



VR (C-130) SPECIFIC Enlisted Aviation Warfare Specialist (EAWS) Tutorial



Welcome to the VR (C-130) 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, Personnel Qualification Standard (PQS), Enlisted Aviation Warfare Specialist (EAWS), Unit Specific for C-130 aircraft. All study information was provided by VR-53, NAF Washington DC and AZ1(AW/NAC) Kimberly Herring

Good luck and study hard!

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**ENLISTED AVIATION WARFARE SPECIALIST
(EAWS), UNIT SPECIFIC FOR FIXED-WING
LOGISTICS (VR) C/KC-130T**

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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.

ACT	Aircrew Coordination Training
APU	Auxiliary Power Unit
CADS	Cartridge Actuated Devices
FCS	Flight Control System
FMC	Full Mission Capable
LOX	Liquid Oxygen
MEL	Minimum Equipment List
MIMS	Maintenance Instruction Manuals
NATOPS	Naval Air Training and Operating Procedures Standardization
NAVOSH	Navy Occupational Safety and Health
NMC	Non-Mission Capable
OPTAR	Operational Target
ORM	Operational Risk Management
PBFT	Planning Board for Training
PMC	Partial Mission Capable
PPE	Personal Protective Equipment
TR	Transformer Rectifier

101 Safety Fundamentals

References:

- [a] OPNAVINST 5100.23D, Navy Occupational Safety and Health (NAVOSH) Program Manual
- [b] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft
- [c] NAVAIR 01-75GAA-2-1, Maintenance Instructions (Organizational) General Information, Navy Models C-130T, KC-130F, KC-130R, KC-130T, KC-130T-30
- [d] NAVAIR A1-NAOSH-SAF-000/P-5100-1, NAVAIROSH Requirements for the Shore Establishment
- [e] NAVAIR 16-1-529, Electromagnetic Radiation Hazards
- [f] NAVAIR 01-75GAA-2-10, Maintenance Instructions (Organizational) Utility Systems C/KC-130F/R/T and C-130F
- [g] NAVAIR 01-1A-35, Aircraft Fuel Cells and Tanks
- [h] NAVAIR 01-1A-17, Aviation Hydraulics Manual

101.1 Discuss the basic requirements for each of the following Navy Occupational Safety and Health (NAVOSH) programs: [ref. a]

a. Respiratory protection: [p. 15-1]

Whenever respiratory protection is required activities shall establish and maintain a respiratory protection program.

b. Hearing conservation: [p. 18-1]

All noise areas must be labeled. A hearing monitoring program shall be implemented and a roster of all personnel kept on file.

c. Sight conservation: [pp. 19-2, 19-3]

Emergency eye wash facilities and special precaution for visually impaired employees and temporary protective eyewear.

d. Personal protective equipment: [p. 20-1]

Activities shall ensure that an assessment of all work places is conducted to determine if hazards are present that necessitate the use of personal protective equipment.

101.2 Define the following terms as they apply to the Naval Air Training and Operating Procedures Standardization (NATOPS) and the Maintenance Instruction Manuals (MIMS): [ref. b, p. 39; ref. c, pp. IV, V]

- a. Warning:** An operating procedure, which may result in injury or death if not carefully followed.
- b. Caution:** An operating procedure, which may result in injury to equipment if not carefully followed.
- c. Note:** A procedure, which is emphasized.
- d. Shall:** A procedure, which is mandatory.
- e. Should:** A procedure, which is recommended.
- f. May:** A procedure, which is optional.
- g. Will:** Indicates futurity.

101.3 Discuss the following as they apply to hangar deck safety: [ref. d]

a. Portable fire extinguisher: [p. 7-4]

Shall be visually inspected monthly, inspections shall include serviceability, access, and evidence of physical damage, and broken seals.

b. Fire lanes: [p. 7-9]

Shall be clearly marked and kept clear.

c. Smoking or open flames: [p. 7-10]

Shall not be permitted within 50 feet of parked aircraft, hangar bays, etc.

d. Aircraft grounding: [p. 7-10]

Aircraft shall be electrically grounded during all maintenance evolutions.

101.4 Define the term (HERO) and discuss the safety precautions associated with handling Cartridge Actuated Devices (CADS). [ref. e, pp. A4, A5; ref. f, p. 9-2]

HERO: Hazards of electromagnetic radiation to ordnance. Physical contact with the cartridge actuated device during handling and loading operations is prohibited. At this time all radio transmissions and communications are halted.

101.5 Discuss the safety precautions that must be observed during Liquid Oxygen (LOX) servicing. [ref. c, p. 3-26A]

Before servicing the liquid oxygen system ensure that hands, clothing, and all tools and equipment are clean.

101.6 Discuss the safety precautions to be observed during fueling operations. [ref. c, pp. 3-10 thru 3-12]

Cease all fueling operations whenever a fire hazard appears, no matter how minor the hazard appears. Locate the aircraft outdoors, at least 100 feet from any hangar or building. Do not taxi, tow, or operate any aircraft within 50 feet of any fuel servicing operations. Do not perform fuel-servicing operations within 50 feet of any fuel spill until the spill has been removed and the hazard site is safe.

