadrons. Normally consists of CH-46, CH-53, UH-1, AH-1, AV-8 harriers.**

### **211.2 PRINCIPLES OF OPERATION – None to be discussed.**

### **211.3 PARAMETERS/OPERATING LIMITS – None to be discussed.**

## **211.4 SYSTEM INTERFACE**

### **211.4.1 How does this system interface with the following:**

#### **a. Commander Amphibious Task Force (CATF)**

ARG commander, responsible for the overall success of all operations with the exception of the CLF which he shares responsibilities for all planning stages.

#### **b. Marine Expeditionary Unit Special Operations Capable (MEUSOC)**

Consists of four integrated elements and is a separate embarked operational unit. MEU is the CLF.

#### **c. Commanding Officer**

IS responsible for the overall operation of the ship, including ship, air, and combat operations.

### **211.5 SAFETY PRECAUTIONS – None to be discussed.**