Naval Education and Training Command
NAVEDTRA 43492-2F
May 2006

PERSONNEL QUALIFICATION STANDARD

FOR

SHIP'S CONTROL AND NAVIGATION

NAME (Rate/Rank)_____

DISTRIBUTION STATEMENT B: Distribution authorized to U.S. Government agencies only due to administrative/operational use on 1 May 2006. Other requests for this document must be referred to the Commanding Officer, Naval Personnel Development Command, N7, 9549 Bainbridge Ave., Norfolk, Virginia 23511-2518.

DESTRUCTION NOTICE: Destroy by any means that will prevent disclosure of contents or reconstruction of the document.

Unclassified technical documents bearing this distribution statement will be given the same physical protection prescribed in SECNAVINST 5720.42F for "For Official Use Only" material.

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.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS ---------- 5

INTRODUCTION ---------- 7

SUMMARY OF CHANGES ---------- 11

WATCHSTATION REQUALIFICATIONS ---------- 13

ACRONYMS ---------- 15

100 INTRODUCTION TO FUNDAMENTALS ---------- 17
101 Safety ---------- 19
102 Security ---------- 21
103 Watchstanding and Administration ---------- 23
104 Interior Communications ---------- 25
105 Lookout ---------- 29
106 Expert Lookout ---------- 37
107 Honors and Ceremonies ---------- 39
108 Aids to Navigation ---------- 41
109 Logs and Records ---------- 43
110 Weather Reporting and Observing ---------- 47
111 Nautical Charts and Publications ---------- 49
112 Navigation Rules ---------- 53
113 Piloting ---------- 57
114 Ship's Characteristics ---------- 61
115 Maneuvering Board ---------- 63
116 Bridge Equipment ---------- 65
117 Helm/Lee Helm ---------- 67
118 Sunrise/Sunset Moonrise/Moonset ---------- 71
119 Celestial Navigation ---------- 73
120 Sight Reduction ---------- 75
121 Electronic Navigation ---------- 77
122 Tides and Currents ---------- 79
123 Special Evolutions ---------- 81
124 Environmental Protective Measures Familiarization ---------- 83

200 INTRODUCTION TO SYSTEMS ---------- 87
201 Stadimeter ---------- 89
202 Marine Sextant ---------- 91
203 Magnetic Compass ---------- 93
204 Flux Gate Compass ---------- 97
205 AN/UQN-4/4A Sonar Sounding Set (Fathometer) ---------- 99
206 AN/SPA-25G Repeater/Indicator ---------- 103
207 Degaussing ---------- 107
208 Ship's Steering Control Console ---------- 109
209 Engine Order Telegraph (EOT) ---------- 111

TABLE OF CONTENTS (CONT'D)

210 Electrohydraulic Steering Gear (Aftersteering) ---------- 113
211 AN/WRN-6(V) Satellite Navigation Set ---------- 115
212 Voyage Management System (VMS) ---------- 119
213 Command Display and Control (COMDAC) ---------- 123

300 INTRODUCTION TO WATCHSTATIONS ---------- 127
301 Bridge Telephone Talker ---------- 129
302 Lookout ---------- 137
303 Expert Lookout (Condition I) ---------- 151
304 Lee Helmsman ---------- 159
305 Helmsman ---------- 169
306 Aftersteering Helmsman ---------- 183
307 Helm/Aftersteering Helm Safety Officer ---------- 193
308 Master Helmsman ---------- 203
309 Boatswain's Mate of the Watch (BMOW) ---------- 215
310 Bearing Taker ---------- 227
311 Bearing Book Recorder ---------- 237
312 Fathometer Operator ---------- 245
313 Voyage Management System (VMS) Operator ---------- 255
314 Command Display and Control (COMDAC) System Operator ---------- 273
315 Navigation Anchor Watch ---------- 309
316 Quartermaster of the Watch (QMOW) ---------- 319
317 Navigation Detail Plotter ---------- 341
318 Navigator/Assistant Navigator ---------- 353

QUALIFICATION PROGRESS SUMMARY ---------- 367

LIST OF REFERENCES ---------- 371

ACKNOWLEDGEMENTS

The Navy Personnel Development Center gratefully acknowledges the assistance of the following personnel in writing this PQS:

BMCM (SW)	Peter Smith	COMNAVSURFLANT
OSCM (SW)	Steven Hasselberger	COMNAVSURFLANT
QMCS (SW)	Jeffery Atkinson	COMNAVSURFLANT
Mr.	Robert Moser	COMFLTFORCOM
Ms.	Jene Nissen	COMFLTFORCOM
Ms.	Aileen Smith	COMFLTFORCOM

Center for Surface Combat Systems personnel who provided direct support for this PQS.

Mr.	Scott Russell	Production Analyst

The Model Manager for this PQS:

Center for Surface Combat Systems
5395 First St
Dahlgren, VA 22448-5200

DSN 234-1061

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 43492-2E.

APPLICABILITY

This PQS is applicable to Navigation/Bridge Watch Teams.

MODEL MANAGER

The Model Manager Command manages a specific PQS manual. This includes overseeing the process of monitoring and updating assigned PQS manuals from the standpoint of technical content and relevance within the community.

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.

INTRODUCTION (CONT'D)

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 Unit Coordinator's Guide.

CONTENTS

PQS is divided into three sections. The 100 Section (Fundamentals) contains the fundamental knowledge from technical manuals and other texts necessary to satisfactorily understand the watchstation/workstation duties. The 200 Section (Systems) 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.

NOTES

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 us of new systems and requirements, or of errors you find.

SUMMARY OF CHANGES

CHANGES TO FUNDAMENTALS, SYSTEMS, AND WATCHSTATIONS:

Fundamental Title	**Action**	**Comment**
Environmental Protective Measures Familiarization	Added	Per Marine Mammal Act

System Title	**Action**	**Comment**
None		

Watchstation Title	**Action**	**Comment**
Lookout	Modified	Renumbered

WATCHSTATION REQUALIFICATIONS

Due to changes in policies, systems, or procedures, personnel dealing with the subject matter of this PQS may be required to requalify IAW NAVEDTRA 43100-1G, Ch. 5, PQS Unit Coordinator's Guide.

The following watchstations regardless of qualifications achieved in previous versions, shall be completed.

302 Lookout

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 or anywhere else in the Standard, use the references listed on the line item containing the acronym or abbreviation in question.

BMOW	Boatswain's Mate of the Watch
BWS	Bridge Watch Station
CA	Collision Avoidance
COMDAC	Command, Display, and Control
COMDAC-INS	Command, Display, Control - Information Network System
COMSEC	Communication Security
CRT	Cathode Ray Tube
DCS	Data Collection System
DFMGC	Digital Flux Magnetic Gate Compass
DGPS	Digital Global Positioning Satellite
DNC	Digital Nautical Chart
EAP	Emergency Action Plan
ECDIS-N	Electronic Chart Display Information System - Navy
EER	Explosive Echo Ranging
EOT	Engine Order Telegraph
ESA	Endangered Species Act
EW	Electronic Warfare
FOUO	For Official Use Only
FWS	Fishing and Wildlife Service
GPS	Global Positioning Satellite
GUNEX	Gunnery Exercise
IALA	International Association Lighthouse Authority
IPDS	Improved Point Detection System
JOOD	Junior Officer of the Deck
LMT	Local Mean Time
LOP	Line of Position
MMPA	Marine Mammal Protection Act
MISSILEX	Missile Exercise
NAVSSI	Navigation Sensor System Interface
NFU	Nonfollowup Control
NIMA	National Imagery and Mapping Agency
NOFORN	No Foreign
NRS	Naval Reporting Structure
NTDS	Naval Tactical Data System
NWS	North Warning System
OOD	Officer of the Deck
OPAREA	Operating Area

ACRONYMS USED IN THIS PQS (CONT'D)

PDL	Pass Down Log
PDU	Power Drive Unit
PMAP	Protective Measures Assessment Protocol
PMP	Parallel Motion Protractor
POD	Plan of the Day
QMOW	Quartermaster of the Watch
RAID	Redundant Array Inexpensive Disks
RTS	Remote Terminal System/Remote Tracking Station
SINS	Ship's Inertial Navigation System
SRPUB	Sight Reduction Publication
TOD	Tactical Ocean Data
TORPEX	Torpedo Exercise
ULT	Unit Level Training
UNREP	Underway Replenishment
UPS	Uninterrupted Power Supply
VDU	VPF Database Update
VPF	Vector Product Format
VMS	Voyage Management System
XMIT OVLD	Transmit Overload
ZOI	Zone of Influence

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. 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 SAFETY FUNDAMENTALS

References:

[a] OPNAVINST 3500.39B, Operational Risk Management
[b] NAVSEA S0400-AD-URM-010/TUM, Tag-Out User's Manual
[c] OPNAVINST 5100.19D (Change-1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[d] Own Ship's Plans and Drawings

101.1 Discuss the concept of ORM. [ref. a]

_____
(Signature and Date)

.2 Explain the following as they apply to ORM: [ref. a]

a. Identifying hazards
b. Assessing hazards
c. Making risk decisions
d. Implementing controls
e. Supervising

_____
(Signature and Date)

.3 Explain your personal responsibilities for safety aboard ship. [ref. c, ch. A2]

_____
(Signature and Date)

.4 Discuss how the following affect shipboard safety: [ref. c, ch. C1]

a. Secure for sea
b. Skylarking
c. Wearing personal protective clothing

_____
(Signature and Date)

101 SAFETY FUNDAMENTALS (CONT'D)

101.5 Explain/discuss the following in terms of electrical safety:

a. The hazards of electricity [ref. c, ch. B7]
b. How electrical shock may be prevented when working with electronic equipment [ref. c, ch. B7]
c. The use of danger/caution tags [ref. b]
d. The necessity for observing radiation hazard zones [ref. c, ch. B9]
e. The procedure for removing a victim from energized equipment [ref. c, ch. C9]
f. The proper treatment for electrical shock [ref. c, ch. C9]
g. The reason for requiring electrical grade floor covering around electrical equipment [ref. c, ch. C9]
h. The operation for circuit breakers for all bridge equipment [ref. c, ch. D5]

_____
(Signature and Date)

.6 Identify the location of the nearest first aid boxes and stations. [ref. d]

_____
(Signature and Date)

.7 Discuss the hazards to personnel when operating in heavy weather. [ref. c, ch. C16]

_____
(Signature and Date)

102 SECURITY FUNDAMENTALS

References:

[a] SECNAVINST 5510.30A, Department of the Navy, Personnel Security Program
[b] SECNAVINST 5510.36 (CH-2), Department of the Navy (DON), Information Security Program (ISP) Regulation

---

102.1 What is the purpose of the Ship's Security Program? [ref. a, ch. 1]

_____
(Signature and Date)

.2 Discuss the following: [ref. a]

a. Access [app. A]
b. Clearance [app. A]
c. Compromise [app. A]
d. Declassification [app. A]
e. Markings [app. A]
f. Need to know [app. A]
g. Security violation app. A]
h. COMSEC [app. A]
i. NOFORN [ch. 12]
j. Custodian [app. A]
k. Downgrading [app. A]
l. Emergency action plan [ch. 2]

_____
(Signature and Date)

.3 Discuss the following security classification designations: [ref. a, ch. 6]

a. Top secret
b. Secret
c. Confidential
d. FOUO

_____
(Signature and Date)

.4 What are your personal responsibilities for safeguarding classified information? [ref. b, ch. 7]

_____
(Signature and Date)

102 SECURITY FUNDAMENTALS (CONT'D)

102.5 State your individual responsibilities in the event you discover a compromise or a suspected compromise. [ref. b, ch. 12]

_____
(Signature and Date)

.6 Who can authorize reproduction of classified material? [ref. a, ch. 2]

_____
(Signature and Date)

.7 Describe the requirements for handling classified material. [ref. b, ch. 7]

_____
(Signature and Date)

.8 Describe the accounting and control requirements for classified publications located on the bridge. [ref. b, ch. 7]

_____
[Signature and Date]

.9 Explain the following requirements for the destruction of classified material IAW ships EAP: [ref. b, ch. 10]

a. Methods
b. Destruction equipment (shredders)
c. Priorities of destruction
d. Deep water versus shallow water destruction
e. Destruction reporting

_____
(Signature and Date)

103 WATCHSTANDING AND ADMINISTRATION FUNDAMENTALS

References:

[a] OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)
[b] NAVEDTRA 14338, Quartermaster
[c] Watch Officer's Guide, 13th Edition
[d] COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual

---

103.1 Describe the duties of the following watchstanders:

a. Lookouts [ref. b, ch. 11]
b. Bearing taker [ref. d, ch. 2]
c. Bearing recorder [ref. d, ch. 2]
d. Navigation detail plotter [ref. d, ch. 2]
e. Deck log keeper [ref. e, ch. 2]
f. BMOW [ref. b, ch. 11]
g. QMOW [ref. b, ch. 11]
h. Restricted visibility lookout [ref. b, ch. 11]
i. Bridge surface status board keeper [ref. c, ch. 5]
j. Helmsman [ref. b, ch. 11]
k. Lee helm [ref. b, ch. 11]
l. OOD [ref. b, ch. 11]
m. JOOD [ref. b, ch. 11]
n. Navigator/assistant navigator [ref. d, ch. 2]
o. NAVSSI/ECDIS-N display operator [ref. d, ch. 2]
p. Messenger [ref. b, ch. 11]

_____
(Signature and Date)

.2 Discuss the importance of using standard phraseology when issuing/acknowledging orders and making reports. [ref. c, ch. 4]

_____
(Signature and Date)

.3 Discuss the rules that apply to all watchstanders when relieving the watch. [ref. a, ch. 15]

_____
(Signature and Date)

104 INTERIOR COMMUNICATIONS FUNDAMENTALS

References:

[a] NAVEDTRA 14232, Sound-Powered Telephone Talker's Training Manual
[b] NAVEDTRA 14120, IC Electrician, Vol. 1

104.1 What is a sound-powered telephone? [ref. a, ch. 1]

_____
(Signature and Date)

.2 State the rules for sound-powered telephone circuit discipline. [ref. a, ch. 2]

_____
(Signature and Date)

.3 State the three parts into which messages are divided. [ref. a, ch. 2]

_____
(Signature and Date)

.4 Explain the meaning of the following sound-powered telephone standard terms: [ref. a, ch. 2]

a. Aye aye
b. Affirmative
c. Negative
d. Say again
e. Silence on the line
f. Belay my last

_____
(Signature and Date)

.5 State the phonetic alphabet and numbers. [ref. a, ch. 1]

_____
(Signature and Date)

104.6 State the purpose of the following sound-powered telephone circuits, discussing information passed, and stations manning each circuit: [ref. b, ch. 5]

a. JA
b. JC
c. JL
d. JX
e. 1JS
f. 1JV
g. JW
h. X6J
i. 1JG
j. X1JV
k. X40J
l. JXL

_____
(Signature and Date)

.7 Define the following types of shipboard communication systems: [ref. b]

a. MC system [ch. 7]
b. General announcing system [ch. 7]
c. Dial telephone [ch. 6]
d. Call signal station [ch. 5]
e. IVCS/IVN [ch. 7]

_____
(Signature and Date)

.8 Explain the procedures for the following: [ref. a]

a. Securing from phone talking [ch. 2]
b. Storing sound-powered phones [ch. 3]

_____
(Signature and Date)

.9 Explain the procedures for temporarily leaving the sound-powered phone circuit. [ref. a, ch. 2]

_____
(Signature and Date)

104 INTERIOR COMMUNICATIONS FUNDAMENTALS (CONT'D)

104.10 Explain the duties of the control station. [ref. a, ch. 2]

_____
(Signature and Date)

.11 Explain the following as it applies to the 1MC: [ref. b, ch. 7]

a. Microphone
b. Cutout switches
c. Volume indicator meter
d. Busy lamp

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS

References:

[a] NAVEDTRA 12968-B, Lookout Training Handbook
[b] Subject Matter Expert
[c] COMDTINST M16672.2D, Navigation Rules
[d] Bluejackets' Manual, 22nd Edition
[e] OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)

105.1 Explain the importance of a lookout. [ref. a]

_____
(Signature and Date)

.2 Describe objects and sounds a lookout should report and when they should be reported. [ref. a]

_____
(Signature and Date)

.3 List some objects a lookout can detect but radar cannot. [ref. a]

_____
(Signature and Date)

.4 Describe/explain the following: [ref. a]

a. The sector each man is assigned to watch
b. The special responsibility of the after lookout concerning man overboard
c. When the restricted visibility lookouts are posted
d. The responsibilities of each man at restricted visibility lookout station
e. The sequence of a standard low visibility lookout report

_____
(Signature and Date)

.5 Explain the effects of dark adaptation on a lookout's vision. [ref. a]

_____
(Signature and Date)

.6 Explain offcenter vision and how it may be used to see objects at night. [ref. a]

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.7 Explain the most effective method of moving the eyes at night to detect objects. [ref. a]

_____
(Signature and Date)

.8 List the situations where binoculars are/are not more effective that the use of eyes alone. [ref. a]

_____
(Signature and Date)

.9 Explain how binoculars limit the field of vision. [ref. a]

_____
(Signature and Date)

.10 Explain how to focus binoculars. [ref. a]

_____
(Signature and Date)

.11 Explain how to determine your interpupillary distance. [ref. a]

_____
(Signature and Date)

.12 Explain the importance of always wearing binoculars around the neck. [ref. a]

_____
(Signature and Date)

.13 Explain why binoculars should not be dropped or banged against objects. [ref. a]

_____
(Signature and Date)

.14 Explain the correct procedure for cleaning binoculars. [ref. a]

_____
(Signature and Date)

.15 What is the lookout's technique of eye search called? [ref. a]

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.16 Explain how the lookout uses his eyes and binoculars for scanning. [ref. a]

_____
(Signature and Date)

.17 Discuss the way a lookout searches from the horizon to zenith overhead. [ref. a]

_____
(Signature and Date)

.18 Discuss the effects of temporary flash blindness. [ref. a]

_____
(Signature and Date)

.19 Explain the six parts of an initial report. [ref. a]

_____
(Signature and Date)

.20 Explain true bearing. [ref. a]

_____
(Signature and Date)

.21 Explain relative bearing. [ref. a]

_____
(Signature and Date)

.22 Explain how bearings are reported and pronounced in digits. [ref. a]

_____
(Signature and Date)

.23 Explain the following terms: [ref. a]

a. Dead ahead
b. Starboard bow
c. Starboard beam
d. Starboard quarter
e. Port bow
f. Port beam
g. Port quarter
h. Dead astern

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.24 Explain the following: [ref. a]

a. Position angle and the minimum and maximum position angles
b. How position angles are spoken
c. The difficulty in estimating ranges over water
d. Why and how a lookout should practice estimating ranges
e. How ranges are reported and spoken

_____
(Signature and Date)

.25 State the distance you can expect to see from your ship's post to the horizon on a clear day. [ref. a]

_____
(Signature and Date)

.26 Explain target angle. [ref. a]

_____
(Signature and Date)

.27 Define the following: [ref. a]

a. Hull up
b. Hull down
c. On the horizon

_____
(Signature and Date)

.28 Discuss why target angle is important. [ref. a]

_____
(Signature and Date)

.29 Explain how target angle may be figured at night by the appearance of a ship's lights. [ref. a]

_____
(Signature and Date)

.30 What are the responsibilities of all lookouts during a man overboard condition? [ref. a]

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.31 Describe the identifying characteristics of the following types of ships: [ref. a]

a. Combatants
b. Auxiliaries

_____
(Signature and Date)

.32 Describe the identifying characteristics of the following types of aircraft: [ref. a]

a. Propeller
b. Jet
c. Helo

_____
(Signature and Date)

.33 State the meaning of the following special signal flags: [ref. a]

a. Bravo
b. Foxtrot
c. Hotel
d. Oscar
e. Code Alfa/Alfa
f. Romeo
g. Five
h. Golf
i. India
j. Lima
k. Mike
l. November
m. Papa
n. Preparation
o. Quebec

_____
(Signature and Date)

.34 Discuss the use of the following items in the recovery of a man overboard: [ref. a]

a. Life ring/buoy
b. Smoke float
c. Strobe light
d. Search lights

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.35 Describe when the following man overboard recovery procedures are used: [ref. a]

a. Helicopter
b. Boat
c. Shipboard

_____
(Signature and Date)

.36 Identify the following methods of visual communication: [ref. d, ch. 21]

a. Flag hoist
b. Flashing light [directional, omnidirectional]
c. Nancy
d. Semaphore

_____
(Signature and Date)

.37 State the fog signal for the following vessels: [ref. c, Rule 35]

a. Power-driven vessel underway with way on
b. Power-driven vessel underway with no way on
c. Vessel not under command
d. Vessel restricted in ability to maneuver
e. Vessel constrained by draft
f. Sailing vessel
g. Fishing vessel
h. Vessel engaged in towing or pushing ahead
i. Vessel being towed if manned
j. Vessel at anchor (less than 100-meters)
k. Vessel at anchor (100-meters or larger)
l. Vessel aground
m. Pilot vessel

_____
(Signature and Date)

.38 Discuss the importance of location between a bell and gong in low visibility and how they are used. [ref. a]

_____
(Signature and Date)

.39 Discuss the types of sound signals generated by own-ship. [ref. a]

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.40 Define the following: [ref. a]

a. Prolonged blast
b. Short blast

_____
(Signature and Date)

.41 Discuss the location, color, range, and arc of visibility of the following shipboard navigation lights: [ref. c, Rules 21, 22]

a. After masthead
b. Forward masthead
c. Port running
d. Starboard running
e. Stern
f. Not under command
g. Restricted in ability to maneuver
h. Forward and aft anchor lights

_____
(Signature and Date)

.42 Define the following situations: [ref. c]

a. Meeting (head on) [Rule 14]
b. Crossing [Rule 15]
c. Overtaking [Rule 13]

_____
(Signature and Date)

.43 List the electronic systems that assist in contact detection identification. [ref. b]

_____
(Signature and Date)

.44 Describe how visual information is correlated with radar contact information in CIC. [ref. b]

_____
(Signature and Date)

105 LOOKOUT FUNDAMENTALS (CONT'D)

105.45 Discuss how visual contact information is accumulated in CIC and on the bridge. [ref. b]

_____
(Signature and Date)

.46 Discuss and describe the duties of the following CIC watchstations: [ref. e, ch. 4]

a. Status board keeper
b. Surface radar repeater operator
c. Navigation plotter

_____
(Signature and Date)

106 EXPERT LOOKOUT FUNDAMENTALS

References:

[a] Jane's Fighting Ships
[b] Jane's All the World's Aircraft

106.1 For the items listed, answer the following questions:

A. What are the visual characteristics of U.S. Navy vessels/aircraft?
B. What are the visual characteristics of foreign Navy vessels/aircraft?
C. What is the primary mission of this vessel/aircraft?
D. What is the primary threat to your ship posed by this vessel/aircraft?