101.7 Discuss the hazards associated with aircraft jacking. [ref. c, pp. 2-11, 2-12]

Do not jack the aircraft before ensuring that the center of gravity and gross weight are within safety limits. Do not jack the aircraft unless it is statically grounded, ensure all ground power is secured. Use fuselage nose jacks only in manifold pairs. Do not manifold any jacks except fuselage nose jacks. Do not attempt to jack the aircraft by inflating the main landing gear shock struts. Ensure that the nose gear upper and lower torque arms (scissors) are connected prior to jacking. Do not extend the wing jack ram screw beyond 15 inches maximum, and the fuselage ram screw beyond 18 inches maximum. Maintain communications among the director, plumb bob observer, and personnel jacking the aircraft. Place caution signs on the ground at the nose, wing tips, and tail of the aircraft. String a safety line around the aircraft. Ensure all ground support equipment is clear of aircraft.

Only jacking team members are allowed within the safety lines while aircraft is being jacked. Only personnel assigned to work on the aircraft discrepancies are permitted on aircraft or within the safety lines while aircraft is on jacks. Do not jack the aircraft when the cargo ramp is resting on the ground. Do not jack the aircraft unless the base of the jack is on a firm level surface. Do not jack the aircraft in winds that exceed 45 mph. Prior to lowering the aircraft, ensure that the nose gear safety pin is installed and the lower shock strut barrels have been wiped down with hydraulic fluid.

101.8 Discuss the safety precautions to be observed for an open fuel cell. [ref. g, p. 6-3]

Adjacent aircraft shall not be allowed to operate under their own power within 100 feet of the repair area. Nobody is allowed in the fuel cell, unless they are actively enrolled in the squadron Fuel Cell Maintenance Program. All open fuel cells must be certified gas free by an AVGFE before any maintenance is done in the fuel cell.

101.9 Discuss the safety hazards involved with hydraulic fluid under pressure. [ref. h, pp. 210 thru 215]

The accidental injection of fluid under the skin. If a leak occurs, this leak may take on the aspects of a laser and can cut or kill. A leak may cause an invisible mist, which is toxic when ingested.

102 Training and Readiness Fundamentals

References:

- [a] CFLSWINST 1500.6 (Series), COMFLELOGSUPPWING (CFLSW) Training Program
- [b] CFLSWINST 3710.5 (Series), Standard Operating Procedures
- [c] OPNAVINST 3710.7R, NATOPS General Flight and Operating Instructions
- [d] COMNAVAIRESFORINST 1500.5 (Series), Commander, Naval Air Reserve Force Aviation Master Training Manual

102.1 State the purpose of the squadron planning board for training (PBFT). [ref. a, pp. 7, 8]

Its purpose is to evaluate and accomplish medium, short, and long range training readiness objectives.

102.2 Define and explain the following terms: [ref. d]

a. RJQR [p. 1-6-1]

Reserve Job Qualification Requirements. Designed to define and standardize training for OJT awardable NECs.

b. RSTARS [p. 1-3-1]

Reserve Standard Training Administration and Readiness Support. Provides management information system support to the training functions performed by the Naval Reserve.

102.3 Discuss the elements required to obtain and maintain mobilization readiness. [ref. a, p. 1]

Reserve Billet Training Requirements
Aviation Training Improvement Program
Job Qualification Requirements
Formal Professional Mobilization Training Using Aviation Training Series courseware

102.4 State the purpose of the following: [ref. c, pp. 3-10 thru 3-12]

a. Aircrew Coordination Training (ACT)

Is to integrate the instructions of specifically defined behavioral skills through out the Navy and Marine Corps aviation training.

b. Operational Risk Management (ORM)

A systematic decision making process used to identify and manage hazards that endanger naval resources before they actually happen.

102.5 Discuss the following as they apply to mission readiness: [ref. b]

a. CREW REST [p. IV-2]

Crewmembers shall be provided a crew rest period commencing 12 hours prior to reporting for a mission.

b. CREW DUTY [p. IV-2]

Crew duty commences at preflight show time (normally 2 hours prior to departure and terminates 2 hours after landing).

c. CREW CURRENCY [pp. II-8, II-9]

Enlisted aircrew must fly 4 hours per month, officer aircrew must fly a total of 12 hours with a combination of 5 hours, and at least 7 landings.

103 Aircraft Capabilities Fundamentals

References:

[a] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

103.1 Discuss the capabilities of the aircraft. [p. 1-1]

The Lockheed C-130T is a high-wing, all-metal, long-range, land-based monoplane. The mission of this aircraft is to provide rapid transportation of personnel or cargo for delivery by parachute or landing. The aircraft can be used as tactical transports and can be converted readily for ambulance or aerial delivery missions. The aircraft can land and take off on short runways and can be used on landing strips such as those found in advance base operation.

103.2 Discuss the responsibilities of the following aircrew positions: [pp. 15-1 thru 15-4]

- a. **Pilot:** Shall be in command of the aircraft and is responsible for the safe and orderly conduct of the flight.
- b. **Co-pilot:** Is the second in command and is responsible for assisting the pilot in the performance of their duties.
- c. **Flight Engineer:** Is responsible for computing the take off, climb, cruise, and landing data, and monitor all safety precautions.
- d. **Loadmaster:** Is responsible for maintaining a safe center of gravity for the aircraft with the loading and unloading of the aircraft with cargo or passengers.
- e. **Flight Attendant/Observer:** Assists with passengers, cargo, and acts as visual reference during in flight refueling.

