



PERSONNEL QUALIFICATION STANDARD

FOR

ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS

NAME (Rate/Rank) _____

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Although the words "he," "him," and "his" are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this material.

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PREFACE

Warfare Qualified Sailors are an essential element of our Navy's Operational Primacy. The objective of the Enlisted Surface Warfare Specialist Program is to provide the candidate an introduction into the processes and topics necessary to support the warfighting requirements of our Navy. This personnel warfare qualification standard will focus on mission effectiveness, combat readiness and survivability as well as introducing an overall understanding of how an individual unit mission fits into and supports naval doctrine and its objectives. Experience shows it is essential that every warrior in our Navy be totally familiar with the mission of their command and be able to apply this knowledge to support the successful execution of the command's current and future missions.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	3
INTRODUCTION.....	5
ACRONYMS.....	7
100 INTRODUCTION TO FUNDAMENTALS.....	11
101 Deck.....	13
102 Operations.....	15
103 Aviation Operations.....	18
104 Engineering Watch Organization.....	20
105 Air Conditioning and Refrigeration (AC&R).....	21
106 Bleed/Masker/Prairie Air.....	22
107 Vacuum, Collection, Holding, and Transfer (VCHT).....	23
108 Compressed Air.....	24
109 Controllable Reversible Pitch Propeller (CRP).....	25
110 Degaussing/Cathodic Protection.....	26
111 Electrical Distribution.....	27
112 Fuel Oil (F/O).....	28
113 Gas Turbine Module (GTM).....	29
114 Lube Oil (L/O).....	30
115 Main Reduction Gear (MRG) and Shafting.....	31
116 Pollution Abatement.....	32
117 Potable Water.....	33
118 Seawater Service System.....	34
119 Machinery Control System (MCS)/Data Multiplexing System (DMS).....	37
120 Engineering Plant Operations.....	37
121 Steering.....	38
122 Communications.....	39
123 AEGIS Weapons Systems.....	41
200 INTRODUCTION TO MISSION AREAS.....	43
201 Air Warfare (AW).....	45
202 Surface Warfare (SUW).....	49
203 Undersea Warfare (USW).....	52
204 Strike Warfare (STW).....	57
205 Point-Defense/Countermeasure.....	60
300 INTRODUCTION TO WATCHSTATIONS.....	63
301 Enlisted Surface Warfare Specialist (ESWS), Unit Specific For DDG 51 Class.....	65
LIST OF REFERENCES.....	77

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INTRODUCTION

PQS PROGRAM

This PQS program is a qualification system for officers and enlisted personnel where certification of a minimum level of competency is required prior to qualifying to perform specific duties. A PQS is a compilation of the minimum knowledge and skills that an individual must demonstrate in order to qualify to stand watches or perform other specific routine duties necessary for the safety, security or proper operation of a ship, aircraft or support system. The objective of PQS is to standardize and facilitate these qualifications.

CANCELLATION

This Standard cancels and supersedes NAVEDTRA 43390-C.

APPLICABILITY

This PQS is applicable to all enlisted personnel serving in DDG 51 surface units which are authorized to grant Enlisted Surface Warfare Specialist designations IAW OPNAVINST 1414.1 (Series).

TAILORING

To command tailor this package, first have it reviewed by one or more of your most qualified individuals. Delete any portions covering systems and equipment not installed on your ship, aircraft or unit. Next, add any line items, fundamentals, systems and watchstations/workstations that are unique to your command but not already covered in this package. Finally, the package should be reviewed by the cognizant department head and required changes approved by the Commanding Officer or his designated representative. Retain the approved master copy on file for use in tailoring individual packages.

QUALIFIER

The PQS Qualifier is designated in writing by the Commanding Officer to sign off individual watchstations. Qualifiers will normally be E-5 or above and, as a minimum, must have completed the PQS they are authorized to sign off. The names of designated Qualifiers should be made known to all members of the unit or department. The means of maintaining this listing is at the discretion of individual commands. For more information on the duties and responsibilities of PQS Qualifiers, see the PQS Management Guide.

INTRODUCTION (CONT'D)

CONTENTS

PQS is divided into three sections. The 100 Section (Fundamentals) contains the fundamental knowledge or book learning necessary for satisfactory understanding of the watchstation/workstation duties. The 200 Section (Systems/Mission Areas) is designed to acquaint you with the systems you will be required to operate at your watchstation/workstation. The 300 Section (Watchstations) lists the tasks you will be required to satisfactorily perform in order to achieve final PQS qualification for a particular watchstation/workstation. All three sections may not apply to this PQS, but where applicable, detailed explanations are provided at the front of each section.

REFERENCES

The references used during the writing of this PQS package were the latest available to the workshop, however, the most current references available should be used when qualifying with this Standard. Classified references may be used in the development of PQS. If such references are used, do not make notes in this book as answers to questions in this Standard may be classified.

TRAINEE

Your supervisor will tell you which watchstations/workstations you are to complete and in what order. Before getting started, turn to the 300 Section first and find your watchstation/workstation. This will tell you what you should do before starting your watchstation/workstation tasks. You may be required to complete another PQS, a school, or other watchstations/workstations within this package. It will also tell you which fundamentals and/or systems from this package you must complete prior to qualification at your watchstation/workstation. If you have any questions or are unable to locate references, contact your supervisor or qualifier. Good luck!

PQS FEEDBACK REPORTS

This PQS was developed using information available at the time of writing. When equipment and requirements change, the PQS needs to be revised. The only way the PQS Development Group knows of these changes is by you, the user, telling us either in a letter or via the Feedback Report contained in the back of this book. You can tell of us new systems and requirements, or of errors you find.

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.

ABT	Automatic Bus Transfer
AC&R	Air Conditioning and Refrigeration
ACTS	AEGIS Combat Trainer System
ADS	AEGIS Display System
AM	Auxiliary Monitor
APD	Automatic Paralleling Device
ARC	Air Radar Controller
ARO	Auxiliary Room Operator
ARPAs	Automated Radar Plotting Aids
AW	Air Warfare
BOL	Bearing Only Launch
C&D	Command and Decision
CC	Control Console
CCS	Central Control Station
CEC	Cooperative Engagement Capability
CHT	Collection, Holding, and Transfer
CIWS	Close-In Weapons System
CML	Canister Missile Launcher
CONREP	Connected Replenishment
CRP	Controllable Reversible Pitch Propeller
CSC	Combat Systems Coordinator
CSOOW	Combat Systems Officer of the Watch
CSOSS	Combat Systems Operational Sequencing System
DBM	Data Base Manager
DCA	Damage Control Assistant
DCC	Damage Control Console
DLS	Decoy Launching System
DSMAC	Digital Scene Matching Area Correlation
DTOT	Designated Time on Target
ECO	Engagement Control Officer
ECSS	Engineering Control Surveillance System
EDO	Engineering Duty Officer
EM	Equipment Monitor
EMCON	Emission Control
EMO	Electronic Maintenance Officer
EOOW	Engineering Officer of the Watch
EP	Engagement Planner
EPCC	Electric Plant Control Console
ERO	Engine Room Operator

ACRONYMS USED IN THIS PQS (CONT'D)

ES	Electronic Support
EW	Electronic Warfare
EWCO	Electronic Warfare Console Operator
F/O	Fuel Oil
FAS	Fueling at Sea
FCS	Fire Control System
FOP	Fuel Oil Purifier
FOSP	Fuel Oil Service Pump
FOTBCP	Fuel Oil Transfer and Ballast Control Panel
FPPWP	First Pre-Planned Way Point
FSEE	Free Standing Electronics Enclosure
GFCS	Gun Fire Control System
GLO	Gunnery Liaison Officer
GMLS	Guided Missile Launcher System
GTG	Gas Turbine Generator
GTM	Gas Turbine Module
HIFR	Helicopter In-Flight Refueling
HOPM	Hydraulic Oil Power Module
HP	High Pressure
HPAC	High Pressure Air Compressor
HWS	Harpoon Weapon System
ICAS	Integrated Condition Assessment System
IDS	Identification Supervisor
IFF	Identification Friend or Foe
IVCS	Internal Voice Communication System
JMCIS	Joint Maritime Communications Information System
JOTS	Joint Operational Tactical System
L/O	Lube Oil
LCO	Launch Control Operator
LOCOP	Local Operating Control Panel
LOSCA	Lube Oil Storage and Conditioning Assembly
LOSP	Lube Oil Service Pump
LP	Low Pressure
LPAC	Low Pressure Air Compressor
LSO	Landing Safety Officer
MBT	Manual Bus Transfer
MPA	Main Propulsion Assistant
MRG	Main Reduction Gear
MSS	Missile Systems Supervisor
NTDS	Navy Tactical Data System
OBT	Onboard Trainer
OCM	Oil Content Monitor
OCSOT	Overall Combat Systems Operability Test
OD	Oil Distribution
ORTS	Operational Readiness Test System

ACRONYMS USED IN THIS PQS (CONT'D)

OWS	Oily Water Separator
PACC	Propulsion Auxiliary Control Console
PCC	Propulsion Control Console
PCMS	Passive Countermeasure System
PLCC	Propulsion Local Control Console
RA	Recovery Assist
RAS	Replenishment at Sea
RAST	Recovery, Arrest, Securing, and Traversing
RBL	Range and Bearing Launch
RHIB	Ridged Hull Inflatable Boat
ROE	Rules of Engagement
RSC	Radar Systems Controller
RSD	Rapid Securing Device
SCC	Ships Control Console
SGSI	Stabilized Glide Slope Indicator
SIMAS	Sonar In-situ Mode Assessment System
SM	Standard Missile
SRC	Surface Radar Controller
SSES	Ship's Signals Exploitation Space
SSGTG	Ship's Service Gas Turbine Generator
SSS	Synchro Self Shifting
SSSS/SWS	Surface/Sub-Surface Warfare Supervisor
STO	System Test Officer
STOT	Simultaneous Time on Target
STW	Strike Warfare
SUW	Surface Warfare
SVTT	Surface Vessel Torpedo Tube
SWO	Signals Warfare Officer
TACTAS	Tactical Towed Array Sonar
TADIXS	Tactical Data Information Exchange System
TCP	Test Control Panel
TERCOM	Terrain Contour Matching
TGW	Tail Guide Winch
TIC	Tactical Information Coordinator
TLAM	Tomahawk Land Attack Missile
TOA	Time of Arrival
TOL	Time of Launch
TOPS	Turbine Overload Protection System
TOT	Time on Top
TWCS	Tomahawk Weapons Control System
UNREP	Underway Replenishment
UPS	Uninterruptable Power Supply
USW	Undersea Warfare
VERTREP	Vertical Replenishment
VLA	Vertical Launch Anti-Submarine

ACRONYMS USED IN THIS PQS (CONT'D)

VLS	Vertical Launcher System
WCS	Weapon Control System
XBT	Expendable Bathythermograph

100 INTRODUCTION TO FUNDAMENTALS

100.1 INTRODUCTION

This PQS begins with a Fundamentals section covering the basic knowledge and principles needed to understand the equipment or duties to be studied. Normally, you would have acquired the knowledge required in the Fundamentals section during the school phase of your training. If you have not been to school or if you need a refresher, the references listed at the beginning of each fundamental will aid you in a self-study program. All references cited for study are selected according to their credibility and availability.