		Questions
a.	Carrier [ref. a]	A B C D
b.	Cruiser [ref. a]	A B C D
c.	Destroyer [ref. a]	A B C D
d.	Frigate [ref. a]	A B C D
e.	Submarine [ref. a]	A B C D
f.	Fast patrol boat [ref. a]	A B C D
g.	Patrol/reconnaissance aircraft [ref. b]	A B C D
h.	Bomber aircraft [ref. b]	A B C D
i.	Fighter aircraft [ref. b]	A B C D
j.	Attack aircraft [ref. b]	A B C D
k.	Helicopter [ref. b]	A B C D

_____
(Signature and Date)

107 HONORS AND CEREMONIES FUNDAMENTALS

References:

[a] NTP-13B, Flag Pennants and Customs
[b] The Bluejackets' Manual, 22nd Edition
[c] Local Subject Matter Expert
[d] NAVEDTRA 14343, Boatswain's Mate

107.1 Discuss the passing honors rendered to personnel embarked in boats. [ref. d, ch. 1]

_____
(Signature and Date)

.2 Discuss rendering honors during official visits and calls, including the use and number of side boys required for each flag rank. [ref. d, ch. 1]

_____
(Signature and Date)

.3 Discuss honors during unofficial visits or calls. [ref. d, ch. 1]

_____
(Signature and Date)

.4 Discuss answering a dip of the ensign by another ship. [ref. a, ch. 3]

_____
(Signature and Date)

.5 Discuss identifying an officer's grade embarked in a boat. [ref. a, ch. 10]

_____
(Signature and Date)

.6 Discuss passing honors for ships/boats. [ref. b, ch. 1]

_____
(Signature and Date)

107 HONORS AND CEREMONIES FUNDAMENTALS (CONT'D)

107.7 State your watchstation actions taken upon arrival and departure of the Commanding Officer/Flag Officer on the bridge. [ref. c]

_____
(Signature and Date)

.8 State the procedures for shifting colors. [ref. b, ch. 1]

_____
(Signature and Date)

.9 State the procedures for holding colors in-port. [ref. b, ch. 1]

_____
(Signature and Date)

.10 State the procedures for flying the flag at half-mast. [ref. a, ch. 2]

_____
(Signature and Date)

.11 Describe the manner and the number of bells to be struck when line Officers/Flag Officers/high-ranking officials embark/debark. [ref. d, ch. 1]

_____
(Signature and Date)

108 AIDS TO NAVIGATION FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] Nautical Chart Symbols, Abbreviations, and Terms, Chart No. 1

108.1 Describe the following light characteristics and the type of buoys associated with each: [ref. a, ch. 4]

a. Fixed
b. Fixed-flashing
c. Flashing/group-flashing/quick-flashing
d. Occulting/group occulting
e. Alternating
f. Interrupted quick-flashing
g. Isophase
h. Morse code
i. Sector light

_____
(Signature and Date)

.2 Discuss the following terms as they apply to the visibility of lights: [ref. a, ch. 4]

a. Geographic range
b. Nominal range
c. Luminous range
d. Computed visibility
e. Computed range
f. Horizon distance

_____
(Signature and Date)

.3 Discuss the various types, shapes, and characteristics of structures used in piloting. [ref. a, ch. 4]

_____
(Signature and Date)

.4 Discuss the colors, shapes, characteristics, and uses of day beacons. [ref. a, ch. 4]

_____
(Signature and Date)

108 AIDS TO NAVIGATION FUNDAMENTALS (CONT'D)

108.5 Discuss the types and uses of ranges. [ref. a, ch. 4]

_____
(Signature and Date)

.6 Explain the following as applied in the IALA lateral region A and B buoy systems: [ref. a, ch. 4]

a. Color, shape, and light characteristics
b. The top mark characteristics
c. Cardinal buoy system

_____
(Signature and Date)

.7 Discuss how and where the following are used: [ref. b]

a. Safe watermark
b. Preferred channel buoy
c. Special marks
d. Isolated danger marks

_____
(Signature and Date)

109 LOGS AND RECORDS FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] OPNAVINST 3100.7B, Preparing, Maintaining, and Submitting the Ship's Deck Log
[c] COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual
[d] OPNAVINST 3530.3B, Navigation Workbook and Standard Bearing Book
[e] Own Ship's Degaussing Folder
[f] Dutton's Navigation and Piloting, 14th Edition

109.1 Discuss the following as applied to the ship's deck log:

a. Legal and historical importance [ref. a, ch. 11]
b. Information contained therein as defined by Article 421 of OPNAVINST 3120.32C and OPNAVINST 3100-10 [ref. b, encl. 1]
c. Circumstances under which a ship may be exempt from recording entries [ref. b, encl. 1]
d. Procedures for making corrections [ref. a, ch. 11]
e. Procedures for making a late entry [ref. b, encl. 1]

_____
(Signature and Date)

.2 Discuss the importance of information in the ship's position report. [ref. c, ch. 11]

_____
(Signature and Date)

.3 Explain the requirements for submission of the ship's position report. [ref. c, ch. 11]

_____
(Signature and Date)

.4 Discuss the following as each pertains to the magnetic compass record book, including how and which entries are to be made: [ref. a, ch. 2]

a. Date
b. Time
c. Latitude
d. Longitude
e. Gyrocompass

109 LOGS AND RECORDS FUNDAMENTALS (CONT'D)

109.4 f. True heading
g. Variation/deviation/gyrocompass error
h. Magnetic heading
i. Magnetic compasses
1. Standard
2. Steering
j. Degaussing ON/OFF
k. Required signatures
l. Repeater error

_____
(Signature and Date)

.5 Explain the steps of maintaining the navigator's workbook. [ref. c, ch. 4]

_____
(Signature and Date)

.6 Discuss authorized alternatives to the navigator's workbook. [ref. c, ch. 4]

_____
(Signature and Date)

.7 Explain the procedures for maintaining the standard bearing record book. [ref. d, encl. 2]

_____
(Signature and Date)

.8 Discuss the importance of the standard bearing record book as a legal record. [ref. c, ch. 4]

_____
(Signature and Date)

.9 Discuss the importance of the captain's night order book and the captain's standing orders. [ref. c, ch. 11]

_____
(Signature and Date)

.10 List the information found in the ship's degaussing folder. [ref. e, TOC]

_____
(Signature and Date)

109 LOGS AND RECORDS FUNDAMENTALS (CONT'D)

109.11 Define the following terms as applied to time and timepieces:

a. Zone time [ref. a, app. I]
b. Local mean time [ref. a, app. I]
c. Greenwich mean time [ref. a, app. I]
d. Time zone [ref. f, ch. 22]
e. Zone description [ref. f, ch. 22]
f. Standard time [ref. f, ch. 22]
g. Daylight saving time [ref. f, ch. 22]
h. Apparent time [ref. f, ch. 22]

_____
(Signature and Date)

.12 Define the following: [ref. a]

a. Chronometer [app. I]
b. Chronometer error [ch. 5]
c. Chronometer rate [ch. 5]
d. Time signals [ch. 5]

_____
(Signature and Date)

.13 Explain what information is required in the navigational timepiece rate book. [ref. a, ch. 5]

_____
(Signature and Date)

.14 Explain the importance of having accurate daily rate recorded in the chronometer log. [ref. a, ch. 5]

_____
(Signature and Date)

110 WEATHER REPORTING AND OBSERVING FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] American Practical Navigator, Bowditch, Pub. 9
[c] NAVOCEANCOMINST 3144.1D, Manual for Ship's Surface Weather Observation

110.1 Define the following terms as applied to weather/weather reporting:

a. Humidity [ref. a, app. I]
b. Atmosphere [ref. a, app. I]
c. Fahrenheit temperature scale [ref. a, app. I]
d. Celsius scale [ref. a, app. I]
e. Warm front/cold front [ref. a, ch. 14]
f. Dew point [ref. a, app. I]
g. Beaufort scale [ref. c, ch. 2]

_____
(Signature and Date)

.2 Explain the functions of the following weather instruments: [ref. a, ch. 10]

a. Psychrometer (sling/electrical)
b. Anemometer
c. Aneroid barometer
d. Hand-held anemometer

_____
(Signature and Date)

.3 Describe the physical characteristics and heights of the following clouds: [ref. a, ch. 10; ref. c, ch. 4]

a. Cirrus
b. Cirrocumulus
c. Cirrostratus
d. Altocumulus
e. Altostratus
f. Stratocumulus
g. Nimbostratus
h. Cumulus

110.3 i. Cumulonimbus
j. Stratus

_____
(Signature and Date)

.4 Discuss the following terms with regard to tropical cyclones:

a. Laws of storms [ref. a, ch. 9]
b. Bearing of center [ref. a, ch. 9]
c. Dangerous/navigable semicircle [ref. a, ch. 9]
d. Distance to center [ref. a, ch. 9]
e. Maneuvering [ref. a, ch. 9]
f. Buys-Ballot's law [ref. b, ch. 39]

_____
(Signature and Date)

.5 Define the following properties of waves: [ref. c, ch. 11]

a. Wave height
b. Period
c. Frequency
d. Wave length

_____
(Signature and Date)

.6 Discuss wave observation. [ref. c, ch. 11]

_____
(Signature and Date)

.7 What information is contained in the surface weather observation form: [ref. c, ch. 2]

a. SYNOPTIC code part II section 0
b. SYNOPTIC code part II section 1
c. SYNOPTIC code part II section 2

_____
(Signature and Date)

111 NAUTICAL CHARTS AND PUBLICATIONS FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] Dutton's Navigation and Piloting, 14th Edition
[c] Nautical Chart Symbols, Abbreviations, and Terms, Chart No. 1
[d] Pacific/Atlantic Fleet Port Directories
[e] Local Subject Matter Expert

111.1 Describe the U.S. nautical chart numbering system. [ref. a, ch. 1]

_____
(Signature and Date)

.2 Discuss the following chart projections: [ref. a, ch. 1]

a. Mercator
b. Gnomonic

_____
(Signature and Date)

.3 Discuss the following items on a nautical chart: [ref. a, chs. 1, 2; ref. b, ch. 5]

a. Scale
b. Edition, date, and revision number
c. Datum reference (vertical and horizontal)
d. Title
e. Compass rose
f. Variation and annual change
g. Type of projection
h. Legend
i. Chart correction annotation

_____
(Signature and Date)

.4 Discuss the symbols and abbreviations used on U.S. nautical charts to represent the following: [ref. c]

a. Chart number, title, and margin notes [sec. A]
b. Positions, distances, directions, and compass [sec. B]
c. Natural features [sec. C]
d. Cultural features [sec. D]
e. Landmarks [sec. E]

111.4 f. Ports [sec. F]
g. Tides and currents [sec. H]
h. Depths [sec. I]
i. Nature of the seabed [sec. J]
j. Rocks, wrecks, and obstructions [sec. K]
k. Offshore installations [sec. L]
l. Tracks and routes [sec. M]
m. Areas and limits [sec. N]
n. Lights [sec. P]
o. Buoys and beacons [sec. Q]
p. Fog signals [sec. R]
q. Radar, radio, and electronic position-fixing systems [sec. S]

_____
(Signature and Date)

.5 Discuss the information found on pilot charts/atlas. [ref. a, ch. 3]

_____
(Signature and Date)

.6 Discuss the nautical chart information contained in the following: [ref. b, ch. 6]

a. HYDROLANT/HYDROPAC
b. NAVAREAS
c. Safety broadcasts
d. Notice to mariners
e. Coast Guard district local notice to mariners

_____
(Signature and Date)

.7 Discuss the information in the following publications:

a. Coast pilots [ref. a, ch. 3]
b. List of lights/light lists [ref. a, ch. 3]
c. Sailing directions en route and planning guide [ref. a, ch. 3]
d. Fleet guides [ref. a, ch. 3]
e. World port index [ref. a, ch. 3]
f. Catalog of Nautical Charts and Publications [ref. a, ch. 3]
g. Chart No. 1 [ref. c, Introduction]
h. Port directories [ref. d]

_____
(Signature and Date)

111 NAUTICAL CHARTS AND PUBLICATIONS FUNDAMENTALS (CONT'D)

111.8 Describe requisitioning nautical charts and publications. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.9 Explain the function of and the information contained in the chart/publication correction card. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.10 Discuss the procedure for maintaining the chart/publication correction card. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.11 Discuss the procedure for correcting nautical charts and publications. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.12 Discuss the procedures for recommending corrections/changes to NIMA for updating charts and/or publications. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.13 State the effect of red/blue lights on colors of nautical charts. [ref. a, ch. 1; ref. b, ch. 1]

_____
(Signature and Date)

.14 Discuss the use of plotting sheets. [ref. b, ch. 25]

_____
(Signature and Date)

.15 Discuss the use of port visit after action reports. [ref. e]

_____
(Signature and Date)

112 NAVIGATION RULES FUNDAMENTALS

References:

[a] COMDTINST M16672.2D, Navigation Rules

112.1 Define the following terms:

a. Vessel [Rule 3]
b. Power-driven vessel [Rule 3]
c. Sailing vessel [Rule 3]
d. Seaplane [Rule 3]
e. Underway [Rule 3]
f. U.S. inland waters [Rule 3]
g. Restricted visibility [Rule 3]
h. Safe speed [Rule 6]
i. Risk of collision [Rule 7]
j. Distress signals [Rule 37]
k. Give-way vessel [Rule 16]
l. Stand-on vessel [Rule 17]
m. Signals of intent [Rule 34]
n. Signals of agreement [Rule 34]
o. Meeting situation [Rule 14]
p. Crossing situation [Rule 15]
q. Overtaking situation [Rule 13]
r. Bridge-to-Bridge Radiotelephone Act (Public Law 92-63) [ch. 8]
s. Short blast [Rule 32]
t. Prolonged blast [Rule 32]
u. Vessel constrained by draft [Rule 3]
v. Vessel restricted in ability to maneuver [Rule 3]
w. Not under command [Rule 3]
x. Vessels engaged in fishing [Rule 3]
y. Vessel aground [Rule 30]

_____
(Signature and Date)

.2 Define the arc of visibility, range of visibility, and color of the following lights:

a. Forward masthead [Rules 21, 22]
b. Aft masthead [Rules 21, 22]
c. Portside [Rules 21, 22]
d. Starboard side [Rules 21, 22]
e. Stern [Rules 21, 22]
f. All around lights [Rule 22]
g. Flashing light [Rule 21]

112 NAVIGATION RULES FUNDAMENTALS (CONT'D)

112.2 h. Special flashing light [Rules 21, 22]
i. Submarine flashing beacon [Rule 1]
j. Towing light [Rule 21]

_____
(Signature and Date)

.3 Describe the signals required during restricted visibility for: [Rule 35]

a. Power-driven vessel under way
   1. Way on
   2. No way on
b. Sailing vessel under way
c. Power driven vessel towing
d. Vessel constrained by draft
e. Vessel restricted in ability to maneuver
f. Vessel engaged in fishing
g. Vessel not under command
h. Vessel being towed
i. Vessel engaged in pilot duties
j. Vessel at anchor
   1. 100-meters or longer
   2. Less than 100-meters
k. Vessel aground

_____
(Signature and Date)

.4 Describe the optional signal that may be sounded by a vessel at anchor or aground to warn an approaching vessel of a possible collision. [Rule 35]

_____
(Signature and Date)

.5 Discuss the procedure to be followed when hearing a sound signal forward of your beam. [Rule 19]

_____
(Signature and Date)

.6 Describe a situation requiring one prolonged blast. [Rule 34]

_____
(Signature and Date)

112 NAVIGATION RULES FUNDAMENTALS (CONT'D)

112.7 Explain the following whistle signals used by a vessel in international waters: [Rule 34]

a. One short
b. Two short
c. Three short
d. Five or more short
e. Two prolonged, one short
f. Two prolonged, two short
g. One prolonged, one short, one prolonged, one short

_____
(Signature and Date)

.8 Explain the following whistle signals as used by a vessel in inland waters: [Rule 34]

a. Meeting situation
   1. One short
   2. Two short
b. Overtaking situation
   1. One short
   2. Two short
c. Crossing
   1. One short
   2. Two short
d. Three short
e. Five or more short

_____
(Signature and Date)

.9 Describe the situation in which a power-driven vessel's condition gives right-of-way over a sailing vessel. [Rule 18]

_____
(Signature and Date)

.10 Describe the color and arrangement of lights used in inland waters under the following conditions:

a. Power-driven vessel with tow alongside or pushing ahead [Rule 24]
b. Vessel of less than 50-meters in length at anchor [Rule 23]

_____
(Signature and Date)

112 NAVIGATION RULES FUNDAMENTALS (CONT'D)

112.11 Explain the color and arrangement of lights used in international waters during the following conditions:

a. Power-driven vessel more than 50-meters long, under way [Rule 23]
b. Power-driven vessel or towing vessel [with length of tow less than 200-meters] [Rule 24]
c. Power-driven vessel or towing vessel [with length of tow more than 200-meters] [Rule 24]
d. Power-driven vessel not under command [Rule 27]
e. Power-driven vessel engaged in laying or picking up submarine cable, surveying or operations, replenishment at sea and launching or recovering aircraft [Rule 27]
f. Power-driven pilot boat engaged in pilotage duty and under way [Rule 29]
g. Vessel at anchor or aground less than 50-meters in length [Rule 30]
h. Vessel of more than 50-meters but less than 100-meters in length at anchor aground [Rule 30]
i. Vessel of over 100-meters in length at anchor or aground [Rule 30]
j. Vessel engaged in fishing [Rule 26]
k. Vessel engaged in trawling [Rule 26]
l. Power-driven vessel engaged in minesweeping operations [Rule 27]
m. Sailing vessel under way [Rule 25]
n. Power-driven vessel of less than 50-meters in length under way [Rule 23]
o. Vessel constrained by draft [Rule 28]

_____
(Signature and Date)

.12 State the appropriate day shape used for the following:

a. Restricted maneuverability [Rule 27]
b. At anchor [Rule 30]
c. Aground [Rule 30]
d. Not under command [Rule 27]
e. Towing [Rule 24]
f. Fishing [Rule 26]
g. Sailing vessel under sail with power on [Rule 25]
h. Underwater operations [Rule 27]
i. Mine clearance vessel [Rule 27]
j. Dredging [Rule 27]

_____
(Signature and Date)

113 PILOTING FUNDAMENTALS

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] American Practical Navigator, Bowditch, Pub. 9
[c] NAVEDTRA 14338, Quartermaster
[d] Local Subject Matter Expert

113.1 Describe how the following devices are used:

a. Compass [ref. c, ch. 8]
b. Divider [ref. c, ch. 8]
c. Parallel ruler [ref. c, ch. 8]
d. PMP/drafting machine [ref. c, ch. 8]
e. Nautical slide rule [ref. c, ch. 8]
f. Three-arm protractor [ref. c, ch. 8]
g. One-arm protractor (Hoey) [ref. c, ch. 8]
h. Beam compass [ref. b, ch. 8]
i. Weems parallel plotter [ref. c, ch. 8]
j. Triangles [ref. a, ch. 7]
k. Wind computer [ref. d]

_____
(Signature and Date)

.2 Define the following terms:

a. Heading [ref. a, ch. 1]
b. Course [ref. b, Glossary]
c. Track [ref. b, Glossary]
d. Speed [ref. b, Glossary]
e. Dead reckoning [ref. c, app. I]
f. True bearing [ref. b, Glossary]
g. Terrestrial/natural range [ref. b, Glossary]
h. Range lights [ref. b, Glossary]
i. Bottom contour [ref. b, Glossary]
j. Line of position [ref. c, ch. 8]
k. Fix [ref. c, ch. 8]
l. Running fix [ref. b, ch. 17]
m. Estimated position [ref. b, Glossary]
n. Speed of advance [ref. a, ch. 12]
o. Speed made good [ref. a, ch. 12]
p. Set/drift [ref. a, ch. 12]
q. Course made good [ref. a, ch. 2]
r. Danger bearing [ref. c, ch. 12]
s. Danger circle/range [ref. b, ch. 8]

113.2

t. Danger sector [ref. c, ch. 12]
u. Swing circle [ref. a, ch. 2]
v. Drag circle [ref. a, ch. 2]
w. Drop bearing [ref. c, ch. 12]
x. Head bearing [ref. c, ch. 12]
y. Turn bearing/range [ref. c, ch. 12]
z. Slide bar [ref. c, app. I]
aa. Terrestrial sphere [ref. c, app. I]
ab. Meridians [ref. c, app. I]
ac. Parallels [ref. c, app. I]
ad. Great circle [ref. a, ch. 2]
ae. Small circle [ref. a, ch. 2]
af. North/South Poles [ref. a, ch. 2]
ag. Equator [ref. c, app. I]
ah. Greenwich meridian [ref. a, ch. 2]
ai. Degrees of arc [ref. c, app. I]
aj. Nautical mile [ref. c, app. I]
ak. Latitude [ref. c, app. I]
al. Longitude [ref. c, app. I]
am. Relative bearing [ref. a, ch. 11]
an. North/South Magnetic Poles [ref. a, ch. 3]
ao. Variation [ref. c, app. I]
ap. Deviation [ref. b, Glossary]
aq. Magnetic heading [ref. a, ch. 3]
ar. Sounding [ref. c, app. I]
as. Stadimeter range [ref. a, ch. 7]
at. Lead line [ref. a, ch. 7]
au. Sextant angles [ref. c, ch. 8]
av. Radar [ref. c, Glossary]
aw. Alidade [ref. c, ch. 2]
ax. Bearing circle [ref. c, app. I]

_____
(Signature and Date)

.3 Discuss the relationship between navigation and CIC. [ref. a, ch. 15]

_____
(Signature and Date)

.4 Define piloting. [ref. c, app. I]

_____
(Signature and Date)

113 PILOTING FUNDAMENTALS (CONT'D)

113.5 What is the angular separation between NAVAIDs for an optimum fix using three objects? [ref. a, ch. 11]

_____
(Signature and Date)

.6 Discuss the procedures for plotting relative bearings. [ref. a, ch. 7]

_____
(Signature and Date)

.7 List the six rules of dead reckoning. [ref. a, ch. 8]

_____
(Signature and Date)

.8 Discuss the proper order for taking visual bearings. [ref. c, ch. 8]

_____
(Signature and Date)

.9 Discuss the proper order for taking radar ranges. [ref. c, ch. 8]

_____
(Signature and Date)

.10 Discuss the procedures for reverse plotting. [ref. c, ch. 8]

_____
(Signature and Date)

114 SHIP'S CHARACTERISTICS FUNDAMENTALS

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] Ship's Tactical Characteristics Folder
[c] NAVEDTRA 14338, Quartermaster
[d] Own Ship's SORM

