U.S. Department of Homeland Security

United States Coast Guard

U.S. Coast Guard Boat Operations and Training (BOAT) Manual

Volume II

"Train, Maintain, Operate"

COMDTINST M16114.33

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TO ALCOAST
BT
UNCLAS //N16114//
ALCOAST 290/03
COMDTNOTE 16114
SUBJ: **INTERIM CHANGE TO USCG BOAT OPERATIONS AND TRAINING MANUAL**
A. U.S. COAST GUARD BOAT OPERATIONS AND TRAINING (BOAT) MANUAL VOLUME I, COMDTINST M16114.32
B. **U.S. COAST GUARD BOAT OPERATIONS AND TRAINING (BOAT) MANUAL VOLUME II, COMDTINST M16114.33**
1. EFFECT THE FOLLOWING CHANGE TO REF A, PAGE 2-55, C.3. MINIMUM CREW REQUIREMENTS: FOR BOATS 30 FEET AND ABOVE, IF THE BOAT HAS OUTBOARD ENGINES, THE REQUIRED BOAT ENGINEER MAY BE REPLACED WITH AN ADDITIONAL CREW MEMBER. FOR BOATS CONDUCTING LAW ENFORCEMENT, AND MILITARY OPERATIONS (HOMELAND DEFENSE), ONE OF THE REQUIRED CREW (CREW MEMBER ONLY) MAY BE IN A BREAK-IN STATUS AS LONG AS THE MEMBER IS A CERTIFIED BOARDING OFFICER OR BOARDING TEAM MEMBER. FOR OCONUS MILITARY OPERATIONS, CREW REQUIREMENTS WILL BE ESTABLISHED BY THE OPERATIONAL COMMANDER BUT WILL NOT BE LESS THAN REQUIRED BY THE SPECIFIC BOAT TYPE OPERATORS HANDBOOK.
2. EFFECT THE FOLLOWING CHANGE TO REF A, PAGE 5-41, SEARCH PATTERNS (PRECISION) AND SEARCH PATTERNS (DRIFTING): FREQUENCY SHALL BE ONE DAY AND ONE NIGHT EVERY SIX MONTHS. FOR ATON UNITS, FREQUENCY FOR SEARCH PATTERNS (DRIFTING) SHALL BE THE SAME. HOWEVER, FOR ATON UNITS ONLY, SEARCH PATTERNS (PRECISION) SHALL BE ONE DAY EVERY SIX MONTHS.
3. EFFECT THE FOLLOWING CHANGE TO REF A, PAGE 5-43, C.3. TESTS AND EXAMS: THE NOTE SHALL READ "OPEN-BOOK EXAMS - DEFINED AS USING A NEW OR CORRECTED, HIGHLIGHTED AND/OR UNDERLINED COPY OF NAVIGATION RULES, INTERNATIONAL - INLAND, COMDTINST M16672.2 (SERIES). HOWEVER, THIS COPY MAY NOT BE BOOK MARKED OR INDEXED."
4. THE PROFICIENCY REQUIREMENTS LISTED IN REF A, PAGE 5-39 THROUGH 5-41 ARE REQUIRED IN THE CURRENCY CYCLE BEGINNING 1 JULY 2003.
5. EFFECT THE FOLLOWING CHANGE TO **REF B, PART 3 (ENGINEER QUALIFICATION)**. CHANGE ALL ENGINEER QUALIFICATION TASKS (ENG-01-01 THROUGH ENG-04-01) FROM "ANY" TO "TYPE". EVERY TASK WILL BE COMPLETED AS IT PERTAINS TO EACH BOAT TYPE.
6. EFFECT THE FOLLOWING CHANGE TO **REF B, PAGE 4-57**. TASK COX-06-03-ANY SHALL READ "SUCCESSFULLY COMPLETE THE CG INSTITUTES SAR FUNDAMENTALS COURSE OR SEARCH COORDINATION AND EXECUTION COURSE."
7. **RETAIN A COPY OF THIS MESSAGE IN THE FRONT OF REF A AND B PENDING PROMULGATION OF THE NEXT CHANGES.**
8. FOR COMMENTS/QUESTIONS, CONTACT CWO J. WHEELER AT (202) 267-2868 OR CWO S. DAWES AT (202) 267-4316.
9. INTERNET RELEASE AUTHORIZED.
10. RADM J. OLSON, DIRECTOR OPERATIONS CAPABILITY, SENDS.
BT
NNNN

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COMDTINST M16114.33
APR 17 2003

COMMANDANT INSTRUCTION M16114.33

Subj: U.S. COAST GUARD BOAT OPERATIONS AND TRAINING (BOAT) MANUAL, VOLUME II

1. PURPOSE. This Manual provides standardized performance objectives and guidance for the purpose of training and certifying personnel as crewmembers on Coast Guard boats.