104 Airframes/Engine/Fuel Fundamentals

References:

[a] NAVAIR 01-1A-17, Aviation Hydraulics Manual

[b] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

[c] NAVAIR 01-75GAA-2-1, Maintenance Instructions (Organizational) General Information, Navy Models C-130T, KC-130F, KC-130R, KC-130T, KC-130T-30

[d] NAVAIR 01-75GAA-6-2, Daily/Servicing Manual C/KC-130F/R/T

[e] NAVEDTRA 12000, Airman

[f] NAVAIR 01-75GAA-2-2, Maintenance Instructions (Organizational) Airframe Group, Navy Models C/KC-130F/R/T and C-130F

104.1 State the type and model of engine used on the aircraft. [ref. b, p. 2-1]

Allison T56-A-16, turboprop, constant-speed engines.

104.2 State the type of propellers used on the aircraft. [ref. b, p. 2-26]

Hamilton Standard Hydromatic, four blade, constant-speed propeller with full feathering and reversible pitch.

104.3 Discuss the 2 types of refueling methods. [ref. c, pp. 3-2 thru 3-10A]

Single point method (pressure), over the wing method (gravity).

104.4 Discuss the types of landing gear used on the aircraft. [ref. b, p. 2-107]

The landing gear system includes a steerable, dual wheel nose gear, and two tandem mounted main landing gears. Main landing gear system consists of 4 wheels, two mounted in tandem on each side of the fuselage. The nose landing gear is a swing type gear, extending down and aft, actuated by a hydraulic cylinder and secured in the up and down positions by locks.

104.5 Discuss the different methods for servicing hydraulics. [ref. c, pp. 3-13 thru 3-16A]

Hydraulic Servicing Unit (HSU) is the preferred method. Filler Neck Hand Crank

104.6 State the location and purpose of low point fuel drains. [ref. d, card 13.2]

Located on each tank's underside. Tanks 1 and 4 (outboard) have 3 low-point drains each.

Tanks 2 and 3 (inboard) have 2 low-point drains.

The auxiliary tanks have 1 low-point drain each.

The external tanks have 4 low-point drains each.

Their purpose is to draw fuel from the tanks and inspect for the presence of water and any other forms of contamination.

104.7 State the purpose of the yellow/black border areas on the aircraft. [ref. e, p. 11-1]

They are used to identify emergency exits and specific areas, which may be cut through in an emergency.

104.8 State the purpose of a hydraulic contamination test. [ref. a, p. 2-1]

Allows the inspection of a hydraulic system for any signs of contamination, and maintains trend analysis.

104.9 Identify and discuss the purpose of the aerial delivery (dual rail) system. [ref. f, pp. 7-2 thru 7-6]

Restrains pallets in the forward, aft, and side restraint. It consists of eight outboard rail assemblies and 20 conveyor frames. Both right and left rail assemblies contain a master control, detent latches and retractable flanges.

105: Avionics/Electrical Fundamentals

References:

- [a] NAVEDTRA 10348-G, Aviation Electrician's Mate 3 & 2
- [b] NAVAIR 01-75GAA-2-7, Electrical System KC-130F/R/T and C-130F
- [c] NAVEDTRA 12331, Aviation Electronics Technician (O)
- [d] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

105.1 Define the following:

- a. RADAR [ref. a, p. AI-8] Radio Detecting and Ranging
 - b. IFF [ref. d, p. 34] Identification Friend or Foe
 - c. ADF [ref. d, p. 33] Automatic Direction Finder
 - d. ILS [ref. d, p. 34] Instrument Landing System
 - e. CARA [ref. d, p. 33] Combined Altitude Radar Altimeter
 - f. GPWS [ref. d, p. 34] Ground Proximity Warning System
 - g. INS [ref. d, p. 34] Inertial Navigation System
 - h. ICS [ref. d, p. 34] Intercommunication System
 - i. TACAN [ref. c, p. 2-13] Tactical Air Navigation
 - j. VOR [ref. d, p. 36] VHF Omni-directional Range
- 105.2 State the difference between a radar altimeter and barometric altimeter. [ref. a, pp. 6-6 thru 6-8, AI-8]

Radar altimeter is the altitude above the ground. Barometric altimeter is the altitude above sea level.

105.3 Discuss the following fire detection/overheat warning system:

a. Turbine Overheat [ref. b, pp. 9-1 thru 9-5]

The turbine over heat warning system is a thermal switch detector type. When a overheat condition occurs, the system causes lights to flash in the emergency fire handle.

b. Nacelle Overheat [ref. b, pp. 9-1 thru 9-5]

The nacelle overheat caution system actuates warning lights on the co-pilots instrument panel when a overheat condition exists in the nacelle area forward of the firewall. Overheat conditions in this area may be caused by nacelle preheat valves or by failure of the engine bleed air ducting in the nacelle area.

c. Fire Detection [ref. b, pp. 9-1 thru 9-5]

The fire detection system indicates the presence of fire in the engine nacelles or the GTC/APU compartment. The system consists of 5 separate detection systems and one common test system.

d. Leading Edge Over Temperature Warning [ref. d, p. 2-147]

There are six over temperature warning lights, one for each section of the leading edge anti-icing system, and are located below the temperature indicators on the anti-icing and de-icing control panels.

e. Cargo Compartment Refrigerator Overheat Warning [ref. d, p. 2-138]

A red press to test cargo compartment refrigerator overheat light located on the anti-icing and deicing control panel is provided to warn the pilot of a overheat condition in the cargo compartment refrigerator area. 2 overheat detectors are located in the refrigerator area of the wheel well.