114.1 Define the following terms:

a. Pivot point [ref. c, ch. 11]
b. Turning circle [ref. c, ch. 11]
c. Advance [ref. c, ch. 11]
d. Transfer [ref. c, ch. 11]
e. Tactical diameter [ref. c, ch. 11]
f. Final diameter [ref. c, ch. 11]
g. Standard tactical diameter [ref. c, ch. 11]
h. Standard/full/hard rudder [ref. c, ch. 11]
i. Angle of the turn [ref. c, ch. 11]
j. Acceleration/deceleration tables [ref. a, ch. 13]

_____
(Signature and Date)

.2 Who is responsible for maintaining the ship's tactical characteristics folder? [ref. d]

_____
(Signature and Date)

.3 State the following characteristics of your ship: [ref. b]

a. Height of the bridge above the waterline
b. Distance to the visible horizon
c. Maximum navigational draft
d. Masthead height
e. Horizontal distance from hawse pipe to navigational radar antenna
f. Horizontal distance from hawse pipe to bridge wing pelorus
g. Length and beam
h. Distance from pelorus stand to centerline
i. Height of the signal bridge above the waterline

_____
(Signature and Date)

115 MANEUVERING BOARD FUNDAMENTALS

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] NAVPUB 217, Maneuvering Board
[c] American Practical Navigator, Bowditch, Pub. 9

115.1 Describe the following:

a. Time, speed, and distance logarithmic scales [ref. b]
b. Distance circles [ref. a, ch. 14]

_____
(Signature and Date)

.2 Define the following in terms of standard maneuvering board operations:

a. Vectors [ref. a, ch. 14]
b. Reference ship [ref. a, ch. 14]
c. Maneuvering ship [ref. a, ch. 14]
d. er vector [ref. a, ch. 14]
e. em vector [ref. a, ch. 14]
f. rm vector [ref. a, ch. 14]
g. ew vector [ref. a, ch. 14]
h. rw vector [ref. a, ch. 14]
i. Direction of relative movement [ref. a, ch. 14]
j. Closest-point-of-approach [ref. a, ch. 14]
k. True wind [ref. c, ch. 36]
l. Apparent wind [ref. c, ch. 36]
m. Relative wind [ref. a, ch. 14]
n. Desired wind [ref. b]
o. Relative movement line [ref. a, ch. 14]
p. Geographic plot [ref. a, ch. 14]
q. Relative plot [ref. a, ch. 14]

_____
(Signature and Date)

116 BRIDGE EQUIPMENT FUNDAMENTALS

References:

[a] Ship's Information Book (SIB) (Class Specific)
[b] OPNAVINST 5100.19D (Change-1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] NAVEDTRA 14338, Quartermaster
[d] Commanding Officer's Standing Orders
[e] NAVEDTRA 14067, Seaman
[f] American Practical Navigator, Bowditch, Pub. 9
[g] NSTM S9437-A8M-MM-010, IPDS Operator and Maintenance Manual
[h] Local Subject Matter Expert
[i] NAVSSI Technical Manual, Vol. 1, System Information

116.1 Discuss the purpose of the following bridge equipment:

a. Ship's alarms:
   1. General [ref. a]
   2. Chemical [ref. a]
   3. Collision [ref. a]
   4. Ship's control console [ref. c, ch. 11]
   5. Summary fire alarm [ref. a]
   6. Flight deck crash alarm [ref. a]
   7. Gyrocompass alarm [ref. a]
   8. Missile firing warning circuit alarm [ref. a]
   9. Ship's inertial navigation system alarm [ref. a]
   10. Weapons magazine alarms [ref. a]
   11. Steering casualty alarm [ref. a]
   12. Halon system alarm [ref. a]
b. Magnetic compass/digital flux gate [ref. c, ch. 2; ref. f, ch. 6]
c. Countermeasure washdown [ref. a]
d. Barometer [ref. c, ch. 10]
e. Psychrometer [ref. c, ch. 10]
f. Anemometer [ref. c, ch. 10]
g. Radar repeater [ref. c, ch. 12]
h. Gyrocompass repeaters [ref. c, ch. 2]
i. Shaft rpm indicators [ref. a]
j. Pitch indicators [ref. e, ch. 3]
k. Radio circuits/remote units [ref. a]
l. Windshield wiper/washer control [ref. a]
m. Heated window control [ref. a]

116 BRIDGE EQUIPMENT FUNDAMENTALS (CONT'D)

116.1

n. Radiac [ref. a]
o. Ship's mechanical and electrical switches [ref. a]
p. Ship's whistle and OOD remote switch [ref. a]
q. Automatic whistle timer [ref. a]
r. Navigational light panels [ref. c, ch. 11]
s. Clinometer [ref. a]
t. NTDS console [ref. g, ch. 6]
u. Portable steering control unit [ref. a]
v. Fathometer remote indicator [ref. a]
w. Degaussing remote indicator panel [ref. c, ch. 2]
x. CO_2 fire extinguishers [ref. a]
y. Voice tubes and call buzzers [ref. c, ch. 11]
z. Emergency destruction equipment [ref. a]
aa. Closed circuit television [ref. a]
ab. Electrical power distribution panels [ref. a]
ac. Ship's portable fog horn [ref. a]
ad. IPDS [ref. g, ch. 2]
ae. Shorting probe [ref. b, ch. C9]
af. NAVSSI/ECDIS-N BWS [ref. i]
ag. Commercial radar/commercial GPS [ref. h]
ah. Bridge-to-bridge radio [ref. a]
ai. General announcing/MC system [ref. c, ch. 11]
aj. Ship status boards [ref. d]
ak. Chart table [ref. c, ch. 2]

_____
(Signature and Date)

117 HELM/LEE HELM FUNDAMENTALS

References:

[a] NAVEDTRA 14067, Seaman
[b] NAVEDTRA 14338, Quartermaster
[c] Watch Officer's Guide, 13th Edition
[d] Bluejackets' Manual, 22nd Edition
[e] Ship's Information Book (SIB)
[f] American Practical Navigator, Bowditch, Pub. 9
[g] Local Subject Matter Expert
[h] NAVEDTRA 14343, Boatswain's Mate

117.1 Describe how the following equipment is used by the helmsman/lee helmsman:

a. Engine order telegraph [ref. a, ch. 1]
b. Autopilot [ref. e]
c. Rudder angle indicator [ref. a, ch. 2]
d. Gyrocompass repeater [ref. b, ch. 11]
e. Magnetic compass/digital flux gate [ref. b, ch. 2]
f. Helm [ref. a, ch. 2]
g. Ship's control console [ref. a, ch. 2]
h. Nonfollowup unit [ref. e]

_____
(Signature and Date)

.2 Define the following terms:

a. Rudder amidship [ref. a, ch. 1]
b. Meet her [ref. a, ch. 1]
c. Shift your rudder [ref. a, ch. 1]
d. Mind your helm [ref. a, ch. 1]
e. Steer nothing to the left/right of [ref. b, ch. 11]
f. Right/left ___ degrees rudder [ref. a, ch. 1]
g. Increase your rudder to right/left degrees [ref. a, ch. 1]
h. Ease your rudder to right/left degrees [ref. a, ch. 1]
i. Come right/left steer course [ref. b, ch. 1]
j. Steady as you go [ref. a, ch. 1]
k. Keep her so [ref. a, ch. 1]
l. Steady on [ref. b, ch. 11]
m. How is your rudder [ref. a, ch. 1]
n. Mark your head [ref. a, ch. 1]
o. All engines back/ahead [ref. a, ch. 1]
p. Port/starboard engine ahead/back [ref. a, ch. 1]
q. Indicate rpm/psi/feet of pitch [ref. a, ch. 1]

117 HELM/LEE HELM FUNDAMENTALS (CONT'D)

117.2 r. All back emergency [ref. c, ch. 8]
s. Set maneuvering combination [ref. c, ch. 8]
t. Steering course, checking course [ref. c, ch. 8]
u. Right/left full rudder [ref. b, ch. 11]
v. Right/left hard rudder [ref. b, ch. 11]
w. Right/left standard rudder [ref. b, ch. 11]
x. Train APU [ref. g]

_____
(Signature and Date)

.3 Define the duties of the helmsman aboard your ship during normal steaming. [ref. d, ch. 15]

_____
(Signature and Date)

.4 Define the duties of the lee helmsman aboard your ship during normal steaming. [ref. d, ch. 15]

_____
(Signature and Date)

.5 Discuss the importance of using standard phraseology when giving/acknowledging orders to and from the helm/lee helm and Conning Officer. [ref. c, ch. 8]

_____
(Signature and Date)

.6 Discuss the effects of the following on steering the ship:

a. Wind [ref. d, ch. 20]
b. Current [ref. d, ch. 20]
c. Going alongside vessel [ref. c, ch. 6]
d. Side force [ref. a, ch. 5]
e. Tensioning/detensioning spanwire during UNREP [ref. h, ch. 10]
f. Shallow water [ref. c, ch. 6]
g. Bank cushion/bank suction [ref. f, ch. 8]
h. Sail area [ref. c, ch. 6]
i. Astern propulsion [ref. f, ch. 8]
j. Loss of steerageway [ref. f, ch. 8]

_____
(Signature and Date)

117 HELM/LEE HELM FUNDAMENTALS (CONT'D)

117.7 Discuss procedures followed when a helm/lee helm order is not understood. [ref. a, ch. 2]

_____
(Signature and Date)

.8 Discuss the procedures for shifting steering units. [ref. e]

_____
(Signature and Date)

.9 Discuss the procedures for loss of steering. [ref. e]

_____
(Signature and Date)

.10 Discuss the procedures for steering by rudder angle order indicator. [ref. a, ch. 2]

_____
(Signature and Date)

.11 Discuss the procedures for an unanswered bell EOT. [ref. g]

_____
(Signature and Date)

.12 Discuss the procedures for loss of gyrocompass. [ref. e]

_____
(Signature and Date)

.13 Discuss the duties of the Helm Safety Officer. [ref. c, ch. 10]

_____
(Signature and Date)

.14 Discuss fin stabilizers and their effect on the ship's roll. [ref. g]

_____
(Signature and Date)

.15 Discuss the use of auxiliary propulsion unit. [ref. e]

_____
(Signature and Date)

.16 Discuss the use of bow thrusters. [ref. g]

_____
(Signature and Date)

118 SUNRISE/SUNSET MOONRISE/MOONSET FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] Nautical Almanac
[c] Local Subject Matter Expert

118.1 Explain the necessity for accurate computations of sunrise/sunset and moonrise/moonset. [ref. a, ch. 6]

_____
(Signature and Date)

.2 Discuss the following terms used in the Nautical Almanac for determining sunrise/sunset:

a. Tabulated latitude [ref. a, ch. 6]
b. Local mean time of tabulated latitude [ref. a, ch. 6]
c. Tabulated interval [ref. a, ch. 6]
d. Latitude difference [ref. c]
e. Correction table 1 [ref. a, ch. 6]
f. Corrected LMT [ref. c]
g. Difference of longitude [ref. b]
h. Zone time of sunrise/sunset [ref. c]

_____
(Signature and Date)

.3 Discuss the following terms used in determining moonrise/moonset:

a. LMT (preceding/following) [ref. b]
b. GMT [ref. c]
c. Zone time moonrise/moonset [ref. c]

_____
(Signature and Date)

119 CELESTIAL NAVIGATION FUNDAMENTALS

References:

[a] American Practical Navigator, Bowditch, Pub. 9

119.1 Define the following terms:

a. Celestial navigation [ch. 1]
b. Celestial sphere [ch. 15]
c. Celestial equator [ch. 15]
d. Declination [ch. 15]
e. Celestial meridian/hour angle [ch. 15]
f. Celestial horizon [ch. 15]
g. Hour circle [ch. 15]
h. Local hour angle [ch. 15]
i. Greenwich hour angle [ch. 15]
j. Sidereal hour angle [ch. 15]
k. Nadir [ch. 15]
l. Zenith [ch. 15]
m. Vertical circle [ch. 15]
n. Prime vertical circle [ch. 15]
o. First point of Aries [ch. 15]
p. Azimuth [ch. 2]
q. Meridian angle [ch. 15]
r. Celestial triangle [ch. 15]
s. Dip [ch. 20]
t. Refraction [ch. 13]
u. Parallax [ch. 26]
v. Polar distance/zenith distance [ch. 15]
w. Azimuth angle [ch. 15]
x. Precession [ch. 15]
y. Index correction [ch. 20]
z. Local apparent noon [ch. 18]
aa. Meridian passage [ch. 20]
ab. Right ascension [ch. 15]
ac. Semidiameter [ch. 21]
ad. Magnitude [ch. 15]
ae. Geographical position [ch. 15]
af. Circle of equal altitude [ch. 20]
ag. Total GHA [ch. 20]
ah. Apparent altitude [ch. 20]

_____
(Signature and Date)

119 CELESTIAL NAVIGATION FUNDAMENTALS (CONT'D)

119.2 Describe/explain the following as applied to celestial navigation:

a. Time as part of celestial navigation [ch. 15]
b. The time-arc equivalence [ch. 15]
c. The time diagram [ch. 15]
d. The horizon system of coordinates [ch. 15]
e. The relationship between the celestial and the navigational triangle [ch. 15]
f. The LOP [ch. 1]
g. How lines of positions are advanced and retarded [ch. 8]
h. The means by which celestial bodies can be identified [ch. 15]
i. The consideration for selecting stars for observation: [ch. 15]
    1. Altitude
    2. Azimuth
    3. Magnitude

_____
(Signature and Date)

120 SIGHT REDUCTION FUNDAMENTALS

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] American Practical Navigator, Bowditch, Pub. 9
[c] NAVEDTRA 14338, Quartermaster

120.1 Explain the function of the following: [ref. b]

a. Sight reduction tables SRPUB 229 and SRPUB 249 [ch. 20]
b. Nautical Almanac [ch. 19]
c. Air Almanac [ch. 19]

_____
(Signature and Date)

.2 Explain how to obtain the following values:

a. Height of observation [ref. a, ch. 26]
b. Total Greenwich hour angle [ref. c, ch. 6]
c. Local hour angle [ref. c, ch. 6]
d. True declination [ref. c, ch. 6]
e. Assumed latitude [ref. a, ch. 24]
f. Height computed [ref. a, ch. 24]
g. Intercept [ref. a, ch. 19]
h. True azimuth [ref. a, ch. 24]

_____
(Signature and Date)

.3 Explain the use of tables 22 and 23 in the American Practical Navigator. [ref. c, ch. 17]

_____
(Signature and Date)

.4 Explain the use of the Polaris tables. [ref. c, ch. 9]

_____
(Signature and Date)

121 ELECTRONIC NAVIGATION FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] American Practical Navigator, Bowditch, Pub. 9

121.1 Discuss the principles of operation for a basic radar system including the following components: [ref. a, ch. 8]

a. Transmitter
b. Modulator
c. Antenna
d. Receiver
e. Indicator

_____
(Signature and Date)

.2 Discuss the advantages of radar navigation. [ref. a, ch. 8]

_____
(Signature and Date)

.3 Discuss the disadvantages of radar navigation. [ref. a, ch. 8]

_____
(Signature and Date)

.4 Explain the theory of operation for the GPS. [ref. a, ch. 8]

_____
(Signature and Date)

.5 Discuss the accuracy and reliability of the GPS. [ref. a, ch. 8]

_____
(Signature and Date)

.6 Discuss the advantages of GPS. [ref. a, ch. 8]

_____
(Signature and Date)

121 ELECTRONIC NAVIGATION FUNDAMENTALS (CONT'D)

121.7 Discuss the types of installed GPS receivers. [ref. a, ch. 8]

_____
(Signature and Date)

.8 Discuss the importance of using the correct datum. [ref. b, ch. 2]

_____
(Signature and Date)

.9 Discuss the difference between GPS and DGPS. [ref. b, ch. 10]

_____
(Signature and Date)

.10 Discuss the theory of operation for the SINS to include the following: [ref. a, ch. 8]

a. Gyroscopes
b. Accelerometers
c. Computer/processor

_____
(Signature and Date)

.11 Discuss the long term performance accuracy of the SINS. [ref. a, ch. 8]

_____
(Signature and Date)

122 TIDES AND CURRENTS FUNDAMENTALS

References:

[a] NAVEDTRA 14338, Quartermaster
[b] Dutton's Navigation and Piloting, 14th Edition
[c] Local Subject Matter Expert
[d] Tidal Currents Tables
[e] Tide Tables

122.1 Define the following terms as they apply to tides: [ref. b, ch. 9]

a. High water
b. Low water
c. Stand
d. Tides
e. Range
f. Datum plane
g. Charted depth
h. Mean tide level
i. Spring tide
j. Neap tide
k. Lower low water
l. Mean high water
m. Diurnal
n. Semidiurnal

_____
(Signature and Date)

.2 Define the following terms as they apply to currents:

a. Rotary currents [ref. b, ch. 10]
b. Tidal currents [ref. b, ch. 10]
c. Ocean currents [ref. b, ch. 10]
d. Flood currents [ref. b, ch. 10]
e. Ebb currents [ref. b, ch. 10]
f. Slack water [ref. b, ch. 10]
g. Set and drift [ref. a, ch. 11]

_____
(Signature and Date)

122 TIDES AND CURRENTS FUNDAMENTALS (CONT'D)

122.3 Explain the procedures used in determining the state of the tides, using tide tables. [ref. b, ch. 9]

_____
(Signature and Date)

.4 Explain the procedures used in determining currents, using tidal current tables. [ref. b, ch. 10; refs. d, e]

_____
(Signature and Date)

.5 Explain the reasons for computing tides and currents. [ref. b, chs. 9, 10]

_____
(Signature and Date)

.6 Explain how reference tide level affects charted soundings. [ref. b, ch. 9]

_____
(Signature and Date)

.7 Explain the graphing method of tides using the one-quarter, one-tenth rule. [ref. a, ch. 7]

_____
(Signature and Date)

.8 Explain the graphing of currents. [ref. a, ch. 7]

_____
(Signature and Date)

.9 Discuss how tides and currents are computed for daylight savings time. [ref. b, ch. 10]

_____
(Signature and Date)

.10 Discuss the advantages and disadvantages of using tides and currents computing software. [ref. c]

_____
(Signature and Date)

123 SPECIAL EVOLUTIONS FUNDAMENTALS

References:

[a] FXP-4, Mobility, Logistics, Fleet Support Operations, Noncombat Operations, and Explosive Ordnance Disposal Exercises
[b] Commanding Officer's Standing Orders
[c] Own Ship's Degaussing Folder
[d] COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual
[e] Dutton's Navigation and Piloting, 14th Edition
[f] NAVEDTRA 14338, Quartermaster

123.1 Discuss the following evolutions and duties of the navigation team: [ref. b]

a. Special sea and anchor detail
b. Anchor detail
c. Replenishment
d. Condition I
e. Condition I-A (amphibious)
f. NSFS
g. Missile launch

_____
(Signature and Date)

.2 Discuss the importance of running a degaussing range. [refs. b, c; ref. f, ch. 2]

_____
(Signature and Date)

.3 Discuss the swept channel navigation exercise. [ref. a, ch. 4]

_____
(Signature and Date)

.4 Discuss precision anchorage. [ref. a, ch. 4; ref. e, ch. 13]

_____
(Signature and Date)

.5 Discuss low visibility exercise. [ref. a, ch. 4]

_____
(Signature and Date)

123 SPECIAL EVOLUTIONS FUNDAMENTALS (CONT'D)

123.6 Discuss loss of gyro exercise. [ref. a, ch. 4; ref. f, ch. 8]

_____
(Signature and Date)

.7 Discuss gyro piloting exercise. [ref. a, ch. 4; ref. f, ch. 8]

_____
(Signature and Date)

.8 Discuss navigating in the EW environment exercise. [ref. a, ch. 4; ref. f, ch. 6]

_____
(Signature and Date)

.9 Discuss open ocean navigation exercise. [ref. a, ch. 4; ref. d; ref. f, ch. 6]

_____
(Signature and Date)

124 ENVIRONMENTAL PROTECTIVE MEASURES FAMILIARIZATION FUNDAMENTALS

References:

[a] NAVEDTRA 12968-C, Lookout Training Handbook
[b] OPNAVINST 3100.6H, Special Incident Reporting (OPREP-3 PINNACLE, OPREP-3 NAVY BLUE, AND OPREP-3 NAVY UNIT SITREP) Procedures
[c] Environmental Information Management System Protective Measures Assessment Protocol, RR 271438Z MAR 06 SUBJ/Protective Measures Assessment Protocol (PMAP) Software

---

124.1 Describe Navy/Command responsibility for environmental protection. (ref a, ch 13, ref c)

_____
(Signature and Date)

.2 Discuss the Federal laws that protect marine mammals and sea turtles. (ref a, ch 13)

a. Marine Mammal Protection Act (MMPA)
b. Endangered Species Act (ESA)

_____
(Signature and Date)

.3 Describe the following types of animals and where they are typically found. (ref a, ch 13).

a. Sea Turtles
b. Cetaceans
    1. Right Whales
    2. Blue Whales
    3. Beaked Whales
    4. Fin Whales
    5. Gray Whales
    6. Humpback Whales
    7. Minke Whales
    8. Pilot Whales
    9. Sei Whales
    10. Sperm Whales
    11. Killer Whales
    12. Dolphins and Porpoises

124 ENVIRONMENTAL PROTECTIVE MEASURES FAMILIARIZATION FUNDAMENTALS (CONT'D)

124.3 c. Manatees
d. Pinnipeds
e. Sea otters

_____
(Signature and Date)

.4 Discuss the following parts of a marine mammal and how each can be useful in evaluating the danger of an interaction with the vessel. (ref a, ch 13)

a. Dorsal fin
b. Fluke
c. Blow hole

_____
(Signature and Date)

.5 Discuss the following marine mammal behaviors and other listed clues to marine mammal or sea turtle presence. (ref a, ch 13).

a. Diving
b. Logging
c. Spyhopping
d. Breaching
e. Flipper/Fluke Slapping
f. Skimfeeding
g. Porpoising

_____
(Signature and Date)

.6 Discuss the general Navy requirements for reporting the following interactions with marine mammals and where more detail on these requirements can be found. (ref b)

a. Vessel Strikes
b. Dead or Injured Animals

_____
(Signature and Date)

124 ENVIRONMENTAL PROTECTIVE MEASURES FAMILIARIZATION FUNDAMENTALS (CONT'D)

124.7 Define the following terms and mandatory ship requirements when conducting training and operations that may be hazardous to marine mammals and sea turtles. (ref c)

a. Protective Measures Assessment Protocol (PMAP)
b. PMAP Briefs
c. PMAP reports
d. Avoidance
e. CNO Designated exercise requiring PMAP

1. Surface to Surface GUNEX
2. Surface to Air GUNEX
3. Air to Surface GUNEX
4. TORPEX
5. Small Arms Training
6. Surface to Air MIsslex
7. Air to Air MISSLEX
8. Air to Surface MISSLEX
9. Practice Bombing (explosive)
10. Practice Bombing (non-explosive)
11. Mine Countermeasures (Mechanical Mine Avoidance/ Mine Sweeping)
12. Mine Countermeasures (Acoustic Mine Avoidance/Mine Sweeping)
13. Mine Countermeasures (explosive)
14. Anchor Operations (training only)
15. Ship and Submarine Mid-Frequency Active Sonar Usage (training only)
16. EER Training Operations
17. Helicopter dipping Sonar Training Operations

_____
(Signature and Date)

200 INTRODUCTION TO SYSTEMS

200.1 BASIC BUILDING BLOCKS

In this section, the equipment is broken down into smaller, more comprehensible, functional systems as basic building blocks in the learning process. Each system is written to reflect specific watchstation requirements by identifying the equipment most relevant to one or more designated watchstanders. The less complex systems may be identified and covered quickly or relegated to a lower priority to permit greater emphasis on more significant or complex systems.