2. ACTION. Area and district commanders, commanders of maintenance and logistics commands, commanding officers of headquarters units, assistant commandants for directorates, Chief Counsel, special staff offices at Headquarters, group commanders, boat unit commanding officers and officers-in-charge shall ensure compliance with the provisions of this Manual. Internet release authorized.

3. DIRECTIVES AFFECTED. The following directives are cancelled:

   a. Boat Crew Qualification Guide Vol I – Crew Member, COMDTINST M16114.10B
   b. Boat Crew Qualification Guide Vol II – Coxswain, COMDTINST M16114.11A
   c. Boat Crew Qualification Guide Vol III – Engineer, COMDTINST M16114.6B
   d. Boat Crew Qualification Guide Vol IV – Heavy Weather Coxswain, COMDTINST M16114.26
   e. Boat Crew Qualification Guide Vol V – Surfman, COMDTINST M16114.27

4. DISCUSSION. The Coast Guard's boat crew training program is performance based. The qualification tasks within this Manual relate to knowledge and skills necessary to meet the challenges in the marine environment. The command must ensure that a trainee possesses the needed attitudes and abilities associated with maturity, sound judgment, and experience.

5. PROCEDURES.

   a. A number of directives are combined into this Manual in an effort to ease field burden. Due to significant changes in many facets of prior Coast Guard Boat Force policy, all Coast Guard personnel who shall be guided by this Manual are highly encouraged to become familiar with its contents.

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b. Personnel assigned to a unit with boats, and already certified in any crewmember position, need not re-certify using this Manual. Any questions should be resolved through discussion with Commandant (G-OCS-1).

6. POLLUTION PREVENTION (P2) CONSIDERATIONS. Pollution prevention considerations were examined in the development of the Manual and have been determined to be not applicable.

7. FORMS AVAILABILITY. None for this Volume.

D. S. BELZ /s/
Assistant Commandant for Operations

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Part 1
Introduction to Qualification

Introduction

This Part illustrates the qualification process through the following discussions:

- Description of qualification.
- Sample task.
- Description of tasks.
- Instructor guidance.
- Trainee guidance.

It is imperative that a very high level of professionalism be maintained among all unit instructors. All instructors must ensure that their certification remains current. In addition, instructors must ensure that they retain their proficiency with all installed boat equipment.

NOTE This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks in *Parts 2* through *6*. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Sections:

Section	Title	See Page
A	Description of Qualification	1-2
B	Sample Task	1-3
C	Description of Tasks	1-4
D	Instructor Guidance	1-7
E	Trainee Guidance	1-10

Section A. Description of Qualification

Introduction

There are five Boat Crew Qualification Parts of this Manual. They are:

- *Part 2* - Boat Crew Member
- *Part 3* - Engineer
- *Part 4* - Coxswain
- *Part 5* - Heavy Weather Coxswain
- *Part 6* - Surfman

Each Part is made up of three major Chapters:

- *Chapter 1* - Task Accomplishment Record
- *Chapter 2* - Qualification Tasks
- *Chapter 3* - Trainee Study Guide

Additional tasks and/or chapters may be included to address specific mission qualification requirements.

Chapter 1 contains a task accomplishment record which allows the instructor to record the trainee's progress throughout the qualification process.

Chapter 2 is made up of the qualification tasks, which are designed to measure the trainee's progress.

Chapter 3 provides guidance for the trainee's reading assignments and is to be removed and retained by the trainee.

Section B. Sample Task

TASK ENG-01-33-ANY	**Identify the Breaker Panels**
References	a. *41' UTB Operator's Handbook*, COMDTINST M16114.2 (series)
Conditions	Task should be performed at any time aboard any of the unit's standard boats without the use of reference or prompting.
Standards	In response to the instructor, the trainee must, without error, identify different parts of the electrical panels.

