

ENLISTED AVIATION WARFARE SPECIALIST (EAWS)

FIXED-WING AIRBORNE EARLY WARNING (VAW) SPECIFIC TUTORIAL



Welcome to the EAWS E-2C Specific PQS questions and answers. This study guide was designed to aid instructors and students alike. Study information on this site was provided by AT1 Dave Crisher . All of the questions were answered from instructions and directives found in NAVEDTRA 43902-5 , Personnel Qualification Standard (PQS), Enlisted Aviation Warfare Specialist (EAWS), Unit Specific For Fixed Wing Airborne Early Warning (VAW).

The EAWS (Core) program was designed to encompass basic areas of study applicable to the entire Navy. Just click on the section of the PQS that you would like to review. Good luck and study hard!



Special Thanks to AT1 Dave Crisher for providing me with the material.

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ACRONYMS USED IN THIS PQS

Not all acronyms or abbreviations used in this PQS are defined here. The Subject Matter Experts from the Fleet who wrote this Standard determined the following acronyms or abbreviations may not be commonly known throughout their community and should be defined to avoid confusion. If there is a question concerning an acronym or abbreviation not spelled out on this page nor anywhere else in the Standard, use the references listed on the line item containing the acronym or abbreviation in question.

ADB	Aircraft Discrepancy Book
ADI	Attitude Director Indicator
AMR	Airborne Microwave Refractometer
CIS	Contractor Indicator Set
COMPTUEX	Competitive Training Unit Exercise
CPG	Computer Programmer Group
ESM	Electronic Support Measures
FLEETEX	Fleet Exercise
FLOLS	Fresnel Lens Optical Landing System
IFF	Information Friend or Foe
ILS	Instrument Landing System
INS	Inertial Navigation System
ITA	Intermediate Training Assessment
LOX	Liquid Oxygen
MOVLAS	Manually Operated Visual Landing Aid System
MSR	Mobile Sea Range
PPE	Personnel Protective Equipment
RADALT	Radar Altimeter
RADAR	Radio Detection and Ranging
TACAN	Tactical Air Navigation
TSTA	Tailored Ship Training Assessment

101 SAFETY FUNDAMENTALS

References:

[a] OPNAVINST 5100.23D, Navy Occupational Safety and Health (NAVOSH) Program Manual

101.1 Describe the basic requirements for each of the following Navy Occupational Safety and Health (NAVOSH) Programs:

a. Respiratory Protection [p. 15-1]

Whenever respiratory protection is required, a respiratory protection program shall be established and maintained per the requirements of OPNAVINST 5100.23D. A trained Respiratory Protection Program Manager (RPPM) shall be appointed in writing by the Commanding Officer or Officer in Charge. The RPPM shall be responsible for implementing program requirements.

- (1) Employees identified by the RPPM as requiring respiratory protection equipment due to the nature of their work or job. Appropriate respiratory protection equipment shall be provided by the Navy to these individuals. The use of any respiratory protection equipment by employees other than identified by the RPPM is prohibited.
- (2) Personnel, such as employees, inspectors, and visitors, who must enter an area where the use of respiratory protection equipment is required, even when their stay time in the area may be 15 minutes or less, shall be provided and use appropriate equipment, including instructions regarding use and limitations. Personnel shall be fit tested and medically qualified to wear the respirator being issued.

b. Hearing Conservation [p. 18-1]

The goal of the Navy hearing conservation program is to prevent occupational hearing loss and ensure auditory fitness for duty in the military and civilian work force. The program includes the following:

- (1) Work environments shall be surveyed to identify potentially hazardous noise levels and personnel at risk.
- (2) Environments that contain or equipment that produces potentially hazardous noise shall, whenever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels.
- (3) Periodic hearing testing shall be conducted to monitor the effectiveness of the hearing program.
- (4) Education of individuals exposed to hazardous noise, their supervisors, and people providing hearing conservation services (i.e. training, monitoring, hearing protection, etc.) to these individuals is vital to the overall program.

c. Sight Conservation [p. 19-1]

Navy policy requires that personnel exposed to eye hazardous areas or operations by provided adequate eye protection at government expense. Employees shall be required to wear appropriate eye protective equipment when performing eye hazardous operations such as:

- (1) Pouring or handling of molten metals or corrosive liquids and solids
- (2) Cutting and welding
- (3) Drilling
- (4) Grinding
- (5) Milling
- (6) Chipping
- (7) Sand blasting or other dust producing operations

Any persons entering a posted eye hazard area, including other workers, supervisors, or visitors shall be required to wear eye protective equipment.

d. Personal Protective Equipment (PPE) [p. 20-1]

Each activity shall assess all workplaces to determine if hazards are present that necessitate the use of PPE. If such hazards are present, or likely to be present, the following actions shall be accomplished:

- (1) Select, and have each affected employee use the types of PPE that will protect the affected employee from the hazard assessment.
- (2) Communicate selection decisions to each affected employee.
- (3) Verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and which identifies the document as a certification of hazard assessment.

102 TRAINING FUNDAMENTALS

References:

[a] COMNAVAIRPACINST 3500.60B/COMNAVAIRLANT 3500.42, CV/CVN Turnaround Training Requirements

102.1 Discuss the following turnaround training evolutions:

a. Carrier qualification [p. 4]

Day and night carrier qualification requirements are established by Landing Signal Officer (LSO) NATOPS (OPNAVINST 00-80-004). If Inter-Deployment Training Cycle (IDTC) schedule permits, all CVW pilots should maintain 12 month night CQ currency. CVW commanders should contact COMNAVAIRLANT to arrange CQ periods.

b. Tailored Ship Training Assessment (TSTA) [p. 5]

TSTA constitutes a large portion of the Basic Training Phase. TSTA has been designed to focus on shipboard unit level training. CVW involvement in ship evolutions shall increase significantly during the course of the TSTAs, and include Carrier Qualification (CQ), shipboard survival, Damage Control (DC) training and other ship's training exercises requiring air services. The CVW normally participates in the at-sea portion of TSTA I, II, and III.

(1) **TSTA I** - Nominally seven days underway. Flight deck operations are normally limited to drills and air wing CQ. Although flight operations are limited, it is essential all personnel available in the deploying air wing embark to participate in shipboard training.

(2) **TSTA II** - Nominally seven days underway. Emphasis is on flight deck operations, moving toward cyclic operations with unfinished training in other areas conducted on a not-to-interfere basis. TSTA I/II are normally combined into one at-sea period.

(3) **TSTA III** - A nominal eight day underway period with a four day Final Evaluation Period (FEP). The ship and air wing demonstrate the ability to conduct cyclic operations. TSTA III is normally conducted as part of COMPTUEX Phase I, and shall be conducted under the cognizance of the deploying battle group commander. Carrier Group 4 shall not be embarked.

(4) **TSTA IV** - This is a training command/fleet replacement squadron CQ in which CV(N) engineering training is emphasized during non-flying periods. CVW CQ may be conducted if schedule permits.

c. Competitive Training Unit Exercise (COMPTUEX)/Intermediate Training [p. 8]

Assessment (ITA) - COMPTUEX is nominally ten days underway emphasizing in carrier/air wing integration into the battle group. This period is under control of the deploying battle group commander, and shall be used to prepare for JTFEX. Training should be tailored to improve any weaknesses that may have been identified in earlier training. The purpose of ITA is to demonstrate the ability of the carrier and air wing to operate as a coordinated and combat ready unit. The ITA shall consist of approximately 72 hours of day and night simulated combat operations, and shall afford the opportunity to exercise air wing and current fleet TACNOTES. Additionally, the ITA shall determine the level of the ship/air wing operational readiness and identify areas to focus further training during the Advanced Phase. The CV(N)/CVW team shall be evaluated on many factors, including aircraft MC/FMC rates, sorties data, flight hours and landing averages/boarding rates. Specific warfare areas shall be assessed, to include strike warfare, under surface warfare, anti-air warfare, close air support and electronic warfare. Also evaluated shall be cyclic and flex deck operations, EMCON flight operations and strike rescue.

d. Fleet Exercise (FLEETEX) [p. 9]

Concludes the advanced training through the Battle Group Evaluation.