200.2 COMPONENTS AND COMPONENT PARTS

For learning purposes each system is disassembled into two levels. Systems have components and components 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/maintenance are listed. Normally a number of very broad (overview) systems are disassembled into their components or parts with the big picture as the learning goal. Items listed as components in such a system may then be analyzed as separate systems and broken down into components and parts. Example: the turbogenerators may be listed as a component of the Ship's Service Electrical Distribution system and then later detailed as an individual system for closer study.

200.3 FORMAT

Each system is organized within the following format:

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

200.4 HOW TO COMPLETE

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

201 STADIMETER SYSTEM

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] PMS Maintenance Requirement Card (MRC) 4211/R-1, Stadimeter

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?

		Questions
201.1.1	Telescope [ref. b]	A B
.2	Index arm [ref. b]	A B
.3	Index drum [ref. b]	A B
.4	Frame [ref. a, ch. 7]	A
.5	Index arm scale [ref. a, ch. 7; ref. b]	A B
.6	Index drum scale [ref. a, ch. 7; ref. b]	A B

_____
(Signature and Date)

201.2 PRINCIPLES OF OPERATION

201.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 7]

_____
(Signature and Date)

201 STADIMETER SYSTEM (CONT'D)

201.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. a, ch. 7]

A. What minimum and maximum heights can be used?
B. What are the minimum and maximum ranges?
C. When does this system's accuracy decrease?

Questions

201.3.1 Stadimeter system A B C

_____
(Signature and Date)

201.4 SYSTEM INTERFACE

201.4.1 How does mishandling affect the ranges? [ref. a, ch. 7]

_____
(Signature and Date)

201.5 SAFETY PRECAUTIONS – None to be discussed.

202 MARINE SEXTANT SYSTEM

References:

[a] Dutton's Navigation and Piloting, 14th Edition
[b] American Practical Navigator, Bowditch, Pub. 9

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 sources of power?
D. What protection is provided to the observer by this component/component part?

		Questions
202.1.1	Telescope [ref. a, ch. 21]	A B
.2	Filters [ref. b, ch. 16]	A B
	a. Index filter	A B D
	b. Horizon filter	A B D
.3	Index arm [ref. a, ch. 21]	A
	a. Index mirror [ref. a, ch. 21]	A B
	b. Light [ref. b, ch. 16]	A B C
	c. Release lever [ref. a, ch. 16]	A B
	d. Vernier scale [ref. b, ch. 16]	A B
	e. Micrometer drum [ref. b, ch. 16]	A B
.4	Limb [ref. b, ch. 16]	A B
	a. Arc scale [ref. b, ch. 16]	A B
.5	Horizon mirror [ref. b, ch. 16]	A B

_____
(Signature and Date)

202.2 PRINCIPLES OF OPERATION

202.2.1 How do the components work together to achieve the system's function? [ref. b, ch. 16]

_____
(Signature and Date)

202 MARINE SEXTANT SYSTEM (CONT'D)

202.2.2 How do you read the arc of a celestial body in degrees, minutes, and tenths? [ref. b, ch. 16]

_____
(Signature and Date)

202.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. b, ch. 15]

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

		Questions
202.3.1	Optimal height of a celestial body	A B

_____
(Signature and Date)

202.4 SYSTEM INTERFACE

202.4.1 How do the following outside influences affect the operation of this system:

a. Cloud cover [ref. a, ch. 21]
b. Variation in the visibility on the horizon [ref. b, ch. 16]

_____
(Signature and Date)

.2 How does careless handling affect the readings? [ref. b, ch. 16]

_____
(Signature and Date)

202.5 SAFETY PRECAUTIONS

202.5.1 What safety precautions must be observed when observing the sun? [ref. b, ch. 16]

_____
(Signature and Date)

203 MAGNETIC COMPASS SYSTEM

References:

[a] NAVEDTRA 14338, Quartermaster
[b] OPNAVINST 5100.19D (Change-1), Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] PMS Maintenance Requirement Card (MRC) 4211/R-6, R-7, and R-16, Magnetic Compass
[d] NSTM S9086-QN-STM-010/CH-475 (Rev. 2), Magnetic Silencing
[e] American Practical Navigator, Bowditch, Pub. 9

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 are the major materials used?
D. What are the sources of power?

		Questions
203.1.1	Compass [ref. a, ch. 4]	A
	a. Compass card	A B C
	b. Compass bowl	A B C
	c. Lubber's line	A B
	d. Gimbal	A B C
	e. Fluid	A B C
	f. Float	A B C
.2	Quadrantal spheres [ref. a, ch. 2]	A B C
.3	Binnacle [ref. a, ch. 2; ref. b, ch. 9]	A B C D
.4	Fore and aft magnetic trays [ref. e, ch. 6]	A B
.5	Athwartship magnetic trays [ref. e, ch. 6]	A B
.6	East/west-north/south course corrector [ref. a, ch. 2]	A B
.7	Heeling magnet [ref. e, ch. 6]	A B C
.8	Flinders bar [ref. e, ch. 6]	A B C
.9	Magnetic compass compensating coils [ref. e, ch. 6]	A B D
.10	E-link [ref. e, ch. 7]	A B

203 MAGNETIC COMPASS SYSTEM (CONT'D)

		Questions
203.1.11	Hood [ref. a, ch. 2]	A B C
.12	Magnetic compass table [ref. a, ch. 2]	A B
.13	Pivot [ref. a, ch. 3]	A B
.14	Expansion bellows [ref. a, ch. 3]	A B

_____
(Signature and Date)

203.2 PRINCIPLES OF OPERATION

203.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 2]

_____
(Signature and Date)

.2 How often is the compass adjusted? [ref. c; ref. e, ch. 6]

_____
(Signature and Date)

203.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. d, sec. 2]

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

		Questions
203.3.1	Magnetic compass system:	
	a. Degaussing on	A B
	b. Degaussing off	A B

_____
(Signature and Date)

203.4 SYSTEM INTERFACE

203.4.1 How does proximity to the magnetic poles affect the operation of this system? [ref. a, ch. 2]

_____
(Signature and Date)

203 MAGNETIC COMPASS SYSTEM (CONT'D)

203.4.2 How does this system interface with the degaussing system? [ref. a, ch. 2]

_____
(Signature and Date)

203.5 SAFETY PRECAUTIONS

203.5.1 What special safety precautions apply to the light when doing PMS? [ref. b, ch. C9]

_____
(Signature and Date)

204 FLUX GATE COMPASS SYSTEM

References:

[a] NAVSEA S9428-AJ-MMO-010 Digital Flux Gate Magnetic Compass System, Models MV103AC, MV103ACS, and MV103DG
[b] COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual

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: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What is the function of each position?

		Questions
204.1.1	Compass [ch. 3]	A C
.2	Sensor/processor unit [chs. 3, 7, 8]	A B
.3	Junction box [chs. 3, 7, 8]	A B
	a. Power button [ch. 2]	A B D
	b. Dimmer knob [ch. 2]	A B
	c. DCCL/offset toggle [ch. 2]	A B D
	d. GPS/NAV toggle [ch. 2]	A B D
	e. Response toggle [ch. 2]	A B D
	f. Set CRS button [ch. 2]	A B D
	g. CAL toggle [ch. 2]	A B D
.4	Main display [chs. 3, 7, 8]	A B
.5	Remote display [chs. 3, 7, 8]	A B
.6	Display driver [chs. 3, 7, 8]	A
.7	Degaussing interface unit [chs. 3, 7, 8]	A B
.8	UPS [chs. 3, 7, 8]	A B
.9	KH-1000B/BH-2000 [ch. 3]	A B

_____
(Signature and Date)

204.2 PRINCIPLES OF OPERATION

204.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 1]

204 FLUX GATE COMPASS SYSTEM (CONT'D)

204.2.2 What requires the DFMGC to be intentionally calibrated? [ref. a, ch. 3; ref. b, I-4]

.3 What is the normal mode of operation for the DFMGC? [ref. a, ch. 6; ref. b, I-1]

.4 What indications are received if the system is malfunctioning? [ref. a, ch. 5]

.5 How often is the DFMGC verified? [ref. b, I-2]

_____
(Signature and Date)

204.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. a, ch. 8]

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

		Questions
204.3.1	Magnetic compass system:	
	a. Degaussing on	A B
	b. Degaussing off	A B

_____
(Signature and Date)

204.4 SYSTEM INTERFACE

204.4.1 How does this system interface with the degaussing system? [ref. a, ch. 3]

_____
(Signature and Date)

204.5 SAFETY PRECAUTIONS – None to be discussed.

205 AN/UQN-4/4A SONAR SOUNDING SET (FATHOMETER) SYSTEM

References:

[a] NAVSEA SE 362-DO-MMM-010, Sonar Sounding Set, AN/UQN-4 and AN/UQN-4A, Including Depth Indicator ID-1566/UQN-4 and Digital-to-Analog Converter, CV-2465/UQN-4
[b] Own Ship's Plans and Drawings
[c] Local Subject Matter Expert

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 sources of power?
D. What is the function of each position?
E. What are the modes of operation or control?

			Questions
205.1.1	Sonar receiver-transmitter (RT-888) [refs. a, b]		A B E
	a.	Power on/off switch indicator [ref. a]	A B E
	b.	Illumination control [ref. a]	A B
	c.	Output power level control [ref. a]	A B C
	d.	Reduced energy switch/indicator [ref. a]	A B C
	e.	Ping selector switch [ref. a]	A B C D
	f.	Range gate set thumbwheel switches (4) [ref. a]	A B
	g.	Range gate transfer switch [ref. a]	A B
	h.	Recorder mark switch [ref. a]	A B
	i.	Range select switch [ref. a]	A B D
	j.	Digital depth readout [ref. a]	A B
	k.	Lost tracking indicator [ref. a]	A B
	l.	Feet/fathom indicator [ref. a]	A B
	m.	Threshold level control [ref. a]	A B
	n.	DSCRM switch/indicator [ref. a]	A B D
	o.	Electronic keying switch/indicator [ref. a]	A B D
	p.	Recorder level control [ref. a]	A B
	q.	Audio level control [ref. a]	A B
	r.	XMIT OVLD reset switch/indicator [ref. a]	A B

205 AN/UQN-4/4A SONAR SOUNDING SET (FATHOMETER) SYSTEM (CONT'D)

			Questions
205.1.1	s.	Headphone connector [ref. a]	A B
	t.	End of paper alert light [ref. a]	A B
	u.	Keel reference thumbwheel switch [ref. a]	A B D
	v.	Range scale styli (2) [ref. a]	A B
	w.	Depth marking styli (2) [ref. a]	A B
.2	ID-1566 depth indictors (2) [ref. a]		A
	a.	Power on/off switch/indicator	A B C
	b.	Transmitter fault indicator	A B
	c.	Depth indicator	A B
	d.	Lost tracking indicator	A B
	e.	Feet/fathom indicator	A B
.3	Transducer assembly [ref. a]		A B
.4	SM-688 simulator [ref. c]		A

_____
(Signature and Date)

205.2 PRINCIPLES OF OPERATION

205.2.1 How do the components work together to achieve the system's function? [ref. a]

_____
(Signature and Date)

205.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [refs. a, b]

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

		Questions
205.3.1	Range selector switch settings for optimum depth reading	A B

_____
(Signature and Date)

205 AN/UQN-4/4A SONAR SOUNDING SET (FATHOMETER) SYSTEM (CONT'D)

205.4 SYSTEM INTERFACE

205.4.1 How do the following outside influences affect the operation of this system: [refs. a, b]

a. Astern propulsion
b. Excessive speed
c. Signal interference

_____
(Signature and Date)

205.5 SAFETY PRECAUTIONS

205.5.1 What safety precautions must be observed when operating this system? [ref. a]

_____
(Signature and Date)

206 AN/SPA-25G REPEATER/INDICATOR SYSTEM

References:

[a] SE251-DG-MMO-010, Indicator Group, AN/SPA-25G, Vol. 1
[b] SE251-DG-MMO-020, Indicator Group, AN/SPA-25G, Vol. 2
[c] SE251-DG-MMO-030, Indicator Group, AN/SPA-25G, Vol. 3
[d] SE211-R9-MMC-020, Radar Set, AN/SPS-64(V)9, Description, Operation, and Maintenance, Vol. 2
[e] S9426-AK-MMA-010, AN/SYQ-13, Navigation/Command and Control System, Operation and Maintenance Manual
[f] Own Ship's Combat Systems Doctrine

206.1 SYSTEM COMPONENTS AND COMPONENT PARTS

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

A. What is its function?
B. Where is it located?
C. What are the sources of power?
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?

			Questions
206.1.1	AN/SPA-25G repeater/indicator [ref. a, ch. 1]		A
	a.	Power switch [ref. a, ch. 2; ref. b, ch. 3; ref. c, chs. 4, 5]	A B C D F
	b.	Brightness control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	c.	Status control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	d.	True bearing indicator [ref. a, ch. 2; ref. b, ch. 3]	A B D
	e.	Video select switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	f.	Radar selector switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	g.	Range selector switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	h.	Delay switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	i.	Enable switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	j.	Background control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	k.	First radar video adjust [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	l.	Panel dimmer [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	m.	Second radar video adjust [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	n.	Radar control (intensity) [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	o.	Designator control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	p.	Graphics control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	q.	On TGT switch [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F
	r.	Stiff (joy) stick control [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D F

			Questions
206.1.1	s.	Bulkhead power switch [ref. c, ch. 4]	A B
	t.	Master clear switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	u.	Function select switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	v.	Keypad [ref. a, ch. 2; ref. c, ch. 4]	A B D
	w.	Offset to PD switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	x.	PD origin to PD switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	y.	PD origin switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	z.	Offset switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	aa.	PD switch [ref. a, ch. 2; ref. c, ch. 4]	A B D
	ab.	Display [ref. a, ch. 2; ref. c, chs. 4, 5]	A B D E F
		1. PPI area [ref. a, ch. 2; ref. c, ch. 4]	A B D
		2. Menu area [ref. a, ch. 2; ref. c, ch. 4]	A B D
		3. Track file data black [ref. a, ch. 2; ref. c, ch. 4]	A B D
		4. Display status area [ref. a, ch. 2; ref. c, ch. 4]	A B D
		5. Principle designator range and bug area [ref. a, ch. 2; ref. c, ch. 4]	A B D

_____
(Signature and Date)

206.2 PRINCIPLES OF OPERATION

206.2.1 How do the components work together to achieve the system's function? [ref. b, ch. 3]

_____
(Signature and Date)

.2 What indications are received if the system is malfunctioning? [ref. c, ch. 5]

_____
(Signature and Date)

206.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. f]

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

		Questions
206.3.1	Minimum and maximum range of your own ships' radar systems	A B

_____
(Signature and Date)

206 AN/SPA-25G REPEATER/INDICATOR SYSTEM (CONT'D)

206.4 SYSTEM INTERFACE

206.4.1 How do the following outside influences affect the operation of this system: [ref. d, ch. 6]

a. Loss of electrical power
b. Loss of gyrocompass
c. Loss of radar input

_____
(Signature and Date)

206.4.2 How does this system interface with the AN/SYQ-13? [ref. e, ch. 3]

_____
(Signature and Date)

206.5 SAFETY PRECAUTIONS

206.5.1 What safety precautions must be observed when operating this system? [ref. a, ch. 1]

_____
(Signature and Date)

207 DEGAUSSING SYSTEM

References:

[a] NSTM S9475-E4-MMA-010/SSM-4, Operating and Maintenance Instruction, Automatic Degaussing Control Equipment
[b] NAVEDTRA 14338, Quartermaster
[c] NSTM S9086-QN-STM-010/CH-475 (Rev. 2), Magnetic Silencing

207.1 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?

		Questions
207.1.1	M coils [ref. c, sec. 3]	A B
.2	FI and QI coils [ref. c, sec. 3]	A B
.3	FP and QP coils [ref. c, sec. 3]	A B
.4	A coils [ref. c, sec. 3]	A B
.5	L coils [ref. c, sec. 3]	A B
.6	Remote degaussing control panel [ref. a, ch. 2]	A B C
	a. Ammeters	A B
	b. Trouble lamps	A B
	c. Automatic operation lamp	A B
	d. Manual operation lamp	A B
	e. Remote/manual operation lamp	A B
	f. Motor selector switch	A B
	g. Degaussing coil heading switch	A B
.7	Degaussing control panel [ref. a, ch. 2]	A B

_____
(Signature and Date)

207.2 PRINCIPLES OF OPERATION

207.2.1 How do the components work together to achieve the system's function? [ref. b, ch. 2]

_____
(Signature and Date)

207.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

207 DEGAUSSING SYSTEM (CONT'D)

207.4 SYSTEM INTERFACE – None to be discussed.

207.5 SAFETY PRECAUTIONS

207.5.1 What safety precautions must be observed when operating this system? [ref. c, app. G]

_____
(Signature and Date)

.2 Discuss the effect of degaussing on installed magnetic compasses. [ref. b, ch. 2]

_____
(Signature and Date)

208 SHIP'S STEERING CONTROL CONSOLE SYSTEM

References:

[a] NAVEDTRA 14067, Seaman
[b] Manufacturer's Technical Manual (Class Specific)
[c] American Practical Navigator, Bowditch, Pub. 9
[d] NAVEDTRA 14338, Quartermaster

208.1 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 sources of power?
D. What are the modes of operation or control?
E. What are the probable indications if this component fails?

		Questions
208.1.1	Ship's power unit indicator [ref. b]	A B E
.2	Gyrocompass repeaters [ref. b; ref. d, ch. 11, app. I]	A B C E
.3	Magnetic compass/flux gate [ref. c, ch. 6; ref. d, ch. 2]	A B C D
.4	Autopilot [ref. b]	A B E
.5	rpm indicator [ref. b]	A B
.6	Speed controller [ref. b]	A B D E
.7	Steering control panel [ref. b]	A B
.8	Helm and rudder angle indicator [ref. a, ch. 2]	A B
.9	Ship's speed indicator [ref. b]	A B E
.10	Whistle control panel [ref. b]	A B
.11	Bow thruster control [ref. b]	A B C D E
.12	Ship's course indicator [ref. b]	A B E
.13	Emergency steering alarm switch [ref. b]	A B
.14	Rudder order attention switch/light [ref. b]	A B
.15	Course-to-steer indicator [ref. b]	A B
.16	Steering wheel (helm) [ref. b]	A B
.17	Steering hydraulic tank high temperature light [ref. b]	A B
.18	Helm friction adjust wheel [ref. b]	A B
.19	Portable steering control unit [ref. b]	A B C E
.20	Navigation lights control switches [ref. b]	A B
.21	Programmed control lever [ref. b]	A B E
.22	Auxiliary propulsion control section [ref. b]	A B

208 SHIP'S STEERING CONTROL CONSOLE SYSTEM (CONT'D)

		Questions
208.1.23	Throttle aligned indicator [ref. b]	A B E
.24	Nonfollowup controller [ref. b]	A B E
.25	Steering mode selection switch [ref. b]	A B D
.26	Hydraulic pump START/STOP indicating pushbuttons [ref. b]	A B
.27	Hydraulic pump PORT/STBD ON-LINE/STANDBY indicating lights [ref. b]	A B
.28	Alarm/indicator panel [ref. b]	A B
.29	Flight deck control panel [ref. b]	A B
.30	Shaft brake indicator [ref. b]	A B

_____
(Signature and Date)

208.2 PRINCIPLES OF OPERATION

208.2.1 How do the components work together to achieve the system's function? [ref. d, ch. 11]

_____
(Signature and Date)

208.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

208.4 SYSTEM INTERFACE – None to be discussed.

208.5 SAFETY PRECAUTIONS

208.5.1 What two safety precautions must be observed when APU's are in use? [ref. b]

_____
(Signature and Date)

209 ENGINE ORDER TELEGRAPH (EOT) SYSTEM

References:

[a] NAVEDTRA 14067, Seaman
[b] Manufacturer's Technical Manual (Class Specific)

209.1 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?

		Questions
209.1.1	EOT operating handles [ref. a, ch. 3]	A B C
.2	Engine order answer indicator [ref. a, ch. 3]	A B
.3	EOT pushbutton and pilot light [ref. b]	A B
.4	Throttles [ref. a, ch. 3; ref. b]	A B C
.5	Pitch-in-feet indicators [ref. a, ch. 3; ref. b]	A B
.6	Propeller revolution transmitter knobs [ref. a, ch. 3]	A B
.7	Propeller revolution indicator [ref. a, ch. 3]	A B
.8	Propeller revolution pushbutton [ref. a, ch. 3]	A B
.9	Engine answer alarm bell [ref. b]	A B
.10	Propeller revolution answer alarm (buzzer) [ref. b]	A B

_____
(Signature and Date)

209.2 PRINCIPLES OF OPERATION

209.2.1 What indications will you receive if the engine room is unable to answer request? [ref. a, ch. 1]

_____
(Signature and Date)

209.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

209.4 SYSTEM INTERFACE – None to be discussed.

209 ENGINE ORDER TELEGRAPH (EOT) SYSTEM (CONT'D)

209.5 SAFETY PRECAUTIONS

209.5.1 What safety precautions must be observed when operating this system? [ref. a, ch. 3]

_____

(Signature and Date)

210 ELECTROHYDRAULIC STEERING GEAR (AFTERSTEERING) SYSTEM

References:

[a] Manufacturer's Technical Manual (Class Specific)
[b] OPNAVINST 5100.19D (Change-1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
[c] NAVEDTRA 14067, Seaman
[d] NAVEDTRA 14076, Engineman 2
[e] NSTM S9086-TA-STM-010/CH-562 (Rev. 1), Surface Ship Steering Systems

210.1 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 sources of power?