106 Emergency Equipment Fundamentals

References:

[a] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

106.1 Discuss the purpose of the following aircraft emergency equipment: [pp. 2-368 thru 2-370]

a. Hand-operated fire extinguishers

Four portable hand-operated fire extinguishers located on the aircraft to extinguish fires onboard.

b. First aid kit

There are provisions for 23, and 22 are onboard. Used to treat injuries sustained on aircraft.

c. Hand axes

There are two located on the aircraft. Used to cut out of the aircraft if normal exits are blocked.

d. Emergency lights

There are 8 located on the aircraft. Used to help identify exits in the event of crash or loss of power.

e. Life rafts

There are a total of 4 located on aircraft. Used to hold up to twenty, in the event of water landing.

f. Emergency transmitters

Used to help locate downed aircraft.

107 Operational Fundamentals

References:

[a] OPNAVINST 3710.7R, NATOPS General Flight and Operating Instructions

[b] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

[c] OPNAVINST 4631.2 (Series), Management of Department of Navy (DON) Airlift Assets

107.1 Define the following terms: [ref. a]

- | | |
|--------------------|--------------------------------------|
| a. IFR [p. XXIX] | Instrument Flight Rules |
| b. VFR [p. XXXII] | Visual Flight Rules |
| c. IMC [p. XXIX] | Instrument Meteorological Conditions |
| d. VMC [p. XXXIII] | Visual Meteorological Conditions |

107.2 Define term NALO and state its purpose. [ref. c, pp. 3, 4]

Navy Air Logistics Office - Will act as the principal scheduling authority/activity for all Naval Reserve C-130 airlift and all NUFEA/OSA overseas flights originating or terminating in CONUS

107.3 Discuss the adverse effects of cold/hot operational environmental conditions on the aircraft. [ref. b, pp. 12-4, 12-16]

Cold: The effect on aircraft materials such as rubber, plastic, and fabric materials is to stiffen and possibly crack, craze or shatter when loads are applied. Oils and lubricants coagulate. Metals contract differently and icing conditions affect control surfaces and aircraft systems. Hot: High humidity results in condensation throughout aircraft. Malfunction of electrical equipment, fogging of instruments, corrosion of metal and the growth of fungus are possible results. Further results may be pollution of lubricants and hydraulic fluids and deterioration of non-metallic materials.

108 Aircraft Handling/Line Operations Fundamentals

References:

- [a] OPNAVINST 4790.2G, Naval Aviation Maintenance Program (NAMP), Vol. I
- [b] OPNAVINST 4790.2G, Naval Aviation Maintenance Program (NAMP), Vol. V
- [c] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft
- [d] NAVEDTRA 12000, Airman
- [e] NAVAIR 00-80T-96, Aircraft Refueling

108.1 Discuss the Support Equipment (SE) Training and Licensing Program. [ref. b, pp. 17- 1 thru 17-10]

Proper operation of support equipment is the key to safe, efficient aircraft and equipment maintenance. Improper use of SE has resulted in excessive ground handling mishaps, repair and replacement resulting in millions of dollars annually and reduced operational readiness. The program establishes policy, responsibilities and requirement for SE training and licensing.

108.2 State the purpose of, the routing sequence of and which person initiates the SE misuse/abuse report. [ref. a, p. 14-17]

The purpose of a SE Misuse/Abuse report is to inform the IMRL with the reporting responsibilities about the misuse/abuse, then to inform the CO of the command which held responsibility of the item that had the misuse/abuse. Ultimately the purpose is to ensure command accountability for the offense.

The routing sequence is as follows: The witness prepares and forwards a SE Misuse/Abuse report to the controlling IMRL. The QA of the controlling IMRL shall assign a control number and prepare an official typewritten report for the MO's signature. This report is forwarded to the QA of the receiving command, which will conduct a thorough investigation, reporting recommendations to the CO. The CO shall return the report to the originator within 10 working days, with recommendations and actions taken described on the back of the form.

108.3 Identify and discuss the purpose of the following SE: [ref. e]

a. NC-10C [WP 010 00, p. 4]

A towed unit that provides 115/200 volts, 3 phase, 400 hertz AC, and 28 volts DC for shore based servicing, starting, and maintenance of aircraft.

b. NC-8 [WP 010 00, p. 3]

Self-propelled unit that provides 115/200 volts, 3 phase, 400 hertz AC, and 28 volts DC power for servicing, starting and maintenance of aircraft.

c. NANCART [WP 007 00, p. 1]

A towed unit that provides a mobile source of compressed nitrogen to recharge aircraft nitrogen systems.

d. MMG-1A [WP 010 00, pp. 4, 5]

Hangar supported power cart that provides 115/200 volts, 3 phase, 400 hertz AC, and 28 volts DC power for maintenance, calibration and support of aircraft.

108.4 Demonstrate the following standard aircraft handling signals: [ref. d]

a. Fire [p. 9-28]

Make a large sleeping figure 8 with one hand and point to the fire area with the other.

b. Hot brakes [p. 9-32]

Make rapid fanning motion with one hand in front of face, point to wheel with other hand.

c. Emergency stop [p. 9-22]

Arms crossed above the head with hands made into fists.

d. Brakes on/off [p. 9-22]

Brakes off, arms above the head with open palms and fingers raised with palms toward aircraft. Brakes on, same thing but hands are closed into fists.

e. Remove chocks [pp. 9-23, 9-24]

Arms down, fists closed, thumbs extended outwards, swing arms out.