103 AIRCRAFT HANDLING FUNDAMENTALS

References:

[a] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft

[b] NAVAIR 00-80T-105, CV NATOPS Manual

103.1 Identify the personnel required to move the E-2C:

a. Ashore [ref. a, WP021 00, p. 1]

1. Director, preferably a plane captain, with a whistle.
2. Right wing walker, equipped with a whistle and carrying a wheel chock.
3. Left wing walker, equipped with a whistle and carrying a wheel chock.
4. Tail walker, equipped with a whistle.
5. Qualified brakeman in cockpit in the pilot's seat.
6. Qualified and licensed tow-tractor driver.

b. Afloat [ref. b, pp. 6-2, 6-3]

1. Qualified brake rider in cockpit in the pilot's seat
2. Qualified tow-tractor driver, flight deck personnel
3. Qualified director, flight deck personnel, equipped with a whistle
4. Right wing walker, flight deck personnel, equipped with a whistle
5. Left wing walker, flight deck personnel, equipped with a whistle
6. Tail walker, flight deck personnel, equipped with a whistle
7. Two chock walkers, flight deck personnel, equipped with whistles

103.2 State when the aircraft and engine protective covers shall be installed: [ref. a, WP016 00, p. 1]

Dust and protective covers must be installed if the aircraft will be parked for prolonged periods of time.

103.3 Describe the proper installation of a TD-1A or TD-1B tie-down chain: [ref. a, WP025 00, p. 1]

Tiedown fittings are provided to secure the aircraft. During carrier-based operations, tiedowns shall be used except during actual movement of the aircraft. During shore-based operations, tiedowns shall be used when required by existing weather conditions and local regulations.

Before installing tiedowns, perform the following:

1. Set parking brakes and chock main landing gear wheels
2. Install main and nose gear ground safety locks
3. Install arresting hook ground safety lock
4. Ground aircraft
5. Perform interior and exterior safety checks

Install tiedowns on the aircraft at the locations shown in the NAVAIR 01-E2AAA-2-1, W/P 025, Fig-1. Tiedown lines are positioned in the most symmetrical pattern whenever possible. Tiedown lines are not to be positioned at any deck fitting in a 5-foot radius of the tiedown fitting of the aircraft. Tiedown lines shall not chafe against the aircraft structure or lines after being attached to the main landing gear.

103.4 State the purpose of the ground safety locks: [ref. a, WP016 00, p. 1]

External ground safety locks are provided to protect maintenance personnel and prevent damage to the aircraft while the aircraft is on the ground.

104 AIRFRAME FUNDAMENTALS

References:

- [a] NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft
- [b] NAVAIR 01-E2AAA-3-1.1, Structural Repair Navy Model E-2C Aircraft
- [c] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft
- [d] NAVAIR 01-E2AAA-2-2.1, Aircraft Electromechanical Systems Theory Navy Model E-2C Aircraft
- [e] NAVEDTRA 12338, Aviation Structural Mechanic (H & S) 3 & 2

104.1 Explain the purpose of the Wing Fold system. [ref. a, p. 1-2-57]

The outer wing panels can be folded, on the deck, thus reducing the horizontal clearances normally required to permit stowage aboard carrier hangar decks. This is accomplished hydraulically with 3000-psi pressure from the combined hydraulic system.

104.2 Identify the two corrosion prone areas subjected to runway splash and debris during landing and takeoff. [ref. b, WP006 50, p. 8]

Landing gear and wheel wells.

104.3 Explain the purpose of the tail skid. [ref. c, WP006 00, p. 4]

The tail skid at the bottom of the fuselage protects the aft section of the fuselage from structural damage if the aircraft assumes a tail down attitude when landing.

104.4 State the purpose of the rotodome. [ref. c, WP006 00, p. 1]

The rotodome consists of the 24 foot radome which houses the IFF and radar antennas.

104.5 State the purpose of the Landing Gear Emergency Extension system. [ref. d, WP028 00, p. 1]

The emergency extension system is used to lower the main gear and nose gear by means of pneumatic pressure when a malfunction in the hydraulic power systems or the hydraulic control mechanism of the landing gear makes it impossible to lower the gear hydraulically.

104.6 State the purpose of a hydraulic patch test. [ref. e, p. 4-8]

Hydraulic fluid contamination causes hydraulic system and component failures and presents a serious threat to flight safety. Typical contaminants include metallic and nonmetallic debris (self-generated and externally introduced), water, or other foreign fluids, all of which serve to degrade hydraulic system performance and component life. Stringent contamination control is required at all levels of maintenance to ensure flight safety and the highest degree of hydraulic system readiness. An aggressive hydraulic fluid surveillance program, with sampling/testing accomplished (as required), will ensure hydraulic fluids are maintained within acceptable contamination limits.

Maximum acceptable hydraulic fluid particulate contamination levels are Navy Standard Class 5 for aircraft and Navy Standard Class 3 for SE.

104.7 Identify the location of the escape systems of the E-2C. [ref. c, WP012 00, p. 10]

Cockpit Ditching Hatch

Two plug-type, aft sliding hatches are in the cockpit: one above the pilot's seat; the other above the copilot's seat, permits emergency exits and rearview observation of in-flight rotodome operation.

CIC Compartment Ditching Hatch

The ditching hatch in the CIC compartment is directly above the air control operator's (ACO) station. It is a plug-type hatch and is removed by turning the T-handle on the aft end clockwise. A handhold on the forward end of the hatch facilitates its removal.

Ditching Hatch Emergency Lighting

The CIC compartment ditching hatch emergency lighting consists of three electroluminescent panels located above and on both sides of the hatch. The light set is provided to illuminate the ditching hatch in emergency landings.

Bailout Warning System

The bailout warning system is activated by the pilot to inform the crewmembers of his decision to abandon the aircraft.

104.8 State the hazards associated with the following: [ref. c, WP015 00, p. 2]

a. Movable surfaces

All personnel should keep any and all appendages out of movable surfaces.

b. Anti-collision strobe lights

Do not look directly into lower or upper anti-collision strobe lights. Because of the high intensity of strobe lights, eyesight injury could occur.

c. Aircraft parking

Ensure that the pilot and copilot overhead hatches are closed or the nose of the aircraft is facing away from the sun before leaving the aircraft. The sun passing through the open hatch can reflect off the inside of the side bubble windows and cause fires in the cockpit.

105 PROPULSION FUNDAMENTALS

References:

- [a] NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft
- [b] NAVAIR 01-E2AAB-1F, NATOPS Flight Manual, Navy Model E-2C Plus Aircraft
- [c] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft
- [d] NAVEDTRA 12300, Aviation Machinist's Mate 3 & 2

105.1 State the type(s) and model(s) of engine(s) used on the E-2C aircraft. [ref. a, p. I-2-1 (425); ref. b, p. I-2-1 (427)]

E-2C Group 0	T56-A-425
E-2C Group I/II/NavUpgrade	T56-A-427

105.2 State the five forces acting on a propeller. [ref. d, p. 12]

1. Centrifugal force

The greatest force. This force tends to pull the blade of a spinning propeller out of its hub.

2. Thrust bending force

A spinning propeller tries to forge ahead but is held back by the hub and the load of the aircraft it is pulling. The blade tips, which are thinner and lighter than the blade shank bend forward.

3. Torque bending force

Operated in a vacuum, the engine would have an easy task, as air density could be disregarded; however the blades on the revolving hub actually meet with varying values of resistance due to the density of the air. This resistance results in a torque on the crankshaft and acts in a direction opposite of the torque power force provided by the engine.