		Questions
210.1.1	Trick wheel [ref. c, ch. 2]	A B
.2	Steering engines [ref. d, ch. 8]	A
.3	Handcranks [ref. c, ch. 2]	A B
.4	Rudder ram [ref. c, ch. 2]	A B C
.5	Receiving units [ref. c, ch. 2]	A B
.6	Hydraulic running pump [ref. c, ch. 2]	A B C
.7	Emergency steering gear [ref. c, ch. 2]	A B C
.8	Port and starboard steering cables [ref. a]	A B
.9	Transfer selector switch [ref. a]	A B

_____
(Signature and Date)

210.2 PRINCIPLES OF OPERATION

210.2.1 What indications will you receive if the system is malfunctioning? [ref. a]

_____
(Signature and Date)

210 ELECTROHYDRAULIC STEERING GEAR (AFTERSTEERING) SYSTEM (CONT'D)

210.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. a]

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

		Questions
210.3.1	Maximum rudder angle	A B

_____
(Signature and Date)

210.4 SYSTEM INTERFACE

210.4.1 How does this system interface with ship's steering control console? [ref. e, sec. 3]

_____
(Signature and Date)

210.5 SAFETY PRECAUTIONS

210.4.1 What safety precautions must be observed when operating this system? [ref. b, ch. C9]

_____
(Signature and Date)

211 AN/WRN-6(V) SATELLITE NAVIGATION SET SYSTEM

References:

[a] SPAWAR EE 170-AA-OMI-010/WRN-6, Operation and Maintenance Instructions Manual, Satellite Signals Navigation Set, AN/WRN-6(V), Vol. 1
[b] SPAWAR EE 170-AA-OMI-020/WRN 6, Operation and Maintenance Instructions Manual, Satellite Signals Navigation Set, AN/WRN-6(V), Operator Instructions
[c] Own Ship's Plans and Drawings

211.1 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 sources of power?
D. What are the probable indications if this component fails?
E. What is the effect on system operation if this component fails?

		Questions
211.1.1	AS-3819/SRN antenna [ref. a, ch. 1, app. C; ref. b, sec. 4]	A B D E
.2	R2331/URN radio receiver [ref. a, chs. 1, 5; ref. b, sec. 4; ref. c]	A B C D E
	a. ON/OFF switch [ref. a, ch. 4; ref. b, sec. 4]	A B
	b. Power indicator (green light) [ref. a, ch. 4; ref. b, sec. 4]	A B
	c. Time totaling meter [ref. a, ch. 4]	A B
	d. Crypto transfer switch [ref. a, ch. 4; ref. b, sec. 4]	A B D
	e. Crypto transfer indicator (flashing red light) [ref. a, ch. 4; ref. b, sec. 4]	A B E
	f. KYK-13/KOI-18 input (J17) [ref. b, sec. 4]	A B D E
	g. Data loader input (J18) [ref. b, sec. 4]	A B D E
	h. Battery access (3 C-cell batteries) [ref. a, chs. 5, 8]	A B
.3	MT-6486/SRN electrical equipment mounting base [ref. a, chs. 1, 7; ref. c]	A B
	a. Dimmer control [ref. b, sec. 4]	A B E
	b. Power indicator (green light) [ref. b, sec. 4]	A B
	c. Power ON/OFF switch [ref. b, sec. 4]	A B D E
	d. Zeroize switch [ref. b, sec. 4]	A B E
.4	C11702/UR indicator control, controls, and indicator [ref. a, chs. 1, 7; ref. b, sec. 4; ref. c]	A B
	a. Data display [ref. b, sec. 4]	A B E
	b. Mode switch [ref. b, sec. 4]	A B
	c. BRT control (brightness) [ref. b, sec. 4]	A B

			Questions
211.1.4	d.	DATA entry keys [ref. b, sec. 4]	A B E
	e.	Use LTR key (letter) [ref. b, sec. 4]	A B
	f.	CLR key (clear) [ref. b, sec. 4]	A B
	g.	WP key (way points) [ref. b, sec. 4]	A B
	h.	MARK key [ref. b, sec. 4]	A B E
	i.	Data switch [ref. b, sec. 4]	A B E
	j.	Slew key [ref. b, sec. 4]	A B E
	k	Line select keys (1 thru 4) [ref. b, sec. 4]	A B

_____
(Signature and Date)

211.2 PRINCIPLES OF OPERATION

211.2.1 How do the components work together to achieve the system's function? [ref. a, chs. 1, 5]

_____
(Signature and Date)

212.3 PARAMETERS/OPERATING LIMITS

For the items listed, answer the following questions: [ref. b, sec. 4]

A. What is the normal operating value?
B. What are the allowable operating limits?
C. Where are the parameters sensed or monitored?
D. What is the physical location of the indicators?
E. What is the alarm set point?

		Questions
211.3.1	Various accuracies of the different FM	A B C D E

_____
(Signature and Date)

211 AN/WRN-6(V) SATELLITE NAVIGATION SET SYSTEM (CONT'D)

211.4 SYSTEM INTERFACE

211.4.1 How do the following outside influences affect the operation of this system:

a. Loss of electrical power [ref. a, ch. 5]
b. Loss of gyrocompass [ref. b, sec. 4]
c. Loss of pit log [ref. b, sec. 4]
d. CRYPTO [ref. b, sec. 4]

_____
(Signature and Date)

.2 How does this system interface with the naval tactical data system? [ref. a, ch. 5]

_____
(Signature and Date)

.3 How does this system interface with the NAVSSI/ECDIS-N? [ref. a, ch. 5]

_____
(Signature and Date)

211.5 SAFETY PRECAUTIONS

211.5.1 What safety precautions must be observed while operating this system? [ref. a, ch. 2]

_____
(Signature and Date)

212 VOYAGE MANAGEMENT SYSTEM (VMS)

References:

[a] Operator's Manual Voyage Management System, JA26-8307
[b] NSTM S9427-AN-MMO-010/WSN-7 (Rev. 1), AN/WSN-7(V)1, -7(V)2, -7(V)3, Inertial Navigation System, Operation and Maintenance Manual
[c] NAVSSI Technical Manual No. EE170-AG-OMI-010/SSN-6, Vol. 1, System Information
[d] SE211-S4-OPI-010 (Rev. 1), Operators Manual, AN/SPS-73(V)12, Surface Search Radar

---

212.1 SYSTEM, 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: [ref. a]

A. What is its function?
B. Where is it located?
C. What are the sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the source of control signals?

		Questions
212.1.1	VMS [ch. 1]	A
	a. Equipment [ch. 2]	A B C D E F G
	1. UPS	A B C D F G
	2. Computer	A B C D E G H
	3. Navigation consoles	A B C D E G
	(a) Monitor	A B C E G
	(b) Keyboard	A B C G
	(c) Mouse/trackball	A B C G

_____
(Signature and Date)

b. Charts [ch. 3]	A B G
1. DNC	A B G
2. TOD	A B G
3. VDU	A B G

_____
(Signature and Date)

			Questions
212.1.1	c.	Software [ch. 2]	A B D
		1. Main display [ch. 2]	A B D
		2. Chart display area [ch. 2]	A B D
		3. Main menu [ch. 2]	A B D
		4. Drop down menu [ch. 2]	A B D
		5. Submenus [ch. 2]	A B D
		6. System submenu [ch. 2]	A B D
		7. Editors menu [ch. 2]	A B D
		(a) Portfolio editor [ch. 2]	A B D
		(1) Chart portfolio [ch. 3]	A B D
		(2) Layer portfolio [ch. 4]	A B D
		(b) Mariner object editor [ch. 4]	A B D
		(c) Voyage plan editor [ch. 5]	A B D
		(d) Navigation plan editor [ch. 6]	A B D
		(e) Targets [ch. 10]	A B D
		8. Utilities submenu [ch. 2]	A B D
		9. Navigation tools menu [ch. 2]	A B D

_____
(Signature and Date)

212.2 PRINCIPLES OF OPERATION

212.2.1 How do the components work together to achieve the system's function? [ref. a, ch. 2]

_____
(Signature and Date)

.2 Describe the procedures for adding or removing the following: [ref. a, ch. 3]

a. DNC's
b. TOD's
c. VDU's

_____
(Signature and Date)

.3 Describe proper startup and shutdown procedures for VMS. [ref. a, ch. 2]

_____
(Signature and Date)

.4 What indications are received if VMS is malfunctioning? [ref. a, ch. 13]

_____
(Signature and Date)

212 VOYAGE MANAGEMENT SYSTEM (VMS) (CONT'D)

112.2.5 Describe the procedures used to archive/retrieve information. [ref. a, chs. 11, 12]

_____
(Signature and Date)

212.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

212.4 SYSTEM INTERFACE

212.4.1 How does VMS interface with the following:

a. GPS [ref. a, chs. 1, 2]
b. WSN 7 [ref. b]
c. NAVSSI [ref. c]
d. Radar [ref. d]

_____
(Signature and Date)

212.5 SAFETY PRECAUTIONS – None to be discussed.

213 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM

References:

[a] NAVSSI Technical Manual Document No. EE170-AF-OMI-010/SSN-6, Vols. 1 thru 4
[b] Shipboard Command and Control System (SSCS SUM), Vol. 2

213.1 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 sources of power?
D. What are the modes of operation or control?
E. What are the safety/protective devices for this component/component part?
F. What protection is provided by this component/component part?
G. What are the probable indications if this component fails?
H. What is the source of control signals?

			Questions
213.1.1	DCS equipment [ref. a, vol. 1, ch. 1]		A
	a.	UPS	A B C E F G
	b.	PDU	A B C G
	c.	RAID	A B C D
	d.	DAT tape drive	A B C G
	e.	TAC-4 computer	A B C E G
	f.	Trackball/keyboard	A B C
	g.	Display control subsystem	A B C E G
	h.	Navigation remote station	A B C E G
	i.	Real time subsystem 1 and 2	A B C E G H
	j.	NAVSSI workstation	A B C E G
.2	COMDAC-INS [ref. b]		A D G H
.3	NAVSSI technical manuals, vols. 1 thru 4 [ref. a]		A B
.4	COMDAC software users manual [ref. a]		A B
	a.	INS graphics window [ref. b, sec. 3]	A B D G H
	b.	INS graphics window status bar [ref. b, sec. 4]	A B
	c.	Own ship data window [ref. b, sec. 5]	A B

			Questions
213.1.4	d.	INS menu option bar [ref. b, sec. 2]	A B
	e.	Navigation data window [ref. b, sec. 6]	A B
	f.	SDS menu option bar [ref. a, vol. 2, ch. 3]	A B
	g.	SOA [ref. b, sec. 18]	A B D
	h.	GCCS-M menu bar [ref. a, vol. 2, ch. 2]	A B D
	i.	Sensor display bar [ref. a, vol. 2, ch. 2]	A B

_____
(Signature and Date)

213.2 PRINCIPLES OF OPERATION

213.2.1 How do the components work together to achieve the system's function? [ref. a, vol. 1]

_____
(Signature and Date)

.2 Describe the procedures for adding or removing DNC's. [ref. b, sec. 20]

_____
(Signature and Date)

.3 Describe proper startup and shutdown procedures for the DCS. [ref. a, vol. 2, ch. 1]

_____
(Signature and Date)

.4 Describe proper startup and shutdown procedures of NWS. [ref. a, vol. 2, ch. 1]

_____
(Signature and Date)

.5 Describe proper startup and shutdown procedures of RAID. [ref. a, vol. 2, ch. 1]

_____
(Signature and Date)

.6 Describe proper reboot procedures of NAVSSI. [ref. a, vol. 2, ch. 1]

_____
(Signature and Date)

213.2.7 What indications are received if the DCS is malfunctioning. [ref. a, vol. 4]

_____
(Signature and Date)

213.3 PARAMETERS/OPERATING LIMITS – None to be discussed.

213.4 SYSTEM INTERFACE

213.4.1 How does the NRS interface with the following: [ref. a, vol. 1]

a. DCS
b. RTS (1&2)

_____
(Signature and Date)

213.5 SAFETY PRECAUTIONS

213.5.1 What safety precautions must be observed when operating the NAVSSI? [ref. a, vol. 1]

_____
(Signature and Date)

.2 What special safety precautions apply to: [ref. a, vol. 1]

a. DCS
b. RTS (1&2)
c. NRS

_____
(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.

- PREREQUISITES, 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. You may then be required to stand a watch or a number of watches to earn qualification. There are two levels of supervision for this:

- Under Instruction: You will perform the duties and tasks of the watchstation under the direct supervision of a qualified watchstander or supervisor. This is intended to be a one-on-one training situation.
- Under qualified supervision: You will perform the duties and tasks of the watchstation with minor guidance from a qualified watchstander or supervisor. This is intended to allow you to develop proficiency in and operational environment with minimal oversight or have a supervisor close at hand if needed.

After all line items have been completed, your Qualifier will verify Final Qualification by signing and dating the Final Qualification pages.

301 BRIDGE TELEPHONE TALKER

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified BRIDGE TELEPHONE TALKER (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

301 BRIDGE TELEPHONE TALKER

Estimated completion time: 2 weeks

301.1 PREREQUISITES

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

301.1.1 FUNDAMENTALS FROM THIS PQS:

101 Safety

Completed _____ 5% of Watchstation
(Qualifier and Date)

103 Watchstanding and Administration

Completed _____ 5% of Watchstation
(Qualifier and Date)

104 Interior Communications

Completed _____ 5% of Watchstation
(Qualifier and Date)

116 Bridge Equipment

Completed _____ 5% of Watchstation
(Qualifier and Date)

301 BRIDGE TELEPHONE TALKER (CONT'D)

301.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What parameters must be monitored?
E. Satisfactorily perform this task.

Questions

301.2.1 Setup telephone for operation (2 times) A B C E

_____
(Signature and Date)

_____
(Signature and Date)

.2 Establish and test communications (2 times) A B C E

_____
(Signature and Date)

_____
(Signature and Date)

.3 Transmit messages using standard phraseology (3 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
301.2.4	Maintain circuit discipline (3 times)	A B D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.5	Secure and stow all bridge telephone sets (3 times)	A B E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 30% OF WATCHSTATION.

301.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What conditions require this infrequent task?
E. Satisfactorily perform or simulate this infrequent task.

		Questions
301.3.1	Transmit messages through earpiece	A B D E

_____
(Signature and Date)

.2	Receive messages through mouthpiece	A B D E

_____
(Signature and Date)

		Questions
301.3.3	Setup casualty communications	A B C D E

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 15% OF WATCHSTATION.

301.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications are received?
B. What immediate action is required?
C. What are the probable causes?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. What follow-up action is required?
G. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

		Questions
301.4.1	Loss of communications	A B C D E F G

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 5% OF WATCHSTATION.

301.5 EMERGENCIES – None to be discussed.

301.6 WATCHES

301.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Bridge Telephone Talker (3 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 30% OF WATCHSTATION.

301 BRIDGE TELEPHONE TALKER (CONT'D)

301.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

301.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

302 LOOKOUT

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified LOOKOUT (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

302 LOOKOUT

Estimated completion time: 3 months

302.1 PREREQUISITES

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

302.1.1 OTHER QUALIFICATIONS:

Visual acuity correctable to 20/20 both eyes and normal color perception.

Completed _____
(Qualifier and Date)

.2 WATCHSTATIONS FROM THIS PQS:

301 Bridge Telephone Talker

Completed _____
(Qualifier and Date)

.3 FUNDAMENTALS FROM THIS PQS:

105 Lookout

Completed _____ 5% of Watchstation
(Qualifier and Date)

124 Environmental Protective Measures Familiarization

Completed _____ 5% of Watchstation
(Qualifier and Date)

302 LOOKOUT (CONT'D)

302.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed.
F. Satisfactorily perform this task.

Questions

302.2.1 Relieve the watch (3 times) A B C D F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Detect and report aircraft (3 times) A B C D F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Detect and report surface craft (3 times) A B C D F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

302 LOOKOUT (CONT'D)

		Questions
302.2.4	Detect and report aids to navigation by type for Inland and International waters (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Detect and report partially submerged objects (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Detect and report discolored water (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Make amplifying report to bridge and CIC regarding relative movement, target angle, lights, and sound signals. Distinguish between Inland and International waters. (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

302 LOOKOUT (CONT'D)

		Questions
302.2.8	Check operation of own ship's navigational lights, aircraft warning lights, distress lights, and report status (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Operate night vision equipment (3 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.10	Detect and report marine mammals, sea turtles, coral reefs, sargassum rafts, and kelp mats (3 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

302 LOOKOUT (CONT'D)

Questions

302.2.11 Demonstrate the use of the Whale Wheel to determine species (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

302.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions are required?
F. What conditions require this infrequent task?
G Satisfactorily perform or simulate this infrequent task.

Questions

302.3.1 Report sighting distress signals (3 times) A B D G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

302 LOOKOUT (CONT'D)

		Questions
302.3.2	Use smoke float, life ring, and light float (3 times)	A B D E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3	Recognize and report fog signals by a ship underway (3 times)	A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4	Marine Mammal Lookout (3 times)	A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

302 LOOKOUT (CONT'D)

Questions

302.3.5 Act as low visibility lookout (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.6 Recognize and report fog signals by a ship underway with no way on in Inland and International waters. (3 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.7 Recognize and report fog signals by a ship at anchor (3 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.8 Recognize and report sound signals from aids to navigation (3 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

302 LOOKOUT (CONT'D)

302.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

302.4.1 Binocular lens fogged/bubbled (2 times) A B C D F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Battery failure on night vision equipment (2 times) A B D E G H

_____
(Signature and Date)

_____
(Signature and Date)

.3 Telephone failure (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.4 Adverse weather (2 times) A B D E F H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

302 LOOKOUT (CONT'D)

302.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

302.5.1 Collision (2 times) A B C D E F H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Man overboard (own ship) (2 times) A B D F G H

_____
(Signature and Date)

_____
(Signature and Date)

.3 Man overboard of another ship while at life guard station (2 times) A B D F G H

_____
(Signature and Date)

_____
(Signature and Date)

.4 Man overboard of another ship while on plane guard station (2 times) A B D F G H

_____
(Signature and Date)

_____
(Signature and Date)

302 LOOKOUT (CONT'D)

		Questions
302.5.5	Helo/plane crash/ditching (2 times)	A B D F G H
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Chemical/biological attack (2 times)	A B D E F G H
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Nuclear attack (2 times)	A B D E F G H
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

302 LOOKOUT (CONT'D)

302.6 WATCHES

302.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Condition III/IV (10 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

302 LOOKOUT (CONT'D)

302.6.1 Low visibility (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 40% OF WATCHSTATION.

302.7 <u>EXAMINATIONS</u> (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

302.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

303 EXPERT LOOKOUT (CONDITION I)

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified EXPERT LOOKOUT (CONDITION I) (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

303 EXPERT LOOKOUT (CONDITION I)

Estimated completion time: 13 weeks

303.1 PREREQUISITES

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

303.1.1 OTHER QUALIFICATIONS:

Visual acuity correctable to 20/20 both eyes and normal perception

Completed _____
(Qualifier and Date)

.2 WATCHSTATIONS FROM THIS PQS:

302 Lookout

Completed _____
(Qualifier and Date)

.3 FUNDAMENTALS FROM THIS PQS:

106 Expert Lookout

Completed _____ 5% of Watchstation
(Qualifier and Date)

303 EXPERT LOOKOUT (CONDITION I) (CONT'D)

303.2 TASKS

For the tasks listed below:

A. What are the major distinguishing features between classes of these ships/aircraft in the U.S. Navy?
B. What are the primary distinguishing features between U.S. Navy and other major powers?
C. What is the primary mission of this ship/aircraft?
D. What is the primary threat to own ship posed by this class of ship/aircraft?
E. Satisfactorily perform this task.

		Questions
303.2.1	Identify a carrier (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.2	Identify a cruiser (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Identify a destroyer (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Identify a frigate (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

303 EXPERT LOOKOUT (CONDITION I) (CONT'D)

		Questions
303.2.5	Identify a submarine (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Identify a fast patrol boat (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Identify a patrol/reconnaissance aircraft (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.8	Identify a bomber aircraft (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Identify a fighter aircraft (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.10	Identify an attack aircraft (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

303 EXPERT LOOKOUT (CONDITION I) (CONT'D)

		Questions
303.2.11	Identify a helicopter (2 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 40% OF WATCHSTATION.

303.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the indications of this weapon by day/night?
B. Satisfactorily perform or simulate this task.

		Questions
303.3.1	Identify and report a missile launch indication (2 times)	A B

_____
(Signature and Date)

_____
(Signature and Date)

.2	Identify and report an inbound missile (2 times)	A B

_____
(Signature and Date)

_____
(Signature and Date)

.3	Identify and report an inbound torpedo (2 times)	A B

_____
(Signature and Date)

_____
(Signature and Date)

303 EXPERT LOOKOUT (CONDITION I) (CONT'D)

Questions

303.3.4 Identify and report gunfire (2 times) A B

_____
(Signature and Date)

_____
(Signature and Date)

.5 Identify and report mines (2 times) A B

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 25% OF WATCHSTATION.

303.4 ABNORMAL CONDITIONS – None to be discussed.

303.5 EMERGENCIES

For the emergencies listed below:

A. What indications are received?
B. What immediate action is required?
C. What follow-up action is required?
D. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

303.5.1 Inbound weapons A B C D

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 5% OF WATCHSTATION.

303 EXPERT LOOKOUT (CONDITION I) (CONT'D)

303.6 WATCHES

303.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION

Stand Watch for an underway period of 30 cumulative days (IAW Naval Military Personnel Manual, section 1420280, Expert Lookout qualification)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 25% OF WATCHSTATION.

303.7 EXAMINATIONS (IAW NAVAL MILITARY PERSONNEL MANUAL, SECTION 1420280, EXPERT LOOKOUT QUALIFICATION)

303.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

304 LEE HELMSMAN

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified LEE HELMSMAN (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

304 LEE HELMSMAN

Estimated completion time: 4 weeks

304.1 PREREQUISITES

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

304.1.1 WATCHSTATIONS FROM THIS PQS:

301 Bridge Telephone Talker

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

117 Helm/Lee Helm

Completed _____ 5% of Watchstation
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

208 Ship's Steering Control Console

Completed _____ 5% of Watchstation
(Qualifier and Date)

209 Engine Order Telegraph (EOT)

Completed _____ 5% of Watchstation
(Qualifier and Date)

304 LEE HELMSMAN (CONT'D)

304.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What safety precautions must be observed?
E. What parameters/operating limits must be monitored?
F. Satisfactorily perform this task.

Questions

304.2.1 Relieve the watch (3 times) A B C F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Test EOT (3 times) A B C E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Test shaft rpm (4 times) A B C E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

304 LEE HELMSMAN (CONT'D)

		Questions
304.2.4	Operate EOT/throttles (3 times)	A B C E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Operate propeller order telegraph (3 times)	A B C E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Convert knots to rpm and rpm to knots using appropriate table (3 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Transfer propulsion control to main control (3 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

304.2.8 Respond to Conning Officer's orders, using standard phraseology (4 times) A B C F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

304.3 INFREQUENT TASKS – None to be discussed.

304.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

304.4.1 Indication of unanswered bell (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

304.4.2 Indication of unanswered rpm/pitch (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 5% OF WATCHSTATION.

304.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. Perform or simulate the immediate action for this emergency condition.