100.2 HOW TO COMPLETE

The fundamentals you will have to complete are listed in the watchstation (300 section) for each watchstation. You should complete all required fundamentals before starting the systems and watchstation portions of this PQS, since knowledge gained from fundamentals will aid you in understanding the systems and your watchstation tasks. When you feel you have a complete understanding of one fundamental or more, contact your Qualifier. If you are attempting initial qualification, your Qualifier will expect you to satisfactorily answer all line items in the fundamentals before signing off completion of that fundamental. If you are requalifying or have completed the appropriate schools, your Qualifier may require you to answer representative line items to determine if you have retained the necessary knowledge for your watchstation. If your command requires an oral board or written examination for final qualification, you may be asked any questions from the fundamentals required for your watchstation.

101 DECK FUNDAMENTALS

References:

- [a] NAVEDTRA 12120, Quartermaster
 - [b] COMNAVINST C9010.1, Fleet Replenishment Guide
 - [c] OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)
 - [d] NAVSEA S9008-AK-BIB-010, 7-Meter Rigid Inflatable Boat (RIB)
 - [e] NAVSEA S9583-A5-MMA-010/70786, Boat Handling and Stowage System
-

101.1 Explain the functions of the following components found on the Ship's Control Console (SCC): [ref. a, ch. 11, pp. 11-1 thru 11-5]

- a. Ship's helm
- b. Lee helm
- c. Alarm panel
- d. Auto pilot

(Signature and Date)

.2 Discuss and identify boat crew personnel assignments and related duties. [ref. c, ch. 6]

(Signature and Date)

.3 State the maximum limit of personnel occupancy for the Ridged Hull Inflatable Boat (RHIB). [ref. d, ch. 1, p. 1-1]

(Signature and Date)

.4 Discuss the following operating procedures for the ship's slewing arm davit: [ref. e, ch. 1, p. 1-1]

- a. Launch
- b. Recovery

(Signature and Date)

101 DECK FUNDAMENTALS (CONT'D)

101.5 State the location and purpose of each Underway Replenishment (UNREP) station.
[ref. b]

(Signature and Date)

102 OPERATIONS FUNDAMENTALS

References:

- [a] Raytheon Marine Company, Marine Pathfinder RADAR
 - [b] Link 16 Communications Planning User's Guide, Part III, Version 1
 - [c] Joint Maritime Communications Information System (JMCIS) Technical Manual
 - [d] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
 - [e] OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)
 - [f] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
 - [g] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
-

102.1 Define the duties and responsibilities of the following personnel:

- a. First Lieutenant [ref. e, ch. 2]
- b. Signals Warfare Officer (SWO) [ref. d, ch. 11, p. 11-1]
- c. Electronic Warfare Officer (EWO) [ref. d, ch. 11, p. 11-1]

(Signature and Date)

.2 Discuss the capabilities of the following radars as applied to Combat Information Center (CIC): [ref. f]

- a. SPY-1 [tab C, p. C-3]
- b. SPS-67 [tab D, p. D-10]
- c. SPS-64 [tab D, p. D-10]

(Signature and Date)

.3 Explain the function and capabilities of the following radar display equipment:

- a. SPA-25 [ref. g, ch. 2, p. 2-42]
- b. Navy Tactical Data Systems (NTDS) console [ref. f, tab A, p. A-3]
- c. Automated Radar Plotting Aids (ARPA) [ref. a, sec. 3, pp. 3.3.1 thru 3.4.4]

(Signature and Date)

102 OPERATIONS FUNDAMENTALS (CONT'D)

102.4 Explain the purpose of the following data links onboard:

- a. LINK-4A [ref. f, tab L, p. L-2]
- b. LINK-11 [ref. f, tab L, p. L-4]
- c. LINK-16 [ref. b; ref. f, tab L, p. L-16]
- d. Joint Maritime Command Information System (JMCIS) [ref. c]

(Signature and Date)

.5 Discuss the location and the general duties of the following CIC watchstations:

- a. Gunnery Liaison Officer (GLO) [ref. d, ch. 10, p. 10-1]
- b. Engagement Control Officer (ECO) [ref. d, ch. 8, p. 8-1]
- c. Surface Warfare Supervisor (SWS) [ref. g, ch. 4, p. 4-1]
- d. Tactical Information Coordinator (TIC) [ref. g, ch. 4, p. 4-1]
- e. Identification Supervisor (IDS) [ref. g, ch. 4, p. 4-2]
- f. Combat Systems Coordinator (CSC) [ref. g, ch. 4, p. 4-2]
- g. Radar Systems Controller (RSC) [ref. g, ch. 4, p. 4-2]
- h. Missile Systems Supervisor (MSS) [ref. g, ch. 4, p. 4-3]
- i. Engagement Planner (EP) [ref. g, ch. 4, p. 4-3]
- j. Launch Control Operator (LCO) [ref. g, ch. 4, p. 4-1]
- k. Data Base Manager (DBM) [ref. d, ch. 9, p. 9-1]
- l. Surface Radar Controller (SRC) [ref. g, ch. 4, p. 4-3]
- m. Electronic Warfare Console Operator (EWCO) [ref. g, ch. 4, p. 4-4]
- n. Gun Fire Control Supervisor (GFCS) [ref. g, ch. 4, p. 4-4]
- o. Electronic Warfare Supervisor (EWS) [ref. g, ch. 4, p. 4-4]
- p. Underwater Warfare Supervisor (UWS) [ref. g, ch. 4, p. 4-4]
- q. Ownship Display Assistant (ODA) [ref. g, ch. 4, p. 4-4]

(Signature and Date)

.6 State the function and location of the Ship's Signals Exploitation Space (SSES)/Combat Direction Finding (CDF). [ref. g, ch. 2, pp. 2-397 thru 2-411]

(Signature and Date)

102 OPERATIONS FUNDAMENTALS (CONT'D)

102.7 State the following characteristics of the DDG 51 class ships: [ref. g, ch. 1, p. 1-2]

- a. Length
- b. Beam
- c. Navigational draft
- d. Displacement tons
- e. Speed (knots)
- f. Maximum operating range at 20 knots

(Signature and Date)

103 AVIATION OPERATIONS FUNDAMENTALS

References:

- [a] NWP 42 (Rev. J), Naval Warfare Publication Helicopter Operating Procedures for Air-Capable Ships, FMFM 5-34
 - [b] NAVAIR 01-260-HCD-75, Airborne Weapons/Stores Loading Manual
 - [c] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
-

103.1 Explain the following methods of helicopter refueling: [ref. a, ch. 4]

- a. Cold refueling (aircraft shut down)
- b. Hot refueling
- c. Helicopter In-Flight Refueling (HIFR)

(Signature and Date)

.2 Describe the purpose of the following flight deck markings: [ref. a, ch. 4]

- a. Landing lineup line/circle
- b. Vertical Replenishment (VERTREP) lines
- c. HIFR marking

(Signature and Date)

.3 Discuss the purpose of the following flight deck lights/equipment: [ref. a, ch. 4]

- a. Horizon Reference system
- b. Waveoff Light system
- c. Deck surface flood lights
- d. Extended lineup lights
- e. Stabilized Glide Slope Indicator (SGSI)
- f. Flight deck status lights

(Signature and Date)

.4 Discuss the classification and capabilities of the flight deck. [ref. a, ch. 4]

(Signature and Date)

103 AVIATION OPERATIONS FUNDAMENTALS (CONT'D)

103.5 State the ship's capability to load/arm aircraft. [ref. b, ch. 6, pp. 6-1 thru 6-19]

(Signature and Date)

.6 Discuss the capabilities of the HAWK link. [ref. c, ch. 3, p. 3-1]

(Signature and Date)

.7 Discuss the following flight deck status conditions: [ref. a, ch. 4]

- a. Red deck
- b. Amber deck
- c. Green deck

(Signature and Date)

.8 Explain the purpose of the following flight deck crew uniform colors: [ref. a, app. E]

- a. Green
- b. Yellow
- c. Purple
- d. Red
- e. White with red cross
- f. White

(Signature and Date)

104 ENGINEERING WATCH ORGANIZATION FUNDAMENTALS

References:

- [a] COMNAVSURFLANT/PACINST 3540.22, Engineering Departmental Organization and Regulations Manual (EDORM), ch. 2
-

104.1 Describe the duties of the following departmental personnel: [sec. 1, p. 2]

- a. Engineering Officer
- b. Main Propulsion Assistant (MPA)
- c. Damage Control Assistant (DCA)
- d. Electrical Officer
- e. Auxiliary Officer

(Signature and Date)

.2 Describe the duties of the following in-port cold iron/auxiliary steaming personnel: [sec. 3, pp. 4 thru 8]

- a. Engineering Duty Officer (EDO)
- b. Central Control Station (CCS) Watch
- c. In-port Equipment Monitor (IEM)
- d. Sounding and Security

(Signature and Date)

.3 Describe the duties of the following underway personnel: [sec. 2, pp. 4 thru 15]