108.5 State the safety precautions that must be observed during the following operations: [ref. c, p. 8-52]

a. Engines

While engines are turning there shall be a safety observer/fire bottle watch to ensure nobody comes close to the engines, and to inform the person turning the engines if any smoke or fire comes out of the motor nacelles or exhaust.

b. Auxiliary Power Unit (APU)

While the APU is operating a safety observer will man the fire bottle to ensure no fires start and to ensure nobody goes near the APU exhaust.

201 Airframe System

References:

- [a] NAVEDTRA 12338, Aviation Structural Mechanic (H & S) 3 & 2
- [b] NAVAIR 01-75GAA-2-1, Maintenance Instructions (Organizational) General Information, Navy Models C-130T, KC-130F, KC-130R, KC-130T, KC-130T-30
- [c] NAVAIR 01-75GAA-2-2, Maintenance Instructions (Organizational) Airframe Group, Navy Models C/KC-130F/R/T and C-130F
- [d] NAVAIR 01-75GAA-2-3, Hydraulic Systems C/KC-130F/R/T and C-130F
- [e] NAVAIR 01-75GAA-2-9, Flight Control System C/KC-130F/R/T and C-130F
- [f] NAVAIR 01-75GAA-2-10, Maintenance Instructions (Organizational) Utility Systems C/KC-130F/R/T and C-130F
- [g] NAVAIR 01-75GAA-2-12, Landing Gear C/KC-130F/R/T and C-130F
- [h] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

201.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

201.1.1 Fuselage Sections: [ref. c]

a. Forward [p. 1-1]

Fuselage station 0 to fuselage station 245

b. Mid [p. 1-1]

Between fuselage station 245 and fuselage station 737

c. Aft [p. 1-1]

Fuselage 737 and aft

d. Horizontal stabilizer [p. 10-1]

Are the horizontal fins on the empennage. They provide longitudinal stability.

e. Vertical stabilizer [p. 10-1]

Is the vertical fin on the empennage and provides directional stability.

201.1.2 Wings: [ref. a, p. 1-4; ref. c, p. 9-1]

a. Center Wing

Center wing provides lift, and is located at the center of the fuselage to the outer wing (usually described as the rainbow panels). The center wing also consists of the "box beam" and is the strongest section of the wing; the outer wings attach to it. This section runs from center wing station 0 to center wing station 214. b. Outer wing: Outer wing provides lift, outer wings attach to the center wing. The outer wing runs from outer wing station 0 to outer wing station 576.

b. Outer Wing

201.1.3 Flight controls/surfaces:

a. Flaps [ref. a, p. 1-10; ref. e, p. 8-3]

Flaps increase lift at slower speeds, located in the trailing edge of the wing.

b. Ailerons [ref. a, p. 1-5; ref. e, p. 2-1]

Ailerons provide roll, attached to the trailing edge of the outboard wing.

c. Rudder [ref. a, p. 1-6; ref. e, p. 4-1]

Rudder provides yaw, attached to the aft edge of the vertical stabilizer.

d. Elevator [ref. a, p. 1-5; ref. e, p. 6-1]

Elevators provide pitch, attached to the trailing edge of the horizontal stabilizer.

e. Trim tabs [ref. a, p. 1-10; ref. e, p. 7-1]

Trim tabs provide minor corrections to maintain flight stability, attached to the trailing edge of the primary flight controls.

201.1.4 Landing gear:

a. Strut [ref. a, p. 1-12; ref. b, p. 2-39; ref. g, p. 2-1]

Struts absorb shocks from landing, 2 struts on each main and one on the nose.

b. Brakes [ref. g, p. 10-1]

Brakes slow, and stop the aircraft. Mounted on each main landing gear strut. Modes of operation: normal and emergency.

c. Wheels [ref. g, p. 2-4]

Two wheels on the nose strut, one on each main. Total of 6 wheels.

201.1.5 Hydraulics: [ref. d]

a. Utility hydraulics system [p. 3-1]

Runs half of all the flight controls, nosegear steering, normal brake operation and is located on the forward section, port side of the main landing gear. Operated by engines 1, and 2.

b. Booster hydraulic system [p. 2-1]

Runs half of all the flight controls. Located on the forward section, starboard side of the main landing gear. Operated by engines 3, and 4.

c. Auxiliary hydraulic system [p. 4-1]

Runs the cargo door, ramp, and emergency brakes. Portside aft of paratroop door. Operates in manual or electric mode. Can also be used for troubleshooting/operational checkout of flight controls on deck, in conjunction with the Ground Test Checkout Valve.

d. Ground test checkout valve [p. 4-1]

Will allow the connection of the auxiliary hydraulic system to the utility hydraulic system, so that you may operate the flight controls on deck without the use of other support equipment. Located aft of the portside main landing gear, just forward of the port paratroop door. When this handle is lowered, auxiliary system pressure is directed through the utility system. When this handle is in the up and pinned position, system pressure flows normally.