4. Aerodynamic twisting movement

This force tries to rotate the blades in the hub so that the blade angle will be increased.

5. Centrifugal twisting movement

A force that tends to twist the blades to a lower blade angle.

105.3 Discuss proper fueling and de-fueling methods. [ref. c, WP054 00, p. 5]

WARNING

No radio or radar activity is allowed in 1,000 feet of the aircraft while fueling. Provide adequate amount of firefighting equipment. Ensure that the aircraft and the fuel truck are properly grounded. Discharge static electricity from the pressure fueling nozzle before attaching it to the fueling adapter. All fuel personnel must be properly instructed in their jobs before fueling the aircraft. Maximum fueling pressure shall be limited to 60 psi.

FUELING

1. Ensure the aircraft and fueling unit is properly grounded.
2. Close all appropriate circuit breakers.
3. Connect external power to the aircraft.
4. Open pressure fueling station door (right nacelle, inboard side only) and check left and right engine strainer bypass lights.
5. Before removing pressure fueling adapter cap, the hose nozzle grounding attachment shall be connected to the aircraft ground connection.
6. Remove pressure fueling adapter cap, insert pressure fueling nozzle, and lock nozzle in adapter.
7. Start fueling. The NOT FULL lights on pressure fueling station go on to indicate that fuel is entering tanks.
8. When fuel tanks are full, NOT FULL lights go out and fueling stops automatically.
9. When partial fuel load is required, cockpit monitor shall signal to stop fueling when 100 pounds of fuel less than fuel load required for respective tank is indicated on the fuel quantity indicator.
10. Turn off fueling source and remove pressure fueling nozzle from pressure fueling adapter. Install pressure fueling cap.
11. Remove hose nozzle grounding cable from aircraft grounding connection.
12. Close and secure pressure fueling station access door.

DEFUELING

- 1.** Perform steps (1) through (6) of fueling procedure.
- 2.** Using negative pressure of 1 to 2 psi from fueling source, start defueling.
- 3.** Defueling stops automatically 4 gallons of fuel remain in each tank.
- 4.** Turn off defueling source and remove pressure fueling nozzle from pressure fueling adapter. Install pressure fueling adapter cap.
- 5.** Remove hose nozzle grounding cable from aircraft ground connection.
- 6.** Close and secure pressure fuel station access door.

106 AVIONICS/ELECTRICAL FUNDAMENTALS

References:

- [a] NAVAIR 01-E2AAB-1F, NATOPS Flight Manual, Navy Model E-2C Plus Aircraft
- [b] NAVEDTRA 12000, Airman
- [c] NAVEDTRA 12329, Aviation Electronics Technician 3
- [d] NAVEDTRA 12331, Aviation Electronics Technician 1(O)
- [e] NAVEDTRA 10348-G, Aviation Electrician's Mate 3 & 2
- [f] NAVEDTRA 172-02-00-91, NEETS Module 2—Introduction to Alternating Current and Transformers

106.1 Define the following acronyms: [ref. a, pp. 43 thru 48]

a. AACS	Aircraft Approach Control System
b. ACLS	Automatic Carrier Landing System
c. ACO	Aircraft Control Officer
d. ADF	Automatic Direction Finder
e. AEW&C	Airborne Early Warning and Control
f. AFCS	Automatic Flight Control System
g. AOA	Angle of Attack
h. CAINS	Carrier Aircraft Inertial Navigation System
i. CIC	Combat Information Center
j. CICO	Combat Information Center Officer
k. CP	Copilot
l. GPS	Global Positioning System
m. HARS	Heading and Attitude Reference System
n. ICS	Intercommunications System
o. IFPM	In-Flight Performance Monitoring System
p. JTIDS	Joint Tactical Information Distribution System
q. PDS	Passive Detection System
r. RO	Radar Officer

106.2 State the purpose of a thermocouple. [ref. e, app. AI, p. AI-10]

Provides the means of determining Turbine Measured Temperature (TMT) through the use of the two dissimilar metals alumel and chromel.

106.3 State the difference between analog and digital. [ref. d, p. 8-2]

Analog - Uses combinations of ones and zeros to complete computations

Digital - Uses varying electronic impulses to complete computations

106.4 State the difference between active and passive systems. [ref. c, p. 2-1]

Active sends and receives signals.

Passive receives signals only.

106.5 State the purpose of the following test equipment. [ref. c]

a. **Multimeter** – Reads resistance, AC and DC voltages.

b. **Megohmmeter** – More precise instrument used to check for shorts in a wire.

106.6 State the difference between alternating current (ac) and direct current (dc). [ref. f, p. 1-2]

AC - is current which constantly changes in amplitude, and which reverses direction at regular intervals

DC - current which does not change direction.

106.7 State the purpose of a battery. [ref. b, p. 7-1]

To supply voltage to a load.

106.8 Explain the term static as it pertains to the Pitot Static system. [ref. b, p. 7-7]

Surrounding air mass.

107 UTILITIES FUNDAMENTALS

References:

[a] NAVAIR 01-E2AAA-2.2.2, Aircraft Electromechanical Systems Theory Navy Model E-2CAircraft

[b] NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft

107.1 Discuss the basic operation of an Air Cycle Air Conditioning system. [ref. a, WP087 00, p. 2]

Heats, cools, ventilates, and pressurizes the cockpit, CIC compartment, and the aft equipment compartment.

107.2 Discuss the basic operation of a Cabin Pressurization system. [ref. a, WP087 00,p. 2]

Automatically maintains air pressure in the cabin. Starts at 5,000 feet. Between 5,000 and 35,000 feet maintains a constant 5,000 feet altitude pressure. From 35,000 feet to maximum altitude maintains 8.8 psi above atmospheric pressure.

107.3 Discuss the effects of ice accumulation on the aircraft. [ref. b, p. VI-20-1]

Reduces aerodynamic efficiency. Results in higher take-off/landing minimum flight speeds that are normally required. Reduces rate of climb.

108 ADMINISTRATIVE/OPERATIONAL FUNDAMENTALS

References:

- [a] COMNAVAIRPACINST/COMNAVAIRLANTINST 5440.15H, **Standard Organization and Regulations Manual (SORM)**
- [b] NAVAIR 01-E2AAB-1F, **NATOPS Flight Manual, Navy Model E-2C Plus Aircraft**
- [c] NAVEDTRA 12390, **Air Traffic Controller**

108.1 Discuss the administrative chain of command. [ref. a, p. 1-2-1]

Commanding Officer, Executive Officer, Administrative Officer, Administration Division Officers are the First LT and the Public Affairs Officer

108.2 Discuss the operational chain of command. [ref. a, p. 1-2-1]

Commanding Officer, Executive Officer, Operations Officer, Assistant Operations Officer. Operations Division Officers are NFO Training Officer, Pilot Training Officer, Schedules Officer, COMM/CMS Officer and the Intelligence Officer.

108.3 Define the following terms: [ref. c, p. 1-9]

- a. Instrument Flight Rules (IFR)** – Rules governing the procedures for conducting instrument flight. Pilots must comply with IFR procedures when operating in weather conditions that are less than VFR minimums.
- b. Visual Flight Rules (VFR)** – Rules governing the procedures for conducting flights under visual conditions. A pilot operating in accordance with VFRs is flying in accordance with the see-and-avoid concept.

108.4 Discuss the function(s) of the five crew stations. [ref. b, p. I-1-1]

The E-2C flightcrew will normally consist of a pilot, copilot, combat information center officer, aircraft control officer, and radar officer. Specialized electronic equipment makes it feasible for three operators to search, identify, and track targets, as well as control intercepts. AEW&C digital information can be relayed automatically, and an additional UHF communications relay system is incorporated.