- a. Engineering Officer of the Watch (EOOW)
- b. Propulsion Auxiliary Control Console (PACC)
- c. Electric Plant Control Console (EPCC)
- d. Damage Control Console (DCC) Operator
- e. Engine Room Operator (ERO)
- f. Auxiliary Systems Monitor (ASM)
- g. Propulsion System Monitor (PSM)
- h. Sounding and Security
- i. Assistant Oil King

(Signature and Date)

105 AIR CONDITIONING AND REFRIGERATION (AC&R) FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3

105.1 State the types and locations of Air Conditioning (AC) plants and refrigeration units onboard the ship. [ch. 21, p. 8]

(Signature and Date)

.2 State the location of the following major components: [ch. 21, p. 8]

- a. Chill water pump
- b. Receiver
- c. Freeze box
- d. Chill box
- e. Evaporator/cooling coil
- f. Expansion tank

(Signature and Date)

.3 How does chilled water system interface with the following: [ch. 21, p. 8]

- a. SPY-1 RADAR
- b. Electronic cooling skids

(Signature and Date)

106 BLEED/MASKER/PRAIRIE AIR FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1

106.1 State the function of the following: [ch. 8, p. 1]

- a. Bleed air
- b. Prairie air
- c. Masker air
- d. Anti-icing air
- e. Gas Turbine Main (GTM)/Gas Turbine Generator (GTG) starting air

(Signature and Date)

.2 State the source of air for the above systems. [ch. 8, p. 5]

(Signature and Date)

.3 State where the above systems are monitored and controlled. [ch. 8, p. 13]

(Signature and Date)

.4 State the purpose and location of the following components: [ch. 8, p. 1]

- a. Bleed air cooler
- b. Prairie air cooler
- c. Masker emitter rings

(Signature and Date)

107 VACUUM, COLLECTION, HOLDING, AND TRANSFER (VCHT) FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3
 [b] NSTM S9086-T8-STM-010/CH-593, Pollution Control
 [c] Sewage Disposal Operating Sequencing System (SDOSS)
-

107.1 What is the function and location of the following components: [ref. a, ch. 20, p. 3]

- a. Vacuum, Collection, Holding, and Transfer (VCHT) tanks
- b. Discharge pumps
- c. Deck discharge connections
- d. Eductor pump
- e. Plumbing drain waste tank
- f. Eductors

(Signature and Date)

.2 State the safety precautions associated with hydrogen sulfide gas. [ref. b, sec. 3]

(Signature and Date)

.3 Discuss the following modes of operation: [ref. c]

- a. Inport
- b. Transit
- c. At-sea

(Signature and Date)

108 COMPRESSED AIR FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3

108.1 Describe the uses of the following: [ch. 13, p. 13]

- a. High Pressure (HP) Air system
- b. Low Pressure (LP) Air system

(Signature and Date)

.2 Describe the type and location of the following major components: [ch. 13]

- a. High Pressure Air Compressors (HPACs) [p. 42]
- b. Low Pressure Air Compressors (LPACs) [p. 16]
- c. Air dehydrators [p. 26]
- d. HP to LP cross-connect [p. 45]

(Signature and Date)

.3 State the normal operating pressures of HP/LP air. [ch. 13, pp. 17, 70]

(Signature and Date)

109 CONTROLLABLE REVERSIBLE PITCH PROPELLER (CRP) FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1
 [b] Engineering Operational Sequencing System (EOSS)
-

109.1 State the purpose of the Controllable Reversible Pitch Propeller (CRP) system.
 [ref. a, ch. 5, p. 1]

 (Signature and Date)

.2 Describe the function and location of the following major components: [ref. a, ch. 5]

- a. Hydraulic Oil Power Module (HOPM) [p. 1]
- b. Gear/attached pump [p. 27]
- c. Electric/standby pump [p. 27]
- d. Oil Distribution (OD) box [p. 17]
- e. CRP head tank [p. 27]
- f. Emergency hydraulic pump [p. 21]
- g. Hub/blade assembly [p. 4]

 (Signature and Date)

.3 State the effect of ship's speed in relation to percentage of pitch and shaft rpm.
 [ref. b]

 (Signature and Date)

110 DEGAUSSING/CATHODIC PROTECTION FUNDAMENTALS

References:

- [a] NAVSEA S9475-AF-OMI-010, Degaussing Manual
 - [b] NAVSEA S9633-AE-MMA-010, DDG-51 Class Impressed Current Cathodic Protection System
-

110.1 Name the degaussing coils and state their purpose. [ref. a, ch. 1, p. 5]

(Signature and Date)

.2 State the location of the following components: [ref. a, ch. 2, p. 9]

- a. Degaussing switchboard
- b. Remote control panel
- c. Power supply units

(Signature and Date)

.3 State the purpose of the Impressed Current Cathodic Protection system.
[ref. b, ch. 2, p. 1]

(Signature and Date)

111 ELECTRICAL DISTRIBUTION FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-020/DDG-51, Propulsion Plant Manual (PPM), Vol. 2
 - [b] NAVSEA S9234-GA-GTP-040/DDG-51, Propulsion Plant Manual (PPM), Vol. 4
 - [c] Engineering Operational Sequencing System (EOSS)
-

- 111.1 State the purpose of the Ship's Service 60/400 Hz Electrical Distribution system.
[ref. a, ch. 9, p. 1]

(Signature and Date)

- .2 Describe the function of the automatic load shed feature. [ref. a, ch. 9, p. 1]

(Signature and Date)

- .3 Describe the function and location of the following major components and how they interact:

- a. Ship's Service Gas Turbine Generator (SSGTG) sets [ref. a, ch. 9, p. 1]
- b. Ship's service switchboards [ref. a, ch. 9, p. 3]
- c. Load centers [ref. a, ch. 9, p. 4]
- d. Electric Plant Control Console (EPCC) [ref. b, ch. 24, p. 1]
- e. Shore power switchboards [ref. a, ch. 9, p. 3]
- f. Automatic Paralleling Device (APD) [ref. c]
- g. 400 Hz converters [ref. a, ch. 9, p. 4]
- h. 400 Hz switchboards [ref. a, ch. 9, p. 4]
- i. Shore power terminals [ref. a, ch. 9, p. 3]

(Signature and Date)

- .4 State the SSGTG output rating: [ref. a, ch. 9, p. 1]

- a. Amps
- b. Kilowatts
- c. Voltage
- d. Frequency

(Signature and Date)

112 FUEL OIL (F/O) FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1
 [b] Daily Fuel and Water Report
-

112.1 State the types of fuel onboard your ship and their uses. [ref. a, ch. 7, p. 1]

 (Signature and Date)

.2 State the purpose and location of the following major system components:
 [ref. a, ch. 7]

- a. Fuel Oil (F/O) Service system:
1. Fuel Oil Service Pumps (FOSPs) [p. 45]
 2. Prefilters [p. 40]
 3. F/O filter/coalescer [p. 50]
 4. F/O service heaters [p. 47]
 5. F/O emergency trip handles/valves [p. 40]
- b. F/O Fill and Transfer system:
1. Fuel Oil Purifier (FOP) [p. 15]
 2. F/O transfer pumps [p. 13]
 3. F/O transfer heaters [p. 30]
- c. JP-5 Service system:
1. Service pump [p. 62]
 2. JP-5 filter/coalescer [p. 62]
- d. JP-5 Transfer system:
1. Transfer pump [p. 61]
 2. Gas turbine gravity feed tank [p. 57]

 (Signature and Date)

.3 State the ship's maximum capacity for F-76 and JP-5. [ref. b]

 (Signature and Date)

.4 Describe the purpose of the Seawater Compensating system. [ref. a, ch. 7, p. 6]

 (Signature and Date)

113 GAS TURBINE MODULE (GTM) FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1

113.1 State the purpose of the following major components of the GTM: [ch. 2]

- a. LM 2500 gas turbine engine [p. 1]
- b. Base enclosure [p. 6]
- c. Integrated Electronic Controls (IEC) [p. 6]
- d. Lube Oil Storage/Conditioning Assembly (LOSCA) [p. 6]

(Signature and Date)

.2 Explain the function of the major components of the gas turbine engine and gas turbine enclosure: [ch. 2]

- a. Intake [p. 1]
- b. Compressor [p. 1]
- c. Combustor [p. 4]
- d. High Pressure (HP) turbine [p. 4]
- e. Low Pressure (LP)/power turbine [p. 32]
- f. High speed flexible coupling shaft [p. 35]
- g. Accessory gear box [p. 42]
- h. Enclosure Cooling system [p. 12]
- i. Fire Detection and Extinguishing system [p. 12]

(Signature and Date)

114 LUBE OIL (L/O) FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1

114.1 Describe the purpose of the Main Lube Oil (L/O) system. [ch. 5, p. 1]

(Signature and Date)

.2 How does the Main L/O system interface with the following systems: [ch. 5, p. 1]

- a. Gas Turbine L/O system
- b. Main Reduction Gear (MRG)
- c. Main thrust bearing

(Signature and Date)

.3 Describe the function and location of the following major components: [ch. 6]

- a. Lube Oil Service Pumps (LOSPs) [p. 10]
- b. L/O cooler [p. 21]
- c. L/O strainer [p. 18]
- d. L/O purifier [p. 2]
- e. L/O storage and settling tanks [p. 2]

(Signature and Date)

115 MAIN REDUCTION GEAR (MRG) AND SHAFTING FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1

115.1 State the purpose of the MRG and shafting. [ch. 3, p. 1]

(Signature and Date)

.2 State the interface between the MRG and shafting to the propulsion gas turbine engine. [ch. 3, p. 1]

(Signature and Date)

.3 State the function of the following components: [ch. 3]

- a. Synchro Self Shifting (SSS) clutch [p. 1]
- b. Power turbine brake [p. 5]

(Signature and Date)

.4 State the location of the following components:

- a. Main thrust bearings [ch. 3, p. 11]
- b. Line shaft bearings [ch. 4, p. 11]
- c. Strut bearings [ch. 4, p. 1]
- d. Shaft seals [ch. 4, p. 12]
- e. Stern tubes [ch. 4, p. 12]
- f. Inflatable shaft seals [ch. 4, p. 12]
- g. Bulkhead seals [ch. 4, p. 12]