201.1.6 Airframe components:

a. Radome [ref. c, pp. 1-8, 1-12]

Houses the radar, it forms the nose of the aircraft. Do not work in this area unless the radome is up and in a safe lock position.

b. Paratroop doors [ref. c, p. 2-3]

Aft of the main landing gear wheel wells. These doors are very heavy and work on a counterbalance system. Use caution when opening and closing the doors. Never slam the paratroop doors shut, serious damage may occur. When these doors are open (up) they must be pinned.

c. Cargo door and ramp system [ref. h, pp. 2-118 thru 2-127]

Allows for the quick loading and off-loading of cargo, equipment, and personnel. Located in the empennage. The cargo door should never be operated when personnel are working above it, and the ramp should not be lowered without first checking the area around it for clearance. The cargo door and ramp have two modes of operation, manual, and electric hydraulic pump.

d. Crew Entrance door [ref. h, pp. 2-371, 2-372]

Location: On the port side of the forward fuselage Modes of operation: Opened, closed, and emergency jettison Safety precaution: Always stand to the side when opening the door, and don't allow the door to free-fall

e. Emergency Exits: Functions [ref. c, p. 2-4A]

Allows emergency egress from the aircraft Location: Three overhead hatches, 1 in each section of the aircraft. 2 emergency exits both port and starboard, forward of the inboard engines.

f. Air deflector doors: Functions [ref. h, p. 2-368]

Deflect air for paratroops. Location: From the aft part of the main landing gear fairing. Modes of operation: Opened, closed, or in hold.

201.1.7 Air Conditioning system: [ref. f, pp. 4-1 thru 4-14A;ref. h, pp. 2-131 thru 2-138]

a. Flight station

Function: Cools, and heats the flight station, also provides 1/3 of the aircraft pressurization. Location: Starboard, forward of the 245 bulkhead Modes of operation: OFF, AUX VENT, NO PRESS, AUTO PRESS, and MAN. PRESS.

b. Cargo compartment: Function

Cools, and, heats the cargo compartment, also provides 1/3 of the aircraft pressurization. Location: Starboard, forward of the main landing gear Modes of operation: Auxiliary vent, aircraft auto press

c. Cargo compartment under floor heating

Function: To heat the cargo floor, and provides 1/3 of the aircraft pressurization at 35,000 feet. Location: A ducting system under the cargo compartment floor.

201.1.8 Cabin Pressurization system: [ref. f, pp. 5-1 thru 5-8;ref. h, pp. 2-140 thru 2-143]

a. Cabin pressure controller

Location: On the pressurization control panel Function: Regulate pressure in flight in auto or manual. Modes of operation: AUTO, MANUAL, NO PRESS and AUX VENT. Safety precautions: Do not force CABIN ALT knob below -1000 or above 10,000.

b. Outflow valve

Function: regulate pressure between aircraft interior and atmospheric pressure. Location: Starboard side the aircraft near the navigation position.

c Safety valve Function

Electrically controlled and pneumatically opened in a non-pressure condition or for emergency depressurization. Location: Cargo door. Mode of operation: Open and closed. Safety precautions: Don't obstruct safety valve.

d. Emergency depressurization hatch Function

For emergency depressurization. Location: Center emergency escape hatch. Modes of operation: Pull down on handle above the pilots' seat. Safety precautions: Don't open during normal pressurization

201.1.9 Oxygen sources: [ref. h, pp. 2-355 thru 2-359]

a. Walk around bottle

Quantity: 4 Function: Provide portable oxygen Location: 1 next to pilot, 1 next to copilot, 1 on the backside of 245 bulkhead, and 1 aft of starboard main landing gear.

b. Liquid oxygen

Function: Provide oxygen source to aircrew. Location: Starboard side nose landing gear wheel well Safety precautions: Ensure no oil, grease, or fuels are in the area, make sure clothing, hands, and all equipment are clean prior to servicing.

201.1.10 Anti-icing and de-icing systems: [ref. h, pp. 2-146 thru 2-157]

a. Anti-Icing

Prevent icing on critical areas.

b. De-icing

Remove ice after it has formed.

c. Ice Detector

Functions: Automatic control of anti-icing and de-icing control system. Location: Inside the intake of #2 and #3 engine. Safety precaution: 30 seconds is the maximum time you can operate the ice detector on the deck.

d. Engine Inlet Anti-Icing

Function: To prevent icing of engine inlet, and air duct anti-icing Location: In the engine, all 4 interconnected to ice detection in #2 & #3 engines. Safety precaution: Excessive bleed air can damage structures and leading edges.

e. Propeller anti-ice/de-ice

Function: Anti-ice and de-icing of the propeller Location: Forward section of the spinner and propeller afterbody. Safety precautions: Do not operate propeller anti-icing or de-icing for an engine that is not running when the aircraft is on the ground.

f. Wing and empennage anti-icing: Function

To keep the wing and empennage from icing. Location: Leading edge of the wing, and empennage. Safety precautions: The leading edge anti-icing system must not be used to remove ice from surfaces when the aircraft is on deck. If operated for testing, constant monitoring of the temperature indicators must be maintained and the system must not remain on for more than 30 seconds.

g. Wind shield anti-icing: Function

Windshield anti-icing. Location: 3 center windshields, 2 windows each, on both sides of the center windshields, and the 2 lower windows in front of the pilot. Safety precautions: Operation of NESA anti-icing when outside air temperature is above 27 degrees C will increase the possibility of delamination within the NESA panels.

h. Pitot heat: Function

Prevent icing on the pitot tube. Location: Inside pitot tube. Safety precautions: Do not touch with bare hands.