201 AIRFRAME SYSTEM

References:

[a] NAVAIR 01-E2AAA-3-1.1, Structural Repair Navy Model E-2C Aircraft

[b] NAVAIR 01-E2AAA-2-2.1, Aircraft Electromechanical Systems Theory Navy Model E-2C Aircraft

[c] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft

[d] NAVAIR 01-E2AAA-2-2.2, Aircraft Electromechanical Systems Theory Navy Model E-2C Aircraft

201.1 Identify the following system components and component parts and discuss the designated items for each:

201.1.1 Nose Section

a. Nose cap [ref. a, WP031 00, p. 2]

Virtually the nose of the aircraft. It provides access to the taxi lights, approach lights, LOX bottle, PDS antenna, PDS receiver, and the pressure bulkhead.

b. Pressure bulkhead [ref. b, WP012 00, p. 2]

Located under the nose cap. It provides access to the windshield temperature controllers, arresting hook flasher, wheels warning flasher, nose junction box, emergency landing gear blow-down bottle, and various test relays.

201.1.2 Fuselage forward section: [ref. c, WP006 00, p. 3]

a. function of the cockpit – It houses the seats for the pilot and co-pilot.

b. location of the cockpit door – It's located between the cockpit and the FEC.

201.1.3 Fuselage midsection:

a. forward equipment compartment [ref. a, WP031 00, pp. 2, 3]

It's the area between the cockpit door and the CIC door.

b. Main entrance hatch [ref. a, WP031 00, p. 4; ref. b, WP009 00pp. 2 thru 9]

The MEH is used for normal entry and exit of the aircraft. It's located on the port side of the aircraft, inboard of the port engine. Pulling the handle on the inboard side of the pilot's seat releases two pins at the top of the MEH and 2 pins at the bottom of the MEH and a pin on the MEH brace assembly allowing for the MEH to fall clear of the aircraft.

c. Combat Information Center (CIC) compartment/door [ref. a, WP031 00, p. 3; ref. c, WP006 00, p. 3]

It's located at the aft end of the FEC.

d. Aft equipment compartment/door [ref. a, WP031 00, p. 3; ref. c, WP006 00, p. 3]

It's the separator of the CIC and the AEC.

201.1.4 Fuselage aft section: [ref. a, WP031 00, p. 4]

a. Access door [ref. b, WP012 00, p. 2]

It's located just forward of the tail skid on the centerline of the bottom of the fuselage. It allows access to the "hell hole".

201.1.5 Wing section: [ref. a, WP021 00]

a. Center wing [pp. 1, 2]

It extends outboard from the centerline of the aircraft to the fold joint ribs at wing station 144.000.

b. Outer wing [p. 3]

Hinged to wing center section at the rear beams, this is the part of the wing that folds.

201.1.6 Flight control systems: [ref. b]

a. Aileron [WP040 00, p. 2]

There is one at the aft outboard panel of each wing, they provide lateral control for the aircraft in flight.

b. Flaps [WP040 00, p. 2; WP044 00, p. 2]

Located on the trailing edge of the outer wings inboard of the ailerons. They provide the aircraft with additional lift for take-off, landing and low airspeed maneuverability. The emergency mode is the same as the normal mode with the exception that the flap gearbox is driven by an electric motor vice hydraulic power.

c. Rudders [WP040 00, p. 2]

Located on the left outboard, right outboard and right inboard vertical stabilizers, the rudders provide directional control of the aircraft.

d. Elevators [WP040 00, p. 2]

Located on the fixed horizontal stabilizers the elevators provide longitudinal control of the aircraft.

201.1.7 Landing Gear system:

a. Nose gear [ref. b, WP028 00, p. 1; ref. c, WP007 00, pp. 6, 7]

Located in the nose wheel well of the aircraft. The emergency mode of extension is controlled with air supplied by the emergency landing gear blow-down bottle.

b. Main gear [ref. c, WP007 00, p. 6]

Located in the port and starboard landing gear wells. The emergency mode is the same as the nose gear.

c. Wheel/brake [ref. b, WP029 00, p. 2]

Mounted on each main gear between the main mount and the strut. Emergency mode is operated by applying pressure from the brake accumulator which is applied at the same time to both brakes when the emergency brake handle is pulled

d. Nose wheel steering [ref. b, WP030 00, pp. 1, 2]

Located in the cockpit by the pilots left knee, it allows for directional maneuvering of the aircraft when on the ground.

201.1.8 Hydraulics: [ref. d]

a. Flight [WP066 00, p. 2]

b. Combine [WP067 00, p. 2]

201.1.9 Wings:

a. Spread [ref. c, WP030 00, p. 2]

b. Fold [ref. c, WP030, p. 2; WP072 00, p. 1]

c. Jury strut [ref. b, WP008 00, pp. 2, 3]

201.1.10 Arresting gear [ref. b, WP035 00, p. 2; ref. c, WP007 00, p. 7]

201.1.11 Catapult/towbar [ref. c, WP007 00, p. 7]

201.1.12 Rotodome [ref. c, WP035 00, pp. 1 thru 4]

201.3.1 State the proper tire pressure for the following: [ref. c, WP059 00, p. 2]

a. Nose wheel (land/carrier based) – Land 140psi/Carrier 260psi

b. Main wheel (land/carrier based) – Land 210psi/Carrier 260psi

201.3.2 State the normal operating pressure of the Hydraulic system. [ref. c, WP057 00,p. 1]

3,000 psi

201.5.1 What additional safety precautions must be observed when jacking an aircraft on a carrier underway?
[ref. c, P023 00, pp. 5, 6]

1. Ship's wind cannot exceed 15 knots if on deck.
2. Face aircraft into wind if on deck.
3. Don't jack if the pitch or roll of the ship is expected to exceed 3 degrees.
4. Use a minimum of 8 tie-downs.
5. Ensure one person is on each tie-down to adjust tension.
6. Ensure bumper jack is installed.

202 PROPULSION SYSTEM

References:

[a] NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft

[b] NAVAIR 01-E2AAB-1F, NATOPS Flight Manual, Navy Model E-2C Plus Aircraft

[c] NAVAIR 01-E2AAA-2-2.2, Aircraft Electromechanical Systems Theory Navy Model E-2C Aircraft

[d] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft

202.1.1 State the function of the Propeller System. [ref. a, p. I-2-14 (425); ref. b,p. I-2-16 (427)]

To convert the power developed by the main engine into thrust under all operating conditions

202.1.2 What part of the Propeller System has electrical anti/de-ice components.

[ref. a,p. I-2-14 (425); ref. b, p. I-2-16 (427)]

Heater elements are imbedded in the plastic material of the front and rear spinners and in the rubber heater pads adhered to the leading edges of the prop blades.

202.1.3 Name the six major subassemblies of the propeller. [ref. a, p. I-2-14 (425); ref. b,p. I-2-16 (427)]

Front spinner
Back spinner
Propeller dome
Propeller hub
Blades
Propeller control assembly

202.1.4 State the function of the following major engine components: [ref. c]

Reduction gear box [WP071 00, p. 6 (425); WP071 01, p. 3 (427)]

Reduces power section RPM to the range of efficient RPM.

Torquemeter [WP071 00, p. 8 (425); WP071 01, p. 12 (427)]

Provides a means of transmitting and measuring the torque produced by the power section.

Compressor assembly [WP071 00, p. 4 (425); WP071 01, p. 5 (427)]

Consists of compressor air inlet housing, compressor rotor, two piece compressor case, and a diffuser.

Accessory drive housing [WP071 00, p. 6 (425); WP071 01, p. 8 (427)]

Provides mounting pads on the rear face of the housing for fuel pump, external scavenge oil pump, fuel control, and generator.

Combustion section [WP071 00, p. 1 (425); WP071 01, p. 3 (427)]

Six individual combustion liners evenly spaced in an annulus formed by the outer and inner casings.