(Signature and Date)

116 POLLUTION ABATEMENT FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3
 - [b] Ship's Oil Spill Bill
 - [c] NAVSEA S9593-C4-MMM-020, Processor Plastics with Commercial Controller
-

116.1 State the purpose and location of the following:

- a. Oil spill containment kit [ref. b]
- b. Oily Water Separator (OWS) [ref. a, ch. 19, p. 28]
- c. Oil Content Monitor (OCM) [ref. a, ch. 19, p. 34]
- d. Oily water transfer pumps [ref. a, ch. 19, p. 9]
- e. Deck connections [ref. a, ch. 19, p. 9]
- f. Waste oil holding tank [ref. a, ch. 19, p. 9]
- g. Oily waste holding tank [ref. a, ch. 19, p. 9]
- h. Plastic waste compactor [ref. c, ch. 2, p. 1]

(Signature and Date)

117 POTABLE WATER FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3
 [b] Daily Fuel and Water Report
 [c] NAVSEA S9531-C1-MMO-010/2YG84, Reverse Osmosis Distilling Plant
-

117.1 State the type of distilling plant used onboard and the maximum daily distilling capacity. [ref. c, ch. 1, p. 5]

 (Signature and Date)

.2 State the location and basic operation of the ship's distilling plants. [ref. c, ch. 1, p. 5]

 (Signature and Date)

.3 State the ship's maximum storage capacity for potable water. [ref. b]

 (Signature and Date)

.4 State the ship's standard for water consumption/distribution. [ref. b]

 (Signature and Date)

.5 State the location of the following major components: [ref. a, ch. 14]

- a. Potable water pumps [p. 23]
- b. Potable water tanks [p. 25]
- c. Brominators [p. 25]
- d. Potable water risers [p. 23]

 (Signature and Date)

118 SEAWATER SERVICE SYSTEM FUNDAMENTALS

References:

[a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3

118.1 State the function of the Seawater Service system. [ch. 17, p. 1]

(Signature and Date)

.2 State the function and location of the following major components: [ch. 17]

- a. Seawater service pumps [p. 1]
- b. Seawater service strainers [p. 15]
- c. Shore firemain to seawater cross connects [p. 2]

(Signature and Date)

119 MACHINERY CONTROL SYSTEM (MCS)/DATA MULTIPLEXING SYSTEM (DMS) FUNDAMENTALS

References:

- [a] NAVSEA S9436-B1-MMA-010, Integrated Condition Assessment System (ICAS)
 [b] NAVSEA S9234-GA-GTP-020/DDG-51, Propulsion Plant Manual (PPM), Vol. 2
 [c] NAVSEA S9234-GA-GTP-040/DDG-51, Propulsion Plant Manual (PPM), Vol. 4
-

119.1 State the function and location of the following components:

- a. Engineering Officer of the Watch/Logger Unit (EOOW/LU) [ref. c, ch. 24, p. 1]
- b. Propulsion Auxiliary Control Console (PACC) [ref. c, ch. 24, p. 1]
- c. Shaft Control Unit (SCU) [ref. c, ch. 24, p. 1]
- d. Electric Plant Control Console (EPCC) [ref. c, ch. 24, p. 1]
- e. Damage Control Console (DCC) [ref. c, ch. 24, p. 1]
- f. Repair Station Console (RSC) [ref. c, ch. 24, p. 1]
- g. Local Operating Control Panel (LOCOP) [ref. b, ch. 10, p. 107]
- h. No Break Power Supply (NBPS) [ref. b, ch. 11, p. 38]
- i. Bell and Data logger [ref. c, ch. 23, p. 13]
- j. Integrated Condition Assessment System (ICAS) [ref. a, ch. 1, p. 1]
- k. Uninterruptable Power Supply (UPS) [ref. c, ch. 23, p. 14]

(Signature and Date)

.2 Discuss the priority of gas turbine engine control from the engine room to the bridge. [ref. c, ch. 24, p. 2]

(Signature and Date)

.3 Describe the following: [ref. c, ch. 23]

- a. Traffic Controllers (TC) [p. 4]
- b. Area Multiplexer (AM) [p. 4]
- c. Remote Multiplexer (RM) [p. 3]
- d. Input/Output Unit (IOU) [p. 3]
- e. Maintenance Group (MG) [p. 7]

(Signature and Date)

119 MACHINERY CONTROL SYSTEM (MCS)/DATA MULTIPLEXING SYSTEM (DMS) FUNDAMENTALS (CONT'D)

119.4 Describe the function of the DMS. [ref. c, ch. 23, p. 1]

(Signature and Date)

120 ENGINEERING PLANT OPERATIONS FUNDAMENTALS

References:

[a] Engineering Operational Sequencing System (EOSS)

120.1 Discuss the plant configurations, capabilities, and limitations of the following conditions:

- a. Cold iron
- b. Auxiliary steaming
- c. Underway steaming
 1. Full power
 2. Split plant
 3. Trail shaft
 4. Locked shaft
 5. Emergency ahead pitch

(Signature and Date)

121 STEERING FUNDAMENTALS

References:

- [a] NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3
[b] NAVSEA S9234-GA-GTP-040/DDG-51, Propulsion Plant Manual (PPM), Vol. 4
-

121.1 State the location of the following major components:

- a. After Steering Control Unit (ASCU) [ref. b, ch. 30, p. 27]
- b. Hydraulic Power Unit (HPU) [ref. a, ch. 15, p. 2]
- c. Local Control Unit (LCU) [ref. b, ch. 30, p. 34]
- d. Ram and follow-up assemblies [ref. a, ch. 15, p. 24]
- e. Emergency steering hand pumps [ref. a, ch. 15, p. 2]

(Signature and Date)

.2 Discuss the various methods of steering controls: [ref. b, ch. 30, p. 1]

- a. Computer assisted auto
- b. Computer assisted manual
- c. Backup manual
- d. Emergency
- e. Emergency manual

(Signature and Date)

122 COMMUNICATIONS FUNDAMENTALS

References:

- [a] Combat Systems Operational Sequencing System (CSOSS)
 - [b] NAVEDTRA 12413-A, Electronics Technician, Vol. 3, Communication Systems
 - [c] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
 - [d] DDG-XX Radio Communication Systems NOV 98 CD-ROM
-

122.1 Discuss High Frequency (HF) communications on your ship regarding: [ref. d, keyword HF]

- a. Transmitters [ref. a; ref. b, ch. 2]
- b. Receivers [ref. a; ref. b, ch. 2]
- c. Antennas [ref. a]
- d. Capabilities [ref. b, ch. 2]
 - 1. Secure/unsecure
 - 2. Voice/data

(Signature and Date)

.2 Discuss Ultra High Frequency (UHF) communications on your ship regarding: [ref. d, keyword UHF]

- a. Transceivers [ref. a; ref. b, chs. 2, 3]
- b. Antennas [ref. a]
- c. Capabilities [ref. b, chs. 2, 3]
 - 1. Secure/unsecure
 - 2. Voice/data

(Signature and Date)

.3 Discuss Very High Frequency (VHF) communications on your ship regarding: [ref. d, keyword VHF]

- a. Transceivers [ref. a; ref. b, chs. 2, 3]
- b. Antennas [ref. a]
- c. Capabilities [ref. b, chs. 2, 3]
 - 1. Secure/unsecure
 - 2. Voice/data

(Signature and Date)

122 COMMUNICATIONS FUNDAMENTALS (CONT'D)

122.4 Discuss Extra High Frequency (EHF) communications on your ship regarding:
[ref. d, keyword EHF]

- a. Transceivers [ref. a; ref. b, chs. 2, 3]
- b. Antennas [ref. a]
- c. Capabilities [ref. b, chs. 2, 3]
 1. Secure/unsecure
 2. Voice/data

(Signature and Date)

122.5 Discuss the capabilities of the following communications systems: [ref. c, ch. 2]

- a. Intercommunication interconnecting group ON-201 [p. 2-423]
- b. Internal Voice Communication System (IVCS) [pp. 2-411 thru 2-422]
- c. SA-2112(V) Single Audio System (Secure Audio Switch (SAS)/Black Audio Switch (BAS)) [p. 2-423]

(Signature and Date)

123 AEGIS WEAPONS SYSTEMS FUNDAMENTALS

References:

- [a] Combat Systems Operational Sequencing System (CSOSS)
- [b] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
- [c] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations

123.1 State the function of the following elements of the AEGIS Weapons system:
[ref. b, ch. 1, pp. 1-5 thru 1-15]

- a. SPY-1
- b. Command and Decision (C&D)
- c. Weapon Control System (WCS)
- d. AEGIS Display System (ADS)
- e. Fire Control System (FCS)
- f. Vertical Launching System (VLS)
- g. Standard Missile (SM)
- h. Operational Readiness Test System (ORTS)
- i. AEGIS Combat Trainer System (ACTS)

(Signature and Date)

.2 Discuss the interrelationship between the elements of the AEGIS Weapons system.
[ref. b, ch. 1, pp. 1-1 thru 1-13]

(Signature and Date)

.3 Discuss the purpose of C&D doctrine statements.
[ref. c, tab A, pp. A-1 thru A-5]

(Signature and Date)

.4 Discuss the general duties of the following personnel: [ref. a]

- a. Electronic Materials Officer (EMO)
- b. System Test Officer (STO)

(Signature and Date)

200 INTRODUCTION TO MISSION AREAS

200.1 BASIC BUILDING BLOCKS

In this section, the mission area is broken down into smaller, more comprehensible, functional systems as basic building blocks in the learning process. Each system is written to reflect specific warfare specialist requirements by identifying the equipment most relevant.

200.2 SYSTEMS AND SYSTEM PARTS

For learning purposes each mission area is disassembled into two levels. Mission areas have systems and systems have parts. Do not expect to see every item which appears on a parts list to be in the PQS. Only those items which must be understood for operation are listed. Normally a number of very broad (overview) mission areas are disassembled into their systems or system parts with the big picture as the learning goal.