Questions

304.5.1 Loss of throttle control (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Throttle takeover (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

304 LEE HELMSMAN (CONT'D)

Questions

304.5.3 Propulsion vital alarm (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4 EOT/steering control console display failure (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.5 Power supply malfunction (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.6 Emergency backing (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 20% OF WATCHSTATION.

304 LEE HELMSMAN (CONT'D)

304.6 WATCHES

304.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Lee Helmsman (10 total hours)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 40% OF WATCHSTATION.

304 LEE HELMSMAN (CONT'D)

304.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

304.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

305 HELMSMAN

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified HELMSMAN (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

305 HELMSMAN

Estimated completion time: 4 weeks

305.1 PREREQUISITES

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

305.1.1 WATCHSTATIONS FROM THIS PQS:

304 Lee Helmsman

Completed _____
(Qualifier and Date)

.2 SYSTEMS FROM THIS PQS:

210 Electrohydraulic Steering Gear (Aftersteering)

Completed _____ 5% of Watchstation
(Qualifier and Date)

305.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

Questions

305.2.1 Relieve the watch (3 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

305 HELMSMAN (CONT'D)

		Questions
305.2.2	Test helm/control console (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Operate helm/control console (3 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Test rudder angle order indicator (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Operate rudder angle order indicator (3 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

305 HELMSMAN (CONT'D)

Questions

305.2.6 Shift control to secondary CONN (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.7 Shift control from secondary CONN to bridge (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.8 Shift control to aftersteering (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.9 Shift control from aftersteering to bridge (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

305 HELMSMAN (CONT'D)

		Questions
305.2.10	Test steering casualty alarm (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Test steering alarm (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Test gyro alarm (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Shift port or starboard steering cable (3 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

305 HELMSMAN (CONT'D)

		Questions
305.2.14	Shift pumps/motors (3 times)	A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.15	Respond to Conning Officer's orders, using standard phraseology (4 times)	A B C D G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 25% OF WATCHSTATION.

305 HELMSMAN (CONT'D)

305.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What condition requires this infrequent task?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform or simulate this infrequent task IAW SOP.

Questions

305.3.1 Setup and engage autopilot (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Steer by magnetic compass/DFMGC (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Use course-to-steer indicator (3 times) A B C D G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

305 HELMSMAN (CONT'D)

Questions

305.3.4 Steer by rudder order indicator (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.5 Steer by NFU (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

305.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. How does this condition affect other operations/equipment/watchstations?
D. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

305.4.1 Loss of gyrocompass (3 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

305 HELMSMAN (CONT'D)

		Questions
305.4.2	Loss of rudder angle order indicator (3 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Split rudder (3 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

305 HELMSMAN (CONT'D)

305.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What other emergencies or malfunctions may occur if immediate action is not taken?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency condition.

Questions

305.5.1 Loss of steering (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Rudder jammed hard over (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

305 HELMSMAN (CONT'D)

305.6 WATCHES

305.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Helmsman (20 total hours)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

305 HELMSMAN (CONT'D)

305.6.1 Helmsman (20 total hours) (cont'd)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 40% OF WATCHSTATION.

305.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

305.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

306 AFTERSTEERING HELMSMAN

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified AFTERSTEERING HELMSMAN (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

306 AFTERSTEERING HELMSMAN

Estimated completion time: 4 weeks

306.1 PREREQUISITES

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

306.1.1 WATCHSTATIONS FROM THIS PQS:

305 Helmsman

Completed _____
(Qualifier and Date)

306.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. Satisfactorily perform this task.

Questions

306.2.1 Energize port or starboard cable (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

306 AFTERSTEERING HELMSMAN (CONT'D)

Questions

306.2.2 Energize port or starboard pump motor unit (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Engage the transfer valve shift lever to port or starboard unit (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4 Shift steering units (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.5 Energize the synchro selector switch (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

306 AFTERSTEERING HELMSMAN (CONT'D)

		Questions
306.2.6	Acknowledge steering casualty alarm (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Acknowledge helm order angle indicator bell (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.8	Engage trick wheel (3 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Steer by gyrocompass (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

306 AFTERSTEERING HELMSMAN (CONT'D)

		Questions
306.2.10	Steer by rudder angle order indicator (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Shift steering control from aftersteering to the bridge (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Shift steering control from the bridge to aftersteering (3 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .2 AREA COMPRISES 40% OF WATCHSTATION.

306 AFTERSTEERING HELMSMAN (CONT'D)

306.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precaution must be observed?
F. What conditions require this infrequent task?
G. Satisfactorily perform or simulate this infrequent task.

Questions

306.3.1 Set valves to bypass hydraulic system for manual steering (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Steer by manual steering (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Operate hand pump to move rudder (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

306.3.4 Setup for hand electric or hand pump steering (3 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 20% OF WATCHSTATION.

306.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

306.4.1 Major hydraulic system leak (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.2 Loss of communications (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

306 AFTERSTEERING HELMSMAN (CONT'D)

306.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. How does this emergency affect other operations/equipment/watchstations?
E. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

306.5.1 Loss of electrical power (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.2 Loss of hydraulic power (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.3 Rudder jammed hard over (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.4 Parted port or starboard cable (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 20% OF WATCHSTATION.

306 AFTERSTEERING HELMSMAN (CONT'D)

306.6 WATCHES

306.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Aftersteering Helmsman (2 hours)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 10% OF WATCHSTATION.

306.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

306.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

307 HELM/AFTERSTEERING HELM SAFETY OFFICER

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified HELM/AFTERSTEERING HELM SAFETY OFFICER (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

307 HELM/AFTERSTEERING HELM SAFETY OFFICER

Estimated completion time: 4 weeks

307.1 PREREQUISITES

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

307.1.1 FUNDAMENTALS FROM THIS PQS:

101 Safety

Completed _____ 3% of Watchstation
(Qualifier and Date)

103 Watchstanding and Administration

Completed _____ 3% of Watchstation
(Qualifier and Date)

104 Interior Communications

Completed _____ 3% of Watchstation
(Qualifier and Date)

116 Bridge Equipment

Completed _____ 3% of Watchstation
(Qualifier and Date)

117 Helm/Lee Helm

Completed _____ 3% of Watchstation
(Qualifier and Date)

.2 SYSTEMS FROM THIS PQS:

208 Ship's Steering Control Console

Completed _____ 3% of Watchstation
(Qualifier and Date)

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

307.1.2 209 Engine Order Telegraph (EOT)

Completed _____ 3% of Watchstation
(Qualifier and Date)

210 Electrohydraulic Steering Gear (Aftersteering)

Completed _____ 3% of Watchstation
(Qualifier and Date)

307.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. Satisfactorily perform this task.

Questions

307.2.1 Test helm console/EOT (3 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Test rudder angle order indicator (3 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

		Questions
307.2.3	Shift control to aftersteering (3 times)	A B C
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Shift control from aftersteering to the bridge (3 times)	A B C
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Test steering alarm (3 times)	A B C
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Test steering casualty alarm (3 times)	A B C
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

Questions

307.2.7 Test gyrocompass alarm (3 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.8 Steer the ship from bridge (underway) (3 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.9 Steer the ship from aftersteering (underway) (2 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

.10 Operate lee helm underway (3 times) A B C

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 30% OF WATCHSTATION.

307.3 INFREQUENT TASKS – None to be discussed.

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

307.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What emergencies or malfunctions may occur if immediate action is not taken?
D. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

307.4.1 Incorrect response by helmsman (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

.2 Incorrect response by lee helmsman (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 6% OF WATCHSTATION.

307.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. How does this emergency affect other operations/equipment/watchstations?
D. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

307.5.1 Steering casualty (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

		Questions
307.5.2	Loss of main propulsion (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Man overboard (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Loss of electrical power to helm console/EOT (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Loss of gyro (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Loss of communications (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .5 AREA COMPRISES 20% OF WATCHSTATION.

307 HELM/AFTERSTEERING HELM SAFETY OFFICER (CONT'D)

307.6 WATCHES

307.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Helm Safety Officer Bridge (3 hours)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Helm Safety Officer Aftersteering (2 hours)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 20% OF WATCHSTATION.

307.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

307.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

308 MASTER HELMSMAN

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified MASTER HELMSMAN (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

308 MASTER HELMSMAN

Estimated completion time: 23 weeks

308.1 PREREQUISITES

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

308.1.1 WATCHSTATIONS FROM THIS PQS:

306 Aftersteering Helmsman

Completed _____
(Qualifier and Date)

308.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What means of communications are used?
D. Satisfactorily perform this task.

Questions

308.2.1 Steer ship while approaching another ship (5 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

308 MASTER HELMSMAN (CONT'D)

		Questions
308.2.2	Steer ship while alongside another ship (5 times)	A B C D

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3	Steer ship while tensioning/detensioning a stream rig (5 times)	A B C D

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

308 MASTER HELMSMAN (CONT'D)

		Questions
308.2.4	Steer ship during normal breakaway (5 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Steer ship during arrival/departure from port (4 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Steer ship when approaching anchorage (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Shift bow thruster control from the bridge to local control (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
308.2.8	Shift bow thruster control from local control to bridge control (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Steer ship while backing down	A B C D
	_____ (Signature and Date)	
.10	Lower APU (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Test APU (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Operate APU (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Stow APU (2 times)	A B C D
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

308 MASTER HELMSMAN (CONT'D)

308.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What means of communications are used?
D. How are the monitored parameters changed by this infrequent task?
E. Satisfactorily perform or simulate this infrequent task.

		Questions
308.3.1	Steer ship during towing operation (2 times)	A B C E

_____
(Signature and Date)

_____
(Signature and Date)

.2	Steer during major course change while alongside another ship (2 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.3	Steer ship using portable steering control unit (2 times)	A B C E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

308 MASTER HELMSMAN (CONT'D)

308.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. How does this condition affect other operations/equipment/watchstations?
D. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

308.4.1 Malfunction of bow thruster (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

.2 Excessive speed with APUs extended (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

.3 Rudder failure (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

308 MASTER HELMSMAN (CONT'D)

308.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What other emergencies or malfunctions may occur if immediate action is not taken?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

		Questions
308.5.1	Steering casualty under various operating conditions	A B C D E F

_____
(Signature and Date)

.2	Loss of main propulsion	A B C D E F

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

308.6 WATCHES

308.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Steer the ship during special evolutions (20 hours)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

308 MASTER HELMSMAN (CONT'D)

308.6.1 Steer the ship during special evolutions (20 total hours) (cont'd)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 50% OF WATCHSTATION.

308 MASTER HELMSMAN (CONT'D)

308.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

308.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

309 BOATSWAIN'S MATE OF THE WATCH (BMOW)

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified BOATSWAIN'S MATE OF THE WATCH (BMOW) (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

309 BOATSWAIN'S MATE OF THE WATCH (BMOW)

Estimated completion time: 4 weeks

309.1 PREREQUISITES

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

309.1.1 PQS QUALIFICATIONS:

Mk 164 Bridge Launcher Control Panel Operator (NAVEDTRA 43341-C), 304 Decoy Launching Systems (DLS)

Completed _____
(Qualifier and Date)

.2 WATCHSTATIONS FROM THIS PQS:

302 Lookout

Completed _____
(Qualifier and Date)

306 Aftersteering Helmsman

Completed _____
(Qualifier and Date)

.3 FUNDAMENTALS FROM THIS PQS:

107 Honors and Ceremonies

Completed _____ 5% of Watchstation
(Qualifier and Date)

309.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform this task.

		Questions
309.2.1	Obtain and read all relieving instructions/CO's night orders (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.2	Verify that all bridge watchstations are properly relieved (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Inspect all bridge watchstanders and bridge area (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Relieve/assume watch (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

309.2.5 Use 1MC (4 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.6 Pass the following pipe calls and words:

a. All hands (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

b. Attention (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

c. Mess call (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

d. Sweepers (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

Questions

309.2.6 e. Secure (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

f. Pipe down (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

g. Piping the side (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

.7 Verify 12 o'clock reports received in a timely manner (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.8 Verify darken ship has been properly in bridge and lookout areas (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.9 Use ship's whistle (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
309.2.10	Strike ship's time bell (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Render honors between ships (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Operate ship's alarms (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Inspect navigational lights (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.14	Carry out ship's doctrine as modified by POD, PDL, and OOD (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.15	Observe sunrise/sunset (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

309.2.16 Maintain good order and discipline on bridge (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.17 Report lifeboat crew manned and ready status (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 50% OF WATCHSTATION.

309.3 INFREQUENT TASKS – None to be discussed.

309.4 ABNORMAL CONDITIONS – None to be discussed.

309.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What other emergencies or malfunctions may occur if immediate action is not taken?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

309.5.1 Electrical power failure (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
309.5.2	Fire (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Collision (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Flooding (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	CBR attack (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	General quarters (2 times)	A B D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Security alert (2 times)	A B D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

309.5.8 Steering casualty (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.9 Man overboard (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 30% OF WATCHSTATION.

309.6 WATCHES

309.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Boatswain's Mate of the Watch (BMOW) (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 15% OF WATCHSTATION.

309 BOATSWAIN'S MATE OF THE WATCH (BMOW) (CONT'D)

309.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

309.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

310 BEARING TAKER

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified BEARING TAKER (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

310 BEARING TAKER

Estimated completion time: 4 weeks

310.1 PREREQUISITES

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

310.1.1 FUNDAMENTALS FROM THIS PQS:

105 Lookout

Completed _____ 5% of Watchstation
(Qualifier and Date)

108 Aids to Navigation

Completed _____ 5% of Watchstation
(Qualifier and Date)

113 Piloting

Completed _____ 5% of Watchstation
(Qualifier and Date)

116 Bridge Equipment

Completed _____ 5% of Watchstation
(Qualifier and Date)

.2 SYSTEMS FROM THIS PQS:

202 Marine Sextant

Completed _____ 5% of Watchstation
(Qualifier and Date)

310 BEARING TAKER (CONT'D)

310.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform this task.

Questions

310.2.1 Setup, take, and report true bearings with telescopic alidade and gyrocompass repeater (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Setup, take, and report relative bearings with telescopic alidade and gyrocompass repeater (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Setup, take, and report true bearings during hours of darkness (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

310.2.4 Setup, take, and report relative bearings during hours of darkness (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.5 Check alignment with bench mark (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

310.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What conditions require this infrequent task?
F. Satisfactorily perform or simulate this infrequent task.

Questions

310.3.1 Take horizontal sextant angles (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

310 BEARING TAKER (CONT'D)

Questions

310.3.2 Act as lookout (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Setup, take, and report true bearings with the bearing circle (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4 Setup, take, and report relative bearings with the bearing circle (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 15% OF WATCHSTATION.

310 BEARING TAKER (CONT'D)

310.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What emergencies or malfunctions may occur if immediate action is not taken?
D. How does this condition affect other operations/equipment/watchstations?
E. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

310.4.1 Loss of gyro/repeater (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Adverse weather (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.3 Loss of communication (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

310 BEARING TAKER (CONT'D)

		Questions
310.4.4	Condensation in repeater (3 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Condensation in alidade (3 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Loss of lighting in gyro/repeater (3 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .4 AREA COMPRISES 20% OF WATCHSTATION.

310 BEARING TAKER (CONT'D)

310.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What other emergencies or malfunctions may occur if immediate action is not taken?
D. How does this emergency affect other operations/equipment/watchstations?
E. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

310.5.1 Man overboard (3 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 5% OF WATCHSTATION.

310.6 WATCHES

310.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Bearing Taker (4 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 15% OF WATCHSTATION.

310 BEARING TAKER (CONT'D)

310.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

310.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

311 BEARING BOOK RECORDER

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified BEARING BOOK RECORDER (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

311 BEARING BOOK RECORDER

Estimated completion time: 4 weeks

311.1 PREREQUISITES

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

311.1.1 WATCHSTATIONS FROM THIS PQS:

310 Bearing Taker

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

109 Logs and Records

Completed _____ 5% of Watchstation
(Qualifier and Date)

311 BEARING BOOK RECORDER (CONT'D)

311.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform this task.

Questions

311.2.1 Prepare standard bearing book for taking bearings/radar ranges (5 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Record bearing/radar ranges and depths as received from bearing takers/radar/leadsman operator and fathometer operator (5 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

311 BEARING BOOK RECORDER (CONT'D)

Questions

311.2.3 Make corrections to bearing log (5 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.4 Record during anchoring evolution (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

311 BEARING BOOK RECORDER (CONT'D)

311.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What conditions require this infrequent task?
F. Satisfactorily perform or simulate this infrequent task IAW SOP.

		Questions
311.3.1	Leadsman operator and fathometer operator (5 times)	A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 15% OF WATCHSTATION.

311 BEARING BOOK RECORDER (CONT'D)

311.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

311.4.1 Loss of communications (3 times) A B D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Loss of gyrocompass (3 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 20% OF WATCHSTATION.

311.5 EMERGENCIES – None to be discussed.

311 BEARING BOOK RECORDER (CONT'D)

311.6 WATCHES

311.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Bearing Book Recorder (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 40% OF WATCHSTATION.

311.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

311.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

312 FATHOMETER OPERATOR

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified FATHOMETER OPERATOR (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

312 FATHOMETER OPERATOR

Estimated completion time: 4 weeks

312.1 PREREQUISITES

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

312.1.1 WATCHSTATIONS FROM THIS PQS:

301 Bridge Telephone Talker

Completed _____
(Qualifier and Date)

.2 SYSTEMS FROM THIS PQS:

205 AN/UQN-4/4A Sonar Sounding Set (Fathometer)

Completed _____ 5% of Watchstation
(Qualifier and Date)

312.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

		Questions
312.2.1	Relieve the watch (2 times)	A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

312 FATHOMETER OPERATOR (CONT'D)

		Questions
312.2.2	Establish communications (2 times)	A B C D G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Energize/secure equipment (3 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Determine charted depth and make proper switch settings (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Determine depth on CRT/digital readout (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

312 FATHOMETER OPERATOR (CONT'D)

		Questions
312.2.6	Determine depth on chart recorder (2 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Determine true water depth (2 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.8	Energize and adjust recorder level (AN/UQN-4) (2 times)	A B G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Verify readouts on remote indicators (AN/UQN-4)	A B C D F G
	_____ (Signature and Date)	
.10	Reset lost tracking indicators (AN/UQN-4) (3 times)	A B C D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .2 AREA COMPRISES 50% OF WATCHSTATION.

312 FATHOMETER OPERATOR (CONT'D)

312.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform or simulate this infrequent task.

		Questions
312.3.1	Determine depth and proper switch setting using single ping (2 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

.2	Operate fathometer and determine depth using audio return only (2 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

312 FATHOMETER OPERATOR (CONT'D)

312.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

312.4.1 Lost tracking (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

.2 Transmitter overload (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

312 FATHOMETER OPERATOR (CONT'D)

312.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

312.5.1 Electrical shock (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Equipment fire (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 15% OF WATCHSTATION.

312 FATHOMETER OPERATOR (CONT'D)

312.6 WATCHES

312.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Navigation detail (3 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 10% OF WATCHSTATION.

312.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

312.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (NAVEDTRA 43492-2F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR

Estimated completion time: 12 weeks

313.1 PREREQUISITES

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

313.1.1 SCHOOLS:

Celestial Navigation Refresher (J-061-0603) (RECOMMENDED)

Completed _____
(Qualifier and Date)

Navigator/Senior QM Refresher (J-2G-2207) (REQUIRED)

Completed _____
(Qualifier and Date)

VMS Operator (A-061-OO42) (REQUIRED)

Completed _____
(Qualifier and Date)

.2 WATCH STATIONS FROM THIS PQS:

311 Bearing Book Recorder

Completed _____
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

212 Voyage Management System (VMS)

Completed _____ 5% of Watchstation
(Qualifier and Date)

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

313.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

Questions

313.2.1 Demonstrate boot-up and sign-on procedures for:

a. NAV-1 console (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

b. Conn console (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.2 Perform the following VMS functions:

a. Start VMS (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. Select control station (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

313.2.2 c. Acknowledge alarms (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.3 Setup the following primary sensors:

a. Heading source (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

b. Speed over ground source (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

c. Speed through the water source (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

d. Position source (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.4 Select the following secondary sensors:

a. Set and drift sensor (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

313.2.4 b. Depth sensor (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

c. Time sensor (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

d. Magnetic variation sensor (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.5 Select and display charts using quick-view function (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.6 Select and display charts using chart catalog function from the main level chart button (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.7 Create a chart portfolio (2 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

Questions

313.2.8 Create mariner objects (2 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

.9 Create a layer portfolio (2 times) A B C D F G

_____
(Signature and Date)

_____
(Signature and Date)

.10 Create a voyage plan:

a. Insert waypoints (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

b. Insert turn Brg/Rng (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

c. Insert critical points (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

d. Enter time or speed for waypoints (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

313.2.10 e. Enter overall ETA or ETD (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

f. Associate a portfolio with a voyage plan (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

g. Save plan (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

h. Approve plan (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.11 Create a Nav plan:

a. File actions (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. New plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

313.2.11 c. Name plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Select voyage plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

e. Select stored voyage plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

f. Input start and end time (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

g. Save Nav plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

h. Approve Nav plan (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

		Questions
313.2.12	Activate chart and layer portfolios for voyage plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Load a voyage plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.14	Load PIM plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.15	Start voyage plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.16	View voyage plan summary (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.17	View PIM plan summary (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

		Questions
313.2.18	Stop a voyage plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.19	Clear a voyage plan (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.20	Demonstrate TTMG functions (2 times)	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.21	Demonstrate the use of the following: (2 times)	
	a. Colors	A B D F G
	b. Zone	A B D F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

313.2.22 Display the following from the main level features option: (2 times)

a.	Anchor Drag	A B F G
b.	Anchoring	A B F G
c.	Guard Ring	A B F G
d.	LOP Draw	A B F G
e.	Lat/Lon Grid	A B F G
f.	Mariner Objects	A B F G
g.	Orientation Arrow	A B F G
h.	Own Ship	A B F G
i.	Radar Navlines	A B F G
j.	SDNC Charts	A B F G
k.	Targets	A B F G
m.	Track Display	A B F G
n.	Voyage Plans	A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.23 Perform the following using the main level buttons: (2 times)

a.	Reveal	A B G
b.	Overlays	A B G
c.	STD	A B G
d.	Radar	A B G
e.	MOB	A B G
f.	RdrOver	A B G
g.	Center	A B G
h.	Offset	A B G
i.	CNTR Area	A B G
j.	Z in	A B G
k.	Z out	A B G
l.	Window	A B G
m.	Dangers	A B G
n.	Query	A B G
o.	Auto/MAN/Lock	A B G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

313.2.24 Demonstrate the use of the following from the Misc tools button: (2 times)

a.	History Menu	A B F G
b.	Units Menu	A B F G
c.	File Manager	A B F G
d.	Reports	A B F G
e.	Chart Match	A B F G
f.	GoTo	A B F G
g.	Data Log	A B F G
h.	Chart One	A B F G
i.	Update History	A B F G
j.	DNC Converter	A B F G
k.	S57 Direct Read	A B F G
l.	Query Options	A B F G
m.	Chart Units	A B F G

_____
(Signature and Date)

_____
(Signature and Date)

.25 Demonstrate the use of the following from the Nav tools button: (2 times)

a.	Event Mark	A B D F G
b.	LOP DLG	A B D F G
c.	Guard Zone	A B D F G
d.	EBL	A B D F G
e.	VRM	A B D F G
f.	LPI	A B D F G
g.	Anchor Drag	A B D F G
h.	Anchoring	A B D F G

_____
(Signature and Date)

_____
(Signature and Date)

.26 Set DR vector length (2 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 25% OF WATCHSTATION.