Turbine section [WP071 00, p. 3 (425); WP071 01, p. 3 (427)]

Consists of turbine inlet casing and front bearing support, rotor vane casing, vane assemblies, and rear bearing support.

202.1.5 State the function of the following fuel system components: [ref. d, WP007 00, p. 9]

Boost pumps – Two in each fuel tank providing an uninterrupted fuel flow to both engines down to 1% fuel remaining, at normal landing attitudes.

Fuel tank vent – Maintains fuel tank pressure at ambient values during all aircraft operating conditions.

Fuel quantity probes – Provides an indication of fuel quantity on indicator in cockpit.

Fuel jettison (dump) – Permits dumping of excess fuel for proper landing weight.

202.1.6 State the maximum pressures for pressure fueling and suction de-fueling. [ref. d,WP054 00, pp. 7, 8]

Pressure fueling – 60psi

Suction de-fueling – negative pressure of 1 to 2psi

202.1.7 State the maximum fuel capacity in pounds. [ref. a, p. I-2-21 (GRP 0);ref. b, p. I-2-24 (GRP 2)]

12,400 lbs.

202.5.1 What special safety precautions apply to: [ref. d]

Aircraft propellers [WP042 00, p. 3]

Avoid at all costs

Engine intake and exhaust [WP015 00, pp. 2 thru 7]

Avoid at all costs

Fueling and de-fueling [WP054 00, p. 5]

No smoking, striking of matches, working on aircraft or producing sparks within 50 feet.

203 AVIONICS/ELECTRICAL SYSTEM

References:

- [a] NAVAIR 01-E2AAB-1F, NATOPS Flight Manual, Navy Model E-2C Plus Aircraft
- [b] NAVAIR 01-E2AAA-2-2.1, Aircraft Electromechanical Systems Theory Navy Model E-2C Aircraft
- [c] NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft
- [d] NAVAIR 01-E2AAA-2-16.1, Principles of Operation RADAR and IFF Systems Navy Model E-2C Aircraft
- [e] NAVAIR 01-E2AAA-2-16.2, Principles of Operation Communications Systems Navy Model E-2C Aircraft
- [f] NAVAIR 01-E2AAA-2-16.3, Principles of Operation Navigation Systems Navy Model E-2C Aircraft
- [g] NAVAIR 01-E2AAA-2-16.5, Principles of Operation Inflight Performance Monitor AN/ASM-440 and Display Systems Navy Model E-2C Aircraft
- [h] NAVAIR 01-E2AAA-2-16.6, Principles of Operations Countermeasures and Data Processing Systems Navy Model E-2C Aircraft

203.1.1 State the purpose of the following navigation systems:

a. Attitude Director Indicator (ADI) [ref. a, p. I-2-64]

Provides a visual display of roll, pitch, heading, AOA, rate of turn/slip, ACLS info and status of ACLS.

b. Standby Attitude Indicator [ref. a, p. I-2-65]

For emergency use should the ADI become unreliable or a loss of aircraft power, provides the pilot with pitch and roll information.

c. ASN-92 Inertial Navigation System (INS) [ref. a, p. VII-22-4]

(Not in NavUpgrades) Provides aircraft navigation guidance capabilities, plus reference information to associated avionic systems for stabilization and orientation.

d. ASN-50 Heading Attitude Reference System (HARS) [ref. a, p. VII-22-15]

(Not in NavUpgrades) An alternate source of attitude and heading information in the form of continuous signal inputs about the pitch, roll and azimuth axis.

e. Tactical Air Navigation (TACAN) [ref. f, WP020 00, p. 2]

Provides short range distance, to-from, bearing course deviation, and audio identification for the use of the flight crew.

f. Radar Altimeter (RADALT) [ref. f, WP016 00, p. 2]

It is a low altitude terrain tracking and altitude sensing radar system.

g. Global Positioning System (GPS) [ref. a, p. VII-22-28]

It is a space based radio navigation system that is world-wide and provides highly accurate three dimensional position, velocity and time.

203.1.2 State the purpose of the following communications systems: [ref. e]

a. Intercommunication System (ICS) [WP004 00, p. 2]

Provides voice communication among the crew and interfaces with radio systems.

b. Ultra High Frequency (UHF) Radio [WP003 00, p. 4]

Three radios provide two-way plain voice and data communication. UHF 3 and 4 are used for plain or secure voice and FM Link 11 data. UHF-5 is used for plain voice of Frequency Shift Keyed (FSK) Link 4A data.

c. High Frequency (HF) Radio [WP003 00, p. 5]

HF1 and HF2 radios provide a means of conducting two-way voice communication and Link 11 data.

203.1.3 State the purpose of the following tactical mission systems:

a. Identification Friend or Foe (IFF) Transponder [ref. a, p. VII-21-38]

Provides auto-selective identification of the aircraft when properly challenged by surface or airborne RADAR sets.

b. IFF Interrogator [ref. d, WP003 00, p. 3]

Provides the means of identifying aircraft by sending out a RADAR challenge to identify other aircraft or vehicles.

c. Mobile Sea Range (MSR) Transponder [ref. a, p. VII-21-42]

Temporarily installed on ships and aircraft during training exercises. Provides a real time position, location and Data Link for drone control as well as data recording provisions for post mission analysis.

d. Radio Detection and Ranging (RADAR) [ref. d, WP003 00, p. 2]

Long range airborne early warning system capable of detecting and providing tracking data on moving targets over land and sea.

e. Airborne Microwave Refractometer (AMR) [ref. a, p. VII-21-42]

Provides a measurement of atmospheric layers for optimum RADAR performance.

f. Passive Detection System (PDS) [ref. d, WP003 00, p. 3]

Detects and evaluates electronic emissions within certain frequency ranges.

g. Control Indicator Set (CIS) [ref. g, WP011 00, p. 2]

Provides computer aided situation display interface between the aircraft's RADAR-oriented tactical data system and the three CIC operators.

h. In-Flight Performance Monitor (IFPM) [ref. g, WP014 00, p. 2]

Continuously monitors the fault status of the aircraft critical avionics sub-systems.

i. Computer Programmer (CP) Group [ref. h, WP008 00, p. 2]

Independently performs navigation calculations for the weapon system using data from GPS, RELNAV, SCADC, and the more accurate INS1 and INS2.

j. Joint Tactical Information Distribution System (JTIDS) [ref. e, WP003 00, p. 5]

Provides high capacity secure jam-resistant, multiple access, information distribution system.

203.1.4 State the purpose of the following landing aids: [ref. a]

a. Automatic Carrier Landing System (ACLS) [p. VII-22-31]

Uses two modes of operation. Mode 2 is pilot controlled using data link needles information displayed on the ADIs. Mode 3 is a controller talk down approach using no special equipment in the aircraft.

b. Aircraft Approach Control System (AACS) [p. VII-22-35]

It is an ILS receiver used with carrier based SPN-41(C-Scan) transmitters for manual instrument approaches and landing or for an independent monitor during an ACLS approach.

203.1.5 State the purpose, location, and color of the following exterior lights: [ref. a, pp. I-2-34, 1-2-35]

a. Wing and tail position – Used to signal ground crew or other aircraft during flight operations. Provides a visual location of the aircraft direction and attitude during night operations. There are three position lights, red on the port wingtip, green on the starboard wingtip, and white on the tail.

b. Anti-collision – Located on the upper tip of the starboard outboard vertical fin and on the bottom of the fuselage. They have red and white lights and are used so other aircraft can spot them in flight.

c. Landing/taxi – Located in the nose cap, they are used to illuminate directly in front of the aircraft.

d. Approach – Located in the nose cap, the three lights colored red, green and amber, give a visual signal to the LSO of aircraft AOA when landing aboard a carrier or during FCLPs.