200.3 FORMAT

Each mission area is organized within the following format:

- It lists the references to be used for study and asks you to explain the function of each mission area.
- It asks for the static facts of what or where the system and system parts are in relation to the mission area.
- It directs attention to the dynamics of how the system and system parts operate to make the mission area function.
- It specifies the parameters that must be immediately recalled.
- It requires study of the relationship between the mission area being studied and other mission areas.

200.4 HOW TO COMPLETE

The mission areas you must complete are listed in the Prerequisites section of each watchstation. When you have mastered one or more mission areas, contact your Qualifier. The Qualifier will give you an oral examination on each mission area and, if satisfied you have sufficient knowledge of the mission area, will sign the appropriate mission area line items. You will be expected to demonstrate through oral or written examinations a thorough understanding of each mission area required for your watchstation.

201 AIR WARFARE (AW) MISSION AREA

References:

- [a] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
 - [b] NAVSEA SW394-AF-SUP-010/VLS, Vertical Launching System
 - [c] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
 - [d] NAVEDTRA 10106, Operations Specialist 2
 - [e] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
-

201.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

- A. What is its function?
- B. Where is it located?
- C. What are the modes of operation or control?
- D. What are the safety/protective devices for this component/component part?
- E. What is the effect on system operation if this component fails?
- F. What supporting input signals are required?
- G. What are the firing modes?

Questions

201.1.1 Discuss the following detection systems:

- | | |
|--|-----------|
| a. SLQ-32 [ref. c, tab G, pp. G-1 thru G- 18; ref. e, ch. 2, pp. 2-53 thru 2-65] | A B C E F |
| b. SPY-1 [ref. e, ch. 1, pp. 1-9, 1-10] | A B C E |
| c. SPS-67 [ref. c, tab D, p. D-1; ref. e, ch. 2, pp. 2-42 thru 2-45] | A B C E F |
| d. Identification Friend or Foe (IFF) [ref. e, ch. 2, pp. 2-49 thru 2-56] | A B C E F |

(Signature and Date)

201 AIR WARFARE (AW) MISSION AREA (CONT'D)

Questions

201.1.2 Discuss the following direction systems:

- a. SPY-1 [ref. e, ch. 1, pp. 1-9, 1-10] A C E
- b. MK 99 Fire Control System (FCS) [ref. e, ch. 1, p. 1-12, ch. 2, pp. 2-189, 2-190] A B C E F
- c. MK 160 Gun Computing System (GCS) [ref. c, tab P, p. P-9; ref. e, ch. 2, pp. 2-278 thru 2-281] A B C E F
- d. MK 46 Optical Sighting System (OSS) [ref. c, tab P, pp. P-10, P-11] A B C E

(Signature and Date)

.3 Discuss the following delivery systems:

- a. Vertical Launching System (VLS) [ref. b, ch. 1, p. 1-7] A B E F G
- b. MK 45 (5"/54 caliber) [ref. c, tab P, pp. P-17 thru P-23; ref. e, ch. 2, pp. 2-277, 2-278] A B E F G

(Signature and Date)

.4 Discuss the following destruction systems: [ref. c]

- a. Standard Missile (SM) [tab J, p. J-1] A
- b. 5"/54 caliber projectile [tab P, pp. P-24 thru P-27] A

(Signature and Date)

201.2 PRINCIPLES OF OPERATION

201.2.1 State the steps of Air Warfare (AW) engagements using detection, direction, delivery, and destruction systems. [ref. c, tab C, pp. C-3 thru C-7]

(Signature and Date)

201 AIR WARFARE (AW) MISSION AREA (CONT'D)

201.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the maximum range?
- B. Where are the parameters monitored?
- C. What is the rate of fire?

Questions

201.3.1 SPY-1 [ref. e, table 1-2, p. 1-19]

A B

(Signature and Date)

.2 SPS-67 [ref. c, tab D, pp. D-2, D-3]

A B

(Signature and Date)

.3 VLS [ref. c, ch. 1, p. 1-27]

C

(Signature and Date)

.4 MK 45 5"/54 caliber gun [ref. c, tab P, pp. P-1, P-18]

A B C

(Signature and Date)

.5 SM [ref. c, tab J, pp. J-1 thru J-42; ref. e, ch. 1, p. 1-24]

A B

(Signature and Date)

201.4 SYSTEM INTERFACE

201.4.1 How does AW interface with the following:

- a. Navy Tactical Data System (NTDS) [ref. d, ch. 8, p. 8-1]
- b. Combat Information Center (CIC) [ref. d, ch. 4, p. 4-1]
- c. Rules of Engagement (ROE) [ref. a, ch. 4, p. 1]
- d. Emission Control (EMCON) [ref. d, ch. 2, p. 2-1]
- e. AEGIS Weapon system [ref. e, ch. 1, p. 1-1]

(Signature and Date)

201 AIR WARFARE (AW) MISSION AREA (CONT'D)

201.5 SAFETY PRECAUTIONS

201.5.1 What safety precautions must be observed when firing AW weapons:

- a. Salvo alarm [ref. b ch. 4, p. 4-27]
- b. Toxic gas dampers [ref. b, ch. 4, pp. 4-26, 4-27; ref. e, ch. 2, p. 2-212]
- c. Dud/misfire/restrained firing [ref. f, ch. 3, pp. 3C-49, 3C-50]

(Signature and Date)

202 SURFACE WARFARE (SUW) MISSION AREA

References:

- [a] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
 - [b] NAVSEA SW394-AF-SUP-010/VLS, Vertical Launching System
 - [c] Joint Maritime Communications Information System (JMCIS) Technical Manual
 - [d] NAVSEA SW323-01-MMO-010/5, 54 Cal Gun Mount MK 45, Vol. 1
 - [e] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
 - [f] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
 - [g] NAVSEA SW271-C7-SOM-A10, Harpoon Weapons System AN/SWG-1A(V)
 - [h] NAVEDTRA 10106, Operations Specialist 2
-

202.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

- A. What is its function?
- B. Where is it located?
- C. What are the modes of operation or control?
- D. What is the effect on system operation if this component fails?
- E. What supporting input signals are required?
- F. What are the firing modes?

Questions

202.1.1 Discuss the following detection systems:

- | | |
|--|-------|
| a. APS 124 [ref. f, tab Q, p. Q-10] | A B D |
| b. ALQ 142 [ref. f, tab Q, p. Q-10] | A B D |
| c. SLQ-32 [ref. e, ch. 2, pp. 2-53 thru 2-65;
ref. f, tab G, pp. G-1 thru G-18] | A D E |
| d. SPY-1 [ref. e, ch. 1, pp. 1-9, 1-10] | A |
| e. SPS-67 [ref. e, ch. 2, pp. 2-42 thru 2-45; ref. f, tab D, p. D-1] | A C D |
| f. SPS-64 [ref. f, tab D, p. D-8] | A B |
| g. Identification Friend or Foe (IFF) [ref. e, ch. 2, pp. 2-49 thru 2-56] | A C D |
| h. SQQ-89 Sonar Suite [ref. e, ch. 2, p. 2-69] | A B C |

(Signature and Date)

202 SURFACE WARFARE (SUW) MISSION AREA (CONT'D)

Questions

202.1.2 Discuss the following direction systems:

- | | |
|---|-----------|
| a. MK 160 Gun Computing System (GCS) [ref. e, ch. 2, pp. 2-278 thru 2-281; ref. f, tab P, p. P-9] | A C D F |
| b. AEGIS Weapon system MK 7 [ref. f, tab P, p. P-4] | A C F |
| c. Harpoon Weapons System (HWS) [ref. e, ch. 2, pp. 2-270 thru 2-275] | A B C E F |
| d. MK 46 Optical Sighting System (OSS) [ref. f, tab P, pp. P-10, P-11] | A D |

(Signature and Date)

.3 Discuss the following delivery systems:

- | | |
|---|-------|
| a. Vertical Launching System (VLS) [ref. b, ch. 1, p. 1-7] | A D E |
| b. MK 45 (5"/54 caliber) [ref. f, tab P, pp. P-17 thru P-23] | A D E |
| c. MK 141 Canister Missile Launcher (CML) [ref. e, ch. 2, p. 2-274] | A B |

(Signature and Date)

.4 Discuss the following destruction devices:

- | | |
|---|-----|
| a. Harpoon [ref. e, ch. 2, p. 2-274] | A F |
| b. Standard Missile (SM) [ref. f, tab J, p. J-1] | A F |
| c. 5"/54 caliber projectile [ref. f, tab P, pp. P-24 thru P-27] | A F |

(Signature and Date)

202.2 PRINCIPLES OF OPERATION

202.2.1 State the steps of Surface Warfare (SUW) engagements using detection, direction, delivery, and destruction systems for the following:

- | | |
|--|--|
| a. Harpoon [ref. g, ch. 1, pp. 1-1 thru 1-5] | |
| 1. Bearing Only Launch (BOL) | |
| 2. Range and Bearing Launch (RBL) | |
| 3. Simultaneous Time on Target (STOT) | |
| 4. Designated Time on Target (DTOT) | |
| b. SM [ref. f, tab J, p. J-21] | |
| c. 5"/54 caliber guns [ref. d, chs. 1, 2; ref. f, tab P, pp. P-4 thru P-7] | |

(Signature and Date)

202 SURFACE WARFARE (SUW) MISSION AREA (CONT'D)

202.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. e, ch. 1]

A. What is the minimum/maximum range?

202.3.1 Harpoon [p. 1-27]

(Signature and Date)

.2 SM (surface) [p. 1-24]

(Signature and Date)

.3 5"/54 caliber gun mount [p. 1-29]

(Signature and Date)

202.4 SYSTEM INTERFACE

202.4.1 How does this SUW interface with the following:

- a. Navy Tactical Data System (NTDS) [ref. h, ch. 8, p. 8-1]
- b. Combat Information Center (CIC) [ref. h, ch. 6, p. 6-1]
- c. Rules of Engagement (ROE) [ref. a, ch. 4, p. 4-1]
- d. Emission Control (EMCON) [ref. h, ch. 2, p. 2-1]
- e. AEGIS Weapon system MK 7 [ref. e, ch. 2, p. 2-1]
- f. Joint Maritime Communications Information System (JMCIS) [ref. c]

(Signature and Date)