202 Engine Systems

References:

[a] NAVAIR 01-75GAA-2-4, Power Plant C/KC-130F/R/T and KC-130T-30 Aircraft

[b] NAVAIR 01-75GAA-2-11, Propeller C/KC-130F/R/T and KC-130T-30 Aircraft

[c] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft

202.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

202.1.1 Engine [ref. a, pp. 3-3 thru 3-5]

a. Reduction gear assembly Function: Reduce the RPM of the prop to the engine (13.43:1). Location: Between the torque meter and prop. Safety precaution: Safety coupling (-6,000 in lbs.).

b. Torque meter assembly Function: Transmit torque from the engine to reduction gearbox. Location: Between the engine and reduction gearbox.

c. Compressor assembly Function: Compresses air for engine to run. Location: Forward section of engine.

d. Diffuser Function: Channels the air for the combustion section, and the 14th stage (used for bleed air, engine start, and pressurization). Location: Between the compressor and combustion section.

e. Combustion section Function: To burn air/fuel mixture. Location: Between the diffuser and turbine.

f. Turbine Unit Function: Converts heat energy into mechanical energy. Location: Aft of the combustion section.

g. Accessory Drive housing Function: Provides mounting pads for numerous engine driven accessories. Location: On the lower section of the compressor.

202.1.2 Propeller: [ref. b]

a. Propeller Control Assembly Function: [p. 2-6]

Control prop blade pitch at all power settings. Location: Between the prop and reduction gearbox.

b. Blade Assembly Function: [p. 2-4]

Provide power. Location: On the prop assembly.

202.1.3 Auxiliary Power Unit (APU): [ref. c, pp. 2-158 thru 2-162]

Function: Supplies air for ground operation of the air-conditioning systems, for engine starting, and provides shaft power to drive a 40-Kva ac generator. Location: Forward of the port wheel well.

202.1.4 Fire Extinguishing system: [ref. c, pp. 2-25, 2-26]

Function: Extinguish engine/APU fires. Location: 2 bottles above port wheel well.

202.1.5 Fuel system: [ref. c, pp. 2-34 thru 2-48]

a. Fuel cells/tanks Function: Hold aircraft fuel. Location: Inside the wings, and the external tank on each wing.

b. Vents Function: Provide a means to equalize tank pressure, and prevent purge tanks from overfilling. Location: On the wing tips, and the lower surface of the wing. Safety precautions: No open flames

c. Control panels Function: Two locations. Location above FE seat is used for fuel management in-flight. The SPR panel controls fuel as it comes on the aircraft, and transfer fuel as needed. Location: Above the Flight Engineer seat, and the SPR panel located starboard, aft-side of the aircraft.

202.1.6 Bleed air system: [ref. c, pp. 2-127 thru 2-131]

Function: Provides compressed air for engine starting, aircraft pressurization, and engine anti-icing, and air conditioning.

Location: In the engine nacelles, leading edges, and APU.

203 Avionics/Electrical Systems

References:

- [a] NAVAIR 01-75GAH-1, NATOPS Flight Manual Navy Model C-130T/KC-130T and KC-130T-30 Aircraft
- [b] NAVAIR 01-75GAA-2-7, Electrical System KC-130F/R/T and C-130F
- [c] NAVAIR 01-75GAH-2-8, Radio Communications and Navigation Systems
- [d] OPNAVINST 3710.7R, NATOPS General Flight and Operating Instructions
- [e] NAVEDTRA 10348-G, Aviation Electrician's Mate 3 & 2

203.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

203.1.1 Communication system: [ref. c]

a. Intercommunication System (ICS): [p. 9-1]

Permits voice communication among flight station and cargo compartment intercommunication stations

b. Ultra High Frequency (UHF): [p. 6-1]

Provides radio communications in the 300 to 3000 MHz range

c. Very High Frequency (VHF): [p. 5-1]

Provides radio communications in the 30 to 300 MHz range

d. High Frequency (HF): [p. 3-1]

Provides radio communications in the 3 to 30 MHz range

203.1.2 Navigation equipment: [ref. c]

a. Inertial Navigation System: [p. 21-2]

Provides accurate navigation and position determination information

b. Tactical Airborne Navigation (Tacan): [pp. 26-2, 27-2]

Provides bearing and distance

c. Automatic Direction Finder (ADF): [p. 23-1]

For homing and bearing, also receives voice and code signals

d. Compass system: [p. 14-2]

Detects and indicates relative heading referenced to magnetic north

e. VHF Omni-directional Ranging (VOR)/Instrument Landing System (ILS): [pp. 22-1, 22-6]

Reception of all VHF/VOR, tone localizer and voice facilities, reception of glide slope information and location marker signals

203.1.3 Mission equipment: [ref. c]

a. Radio Detection and Ranging (RADAR): [p. 20-2]

Used to detect objects at distance much greater than they are visually possible.

b. Identification Friend or Foe (IFF): [pp. 29-1, 30-1]

Provides constant aircraft identification.

c. Flight Control systems: [p. 12-3, 12-5]

Receives navigation data from the navigation systems installed on the aircraft.

d. Ground proximity warning system (GPWS): [p. 18-1]

Provides the pilot and copilot with visual and aural warnings of a flight condition that could cause the aircraft to come in close proximity to the ground.

e. Combined Altitude Radar Altimeter (CARA): [p. 16-1]

Indicates absolute altitude of aircraft above the terrain.

203.1.4 Miscellaneous equipment:

a. Aircraft battery:[ref. b, pp. 3-4 thru 3-9]

Provides a 24 volts DC power supply.

b. Aircraft generators: [ref. b, pp. 2-1 thru 2-4C]

They supply 3 phase, 400-hertz electrical power at 200/115 volts.

c. Transformer Rectifier: [ref. b, p. 3-1]

Used for converting power from the AC power supply system to 28 volts DC.

d. Inverters:[ref. a, pp. 2-59 thru 2-62]

Provide a secondary aircraft power supply.