203.1.6 State the purpose of the following lights: [ref. a]

a. Advisory [p. I-2-73]

Gives an indication with green lights of various system conditions.

b. Caution [p. I-2-65]

Using orange lights, it indicates various system malfunctions of which the pilot should be aware of and take the appropriate action.

203.1.7 State the purpose of the following flight reference systems: [ref. a]

a. Pitot Static [p. I-2-63]

To supply pitot (from the pitot tubes) and static (from the static ports) to the airspeed indicators, altimeters, vertical speed indicators, Q-feel monitor and the SCADC.

b. Angle of Attack (AOA) [p. I-2-60]

Measures the angle between the longitudinal axis of the aircraft and the relative wind.

203.1.8 State the function and purpose of the following Alternating Current (ac) Power Supply and Control system components: [ref. b, WP016 00]

a. AC generators [p. 24]

It's a permanent magnet generator, consisting of a 12 pole permanent magnet rotor and wye connected stator, provides 115V, three phase, 400 Hz AC output when the engine is operating.

b. Supervisory panels [p. 26]

A detection and control device that energizes circuits to connect the generator output to the line circuits if the output is of proper voltage and frequency.

c. Voltage regulators [p. 24]

A static transistorized unit used to control the output of the aircraft generator.

d. Generator caution lights [p. 27]

These lights come on when the respective generator is not connected to the AC distribution buses.

203.1.9 State the purpose of the Automatic Flight Control System (AFCS). [ref. a, pp. I-2-49thru 1-2-51]

Provides directional stability augmentation, three axis attitude control, and barometric altitude hold control of the aircraft.

203.1.10 State the purpose of the Vapor Cycle system. [ref. c, WP065 00, p. 1]

Part of the equipment cooling system that supplies conditioned (moisture free) cool air to the electronic equipment.

204 UTILITIES SYSTEM

References:

- [a] NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft
- [b] NAVAIR 01-E2AAA-2-12, Environmental Control and Utility Systems, Navy Model E-2C Aircraft
- [c] NAVAIR 13-1-6.2, Organization, Intermediate, Depot I.P.B. Emergency Parachutes
- [d] NAVAIR 13-1-6.7, Aircrew Personal Protective Equipment
- [e] NAVEDTRA 10380, Aircrew Survival Equipmentman 2

204.1.1 State the purpose of the following utility systems: [ref. a]

a. Air Conditioning [p. I-2-86]

Maintains cabin temperature within limits for the aircrew.

b. Cabin Pressurization [p. I-2-90]

Automatically maintains air pressure in the cabin.

c. Liquid Oxygen [p. I-2-100]

Converts LOX to gaseous oxygen and delivers it to the crewmembers.

d. Emergency Oxygen Bailout Bottle [p. I-2-100]

Emergency source of oxygen for high altitude egress of the aircraft.

e. Walkaround Oxygen Bottle [p. I-2-102]

A 20 minute supply of oxygen for crew to take care of emergencies away from their seat.

f. Side Window Defogging [p. I-2-106]

Defogs the side windows.

g. Nose Anti-icing [p. I-2-204]

Prevents ice accumulation on the antenna viewing area of the nose radome.

h. Windshield Anti-icing [p. I-2-204]

Prevents ice formation on windshields and $\frac{1}{4}$ panels.

i. Wing and Tail De-icing [p. I-2-109]

Uses pulsating rubber boots on the leading edges of the vertical/horizontal stabilizers and outer wings to eliminate ice formation.

j. Engine Fire Extinguishing [p. I-2-75]

Extinguishes fire in engines using the fire bottles in the engine nacelles.

204.1.2 State the location and purpose of the aircraft portable fire extinguishers. [ref. a,p. I-2-115]

One 5lb 10oz bottle is attached behind the pilots seat, and one bottle located between the RO and CICO seats on the right hand side, used to put out fires.

204.1.3 Explain the proper operation of the seat adjustment handles. [ref. a, p. I-2-114]

Recline handle – The upper of the two rear handles reclines the seat from 8 – 18 degrees.

Fore and Aft handle – Located just below the Recline handle allows for 10 inches of fore and aft movement of the seat.

Vertical Adjust handle – Located on the forward, right-hand corner of the seat, allows a 4 inch vertical movement of the seat.

204.1.4 State the purpose and location of the underwater acoustic beacon. [ref. a, p. I-2-116]

Provides a location of the aircraft in case of a crash in fresh or salt water.

204.1.5 State which installed component falls under the Conventional Ordnance Handlers Certification Program. [ref. b, WP157 00, p. 5]

The engine fire bottle CADs (Cartridge Actuated Devices)

204.1.6 State the three major parts of an A/P22P-11 back pack parachute assembly. [ref. c, WP025 00, p. 2]

Parachute
Survival kit
Emergency Oxygen System

204.1.7 State the items contained within the SKK-9 seat survival kit assembly. [ref. c, WP025 00, p. 2]

Liferaft
General survival packet
Medical survival packet
Sea dye marker (2)
50ft of nylon cord
Ground/Air emergency code card
Combat casualty blanket
Bailing sponge
MK 13 Mod 0 flare
Bagged Water 8oz

204.1.8 Discuss the protective features provided by the MBU-17(V) 5/P oxygen mask. [ref. d, p. 14-1]

Provides oxygen for aircrew member on demand and provides facial protection in the event of incident.

204.1.9 Explain the air/water temperature requirements for mandatory wearing of anti-exposure assemblies. [ref. e, p. 4-6]

Air - 32 degrees F or below
Water – 50 degrees F or below

204.1.10 State the minimum buoyancy in pounds provided by the LPU-21 life preserver. [ref. e, p. 6-22]

65lbs

204.5.1 State the special safety precautions as they apply to LOX system handling/servicing. [ref. b, WP005 00, p. 2]

Avoid touching bare metal lines containing LOX. Such lines are at –183 degrees C (-297 degrees F), and skin will instantly freeze to them.

When an empty system is serviced, LOX must be added slowly to cool system equipment to –183 degrees C (-297 degrees F) storage temperature. The equipment may be damaged by thermal shock or excessive rapid pressure build-up if LOX is forced in too rapidly.

Do not substitute any other equipment for that provided in the handling of LOX. The physical properties of many materials are different at –183 degrees C (-297 degrees F) than those at room temperature. Rubber shatters like glass; other materials become brittle and lose their strength, etc.

Never seal LOX in an unventilated container. If sealed off at room temperature, LOX can develop pressures of more than 12,000psi.

When working with oxygen, ensure that clothing, tubing fittings, and equipment are free of oil, grease, fuel, hydraulic fluid, or any combustible material. Fire or explosion could result when even slight traces of combustible material come in contact with oxygen under pressure.

Before use, inspect leak detection compound. Compound which is not clear and free of suspended material or sediment is considered contaminated and shall be disposed of. Compound exhibiting peculiar odors such as acetone or alcohol shall be considered contaminated and discarded.

When an oxygen system line or component is removed for maintenance and reinstalled or replaced in the aircraft, the system shall be leak tested per MIL-D-19326E,

Before opening or dismantling any portion of the aircraft oxygen system, contaminants such as oil, dirt, grease, paint, or metal chips shall be removed from clothing, hands, tools, and from the immediate work area. If such contaminants are permitted to enter the system (even in minute quantities), subsequent malfunction of components or fire in the system could result.

205 Warfare Mission Area

References:

[a] Squadron Standard Organization and Regulations Manual (SORM)

[b] OPNAVINST C3501.2J, Naval Warfare Mission Areas and Required Operational Capability (ROC) and Projected Operational Environment (POE) Statements

205.1 MISSION STATEMENT

205.1.1 State and discuss your command's mission statement. [ref. a]

1. **Mission.** To provide airborne early warning/command and control services under all weather conditions.