202.5 SAFETY PRECAUTIONS

202.5.1 What safety precautions must be observed when firing SUW weapons:

- a. Salvo alarm [ref. b, ch. 4, p. 4-27]
- b. Toxic gas dampers [ref. b, ch. 4, pp. 4-26, 4-27; ref. e, ch. 2, p. 2-212]
- c. Booster drop zone [ref. a, ch. 8, pp. 8-1 thru 8-8]
- d. Dud/misfire/restrained firing [ref. f, ch. 3, pp. 3C-49, 3C-50]

(Signature and Date)

203 UNDERSEA WARFARE (USW) MISSION AREA

References:

- [a] NAVSEA SE394-AD-MMA-040/(U) SQQ-89(V), AN/SQQ-89(V) Surface Antisubmarine Warfare Combat System
 - [b] Combat Systems Operational Sequencing System (CSOSS)
 - [c] NAVSEA SW395-AJ-MMO-010/MK 32, Surface Vessel Torpedo Tube MK 32
 - [d] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
 - [e] NAVSEA SW515-A5-MMM-010/(C) MK 46, Torpedo Mark 46
 - [f] NAVSEA SW394-AF-SUP-010/VLS, Vertical Launching System
 - [g] NAVSEA 0967-LP-490-1640, Sonar Communications Set AN/WQC-2A
 - [h] NAVSEA SE365-BA-MMM-010, Bathythermograph Set AN/BQH-7A
 - [i] NAVSEA SE394-CB-SOM-010, AN/UYQ-25B(V)1 SIMAS
 - [j] NAVSEA SE9165-AH-MMA-010, Sonar Dome Pressurization System
 - [k] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
 - [l] NAVSEA S6340-AA-MMA-010, OTTO Fuel II
 - [m] NAVSEA SW516-AA-MMM-010, MK 50 Technical Manual, Vol. 1
-

203.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

- A. What is its function?
- B. Where is it located?
- C. What is the fuel source?
- D. What are the modes of operation or control?
- E. What are the safety/protective devices for this component/component part?
- F. What are the probable indications if this component fails?
- G. What is the effect on system operation if this component fails?
- H. What supporting input signals are required?
- I. What are the firing modes?

Questions

203.1.1 Discuss the following detection systems:

- | | |
|---|-----------|
| a. SQR-19 (TACTAS) [ref. a, ch. 1, pp. 1-1 thru 1-37;
ref. b; ref. k, ch. 2, 2-93] | A B G H |
| b. SQQ-28 [ref. a, ch. 1, pp. 1-1 thru 1-37;
ref. b; ref. k, ch. 2, p. 2-117] | A B G H |
| c. SQS-53 [ref. a, ch. 1, pp. 1-1 thru 1-37;
ref. b; ref. k, ch. 1, p. 2-59] | A B D G H |

203 UNDERSEA WARFARE (USW) MISSION AREA (CONT'D)

Questions

- 203.1.1 d. Sonobuoys [ref. a, ch. 1, pp. 1-1 thru 1-37; ref. b] A D
e. LAMPS MK III helicopter [ref. a, ch. 1, pp. 1-1 thru 1-37;
ref. b; ref. d, ch. 7, pp. 7-38 thru 7-40] A D G

(Signature and Date)

- .2 Discuss the following direction systems:
- a. MK 116 [ref. a, ch. 1, pp. 1-1 thru 1-37] A B D G H
b. LAMPS MK III helicopter [ref. d, ch. 7, pp. 7-38 thru 7-40] A D G H

(Signature and Date)

- .3 Discuss the following delivery systems:
- a. MK 32 Surface Vessel Torpedo Tubes (SVTT) [ref. c, ch. 1, p. 1-1] A B D G H I
b. MK 41 Vertical Launching System (VLS) [ref. f, ch. 4, pp. 4-1, 4-2] A H
c. LAMPS MK III helicopter [ref. d, ch. 7, pp. 7-38 thru 7-40] A G H

(Signature and Date)

- .4 Discuss the following destruction systems:
- a. MK 46/MK 50 (torpedo) [ref. e, ch. 1, p. 1-1;
ref. m, ch.1 p. 1-1] A B C D E F G H I

(Signature and Date)

- .5 Discuss the following auxiliary components:
- a. WQC-2/2A (Gertrude) [ref. b; ref. g, ch. 1, p. 1-1;
ref. k, ch. 2, p. 2-70] A B D G
b. WQC-6 (probe alert) [ref. k, ch. 2, p. 2-70] A B
c. Expendable Bathythermograph (XBT) [ref. b;
ref. h, ch. 1, p. 1-4] A B G
d. Sonar dome [ref. b; ref. j, ch. 1, p. 1-9] A B F G

203 UNDERSEA WARFARE (USW) MISSION AREA (CONT'D)

Questions

- 203.1.5 e. Onboard Trainer (OBT) [ref. a, ch. 1, pp. 1-1 thru 1-37; ref. k, ch. 2, p. 2-72] A B D H
f. Sonar In-situ Mode Assessment System (SIMAS) [ref. b; ref. i, ch. 1, pp. 1-4, 1-5; ref. k, ch. 2, pp. 2-71, 2-72] A B G

(Signature and Date)

- .6 Discuss the systems that comprise the SQQ-89(V) sonar suite. A
[ref. a, ch. 1, pp. 1-1 thru 1-37]

(Signature and Date)

203.2 PRINCIPLES OF OPERATION

- 203.2.1 State the steps of Undersea Warfare (USW) engagements using detection, direction, delivery, and destruction systems for the following: [ref. d, ch. 7, pp. 7-1 thru 7-40]
- a. Helicopter
 - b. Ship
 - 1. SVTT
 - 2. Vertical Launch Anti-Submarine (VLA) rocket

(Signature and Date)

203.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the normal operating value?
- B. What are the allowable operating limits?

Questions

- 203.3.1 SQR-19 (TACTAS):
- a. Array length [ref. a, ch. 1, pp. 1-1 thru 1-6; ref. k, ch. 2, p. 2-93] A
 - b. Cable length [ref. a, ch.1, pp. 1-1 thru 1-6; ref. k, ch. 2, p. 2-93] A B
 - c. Deploy/retrieve speed [ref. d, ch. 7, p. 7-17] B
 - d. Towing restrictions [ref. d, ch. 7, p. 7-17] B

(Signature and Date)

203 UNDERSEA WARFARE (USW) MISSION AREA (CONT'D)

Questions

- 203.3.2 SQQ-28: [ref. a, ch. 1, pp. 1-1 thru 1-8]
a. Sonobuoys B
-
- (Signature and Date)
- .3 SQS-53: [ref. d, ch. 7, pp. 7-2, 7-16, 7-18; ref. k, ch. 2, p. 2-59]
a. Maximum effective active range B
-
- (Signature and Date)
- .4 MK 32 (SVTT): [ref. c, ch. 1, p. 1-8]
a. Firing pressure A B
b. Train angle A
-
- (Signature and Date)
- .5 MK 46/MK 50 torpedo: [ref. e, ch. 3, p. 3-1; ref. m, ch. 5, p. 5-1]
a. Range (maximum) B
-
- (Signature and Date)
- .6 VLA rocket: [ref. k, ch. 2, p. 2-297]
a. Range (minimum/maximum) B
-
- (Signature and Date)
- 203.4 SYSTEM INTERFACE
- 203.4.1 How does USW interface with the following:
- a. Command and Decision (C&D) [ref. k, ch. 2, p. 2-297]
 - b. Combat Information Center (CIC) [ref. k, ch. 2, p. 2-297]
 - c. Hawk link [ref. d, ch. 3, p. 3-1]
 - d. Engineering IAW Quiet Ship Bill [ref. d, ch. 7, p. 7-7]

203 UNDERSEA WARFARE (USW) MISSION AREA (CONT'D)

- 203.4.1 e. Emission Control (EMCON) [ref. k, ch. 2, p. 2-297]
- f. Rules of Engagement (ROE) [ref. d, ch. 4, p. 4-1]

(Signature and Date)

203.5 SAFETY PRECAUTIONS

- 203.5.1 What safety precautions must be observed in the event of an OTTO fuel II spill?
[ref. l, ch. 5, pp. V thru VII, pp. 5-1 thru 5-10]

(Signature and Date)

- .2 What safety precautions must be observed when firing USW weapons:
 - a. Salvo alarm [ref. f, ch. 4, p. 4-27]
 - b. Toxic gas dampers [ref. f, ch. 4, pp. 4-26, 4-27; ref. k, ch. 2, p. 2-212]
 - c. Booster drop zone [ref. a, ch. 8, pp. 8-1 thru 8-8]
 - d. Dud/misfire/restrained firing [ref. f, ch. 3, pp. 3C-49, 3C-50]

(Signature and Date)

204 STRIKE WARFARE (STW) MISSION AREA

References:

- [a] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
 - [b] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
 - [c] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
 - [d] NAVSEA SW394-AF-SUP-010/VLS, Vertical Launching System
 - [e] Joint Maritime Communications Information System (JMCIS) Technical Manual
 - [f] NAVSEA SW394-AF-MMO-030/VLS, Vertical Launcher System for Missiles, Canisters, and Launcher Support Equipment
-

204.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

- A. What is its function?
- B. Where is it located?
- C. What are the modes of operation or control?
- D. What are the safety/protective devices for this component/component part?
- E. What is the source of the control signals?
- F. What is the function of each position?