203.1.5 Aircraft exterior lighting

a. Anti collision/strobe lights: [ref. d, p. 5-1]

Shall be used immediately before engine starting and at all times when the aircraft engine is in operations

b. Formation lights: [ref. d, p. 5-1]

Used to the extent necessary for safety

c. Navigation lights: [ref. e, p. 4-4]

Attracts visual attention to the aircraft position at night

d. Landing lights: [ref. d, p. 5-1]

Is used for illuminating the runway to detect any surface hazards

e. Taxi lights: [ref. d, p. 5-1]

Are used for illuminating the taxi way while aircraft is moving from runway to parking apron

f. Wing leading edge lights: [ref. b, p. 4-10]

Used to illuminate the nacelles

203.2.1 Discuss briefly the purpose of the electrical power supply system: [ref. a, pp. 2-49 thru 2-65]

All the internal electrical power for aircraft use comes from 5 ac generators or from the battery. Power from these aircraft generators is used to provide electrical power for aircraft use.

203.5.1 During ground operations, what safety precautions shall be observed for the following?

a. HF: [ref. c, p. 3-9]

Prior to performing operational check out of the HF communication system ensure that no personnel are on top of the aircraft.

b. RADAR: [ref. c, pp. 20-33, 20-34]

Strobe lights must be turned on. The radiation hazard extends to 35 feet, in a span of 180 degrees off the nose of the aircraft.

c. Strobe lights: [ref. b, p. 4-68]

Direct viewing of the strobe lights must be avoided when in the white mode.

204 Warfare Mission Area

References:

[a] Squadron Operational Readiness Manual (SORM)

[b] OPNAVINST C3501.307, Required Operational Capabilities (ROC) and Projected Operational Environment (POE) for Reserve VR (KC/C-130) Squadrons

204.1 MISSION STATEMENT

204.1.1 State and explain the squadrons mission statement. [ref. a]

VR - 53

Fleet Logistics Support Squadron 53 operates 24 hours a day; available at very short notice to provide global logistics support for U.S. Naval forces deployed and stationed throughout the world. Primary theaters of operation include the Mediterranean and Europe, Southwest Asia and the Middle East, Indian Oceans and Austral-Asia. Flexibility and rapid response to contingencies around the world are fundamental requirements of today's Navy, and is accomplished by the thorough training of active duty, and selective reserve personnel to maintain maximum readiness to perform assigned tasks and logistics support for fleet units as directed by higher authority.

204.1.2 State the command's operational chain of command. [ref. a]

- a. CO, (CMC and CCC)
- b. XO
- c. OIC (When CO and XO are SelRes)
- d. Aviation Safety Officer
- e. Administrative Department
- f. Safety Department
- g. Operations Department
- h. Maintenance Department
- i. Training/NATOPS Department
- j. AIS Department

204.1.3 Discuss the role of the C/KC-130 mission. [ref. b]

The C-130 mission is to operate from shore installations to provide intra-theater logistics support for all aspects of naval power projection.

204.1.4 Discuss the following primary warfare mission areas [ref. b]

a. Command, Control and Communications (CCC):

Provide communications for own unit. Provide tactical voice communications. Process message traffic.

b. Fleet Support Operations (FSO):

Provide repair services for aircraft. Provide repair service for electrical and gyro systems. Provide inspection, test and repair services for navigation systems. c. Logistics Provide scheduled response to airlift of cargo, mail, and personnel. Provide medical evacuation services. d. Mobility Support, and provide safe, flyable aircraft for all weather operations. Prevent and control damage. Maintain health and well being of the crew.

c. Logistics (LOG):

d. Mobility (MOB):

204.1.5 Discuss the aircraft secondary warfare mission area as it applies to Non-Combat Operations (NCO). [ref. b]

Provide administrative and supply support for own unit. Provide upkeep and maintenance of squadron aircraft. Provide emergency/disaster relief assistance and evacuation. Provide support for the evacuation of noncombatant personnel in areas of civil or international crisis.

LIST OF REFERENCES USED IN THIS PQS

CFLSWINST 1500.6 (Series), COMFLELOGSUPPWING (CFLSW) Training Program
CFLSWINST 3710.5 (Series), Standard Operating Procedures
COMNAVAIRESFORINST 1500.5 (Series), Commander, Naval Air Reserve Force Aviation Master Training Manual
NAVAIR 00-80T-96, Aircraft Refueling
NAVAIR 01-1A-17, Aviation Hydraulics Manual
NAVAIR 01-1A-35, Aircraft Fuel Cells and Tanks
NAVAIR 01-75GAA-2-1, Maintenance Instructions (Organizational) General Information, Navy Models C-130T, KC-130F, KC-130R, KC-130T, KC-130T-30 Aircraft
NAVAIR 01-75GAA-2-10, Maintenance Instructions (Organizational) Utility Systems C/KC-130F/R/T and C-130F
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OPNAVINST 5100.23D, Navy Occupational Safety and Health (NAVOSH) Program Manual
OPNAVINST C3501.307, Required Operational Capabilities (ROC) and Projected Operational Environment (POE) for Reserve VR (KC/C-130) Squadrons
Squadron Operational Readiness Manual (SORM)