2. **Tasking**

a. To conduct extended electronic search and surveillance operations using both passive and active means, to detect and report airborne and surface contacts of interest.

b. To provide the Officer in Tactical Command (OTC) an airborne command and control platform capable of operating at extended ranges. Specific C2 capabilities include:

1. Providing friendly forces with a real-time large scale tactical picture by use of voice and/or data link communications.

2. Controlling and coordinating friendly units to counter threats using voice and/or data link communications.

3. Providing connectivity and a common communications link between the OTC, warfare commanders and friendly airborne and surface units.

4. Coordinating search and rescue operations.

MOBILITY (MOB)

205.1.2 Define the term MOB. [ref. b]

The ability of naval forces to maneuver and maintain themselves in all situations over, under, or upon the surface.

205.1.3 Discuss the role of the E-2C in a MOB mission. [ref. b]

Navigate under all conditions of geographic location, weather, and visibility.

Operate day and night and under all weather conditions.

Operate from a ship.

ANTI-AIR WARFARE (AAW)

205.1.4 Define the term AAW. [ref. b]

The detection, tracking, destruction or neutralization of enemy air platforms and airborne weapons, whether launched by the enemy from air, surface, subsurface, or land platforms. (note: now called AIR WARFARE (AW))

205.1.5 Discuss the role of the E-2C in an AAW mission. [ref. b]

Provide air defense in cooperation with other forces.

Provide area defense for a Battle Group (BG).

Direct air defense.

Direct engagement of targets during BG operations in cooperation with combined/joint forces.

INTELLIGENCE (INT)

205.1.6 Define the term INT. [ref. b]

The collection, processing, and evaluation of information to determine location, identification and capability of hostile forces through the employment of reconnaissance, surveillance, and other means.

205.1.7 Discuss the role of the E-2C in an INT mission. [ref. b]

- Support/conduct radar intelligence information collection.
- Maintain radar scope photography capability.
- Conduct surveillance and reconnaissance.
- Detect and locate targets of interest.
- Classify and identify targets of interest.
- Track targets of interest.
- Direct airborne reconnaissance.

STRIKE WARFARE (STW)

205.1.8 Define the term STW. [ref. b]

The destruction or neutralization of enemy targets ashore through the use of conventional or nuclear weapons. This includes, but is not limited to, strategic targets, building yards, and operating bases from which the enemy is capable of conducting air, surface, or subsurface operations against U.S. or allied forces.

205.1.9 Discuss the role of the E-2C in a STW mission. [ref. b]

- Support air strikes.
- Support conventional air strike operations or major air strike operations under all conditions of readiness.
- Direct coordinated air strikes/attacks on targets either independently or in support of combined/joint forces.
- Support combat Search and Rescue operations during air strikes.
- Support target designation for strike forces.
- Support Battle Damage Assessment for strike forces.
- Support/conduct airborne operations in support of other strike forces.
- Support close air support of other strike forces.
- Support air interdiction in support of other strike forces.
- Direct airborne operations in support of independent or combined/joint strike forces.
- Coordinate combat SAR operations.
- Conduct airborne operations in support of air strike operations.
- Conduct flight operations during all EMCON conditions.
- Conduct ESM in support of air strike operations.
- Support combat rescue operations by fixed or rotary wing aircraft.
- Direct airborne operations in support of independent or combined/joint air strike operations.
- Provide for air operations in support of air strike operations.
- Conduct carrier air operations during all EMCON conditions.
- Control aircraft under all conditions of active jamming.
- Provide control of all aircraft enroute to and returning from assigned missions.
- Evade hostile surface-to-air threats.
- Perform duties of aircraft control unit (ACU) for STW operations.
- Coordinate forces and conduct Battle Damage Assessment.
- Coordinate joint reconnaissance resources in support of BDA.

ANTI-SURFACE WARFARE (ASU)

205.1.10 Define the term ASU. [ref. b]

The detection, tracking and destruction or neutralization of enemy surface combatants and merchant ships.
(note: now called SURFACE WARFARE (SUW))

205.1.11 Discuss the role of the E-2C in an ASU mission. [ref. b]

Plan/direct engagement of surface threats with anti-surface armaments.
Operate in support of surface forces (CEC).
Operate in coordination with land and sea based air forces in conducting long range surface actions.
Direct engagement of surface targets during BG operations by surface, subsurface, and/or air assets, or in coordination with combined/joint forces.
Support anti-surface ship defense of a geographical area (e.g. zone or barrier) in cooperation with other forces.
Direct ASU defense of a geographic area.
Detect, identify, localize, track, and report surface ship targets.
Detect, localize, and track surface contacts with radar.
Detect, identify, track, and report surface contacts visually.
Detect, identify, track, and report surface contacts by ESM.
Direct detection, identification, localization, and tracking of surface ship targets.
Direct coordinated air attack (including the functions of tactical air coordinator airborne (TAC (A)) on surface targets.
Control aircraft under all conditions of active jamming.
Provide air strike control to direct or assist attack aircraft.
Plan/direct air operations in support of anti-surface attack operations.
Provide over-the-horizon (OTH) targeting information in support of air attack operations.
Control fixed wing or rotary wing ASU aircraft during coordinated search or attack operations including OTHT.
Provide air strike control to direct or assist naval, combined or joint attack aircraft.
Direct attacks on surface ships using air launched armament.
Conduct airborne operations in support of anti-surface attack operations.
Conduct flight operations during all EMCON conditions.
Direct airborne operations in support of BG or combined/joint anti-surface attack operations.
Perform duties of Aircraft Control Unit (ACU) for aircraft involved in ASU operations.
Direct Aircraft Control (ACU) for aircraft involved in ASU operations.
Conduct pre-attack deception operations.

AMPHIBIOUS WARFARE (AMW)

205.1.11 Define the term AMW. [ref. b]

Attacks launched from the sea by naval forces and by landing forces embarked in ships or craft designed to achieve a shore presence in a littoral zone. This includes fire support of troops in contact with enemy forces through the use of close air support or shore bombardment.

205.1.13 Discuss the role of the E-2C in an AMW mission. [ref. b]

Provide air control and coordination of air operations in an Amphibious Objective Area (AOA).
Provide coordination of AAW, ASU, and ASW air assets for protection of the force in an AOA.
Control air search and rescue operations in the AOA.
Direct air control and coordination of air operations in the AOA.
Provide for air operations in support of amphibious operations.
Conduct carrier air operations during all EMCON conditions.
Control aircraft under all conditions of active jamming.
Provide air strike control to direct or assist attack aircraft.
Direct air operations including air defense in support of combined/joint amphibious operations
Coordinate AAW, ASU, and ASW air assets for protection of forces in an AOA.
Direct and coordinate close air support in support of combined/joint amphibious operations using air launched armament.

COMMAND, CONTROL, AND COMMUNICATION (CCC)

205.1.14 Define the term CCC. [ref. b]

Providing communications and related facilities for coordination and control of external organizations or forces, and control of own unit's capabilities.