Performance Criteria	Completed (Initials)
1. Identify AC breaker panel.	IMU
2. Identify DC breaker panel.	IMU
3. Identify shore-tie.	IMU

Instructor **BM1 I. M. UNDERWAY** **Date** **25 OCT 99**

Comments

Section C. Description of Tasks

C.1. Task Designation

Tasks are identified by designation. Below are two examples with explanations of the qualification task designations:

C.1.a. Example 1

COX-02-03-ANY

- ANY: Task can be accomplished on any boat. ANY tasks are considered transferable from boat to boat and, therefore, need only be done once.
- 03: Task designation number
- 02: Division designation number
- COX: Crewmember designation number – Boat Crew Member (BCM), AtoN Crew Member (ACM), Engineer (ENG), Coxswain (COX), Heavy Weather Coxswain (HWX), Surfman (SRF)

C.1.b. Example 2

COX-02-03-TYPE

- TYPE: Indicates that the task must be done individually for each different boat type for which qualification is desired.
- 03: Task designation number
- 02: Division designation number
- COX: Crewmember designation number – Boat Crew Member (BCM), AtoN Crew Member (ACM), Engineer (ENG), Coxswain (COX), Heavy Weather Coxswain (HWX), Surfman (SRF)

C.2. Task

The task is knowledge or skill objective to be performed.

NOTE

All tasks shall be completed unless specifically stated otherwise. When situations exist that preclude a member from completing a task (e.g. boat does not carry specific gear) the task may be waived at command discretion.

C.3. References

References are information sources used by the trainee and instructor to obtain the background necessary to enhance task performance.

C.4. Conditions

The conditions are the environmental and physical circumstances under which the tasks must be performed. Any tools or special equipment needed for the completion of the task are listed here. The conditions listed with each task must be met. The following definitions describe the terms found in the conditions and standards:

C.4.a. Heavy Weather

Heavy weather is defined as sea, swell and wind conditions combining to exceed 8 feet and/or winds exceeding 30 knots.

NOTE This definition of heavy weather is not intended to define a heavy weather situation for a specific boat type. Heavy weather for each specific boat type may be determined by the coxswain at any time.

C.4.b. Rough Bar

A rough bar is a river entrance or inlet where heavy seas or surf conditions exist. Also, in situations when the coxswain or the CO/OIC is unsure, a rough bar is assumed.

C.4.c. Surf

Surf is defined as the waves or swell of the sea breaking on the shore or a reef.

C.4.d. Boat Operations

Term	Definition
Slow	Underway and moving ahead at clutch speed or slower
Underway	Not tied to a pier or float and not anchored or moored

C.4.e. Visibility

Term	Definition
Restricted	Visibility less than ¼ mile
Clear	All other states of visibility

C.4.f. Sea Conditions

Term	Definition
Calm	Seas less than 4 feet
Moderate	Seas 4 to 8 feet
Heavy	Seas greater than 8 feet
Surf	Waves or swell of the sea breaking on the shore or a reef

C.4.g. Operational Guidelines for MLB and SPC (HWX) Coxswains

	Sea	Wind	Surf
Coxswain	10 ft	30 kts	None
HW Coxswain	20 ft	40 kts	<8 ft
Surfman	30 ft	50 kts	20 ft

NOTE Heavy Weather Coxswains shall not attempt operations in surf unless they have demonstrated the proper skills through satisfactory accomplishment of the surf operations tasks in *Part 5* of this Manual.

NOTE

During the period a member is qualifying, the minimum sea conditions are just that, minimums. This qualifying period should include demonstration of skills during wind and sea conditions appropriate for the area. The unit commander should consider maximum weather limitations in conjunction with Commandant policies to ensure trainees build confidence and platform proficiency gradually. The trainee must practice in varied conditions within the above ranges and not just the minimums prior to certification.

C.5. Standards

Standards describe the expected outcome of the task. Successful task completion is a function of how well a trainee is able to complete the task without assistance. Generally, the task performance standards are as follows:

C.5.a. Knowledge Tasks

Trainee must be able to cite, from memory, the required information. Instructors may wish to ask questions concerning particular steps for accomplishment in order to measure the trainee's total comprehension of the subject matter.

C.5.b. Skill Tasks

Trainee must be able to perform all performance tasks without prompting or assistance from the instructor. Each task demonstration must follow the correct sequence with little or no hesitation between the steps for accomplishment.