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

313.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
F. What parameters must be monitored?
G. How are the monitored parameters changed by this infrequent task?
H. What conditions require this infrequent task?
I. Satisfactorily perform or simulate this infrequent task.

		Questions
313.3.1	Enter manual data (2 times)	A B C D F G H I
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.2	Demonstrate use of playback feature (2 times)	A B F H I
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Display ship's logs (2 times)	A B F H I
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .3 AREA COMPRISES 15% OF WATCHSTATION.

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

313.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

313.4.1 Loss of GPS (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Loss of individual display (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.3 Loss of sensor inputs (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 15% OF WATCHSTATION.

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

313.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

313.5.1 VMS failure (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 15% OF WATCHSTATION.

313.6 WATCHES

313.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Voyage Management System (VMS) Operator (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

`

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 25% OF WATCHSTATION.

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR (CONT'D)

313.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

313.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (NAVEDTRA 43492-2F).

RECOMMENDED_____ DATE_____
Supervisor

RECOMMENDED_____ DATE_____
Division Officer

RECOMMENDED_____ DATE_____
Department Head

QUALIFIED_____ DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____ DATE_____

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR

Estimated completion time: 12 weeks

314.1 PREREQUISITES

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

314.1.1 SCHOOLS:

Celestial Navigation Refresher (J-061-0603) (RECOMMENDED)

Completed _____
(Qualifier and Date)

Navigator/Senior QM Refresher (J-2G-2207) (REQUIRED)

Completed _____
(Qualifier and Date)

COMDAC System Operator (A-061-0030) (REQUIRED)

Completed _____
(Qualifier and Date)

.2 WATCH STATIONS FROM THIS PQS:

311 Bearing Book Recorder

Completed _____
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

213 Command Display and Control (COMDAC)

Completed _____ 5% of Watchstation
(Qualifier and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

314.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What safety precautions must be observed?
F. What parameters/operating limits must be monitored?
G. Satisfactorily perform this task.

Questions

314.2.1 Demonstrate startup/shutdown and reboot procedures for:

a. DCS (3 times) A B C E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. NRS (3 times) A B C E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.2 Perform the following logins:

a. DCS (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.2 b. Shutdown (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

c. NRS 1-day (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

d. NRS 1 dark (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

e. NAVNRS 2 (2 times) A B C G

_____
(Signature and Date)

_____
(Signature and Date)

.3 Identify the GCCS-M bar and display the following:

a. COMDAC (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.2.3 b. STELLA (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Sensor display (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Data logs (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

e. Log viewer (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.4 Using the sensor display window perform the following:

a. GVRC control (FM code) (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.2.4 b. Halt HMI (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.5 Using the chart data manager perform the following:

a. Load DNC (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. Prepare DNC (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Unprepare DNC (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Delete DNC (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.6 Perform the following tasks in the COMDAC-INS window:

a. Chart loading procedures (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. Set contour value lines IAW ship's navigation draft (3 times) A B D E F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

c. Establish scale setting (3 times) A B F G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

d. Set display setting (3 times) A B E G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.6 e. Select alternate color settings (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

f. Demonstrate how to display an ENC (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

g. Display and describe layers of a DNC (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

h. Demonstrate how to display a raster nautical chart (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

i. Demonstrate how to enter sounding limits on track legs (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.2.6 j. Demonstrate how to enter keel depth limits on track legs (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

k. Demonstrate the use of the chart library (identifying boundaries, selecting required charts, and clear browse library) (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.7 Demonstrate the following tasks in the LOP menu option:

a. View navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. Enter navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.7 c. Modify navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

d. Delete navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

e. Archive navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

f. Hide navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.7 g. Restore navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

h. Activate navigation object (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

i. Deactivate navigation object (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

j. Deactivate all navigation objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.7 k. Sort objects (visual) (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

l. Sort objects (radar) (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

m. Mark position type (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

n. Update position source (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.7 o. Enable radar sequence (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

p. Disable radar sequence (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

q. Skip navigation object (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

r. Clear LOP data (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.7 s. Clear all LOP data (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.8 Demonstrate the following tasks in the track line menu option:

a. Create temporary track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. View track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

c. Activate track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.2.8 d. Save track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.9 Create a track line and perform the following tasks for waypoints:

a. Select waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

b. Append waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

c. Insert waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.2.9 d. Modify waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

e. Invert waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

f. Delete waypoint (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.10 Encode a track line using the following:

a. Set as a great-circle track (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.10 b. Convert to rhumbline (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

c. Enter own ship parameters (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

d. Enter deviation limits (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

e. Enter turn objects (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.10 f. Enter danger objects (left/right) (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

g. Enter sounding limit values (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

h. Enter keel depth limits (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

i. Rename track line (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

j. Archive track line (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.10 k. Restore track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

l. Delete track line (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

m. Clear PIM/SOA data (3 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.11 Perform the following under the tides tab:

a. Locate tides reference stations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.11 b. Locate tides substations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Set date (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Set 2-day mode (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

e. Set clock mode (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

f. Graph tides (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

g. Plot tides (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.12 Perform the following tasks under the currents tab:

a. Locate currents reference stations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. Locate currents substations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Set date (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Set 2-day mode (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

e. Set clock mode (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

f. Graph currents (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.12 g. Plot currents (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.13 Perform the following tasks under the plot tab:

a. Remove station (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. Remove all stations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Set interval (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.14 Under the almanac data tab set sky calculations locations (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.15 Demonstrate the following tasks in the filter menu option:

a. Navigation (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. Target track (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

c. Chart reference (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Charted features (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.16 Complete the following tasks in the turnpoint anchor/turnpoint solution menu option:

a. Activate the turnpoint tabbed window (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.16 b. Give course/speed recommendations to the turnpoint (2 times) A B D F G

_____
(Signature and Date)

_____
(Signature and Date)

c. Activate the standard Nav tabbed window (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Give navigation recommendations to the conn (2 times) A B D F G

_____
(Signature and Date)

_____
(Signature and Date)

e. Enter nearest hazard to navigation (2 times) A B D E F G

_____
(Signature and Date)

_____
(Signature and Date)

f. Enter nearest aid to navigation (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

g. Set auto turnpoint selecting a waypoint forward (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.16 h. Set auto turnpoint selecting a waypoint aft (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

i. Clear auto turnpoint (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

j. Set trackball maneuver without waypoint selected (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

k. Set trackball maneuver with waypoint selected (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

l. Clear trackball maneuver (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

m. Set rudder angle (2 times) A B E F G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.16 n. Set trial turn speed (2 times) A B E F G

_____
(Signature and Date)

_____
(Signature and Date)

o. Clear trial turn speed (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

p. Activate ETA/PIM tabbed window (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.17 Perform the following tasks under the INS graphics window status bar:

a. Set motion mode to alternate mode selection (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

b. Set center mode on alternate selection (2 times) A B D F G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.17 c. Zoom in (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

d. Zoom out (2 times) A B D F G

_____
(Signature and Date)

_____
(Signature and Date)

e. Zoom box (2 times) A B D E F G

_____
(Signature and Date)

_____
(Signature and Date)

f. Set width to alternate selection (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

g. Set scale to 1:5000 (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

h. Set scale to natural (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.2.17 i. Set cursor to lat/long (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

j. Set cursor to Rng/Brg (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 30% OF WATCHSTATION.

314.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What is the alarm set point?
F. What parameters must be monitored?
G. How are the monitored parameters changed by this infrequent task?
H. What conditions require this infrequent task?
I. Satisfactorily perform or simulate this infrequent task.

Questions

314.3.1 Complete the following tasks in the CA window:

a. Set collision avoidance parameters (2 times) A B E I

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.3.1 b. Set max range (2 times) A B E I

_____
(Signature and Date)

_____
(Signature and Date)

c. Set max tracks (2 times) A B E I

_____
(Signature and Date)

_____
(Signature and Date)

d. Set miss distance (2 times) A B E I

_____
(Signature and Date)

_____
(Signature and Date)

e. Set min range (2 times) A B E I

_____
(Signature and Date)

_____
(Signature and Date)

f. Set time to CPA alarm (2 times) A B C D E H I

_____
(Signature and Date)

_____
(Signature and Date)

g. Activate the CPA tabbed window (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.3.1 h. Set trial maneuver with 00 time (2 times) A B F G I

_____
(Signature and Date)

_____
(Signature and Date)

i. Set trial maneuver with time (2 times) A B F G I

_____
(Signature and Date)

_____
(Signature and Date)

j. Clear trial maneuver (2 times) A B F G I

_____
(Signature and Date)

_____
(Signature and Date)

k. Make recommendation to avoid contacts using CA graphics (2 times) A B G

_____
(Signature and Date)

_____
(Signature and Date)

.2 Perform the following tasks from the single operator action menu section:

a. Activate/deactivate electronic bearing line 1&2 (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.3.2 b. Activate/deactivate variable range marker 1&2 (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

c. Activate/deactivate electronic range bearing line 1&2 (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

d. Activate MOB (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

e. Clear MOB (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

f. Clear MOB bearing lines (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

g. Enter MOB fix (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

Questions

314.3.2 h. Select alternate color options (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

.3 Perform the following tasks under the SDS menu bar:

a. Select the SDS menu button option (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

b. Select the datum data menu option (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

c. Choose NAVSSI datum control and choose alternate selection (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

d. Select return to main (2 times) A B I

_____
(Signature and Date)

_____
(Signature and Date)

Questions

314.3.3 e. Approve track line (3 times) A B G I

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 20% OF WATCHSTATION.

313.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

313.4.1 Loss of GPS (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Loss of individual display (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
313.4.3	Loss of sensor inputs (2 times)	A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

313.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What other emergencies or malfunctions may occur if immediate action is not taken?
F. How does this emergency affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the immediate action for this emergency.

		Questions
313.5.1	VMS failure (2 times)	A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 10% OF WATCHSTATION.

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR (CONT'D)

314.6 WATCHES

314.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Command Display and Control (COMDAC) System Operator (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 25% OF WATCHSTATION.

314.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

314.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

315 NAVIGATION ANCHOR WATCH

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified NAVIGATION ANCHOR WATCH (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

315 NAVIGATION ANCHOR WATCH

Estimated completion time: 8 weeks

315.1 PREREQUISITES

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

315.1.1 WATCHSTATIONS FROM THIS PQS:

311 Bearing Book Recorder

Completed _____
(Qualifier and Date)

312 Fathometer Operator

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

107 Honors and Ceremonies

Completed _____ 3% of Watchstation
(Qualifier and Date)

110 Weather Reporting and Observing

Completed _____ 3% of Watchstation
(Qualifier and Date)

111 Nautical Charts and Publications

Completed _____ 3% of Watchstation
(Qualifier and Date)

112 Navigation Rules

Completed _____ 3% of Watchstation
(Qualifier and Date)

315 NAVIGATION ANCHOR WATCH (CONT'D)

315.1.2 113 Piloting

Completed _____ 3% of Watchstation
(Qualifier and Date)

114 Ships Characteristics

Completed _____ 3% of Watchstation
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

205 AN/UQN-4/4A Sonar Sounding Set (Fathometer)

Completed _____ 3% of Watchstation
(Qualifier and Date)

206 AN/SPA-25G Repeater/Indicator

Completed _____ 3% of Watchstation
(Qualifier and Date)

212 Voyage Management System (VMS)

Completed _____ 3% of Watchstation
(Qualifier and Date)

213 Command Display and Control (COMDAC)

Completed _____ 3% of Watchstation
(Qualifier and Date)

315 NAVIGATION ANCHOR WATCH (CONT'D)

315.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform this task.

Questions

315.2.1 Compute true wind (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

.2 Maintain deck log (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

.3 Maintain bearing book (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

315 NAVIGATION ANCHOR WATCH (CONT'D)

		Questions
315.2.4	Energize anchor lights (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Plot the position of the anchor (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Compute scope of chain (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Compute and plot swing and drag circles (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.8	Determine type of bottom (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Identify and select visual navigation aids (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

315 NAVIGATION ANCHOR WATCH (CONT'D)

		Questions
315.2.10	Identify and select radar navigation aids (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Plot a visual fix (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Plot a radar fix (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Operate bridge-to-bridge radio (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.14	Take a sounding using fathometer (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.15	Record weather observation (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

315 NAVIGATION ANCHOR WATCH (CONT'D)

Questions

315.2.16 Turnover the watch (2 times) A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 40% OF WATCHSTATION.

315.3 INFREQUENT TASKS – None to be discussed.

315.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What are the probable causes?
D. What operating limitations are imposed?
E. What emergencies or malfunctions may occur if immediate action is not taken?
F. How does this condition affect other operations/equipment/watchstations?
G. What follow-up action is required?
H. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

315.4.1 Dragging anchor (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.2 Adverse weather (2 times) A B D E F H

_____
(Signature and Date)

_____
(Signature and Date)

315 NAVIGATION ANCHOR WATCH (CONT'D)

Questions

315.4.3 Loss of gyro/repeater (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.4 Loss of radar/repeater (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.5 Loss of electrical power (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

.6 Low visibility (2 times) A B C D E F G H

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 20% OF WATCHSTATION.

315.5 EMERGENCIES – None to be discussed.

315 NAVIGATION ANCHOR WATCH (CONT'D)

315.6 WATCHES

315.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Navigation Anchor (2 times)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 10% OF WATCHSTATION.

315.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

315.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

316 QUARTERMASTER OF THE WATCH (QMOW)

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified QUARTERMASTER OF THE WATCH (QMOW) (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

316 QUARTERMASTER OF THE WATCH (QMOW)

Estimated completion time: 26 weeks

316.1 PREREQUISITES

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

316.1.1 WATCHSTATIONS FROM OTHER PQS:

MK 164 Bridge Launcher Control Panel Operator (NAVEDTRA 43341-C), 304 Decoy Launching Systems (DLS)

Completed _____
(Qualifier and Date)

.2 WATCHSTATIONS FROM THIS PQS:

312 Voyage Management System (VMS) Operator

Completed _____
(Qualifier and Date)

313 Command Display and Control (COMDAC) System Operator

Completed _____
(Qualifier and Date)

314 Navigation Anchor Watch

Completed _____
(Qualifier and Date)

.3 FUNDAMENTALS FROM THIS PQS:

115 Maneuvering Board

Completed _____ 2% of Watchstation
(Qualifier and Date)

118 Sunrise/Sunset Moonrise/Moonset

Completed _____ 2% of Watchstation
(Qualifier and Date)

316.1.3 119 Celestial Navigation

Completed _____ 2% of Watchstation
(Qualifier and Date)

120 Sight Reduction

Completed _____ 2% of Watchstation
(Qualifier and Date)

121 Electronic Navigation

Completed _____ 2% of Watchstation
(Qualifier and Date)

122 Tides and Currents

Completed _____ 2% of Watchstation
(Qualifier and Date)

.4 SYSTEMS FROM THIS PQS:

201 Stadimeter

Completed _____ 2% of Watchstation
(Qualifier and Date)

202 Marine Sextant

Completed _____ 2% of Watchstation
(Qualifier and Date)

203 Magnetic Compass

Completed _____ 2% of Watchstation
(Qualifier and Date)

204 Flux Gate Compass

Completed _____ 2% of Watchstation
(Qualifier and Date)

206 AN/SPA-25G Repeater/Indicator

Completed _____ 2% of Watchstation
(Qualifier and Date)

316.1.4 207 Degaussing

Completed _____ 2% of Watchstation
(Qualifier and Date)

208 Ship's Steering Control Console

Completed _____ 2% of Watchstation
(Qualifier and Date)

209 Engine Order Telegraph (EOT)

Completed _____ 2% of Watchstation
(Qualifier and Date)

210 Electrohydraulic Steering Gear (Aftersteering)

Completed _____ 2% of Watchstation
(Qualifier and Date)

211 AN/WRN-6(V) Satellite Navigation Set

Completed _____ 2% of Watchstation
(Qualifier and Date)

316.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What parameters/operating limits must be monitored?
E. Satisfactorily perform this task.

Questions
A B C D E

316.2.1 Relieve the watch (2 times)

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
316.2.2	Energize and setup GPS (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.3	Verify chart datum and enter into GPS (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Establish ship's position using GPS (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Energize and adjust radar repeater (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Establish ship's position using radar ranges and bearings (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Establish ship's position using soundings (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.8	Establish ship's position using visual bearing (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Establish ship's position by sextant angles (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.10	Layout DR track showing DR position and times (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.11	Setup degaussing remote control panel for various magnetic headings (2 times)	A B C D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Determine range of object using a stadimeter (2 times)	A B D E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.13	Determine gyro error by an azimuth of the sun (4 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.14	Determine gyro error by amplitude (4 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.15	Determine gyro error by terrestrial range (4 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
316.2.16	Determine gyro error by Polaris (4 times)	A B C D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.17	Determine gyro error using the Franklin method (4 times)	A B D E

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

.18	Apply gyro error to obtain true course (2 times)	A B E

_____
(Signature and Date)

_____
(Signature and Date)

.19	Apply variation and deviation to compass course to obtain true course (2 times)	A B E

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
316.2.20	Apply variation and deviation to true course to obtain compass course (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.21	Compute true wind direction and speed using maneuvering board (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.22	Compute true wind direction and speed using wind computer (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.23	Compute desired wind using maneuvering board (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.24	Compute desired wind using wind computer (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.25	Compute set and drift (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.26	Determine course and speed made good (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.27	Make recommendations for course to steer to make good intended course (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.28	Sound whistle signals on ship's whistle (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.29	Fillout ship's position report (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.30	Prepare and maintain ship's position log (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.31	Compute star time (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.32	Compute tides (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.33	Compute currents (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.34	Plot tide computations on graph paper (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.35	Plot current computations on graph paper (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.36	Act as recorder for celestial observation (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.37	Determine the computed visibility of lights used as aids to navigation (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.38	Time/identify lights using stopwatch (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.39	Identify lights using list of lights/light list (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.40	Setup and align PMP/drafting machine (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.41	Complete navigation/special evolution checkoff list (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.42	Compute time of LAN (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.43	Select stars and planets using Rude Star Finder and Identifier No. 2102-D (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.44	List selected stars from H.O. Pub. 249 (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.45	Make corrections to charts using chart number one/message traffic (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.46	Prepare and maintain navigation workbook (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.47	Identify hazards to navigation along DR track (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.48	Prepare and maintain ship's deck log (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.49	Prepare and maintain magnetic compass log (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.50	Prepare and maintain ship's weather observations sheet (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.51	Encode synoptic weather message (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.52	Prepare and maintain navigational timepiece book (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.53	Compare ship's chronometers (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.54	Conduct time check throughout the ship (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.55	Locate, setup, and energize normal navigation lights in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.56	Locate, setup, and energize anchor and aircraft warning lights in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.57	Locate, setup, and energize breakdown (not under command) and man overboard lights in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
316.2.58	Locate, setup, and energize special operation lights in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.59	Locate and energize all emergency alarms in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.60	Locate and operate ship's whistle manually in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.61	Locate and operate ship's whistle electrically in darkness (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.62	Compute sunrise/sunset (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.63	Compute moonrise/moonset (2 times)	A B E
	_____ (Signature and Date)	
	_____ (Signature and Date)	

Questions

316.2.64 Locate bridge equipment circuit breaker panels in darkness (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

.65 Plot running fix using visual bearing (2 times) A B E

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 36% OF WATCHSTATION.

316.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What conditions require this infrequent task?
D. Satisfactorily perform or simulate this infrequent task.

Questions

316.3.1 Sound whistle signals using hand fog horn (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

.2 Determine wind direction and speed using hand held anemometer (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

Questions

316.3.3 Plot weather warning messages (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

.4 Observe, compute, and plot sun line (2 times) A B C D

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 5% OF WATCHSTATION.

316.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. What follow-up action is required?
G. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

Questions

316.4.1 Failure of ship's navigation lights (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

.2 Failure of ship's whistle (2 times) A B C D E F G

_____
(Signature and Date)

_____
(Signature and Date)

		Questions
316.4.3	Low visibility (2 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.4	Loss of gyro (2 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Severe weather (2 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Loss of power to electronic navigation equipment (2 times)	A B C D E F G
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .4 AREA COMPRISES 10% OF WATCHSTATION.

316.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What other emergencies or malfunctions may occur if immediate action is not taken?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

316.5.1 Man overboard/aircraft in water (2 times) A B D E F

_____
(Signature and Date)

_____
(Signature and Date)

.2 Grounding (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.3 Collision (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

316 QUARTERMASTER OF THE WATCH (QMOW) (CONT'D)

Questions

316.5.4 Abandon ship (2 times) A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 5% OF WATCHSTATION.

316.6 WATCHES

316.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Quartermaster of the Watch (QMOW) (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 12% OF WATCHSTATION.

316.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

316.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

317 NAVIGATION DETAIL PLOTTER

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified NAVIGATION DETAIL PLOTTER (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

317 NAVIGATION DETAIL PLOTTER

Estimated completion time: 4 weeks

317.1 PREREQUISITES

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

317.1.1 WATCHSTATIONS FROM THIS PQS:

316 Quartermaster of the Watch (QMOW)

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

115 Maneuvering Board

Completed _____ 5% of Watchstation
(Qualifier and Date)

121 Electronic Navigation

Completed _____ 5% of Watchstation
(Qualifier and Date)

317 NAVIGATION DETAIL PLOTTER (CONT'D)

317.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What parameters/operating limits must be monitored?
F. Satisfactorily perform this task.