205.1.15 Discuss the role of the E-2C in a CCC mission. [ref. b]

Coordinate and control the operations of the task organization or functional force to carry out assigned missions.
Coordinate the reconnaissance of multiple surface, subsurface, and/or air contacts.
Function as AAW Commander for force or sector.
Operate as contact area commander to coordinate multi-type search and attack operations.
Control close air support aircraft in support of amphibious operations in coordination with other supporting arms.
Coordinate and control air SAR operations in the AOA.
Provide own unit's command and control functions.
Maintain a CIC capable of collecting, processing, displaying, evaluating, and disseminating tactical information.
Employ Identification Friend or Foe/Selective Identification Feature (IFF/SIF) including secure IFF Mode 4.
Maintain a CIC capable of supporting a Tactical Actions Officer (TAO).
Establish voice communications with U.S. Marine Corps (USMC) evacuation and command nets and/or Naval Support Activity (NSA) net.
Establish voice communications with supported forces.
Maintain Navy Tactical Data System (NTDS) or data link capability.
Provide Link 4A control of airborne CAP.
Transmit/receive and support Link 11.
Receive data link information from airborne ASW aircraft.
Receive and process data link information from Satellite Communication (SATCOM).
Receive and process data link information from High Frequency (HF) systems.
Provide Link 16 Joint Tactical Information Distribution System (JTIDS).
Transmit/receive and support Link 16 surveillance, navigation, and identification circuits.
Transmit/receive and correlate targeting information with Link 4A.
Receive data link tracks from airborne AAW aircraft.
Manage, coordinate, and direct (ASUWC/STWC) Link employment with airwing assets.
Provide communications for own unit.
Maintain tactical voice communications.
Maintain automatic relay communications.
Provide tactical secure voice or data communications.
Relay communications.
Relay electronic communications.
Conduct one or more of the following control functions:
Aircraft Control Unit for AAW, ASW, ASU and/or STW.
NTDS Link 11 Net Control Ship/Station (NCS).
Repair own units CCC equipment.

ANTI-SUBMARINE WARFARE (ASW)

205.1.16 Define the term ASW. [ref. b]

The detection, tracking and destruction or neutralization of enemy submarines.
(note: now called UNDERSEA WARFARE (USW))

205.1.17 Discuss the role of the E-2C in an ASW mission. [ref. b]

Support area search and destroy operations.
Support vectored intercept operations.
Conduct day and night, all-weather, airborne anti-submarine cyclic operations.
Provide information to surface units utilizing data link.
Provide information to other ASW aircraft utilizing data link.
Provide for Air operations in support of airborne antisubmarine operations.
Control aircraft under all conditions of active jamming.

FLEET SUPPORT OPERATIONS (FSO)

205.1.18 Define the term FSO. [ref. b]

Naval forces and designated shore facilities, providing supporting services other than logistics replenishment to fleet units.

205.1.19 Discuss the role of the E-2C in a FSO mission. [ref. b]

Support Search and Rescue (SAR) operations in a combat/noncombat environment.
Support combat/noncombat SAR operations by fixed or rotary wing aircraft.
Conduct general surveillance.
Acquire and display distress data.
Report situation assessment.
Coordinate SAR operations.
Conduct multi-unit SAR operations.

NON-COMBAT OPERATIONS (NCO)

205.1.20 Define the term NCO. [ref. b]

Selected operations of a noncombat nature not clearly categorized in any other warfare mission area. Included in this category are the necessary support requirements and/or special missions that are required of a unit but not directly related to the other Warfare Mission Areas.

205.1.21 Discuss the role of the E-2C in a NCO mission. [ref. b]

Perform the test and evaluation functions set forth in the appropriate test plans.
Support space vehicle recovery operations.
Perform associated communications functions.
Perform air control and surveillance functions for reentry and recovery.
Support sea recovery of space vehicles.
Coordinate and control associated air operations.
Provide emergency/disaster assistance.
Provide emergency flooding/fire fighting assistance to another unit.
Assist and support the operating forces in the planning and conduct of cover and deception.
Conduct counter-narcotic and other law enforcement support operations in conjunction with other forces.
Conduct operations with Coast Guard units.
Support operations with other federal law enforcement agencies.
Conduct operations with state and local law enforcement agencies.
Conduct operations with other national governments.
Support/provide counter-narcotics and other law enforcement support patrol of fixed geographic area.
Detect and monitor suspect surface contacts.
Detect and monitor surface contacts with radar.
Conduct airborne counter narcotics and other law enforcement support surveillance operations.
Conduct day and night all-weather surveillance operations.
Provide information to surface law enforcement patrol units.
Provide information to other airborne units.
Detect and monitor suspect air contacts.
Detect and monitor air contacts with radar.
Detect and monitor air contacts visually.

COMMAND AND CONTROL WARFARE (C2W)

205.1.22 Define the term C2W. [ref. b]

The effective use by friendly forces of the electromagnetic spectrum for detection and targeting while deterring, exploiting, reducing, or denying its use by the enemy. Formerly Electronic Warfare (ELW) and subsequently Space & Electronic Warfare (SEW).

205.1.23 Discuss the role of the E-2C in a C2W mission. [ref. b]

Conduct Electronic Warfare Support (ES) Operations.

Search for and intercept electromagnetic and directed energy signals and emissions.

Identify threat platforms' communications and weapon signal sources.

Provide location or targeting information of threat weapons/C2/platforms/signal sources.

Provide timely threat alert for actions involving Electronic Attack, Electronic Protect, EMCON, avoidance, deception and targeting.

Direct ES operations.

Identify and coordinate tactical C2W information requirements and disseminate information derived from ES and other sources to CWC, warfare commanders and naval/combined/joint forces.

Plan and conduct ES in support of integrated strike operations.

Plan and Implement Operations Security (OPSEC) Measures.

Implement appropriate/directed electromagnetic/acoustic EMCON condition.

Transition rapidly from one EMCON condition to another.

Monitor own unit compliance with EMCON condition in effect.

Monitor task group/force compliance with EMCON condition in effect.

Conduct coordinated C2W/IW operations with other forces in support of a JTF/Group.

Direct coordinated C2W/IW operations with other forces in support of a JTF/Group/SAG or naval/joint/combined forces.

Conduct counter-surveillance, counter-targeting and military deception operations.

Conduct counter-surveillance against overhead, surface, subsurface and ashore sensors.

Conduct counter-targeting against air attack.

Conduct counter-targeting against surface attack.

Direct counter-targeting for group/task force against overhead, surface, subsurface and share targets.

Conduct naval operational deception operations using tactics, operations, exercises or physical means.

LIST OF REFERENCES USED IN THIS GUIDE

COMNAVAIRPACINST 3600.60B/COMNAVAIRLANT 3500.42, CV/CVN Turnaround Training Requirements
COMNAVAIRPACINST/COMNAVAIRLANTINST 5440.15H, Standard Organization and Regulations Manual (SORM)
NAVAIR 00-80T-105, CV NATOPS Manual
NAVAIR 01-E2AAA-1, NATOPS Flight Manual, Navy Model E-2C Aircraft
NAVAIR 01-E2AAA-2-1, General Aircraft Information Navy Model E-2C Aircraft
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NAVAIR 01-E2AAA-2-16.1, Principles of Operation RADAR and IFF Systems Navy Model E-2C Aircraft
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NAVAIR 01-E2AAB-1F, NATOPS Flight Manual, Navy Model E-2C Plus Aircraft
NAVAIR 13-1-6.2, Organization, Intermediate, Depot I.B.P. Emergency Parachutes
NAVAIR 13-1-6.7, Aircrew Personal Protective Equipment
NAVEDTRA 10348-G, Aviation Electrician's Mate 3 & 2
NAVEDTRA 10380, Aircrew Survival Equipmentman 2
NAVEDTRA 12000, Airman
NAVEDTRA 12043, Basic Military Requirements
NAVEDTRA 12300, Aviation Machinist's Mate 3 & 2
NAVEDTRA 12329, Aviation Electronics Technician 3
NAVEDTRA 12331, Aviation Electronics Technician 1(O)
NAVEDTRA 12338, Aviation Structural Mechanic (H & S) 3 & 2
NAVEDTRA 12390, Air Traffic Controller
NAVEDTRA 172-02-00-91, NEETS Module 1—Introduction to Alternating Current and Transformers
OPNAVINST 5100.23D, Navy Occupational Safety and Health (NAVOSH) Program Manual
OPNAVINST C3501.2J, Naval Warfare Mission Areas and Required Operational Capability (ROC) and Projected Operational Environment (POE) Statements
Squadron Standard Organization and Regulations Manual (SORM)