C.6. Performance Criteria

These steps delineate the procedure that is best followed for performing each task. They can be utilized two basic ways:

- Aid in learning the task.
- Serve as a performance check.

C.6.a. Aid in Learning the Task

Some steps for task accomplishment follow exact procedures which are required for performing a particular operation or using a specific piece of equipment, while others serve as general guidelines for task completion.

C.6.b. Serve as a Performance Check

Some task steps can serve as a performance checkoff which can be used by the instructor to measure trainee performance when the trainee performs the task.

C.7. Accomplished

The designated instructor must print his/her name and rate, sign and date this line attesting that the trainee successfully performed the task in accordance with the prescribed standards.

C.8. Comments

The comment section can be used to describe circumstances or conditions which might have a bearing on task completion. Failure to perform any element or unsatisfactory performance of an individual element should be noted in the comments section for the task. If the task is completed under more arduous circumstances than those described, a notation should be made.

NOTE

Chapter 1 of each qualification Part provides a list of all tasks in that Part with space for the instructor to initial and date when each task has been completed.

NOTE

Chapter 3 of each qualification Part (as well as *Chapter 5* of *Part 2, Boat Crew Member Qualification*) lists reading assignments for each division followed by a group of questions that should be used by the trainee as a study guide.

Section D. Instructor Guidance

Introduction

Tasks are meant to be learned through constant practice under the instructor's guidance. This is accomplished by following the procedural steps listed below and provided in **Figure 1-1**.

D.1. Give Chapter 3 to the Trainee

Give the trainee the reading assignments and study guide questions. Remove *Chapter 3* from the Part and give it to the trainee to retain.

D.2. Assign the Task

While divisions may at times be done concurrently, the tasks within each division should normally be accomplished in consecutive order.

- Which tasks must be completed depends on the crew position and type of boat for which the trainee is being qualified. Notes specifying task applicability may be found at the beginning of each task if applicable.
- Tasks designated as TYPE are considered to be specific to each boat type. These must be completed individually for each desired boat type qualification.
- Tasks designated as ANY are considered general in nature. Completion of these tasks on any boat type is sufficient for the qualification process and need not be repeated when qualification is desired on another boat type.