Questions

317.2.1 Select appropriate navigation aids to be used for piloting (2 times) A B C F

_____
(Signature and Date)

_____
(Signature and Date)

.2 Determine turn bearing using ship's advance and transfer tables (2 times) A B F

_____
(Signature and Date)

_____
(Signature and Date)

.3 Determine turn ranges using ship's advance and transfer tables (2 times) A B F

_____
(Signature and Date)

_____
(Signature and Date)

.4 Plot a slide bar (2 times) A B F

_____
(Signature and Date)

_____
(Signature and Date)

317 NAVIGATION DETAIL PLOTTER (CONT'D)

		Questions
317.2.5	Compute time/distance to turn (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Compute revised turn bearing for ship off track (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Count down to turn using visual bearings (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.8	Count down to turn using radar range (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.9	Compute danger bearings and ranges (2 times)	A B E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.10	Prepare a chart for anchorage (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	

317 NAVIGATION DETAIL PLOTTER (CONT'D)

		Questions
317.2.11	Determine and apply set and drift (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.12	Determine course and speed made good (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.13	Make recommendations for course to steer to make good intended course (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.14	Compare depth of water with charted depth (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.15	Establish ship's position using visual bearings in piloting situation (2 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	

317 NAVIGATION DETAIL PLOTTER (CONT'D)

		Questions
317.2.16	Layout DR track (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.17	Determine gyro error by range (2 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.18	Determine gyro error by triangulation (Franklin method) (2 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.19	Setup and align PMP drafting machine with chart (2 times)	A B F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.20	Plot ship's position entering/departing port (2 times)	A B C D F
	_____ (Signature and Date)	
	_____ (Signature and Date)	

		Questions
317.2.21	Compare GPS fix data with visual/radar fix (2 times)	A B C D F

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .2 AREA COMPRISES 35% OF WATCHSTATION.

317.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. What conditions require this infrequent task?
F. Satisfactorily perform or simulate this infrequent task.

		Questions
317.3.1	Maintain ship's plot during low visibility conditions (2 times)	A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.2	Maintain ship's plot during loss of gyro using relative bearing (2 times)	A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

.3	Maintain ship's plot during loss of gyro using sextant angles (2 times)	A B C D E F

_____
(Signature and Date)

_____
(Signature and Date)

317 NAVIGATION DETAIL PLOTTER (CONT'D)

		Questions
317.3.4	Plot ship's position using triangles/parallel rulers (2 times)	A B E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.5	Plot and reposition navigation aids/hazards (2 times)	A B E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.6	Plot during a swept channel exercise (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.7	Plot into a precision anchorage (2 times)	A B C D E F
	_____ (Signature and Date)	
	_____ (Signature and Date)	

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

317 NAVIGATION DETAIL PLOTTER (CONT'D)

317.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications is received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

		Questions
317.4.1	Loss of communications	A B C D E F

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 5% OF WATCHSTATION.

317.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What other emergencies or malfunctions may occur if immediate action is not taken?
E. How does this emergency affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the immediate action for this emergency.

		Questions
317.5.1	Man overboard	A B C D E F

_____
(Signature and Date)

.2	Grounding	A B C D E F

_____
(Signature and Date)

.3	Collision	A B C D E F

_____
(Signature and Date)

317 NAVIGATION DETAIL PLOTTER (CONT'D)

Questions

317.2.4 Abandon ship A B C D E F

_____
(Signature and Date)

.5 Downed aircraft A B C D E F

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 15% OF WATCHSTATION.

317.6 WATCHES

317.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Navigation Detail Plotter (during restricted water transit) (5 times)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 25% OF WATCHSTATION.

317.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

317.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

318 NAVIGATOR/ASSISTANT NAVIGATOR

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.

A copy of this completed page shall be kept in the individual's training jacket.

The trainee has completed all PQS requirements for this watchstation. Recommend designation as a qualified NAVIGATOR/ASSISTANT NAVIGATOR (NAVEDTRA 43492-2F).

RECOMMENDED_____DATE_____
Supervisor

RECOMMENDED_____DATE_____
Division Officer

RECOMMENDED_____DATE_____
Department Head

QUALIFIED_____DATE_____
Commanding Officer or Designated Representative

SERVICE RECORD ENTRY_____DATE_____

318 NAVIGATOR/ASSISTANT NAVIGATOR

Estimated completion time: 4 weeks

318.1 PREREQUISITES

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

318.1.1 SCHOOLS:

Navigator/Senior QM Refresher (J-2G-2207) (REQUIRED)

Completed _____
(Qualifier and Date)

Celestial Navigation Refresher (J-061-0603) (REQUIRED)

Completed _____
(Qualifier and Date)

Rules of Safe Shiphandling (K-2E-2108) (RECOMMENDED)

Completed _____
(Qualifier and Date)

VMS Operator (A-061-0042) (REQUIRED)

Completed _____
(Qualifier and Date)

COMDAC System Operator (A-061-0030) (REQUIRED)

Completed _____
(Qualifier and Date)

NAVSTAR GPS AN/WRN-6 Operation STEP CD-ROM Course
(NAVEDTRA A-102-0047) (REQUIRED)

Completed _____
(Qualifier and Date)

.2 FUNDAMENTALS FROM THIS PQS:

101 Safety

Completed _____ 1% of Watchstation
(Qualifier and Date)

318.1.2 102 Security

Completed _____ 1% of Watchstation
(Qualifier and Date)

103 Watchstanding and Administration

Completed _____ 1% of Watchstation
(Qualifier and Date)

104 Interior Communications

Completed _____ 1% of Watchstation
(Qualifier and Date)

107 Honors and Ceremonies

Completed _____ 1% of Watchstation
(Qualifier and Date)

108 Aids to Navigation

Completed _____ 1% of Watchstation
(Qualifier and Date)

109 Logs and Records

Completed _____ 1% of Watchstation
(Qualifier and Date)

110 Weather Reporting and Observing

Completed _____ 1% of Watchstation
(Qualifier and Date)

111 Nautical Charts and Publications

Completed _____ 1% of Watchstation
(Qualifier and Date)

112 Navigation Rules

Completed _____ 1% of Watchstation
(Qualifier and Date)

318.1.2 113 Piloting

Completed _____ 1% of Watchstation
(Qualifier and Date)

114 Ship's Characteristics

Completed _____ 1% of Watchstation
(Qualifier and Date)

115 Maneuvering Board

Completed _____ 1% of Watchstation
(Qualifier and Date)

116 Bridge Equipment

Completed _____ 1% of Watchstation
(Qualifier and Date)

117 Helm/Lee Helm

Completed _____ 1% of Watchstation
(Qualifier and Date)

118 Sunrise/Sunset Moonrise/Moonset

Completed _____ 1% of Watchstation
(Qualifier and Date)

119 Celestial Navigation

Completed _____ 1% of Watchstation
(Qualifier and Date)

120 Sight Reduction

Completed _____ 1% of Watchstation
(Qualifier and Date)

121 Electronic Navigation

Completed _____ 1% of Watchstation
(Qualifier and Date)

318.1.2 122 Tides and Currents

Completed _____ 1% of Watchstation
(Qualifier and Date)

123 Special Evolutions

Completed _____ 1% of Watchstation
(Qualifier and Date)

.3 SYSTEMS FROM THIS PQS:

201 Stadimeter

Completed _____ 1% of Watchstation
(Qualifier and Date)

202 Marine Sextant

Completed _____ 1% of Watchstation
(Qualifier and Date)

203 Magnetic Compass

Completed _____ 1% of Watchstation
(Qualifier and Date)

204 Flux Gate Compass

Completed _____ 1% of Watchstation
(Qualifier and Date)

205 AN/UQN-4/4A Sonar Sounding Set (Fathometer)

Completed _____ 1% of Watchstation
(Qualifier and Date)

206 AN/SPA-25G Repeater/Indicator

Completed _____ 1% of Watchstation
(Qualifier and Date)

207 Degaussing

Completed _____ 1% of Watchstation
(Qualifier and Date)

318.1.3 208 Ship's Steering Control Console

Completed _____ 1% of Watchstation
(Qualifier and Date)

209 Engine Order Telegraph (EOT)

Completed _____ 1% of Watchstation
(Qualifier and Date)

210 Electrohydraulic Steering Gear (Aftersteering)

Completed _____ 1% of Watchstation
(Qualifier and Date)

211 AN/WRN-6(V) Satellite Navigation Set

Completed _____ 1% of Watchstation
(Qualifier and Date)

212 Voyage Management System (VMS)

Completed _____ 3% of Watchstation
(Qualifier and Date)

213 Command Display and Control (COMDAC)

Completed _____ 1% of Watchstation
(Qualifier and Date)

318.2 TASKS

For the tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What control/coordination is required?
D. What means of communications are used?
E. Satisfactorily perform this task.

Questions

318.2.1 Prepare CO's night order book A B C E

_____
(Signature and Date)

.2 Prepare ship's movement report A B C E

_____
(Signature and Date)

318 NAVIGATOR/ASSISTANT NAVIGATOR (CONT'D)

		Questions
318.2.3	Compile information for OTSR	A B C E
	_____ (Signature and Date)	
.4	Prepare deck log for CO's signature	A B C E
	_____ (Signature and Date)	
.5	Swing ship, correct compass, and prepare new deviation table	A B C D E
	_____ (Signature and Date)	
.6	Supervise training of junior officers	A B C E
	_____ (Signature and Date)	
.7	Interpret/plot typhoon and storm warnings messages	A B E
	_____ (Signature and Date)	
.8	Brief navigation team prior to navigation detail	A B C D E
	_____ (Signature and Date)	
.9	Supervise the preparation of navigation charts for port-to-port transit	A B E
	_____ (Signature and Date)	
.10	Supervise the preparation of navigation charts for great circle transit	A B E
	_____ (Signature and Date)	
.11	Verify navigation charts/track prior to navigation brief	A B E
	_____ (Signature and Date)	

		Questions
318.2.12	Supervise navigation checkoff sheet prior to sea detail	A B E
	_____ (Signature and Date)	
.13	Supervise navigation team during piloting	A B C D E
	_____ (Signature and Date)	
.14	Inspect and prepare magnetic compass book for navigator's/CO's signature	A B E
	_____ (Signature and Date)	
.15	Conduct formal navigation brief (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.16	Prior to leaving/entering pilot waters, consult all available sources of information concerning navigation	A B E
	_____ (Signature and Date)	
.17	Prepare input for ship's logistics request	A B E
	_____ (Signature and Date)	
.19	Identify morning and evening stars using Rude Star Finder and Identifier No. 2102-D and Pub. No. 249, Vol. 1	A B E
	_____ (Signature and Date)	
.20	Establish ship's position by celestial sighting using Pub. Nos. 229 and 249	A B E
	_____ (Signature and Date)	

318 NAVIGATOR/ASSISTANT NAVIGATOR (CONT'D)

		Questions
318.2.21	Determine time of LAN	A B E
	_____ (Signature and Date)	
.22	Observe and compute LAN	A B E
	_____ (Signature and Date)	
.23	Observe and compute latitude by Polaris	A B E
	_____ (Signature and Date)	
.24	Navigate ship to anchorage or mooring to a buoy (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.25	Navigate ship in and out of port (2 times)	A B C E
	_____ (Signature and Date)	
	_____ (Signature and Date)	
.26	Align sextant and stadimeter	A B E
	_____ (Signature and Date)	
.27	Construct swept channel	A B E
	_____ (Signature and Date)	
.28	Select and prepare anchorage	A B E
	_____ (Signature and Date)	

		Questions
318.2.29	Prepare and transmit after port visit action report	A B E
	_____ (Signature and Date)	
.30	Supervise a precision anchorage	A B C D E
	_____ (Signature and Date)	

COMPLETED .2 AREA COMPRISES 20% OF WATCHSTATION.

318.3 INFREQUENT TASKS

For the infrequent tasks listed below:

A. What are the steps of this procedure?
B. What are the reasons for each step?
C. What conditions require this infrequent task?
D. Satisfactorily perform or simulate this infrequent task.

		Questions
318.3.1	Supervise swept channel exercise	A B C D
	_____ (Signature and Date)	
.2	Conduct a simulated typhoon evasion exercise	A B C D
	_____ (Signature and Date)	
.3	Conduct a precision anchorage	A B C D
	_____ (Signature and Date)	
.4	Supervise reduced/low visibility exercise	A B C D
	_____ (Signature and Date)	
.5	Layout DR track for underway launch of LVTs or boats, computing time at LOD prior to H-HR, NSFS plotting	A B C D
	_____ (Signature and Date)	

		Questions
318.3.6	Prepare track with anchor drop bearings for causeway marriage and beaching	A B C D

_____
(Signature and Date)

COMPLETED .3 AREA COMPRISES 10% OF WATCHSTATION.

318.4 ABNORMAL CONDITIONS

For the abnormal conditions listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. What operating limitations are imposed?
D. What emergencies or malfunctions may occur if immediate action is not taken?
E. How does this condition affect other operations/equipment/watchstations?
F. Satisfactorily perform or simulate the corrective/immediate action for this abnormal condition.

		Questions
318.4.1	Storm conditions	A B C D E F

_____
(Signature and Date)

.2	Inability to obtain navigation fix in restricted or coastal waters	A B C D E F

_____
(Signature and Date)

.3	Man overboard	A B C D E F

_____
(Signature and Date)

COMPLETED .4 AREA COMPRISES 5% OF WATCHSTATION.

318 NAVIGATOR/ASSISTANT NAVIGATOR (CONT'D)

318.5 EMERGENCIES

For the emergencies listed below:

A. What indications and alarms are received?
B. What immediate action is required?
C. How does this emergency affect other operations/equipment/watchstations?
D. Satisfactorily perform or simulate the immediate action for this emergency.

Questions

318.5.1 Emergency destruction A B C D

_____
(Signature and Date)

.2 Abandon ship A B C D

_____
(Signature and Date)

COMPLETED .5 AREA COMPRISES 5% OF WATCHSTATION.

318.6 WATCHES

318.6.1 STAND THE FOLLOWING WATCHES UNDER QUALIFIED SUPERVISION:

Navigator/Assistant Navigator (complete a complete day of navigation work) (2 times)

_____
(Signature and Date)

_____
(Signature and Date)

COMPLETED .6 AREA COMPRISES 27% OF WATCHSTATION.

318 NAVIGATOR/ASSISTANT NAVIGATOR (CONT'D)

318.7 EXAMINATIONS (OPTIONAL EXCEPT AS REQUIRED BY TYCOM/ISIC, ETC.)

318.7.1 EXAMINATIONS Pass a written examination

_____
(Signature and Date)

.2 EXAMINATIONS Pass an oral examination board

_____
(Signature and Date)

QUALIFICATION PROGRESS SUMMARY FOR SHIP'S CONTROL AND NAVIGATION

NAME_____ RATE/RANK_____

This qualification progress summary is used to track the progress of a trainee in the watchstations for this PQS and ensure awareness of remaining tasks. It should be kept by the individual or in the individual's training jacket and updated with an appropriate signature (Training Petty Officer, Division Officer, Senior Watch Officer, etc.) as watchstations are completed.

---

301 BRIDGE TELEPHONE TALKER

Completed _____ Date_____
(Signature)

---

302 LOOKOUT

Completed _____ Date_____
(Signature)

---

303 EXPERT LOOKOUT (CONDITION I)

Completed _____ Date_____
(Signature)

---

304 LEE HELMSMAN

Completed _____ Date_____
(Signature)

QUALIFICATION PROGRESS SUMMARY FOR SHIP'S CONTROL AND NAVIGATION (CONT'D)

305 HELMSMAN

Completed _____ Date_____
(Signature)

306 AFTERSTEERING HELMSMAN

Completed _____ Date_____
(Signature)

307 HELM/AFTERSTEERING HELM SAFETY OFFICER

Completed _____ Date_____
(Signature)

308 MASTER HELMSMAN

Completed _____ Date_____
(Signature)

309 BOATSWAIN'S MATE OF THE WATCH (BMOW)

Completed _____ Date_____
(Signature)

310 BEARING TAKER

Completed _____ Date_____
(Signature)

QUALIFICATION PROGRESS SUMMARY FOR SHIP'S CONTROL AND NAVIGATION (CONT'D)

311 BEARING BOOK RECORDER

Completed _____ Date_____
(Signature)

312 FATHOMETER OPERATOR

Completed _____ Date_____
(Signature)

313 VOYAGE MANAGEMENT SYSTEM (VMS) OPERATOR

Completed _____ Date_____
(Signature)

314 COMMAND DISPLAY AND CONTROL (COMDAC) SYSTEM OPERATOR

Completed _____ Date_____
(Signature)

315 NAVIGATION ANCHOR WATCH

Completed _____ Date_____
(Signature)

316 QUARTERMASTER OF THE WATCH (QMOW)

Completed _____ Date_____
(Signature)

QUALIFICATION PROGRESS SUMMARY FOR
SHIP'S CONTROL AND NAVIGATION (CONT'D)

317 NAVIGATION DETAIL PLOTTER

Completed _____ Date_____
(Signature)

318 NAVIGATOR/ASSISTANT NAVIGATOR

Completed _____ Date_____
(Signature)

LIST OF REFERENCES USED IN THIS PQS

American Practical Navigator, Bowditch, Pub. 9
Bluejackets' Manual, 22nd Edition
COMDTINST M16672.2D, Navigation Rules
Commanding Officer's Standing Orders
COMNAVAIRFORINST/COMNAVSURFORINST 3530.4A, Surface Ship Navigation Department Organization and Regulations Manual
Dutton's Navigation and Piloting, 14th Edition
Environmental Information Management System Protective Measures Assessment Protocol, RR 271438Z MAR 06 SUBJ/Protective Measures Assessment Protocol (PMAP) Software
FXP-4, Mobility, Logistics, Fleet Support Operations, Noncombat Operations, and Explosive Ordnance Disposal Exercises
Jane's All the World's Aircraft
Jane's Fighting Ships
Local Subject Matter Expert
Manufacturer's Technical Manual (Class Specific)
PMS Maintenance Requirement Card (MRC) 4211/R-1, Stadimeter
PMS Maintenance Requirement Card (MRC) 4211/R-6, R-7, and R-16, Magnetic Compass
Nautical Almanac
Nautical Chart Symbols, Abbreviations, and Terms, Chart No. 1
NAVEDTRA 12968-C, Lookout Training Handbook
NAVEDTRA 14067, Seaman
NAVEDTRA 14076, Engineman 2
NAVEDTRA 14120, IC Electrician, Vol. 1
NAVEDTRA 14232, Sound-Powered Telephone Talker’s Training Manual
NAVEDTRA 14338, Quartermaster
NAVEDTRA 14343, Boatswain’s Mate
NAVOCEANCOMINST 3144.1D, Manual for Ship's Surface Weather Observation
NAVSEA S0400-AD-URM-010/TUM, Tag-Out User’s Manual
NAVSEA S9428-AJ-MMO-010 Digital Flux Gate Magnetic Compass System, Models MV103AC, MV103ACS, and MV103DG
NAVSEA SE 362-DO-MMM-010, Sonar Sounding Set, AN/UQN-4 and AN/UQN-4A, Including Depth Indicator ID-1566/UQN-4 and Digital-to-Analog Converter, CV-2465/UQN-4
NAVSSI Technical Manual Document No. EE170-AF-OMI-010/SSN-6, Vols. 1 thru 4
NAVSSI Technical Manual No. EE170-AG-OMI-010/SSN-6, Vol. 1, System Information
NSTM S9086-QN-STM-010/CH-475 (Rev. 2), Magnetic Silencing
NSTM S9086-TA-STM-010/CH-562 (Rev. 1), Surface Ship Steering Systems
NSTM S9427-AN-MMO-010/WSN-7 (Rev. 1), AN/WSN-7(V)1, -7(V)2, -7(V)3, Inertial Navigation System, Operation and Maintenance Manual
NSTM S9437-A8M-MM-010, IPDS Operator and Maintenance Manual
NSTM S9475-E4-MMA-010/SSM-4, Operating and Maintenance Instruction, Automatic Degaussing Control Equipment
NTP-13B, Flag Pennants and Customs

LIST OF REFERENCES USED IN THIS PQS (CONT'D)

NAVPUB 217, Maneuvering Board
Operator's Manual Voyage Management System, JA26-8307
OPNAVINST 3100.6H, Special Incident Reporting (OPREP-3 PINNACLE, OPREP-3 NAVY BLUE, AND OPREP-3 NAVY UNIT SITREP) Procedures
OPNAVINST 3100.7B, Preparing, Maintaining, and Submitting the Ship's Deck Log
OPNAVINST 3120.32C, Standard Organization and Regulations Manual of the U.S. Navy (SORM)
OPNAVINST 3500.39B, Operational Risk Management
OPNAVINST 3530.3B, Navigation Workbook and Standard Bearing Book
OPNAVINST 420.2, Implementation of the ECDIS-N Certification Process
OPNAVINST 5100.19D (Change-1), Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
Own Ship's Combat Systems Doctrine
Own Ship's Degaussing Folder
Own Ship's Plans and Drawings
Own Ship's SORM
Pacific/Atlantic Fleet Port Directories
S9426-AK-MMA-010, AN/SYQ-13, Navigation/Command and Control System, Operation and Maintenance Manual
SE211-R9-MMC-020, Radar Set, AN/SPS-64(V)9, Description, Operation, and Maintenance, Vol. 2
SE211-S4-OPI-010 (Rev. 1), Operatior Manual, AN/SPS-73(V)12, Surface Search Radar
SE251-DG-MMO-010, Indicator Group, AN/SPA-25G, Vol. 1
SE251-DG-MMO-020, Indicator Group, AN/SPA-25G, Vol. 2
SE251-DG-MMO-030, Indicator Group, AN/SPA-25G, Vol. 3
SECNAVINST 5510.30A, Department of the Navy, Personnel Security Program
SECNAVINST 5510.36 (CH-2), Department of the Navy (DON) Information Security Program (ISP) Regulation
Shipboard Command and Control System (SSCS SUM), Vol. 2
Ship's Information Book (SIB) (Class Specific)
Ship's Tactical Characteristics Folder
SPAWAR EE 170-AA-OMI-010/WRN-6, Operation and Maintenance Instructions Manual, Satellite Signals Navigation Set, AN/WRN-6 (V), Vol. 1
SPAWAR EE 170-AA-OMI-020/WRN 6, Operation and Maintenance Instructions Manual, Satellite Signals Navigation Set, AN/WRN-6(V), Operator Instructions
Subject Matter Expert
Tidal Currents Tables
Tide Tables
Watch Officer's Guide, 13th Edition

PERSONAL QUALIFICATION STANDARD
Feedback Form for NAVEDTRA 43492-2F

From_____ Date_____

Via_____Date_____
Department Head

Activity _____

Mailing Address_____

Email Address _____DSN_____

PQS Title_____NAVEDTRA_____

Section Affected_____

Page Number(s)_____

For faster response, you may email your feedback to the Center for Surface Combat Systems at: scott.d.russell1@navy.mil or thomas.malley@navy.mil. Please include the above information so that we may better serve you.

Remarks/Recommendations (Use additional sheets if necessary):

(FOLD HERE)

DEPARTMENT OF THE NAVY

_____
OFFICIAL BUSINESS

COMMANDING OFFICER
Center for Surface Combat Systems
5395 First St
Dahlgren, VA 22448-5200

(FOLD HERE)