Questions

204.1.1 Discuss the following direction systems:

- | | | |
|----|---|-------------|
| a. | Digital Scene Matching Area Correlation (DSMAC)
[ref. b, ch. 1, p. 1-61] | A B E |
| b. | Terrain Contour Matching (TERCOM) [ref. b, ch. 1, p. 1-61] | A B E |
| c. | Tomahawk Weapon Control System (TWCS)
[ref. b, ch. 1, p. 1-55] | A B C D E F |
| d. | Global Positioning System (GPS) [ref. c, tab H, p. H-1] | A B E |

(Signature and Date)

.2 Discuss the following delivery systems: [ref. d, ch. 1, p. 1-7]

- | | | |
|----|---------------------------------------|-------|
| a. | Vertical Launching System (VLS) MK 41 | A C E |
|----|---------------------------------------|-------|

(Signature and Date)

204 STRIKE WARFARE (STW) MISSION AREA (CONT'D)

Questions

204.1.3 Discuss the following destruction systems: [ref. b, ch. 1, p. 1-61, ch. 2, p. 2-219]

- a. Tomahawk Land Attack Missile (TLAM)

A C

(Signature and Date)

204.2 PRINCIPLES OF OPERATION

204.2.1 State the steps of Strike Warfare (STW) engagements using direction, delivery, and destruction system to include the following:

- a. Tasking [ref. a, ch. 8, pp. 8-1 thru 8-8]
- b. Data Base Management (DBM) [ref. a, ch. 8, pp. 8-1 thru 8-8]
- c. Engagement Planner (EP) [ref. a, ch. 8, pp. 8-1 thru 8-8]
- d. First Preplanned Waypoint (FPPWP) [ref. a, ch. 8, pp. 8-1 thru 8-8]
- e. Waypoint [ref. b, ch. 1, p. 1-33]
- f. Time of Arrival (TOA) [ref. a, ch. 8, pp. 8-1 thru 8-8]
- g. Time on Top (TOT) [ref. a, ch. 8, pp. 8-1 thru 8-8]
- h. Time of Launch (TOL) [ref. a, ch. 8, pp. 8-1 thru 8-8]

(Signature and Date)

204.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. b, ch. 1, p. 1-27]

- A. What is the maximum range?
- B. Where are the parameters monitored?
- C. What is the rate of fire?

204.3.1 TLAM C

.2 TLAM D

(Signature and Date)

204 STRIKE WARFARE (STW) MISSION AREA (CONT'D)

204.4 SYSTEM INTERFACE

204.4.1 How does STW interface with the following:

- a. Command and Decision (C&D) doctrine [ref. c, tab N, p. N-1]
- b. Pre-processor control center [ref. b, ch. 2, p. 2-220]
- c. Joint Maritime Command Information System (JMCIS) [ref. e]
- d. Tactical Data Information Exchange System (TADIXS) [ref. b, ch. 2, p. 2-219]

(Signature and Date)

204.5 SAFETY PRECAUTIONS

204.5.1 Discuss the following safety precautions that apply to STW:

- a. Toxic gas dampers [ref. b, ch. 2, p. 2-228]
- b. Salvo alarms [ref. d, ch. 4, p. 4-27]
- c. Booster drop zone [ref. a, ch. 8, pp. 8-1 thru 8-8]
- d. Dud/misfire/restrained firing [ref. f, ch. 3, pp. 3C-49, 3C-50]

(Signature and Date)

205 POINT-DEFENSE/COUNTERMEASURE MISSION AREA

References:

- [a] NAVSEA SW300-BC-SAF-010, Clearing of Live Ammunition from Guns
 - [b] Combat Systems Operational Sequencing System (CSOSS)
 - [c] NAVSEA SW360-AB-MMO-010, 25mm M242 Automatic Gun
 - [d] NAVSEA SW393-A1-MMM-010/MK 36, Manual for MK 36 Launching System
 - [e] NAVSEA SE400-AE-SUP-010, Passive Counter-Measure System
 - [f] Ship's PCMS Key Plans and Drawings
 - [g] NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
 - [h] NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
 - [i] COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
-

205.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

- A. What is its function?
- B. Where is it located?
- C. What are the modes of operation or control?
- D. What is the effect on system operation if this component fails?
- E. What supporting input signals are required?
- F. What are the firing modes?

205.1.1 MK 15 phalanx (CIWS) [ref. g, tab K, pp. K-1 thru K-21]

Questions
A B C D E

(Signature and Date)

.2 25mm chain gun [ref. c, ch. 1, p. 1-1; ch. 3, p. 3-1]

A B

(Signature and Date)

.3 SLQ-32(V) [ref. g, tab G, p. G-1]

A B C D

(Signature and Date)

205 POINT-DEFENSE/COUNTERMEASURE MISSION AREA (CONT'D)

Questions

205.1.4 MK 36 Decoy Launching System (DLS) [ref. b;
ref. d, ch. 1, p. 1-1; ch. 2, p. 2-1] A B C D
a. Decoys [ref. d, ch. 1, p. 1-1] A F

(Signature and Date)

.5 Passive Countermeasure System (PCMS) [refs. e, f] A B

(Signature and Date)

.6 SLQ-25 (Nixie) [ref. b; ref. h, ch. 2, p. 2-313] A B C D

(Signature and Date)

.7 Small arms mounts [ref. b] A B F

(Signature and Date)

205.2 PRINCIPLES OF OPERATION – None to be discussed.

205.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions:

- A. What is the maximum range?
- B. Where are the parameters monitored?
- C. What is the rate of fire?
- D. What is the maximum capacity?

Questions

205.3.1 MK 15 phalanx (CIWS) [ref. g, tab K, pp. K-1 thru K-21] A B C
a. Drum D

(Signature and Date)

205 POINT-DEFENSE/COUNTERMEASURE MISSION AREA (CONT'D)

Questions

205.3.2 25mm chain gun [ref. c, ch. 1, p. 1-1; ch. 3, p. 3-1]

A C

(Signature and Date)

.3 MK 36 (DLS) [ref. d, ch. 1, p. 1-1]

B C D

(Signature and Date)

.4 SLQ-25 (cable length) [ref. h, ch. 2, p. 2-313]

B

(Signature and Date)

205.4 SYSTEM INTERFACE

205.4.1 How does the Point Defense/Countermeasure system interface with the following:

- a. Undersea Warfare (USW) [ref. h, ch. 2, p. 2-310]
- b. Air Warfare (AW) [ref. h, ch. 2, p. 2-243]
- c. Surface Warfare (SUW) [ref. i, ch. 8, p. 8-1]

(Signature and Date)

205.5 SAFETY PRECAUTIONS

205.5.1 What safety precautions must be observed when operating the following systems:

- a. Close-In Weapons System (CIWS) [ref. a, ch. 2, pp. 2-19 thru 2-22]
- b. MK 36 (DLS) [ref. d, ch. 2, p. 2-1]
- c. 25mm chain gun [ref. a, ch. 2, pp. 2-25 thru 2-27]
- d. Small arms mounts [ref. a, ch. 2, pp. 2-5 thru 2-8]

(Signature and Date)

300 INTRODUCTION TO WATCHSTATIONS

300.1 INTRODUCTION

The Watchstation section of your PQS is where you get a chance to demonstrate to your Qualifier that you can put the knowledge you have gained in the previous sections to use. It allows you to practice the tasks required for your watchstation and to handle abnormal conditions and emergencies. Before starting your assigned tasks, you must complete the prerequisites that pertain to the performance of that particular task. Satisfactory completion of all prerequisites is required prior to achievement of final watchstation qualification.

300.2 FORMAT

Each watchstation in this section contains:

- A FINAL QUALIFICATION PAGE, which is used to obtain the required signatures for approval and recording of Final Qualification.
- PREREQUISTES, which are items that must be certified completed before you can begin qualification for a particular watchstation. Prerequisites may include schools, watchstation qualifications from other PQS books, and fundamentals, systems, or watchstation qualifications from this book. Prior to signing off each prerequisite line item, the Qualifier must verify completion from existing records. Record the date of actual completion, not the sign-off date.
- WATCHSTATION Performance, which is the practical factors portion of your qualification. The performance is broken down as follows:

- Tasks (routine operating tasks that are performed frequently)
- Infrequent Tasks
- Abnormal Conditions
- Emergencies
- Training Watches

If there are multiple watchstations, a QUALIFICATION PROGRESS SUMMARY will appear at the end of the Standard.

300 INTRODUCTION TO WATCHSTATIONS (CONT'D)

300.3 OPERATING PROCEDURES

The PQS deliberately makes no attempt to specify the procedures to be used to complete a task or control or correct a casualty. The only proper sources of this information are the technical manuals, Engineering Operational Sequencing System (EOSS), Naval Air Training and Operating Procedures Standardization (NATOPS) or other policy-making documents prepared for a specific installation or a piece of equipment. Additionally, the level of accuracy required of a trainee may vary from school to school, ship to ship, and squadron to squadron based upon such factors as mission requirements. Thus, proficiency may be confirmed only through demonstrated performance at a level of competency sufficient to satisfy the Commanding Officer.

300.4 DISCUSSION ITEMS

Though actual performance of evolutions is always preferable to observation or discussion, some items listed in each watchstation may be too hazardous or time consuming to perform or simulate. Therefore, you may be required to discuss such items with your Qualifier.

300.5 NUMBERING

Each Final Qualification is assigned both a watchstation number and a NAVEDTRA Final Qualification number. The NAVEDTRA number is to be used for recording qualifications in service and training records.

300.6 HOW TO COMPLETE

After completing the required prerequisites applicable to a particular task, you may perform the task under the supervision of a qualified watchstander. If you satisfactorily perform the task and can explain each step, your Qualifier will sign you off for that task. After all line items have been completed, your Qualifier will verify Final Qualification by signing and dating the Final Qualification pages.

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS),
UNIT SPECIFIC FOR DDG 51 CLASS

NAME _____ RATE/RANK _____

This page is to be used as a record of satisfactory completion of designated sections of the Personnel Qualification Standard (PQS). Only specified supervisors may signify completion of applicable sections either by written or oral examination, or by observation of performance. The examination or checkout need not cover every item; however, a sufficient number should be covered to demonstrate the examinee's knowledge. Should supervisors *give away* their signatures, unnecessary difficulties can be expected in future routine operations.

This qualification section is to be kept in the individual's training jacket.



The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (NAVEDTRA 43901-9).

RECOMMENDED _____ DATE _____
Supervisor

RECOMMENDED _____ DATE _____
Division Officer

RECOMMENDED _____ DATE _____
Department Head

QUALIFIED _____ DATE _____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY _____ DATE _____

WATCHSTATION 301

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS

Estimated completion time: 12 months

301.1 PREREQUISITES

FOR OPTIMUM TRAINING EFFECTIVENESS, THE FOLLOWING PQS ITEMS SHOULD BE COMPLETED PRIOR TO STARTING YOUR ASSIGNED TASKS BUT MUST BE COMPLETED PRIOR TO FINAL WATCHSTATION QUALIFICATION.

301.1.1 PQS QUALIFICATIONS:

Enlisted Surface Warfare Specialist (ESWS), Common Core (NAVEDTRA 43901),
301 Final Qualification

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

101 Deck

Completed _____ 2% of Watchstation
(Qualifier and Date)

102 Operations

Completed _____ 2% of Watchstation
(Qualifier and Date)

103 Aviation Operations

Completed _____ 2% of Watchstation
(Qualifier and Date)

104 Engineering Watch Organization

Completed _____ 2% of Watchstation
(Qualifier and Date)

105 Air Conditioning and Refrigeration (AC&R)

Completed _____ 2% of Watchstation
(Qualifier and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

- 301.1.2 106 Bleed/Masker/Prairie Air
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 107 Vacuum, Collection, Holding, and Transfer (VCHT)
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 108 Compressed Air
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 109 Controllable Reversible Pitch Propeller (CRP)
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 110 Degaussing/Cathodic Protection
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 111 Electrical Distribution
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 112 Fuel Oil (F/O)
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 113 Gas Turbine Module (GTM)
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 114 Lube Oil (L/O)
Completed _____ 2% of Watchstation
(Qualifier and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

- 301.1.2 115 Main Reduction Gear (MRG) and Shafting
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 116 Pollution Abatement
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 117 Potable Water
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 118 Seawater Service System
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 119 Machinery Control System (MCS)/Data Multiplexing System (DMS)
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 120 Engineering Plant Operations
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 121 Steering
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 122 Communications
Completed _____ 2% of Watchstation
(Qualifier and Date)
- 123 AEGIS Weapons Systems
Completed _____ 2% of Watchstation
(Qualifier and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

301.1.3 MISSION AREAS FROM THIS PQS:

201 Air Warfare (AW)

Completed _____ 3% of Watchstation
(Qualifier and Date)

202 Surface Warfare (SUW)

Completed _____ 3% of Watchstation
(Qualifier and Date)

203 Undersea Warfare (USW)

Completed _____ 3% of Watchstation
(Qualifier and Date)

204 Strike Warfare (STW)

Completed _____ 3% of Watchstation
(Qualifier and Date)

205 Point Defense/Countermeasure

Completed _____ 3% of Watchstation
(Qualifier and Date)

301.2 OPERATION TASKS

301.2.1 Observe special sea and anchor detail from the bridge

(Signature and Date)

.2 Observe special sea and anchor detail from the forecastle

(Signature and Date)

.3 Observe a Connected Replenishment (CONREP) from a Replenishment at Sea (RAS)/Fueling at Sea (FAS) station

(Signature and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

301.2.4 Observe CONREP from the bridge

(Signature and Date)

.5 Observe man overboard from the following locations:

- a. Combat Information Center (CIC)
- b. Boat deck
- c. Forecastle
- d. Bridge

(Signature and Date)

.6 Observe anchoring evolution from the forecastle

(Signature and Date)

.7 Observe anchoring evolution from the bridge

(Signature and Date)

.8 Observe helicopter launch or recovery from the helicopter control tower

(Signature and Date)

.9 Observe and identify CIC watchstations and related equipment during Condition III or CIC scenario

(Signature and Date)

.10 Observe the correlation of Electronic Support (ES) data with radar video from Electronic Warfare (EW) module

(Signature and Date)

.11 Visually identify and explain bridge/pilot house watchstations and related equipment

(Signature and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

301.2.12 Visually identify and explain signal bridge watchstations and related equipment

(Signature and Date)

.13 Conduct a walk through of the main deck identifying all major equipment

(Signature and Date)

COMPLETED .2 AREA COMPRISES 26% OF WATCHSTATION.

301.3 ENGINEERING TASKS

301.3.1 Observe from Central Control Station (CCS) the starting and idle checks on a Gas Turbine Main (GTM)

(Signature and Date)

.2 Observe the starting and paralleling of Ship's Service Gas Turbine Generator (SSGTG) from the CCS

(Signature and Date)

.3 Conduct space walk-through of engineering watchstations and identify the major components in the space

(Signature and Date)

.4 Observe Engineering Casualty Control (ECC) drill set from CCS

(Signature and Date)

.5 Complete one full round with the Sounding and Security Watch

(Signature and Date)

COMPLETED .3 AREA COMPRISES 6% OF WATCHSTATION.

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

301.4 COMBAT SYSTEMS TASKS

301.4.1 Observe a 5-inch rammable round from the lower loading station to the breech

(Signature and Date)

.2 Visually identify all installed radar antennas

(Signature and Date)

.3 Observe MK 15 Close-In Weapons System (CIWS) upload

(Signature and Date)

.4 Observe an actual or simulated contact on active/passive sonar

(Signature and Date)

.5 Conduct a walk through and identify the following major warfare equipment:

- a. AW
- b. SUW
- c. USW
- d. STW
- e. Point-Defense/Countermeasure

(Signature and Date)

.6 Observe Overall Combat Systems Operability Test (OCSOT) from CIC

(Signature and Date)

301 ENLISTED SURFACE WARFARE SPECIALIST (ESWS), UNIT SPECIFIC FOR DDG 51 CLASS (CONT'D)

301.4.7 Observe the firing of an air slug from the torpedo tube

(Signature and Date)

COMPLETED .4 AREA COMPRISES 7% OF WATCHSTATION.

301.5 WATCHES – None.

301.6 EXAMINATIONS

301.6.1 EXAMINATIONS

Pass a written examination

(Signature and Date)

.2 EXAMINATIONS

Pass an oral examination board

(Signature and Date)

LIST OF REFERENCES

Combat Systems Operational Sequencing System (CSOSS)
COMNAVINST C9010.1, Fleet Replenishment Guide
COMNAVSURFLANT/PACINST 3540.22, Engineering Departmental Organization and Regulations Manual (EDORM)
COMNAVSURFLANTINST C3516.48/COMNAVSURFPACINST C3516.48, Combat Systems Doctrine
Daily Fuel and Water Report
DDG-XX Radio Communication Systems NOV 98 CD-ROM
Engineering Operational Sequencing System (EOSS)
Joint Maritime Communications Information System (JMCIS) Technical Manual
Link 16 Communications Planning User's Guide, Part III, Version 1
NAVAIR 01-260-HCD-75, Airborne Weapons/Stores Loading Manual
NAVEDTRA 10106, Operations Specialist 2
NAVEDTRA 12120, Quartermaster
NAVEDTRA 12413-A, Electronics Technician, Vol. 3, Communication Systems
NAVSEA 0967-LP-490-1640, Sonar Communications Set AN/WQC-2A
NAVSEA S6340-AA-MMA-010, OTTO Fuel II
NAVSEA S9008-AK-BIB-010, 7-Meter Rigid Inflatable Boat (RIB)
NAVSEA S9234-GA-GTP-010/DDG-51, Propulsion Plant Manual (PPM), Vol. 1
NAVSEA S9234-GA-GTP-030/DDG-51, Propulsion Plant Manual (PPM), Vol. 3
NAVSEA S9234-GA-GTP-040/DDG-51, Propulsion Plant Manual (PPM), Vol. 4
NAVSEA S9436-B1-MMA-010, Integrated Condition Assessment System (ICAS)
NAVSEA S9475-AF-OMI-010, Degaussing Manual
NAVSEA S9531-C1-MMO-010/2YG84, Reverse Osmosis Distilling Plant
NAVSEA S9583-A5-MMA-010/70786, Boat Handling and Stowage System
NAVSEA S9593-C4-MMM-020, Processor Plastics with Commercial Controller
NAVSEA S9633-AE-MMA-010, DDG-51 Class Impressed Current Cathodic Protection System
NAVSEA S9DDG-CB-CSM-020/(C), AEGIS Combat System Technical Operations Manual (CSTOM)
NAVSEA SE365-BA-MMM-010, Bathythermograph Set AN/BQH-7A
NAVSEA SE394-AD-MMA-040/(U) SQQ-89(V), AN/SQQ-89(V) Surface Antisubmarine Warfare Combat System
NAVSEA SE394-CB-SOM-010, AN/UYQ-25B(V)1 SIMAS
NAVSEA SE400-AE-SUP-010, Passive Counter-Measure System
NAVSEA SE9165-AH-MMA-010, Sonar Dome Pressurization System
NAVSEA SW271-AM-AEG-010/(C), AEGIS Combat System Capabilities and Limitations
NAVSEA SW271-C7-SOM-A10, Harpoon Weapons System AN/SWG-1A(V)
NAVSEA SW300-BC-SAF-010, Clearing of Live Ammunition from Guns
NAVSEA SW323-01-MMO-010/5' 54 Cal Gun Mount MK 45, Vol. 1
NAVSEA SW360-AB-MMO-010, 25mm M242 Automatic Gun
NAVSEA SW393-A1-MMM-010/MK 36, Manual for MK 36 Launching System
NAVSEA SW394-AF-MMO-030/VLS, Vertical Launcher System for Missiles, Canisters, and Launcher Support Equipment
NAVSEA SW394-AF-SUP-010/VLS, Vertical Launching System
NAVSEA SW395-AJ-MMO-010/MK 32, Surface Vessel Torpedo Tube MK 32
NAVSEA SW515-A5-MMM-010/(C) MK 46, Torpedo Mark 46

LIST OF REFERENCES (CONT'D)

NAVSEA SW516-AA-MMM-010, MK 50 Technical Manual, Vol. 1
NSTM S9086-T8-STM-010/CH-593, Pollution Control
NWP 42 (Rev. J), Naval Warfare Publication Helicopter Operating Procedures for Air-Capable Ships, FMFM 5-34
OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)
Raytheon Marine Company, Marine Pathfinder RADAR
Sewage Disposal Operating Sequencing System (SDOSS) Engineering Operational Sequencing System (EOSS)
Ship's Oil Spill Bill
Ship's PCMS Key Plans and Drawings

Personal Qualification Standard
Feedback Report

From _____ Date _____

Via _____ Date _____

Department Head

Activity _____

Mailing Address _____

DSN _____

PQS Title _____ NAVEDTRA _____

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Remarks/Recommendations (Use additional sheets if necessary):

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