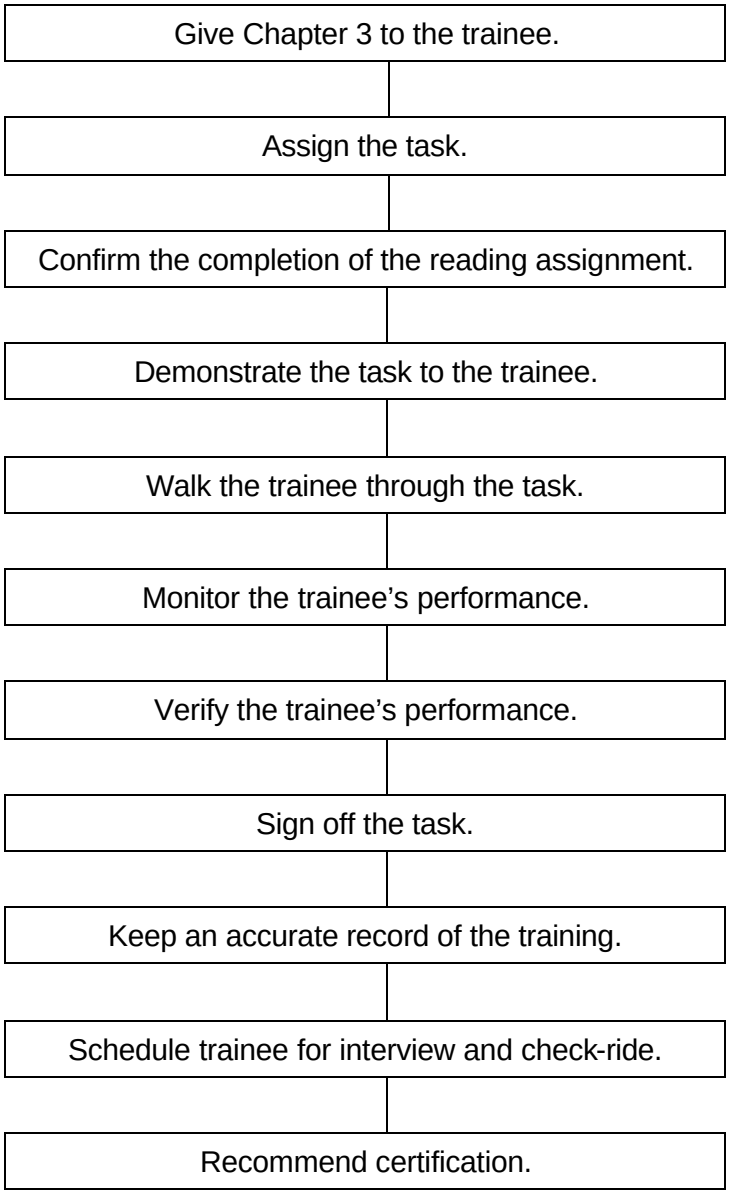

Figure 1-1
Procedure for Guiding Trainees

D.3. Confirm Completion of the Reading Assignment

Care should be taken at this point to clarify any misunderstandings the trainee might have about the material.

D.4. Demonstrate the Task to the Trainee

Demonstrate the steps required to complete the task. During the demonstration, the instructor should narrate the procedures. If the task is one of the few that does not require demonstration, proceed to the next step.

D.5. Walk the Trainee Through the Task

In order to ensure that the trainee understands, the instructor may want to walk the trainee through the steps more than once. There is no limit to the number of times the instructor performs the walk-through, however, trainee understanding must be ensured before continuing.

D.6. Monitor the Trainee's Performance

Trainee performance should be monitored during both training and operations. Qualification does not end with the first successful completion of the task. It is an ongoing process that ends only when successful task completion can be met consistently.

D.7. Verify the Trainee's Performance

Verify that the trainee's performance meets the standard. This includes two parts:

- The trainee must be able to perform the task subject to established conditions and standards delineated for the task.
- The trainee must be able to perform the task with no assistance.

The trainee is expected to perform each task on a consistent basis in accordance with the established standards and conditions.

D.8. Sign Off the Task

The instructor signs the task at the bottom of the page when he/she is confident that the trainee can perform the task consistently, while unsupervised.

D.9. Keep an Accurate Record of the Training

The instructor must ensure that all task completions are documented in this Manual.

NOTE

As a quick reference of the trainee's progress, the instructor should maintain the task accomplishment record located in *Chapter 1* of each qualification Part. This is accomplished by entering the start date as each task is assigned and then initialing and entering the completion date as each task is completed.

D.10. Schedule Trainee for Interview and Check-Ride

Inform the unit commander when all tasks in this Manual are completed. When the trainee has completed all of the required tasks for the position and boat type, the qualification process is complete. The instructor should inform the Boat Crew Examination Board and schedule the trainee for an interview and certification check-ride.

D.11. Recommend Certification

When the Boat Crew Examination Board is satisfied with the trainee's performance and abilities, they may recommend to the unit commander that the trainee be certified.

Section E. Trainee Guidance

Introduction	It is the trainee's responsibility to proficiently perform the tasks in accordance with the established standards. The tasks that make up *Part 2* through *Part 6* of this Manual represent the skills required to perform in the capacity of a boat crewmember. There are four parts to this learning process: • Read the assignments and ask questions. • Pay attention during demonstrations. • Complete walk-through with instructor. • Practice the skill.
E.1. Read the Assignments and Ask Questions	First, the trainee must become familiar with each task. All reading assignments must be read carefully. The trainee should seek guidance from the instructor to clear up any uncertainties.
E.2. Pay Attention During Demonstrations	Second, while the task is being demonstrated by the instructor, the trainee must pay close attention.
E.3. Complete Walk-Through with Instructor	Third, the trainee will complete the task the first time with the instructor walking the trainee through the steps.
E.4. Practice the Skill	Fourth, the trainee must practice the skill for consistent success at the task. The instructor will not sign off any task as complete until the trainee can consistently and correctly complete the task unsupervised.
E.5. Certification Process	Once all required qualifications are completed, the certification process can begin.

Part 2
Boat Crew Member Qualification

Introduction

This Part contains a collection of tasks, which must be learned, practiced, and performed by the trainee. These tasks represent the minimum elements of skill and knowledge necessary for safe and effective performance of a Coast Guard boat crew member.

NOTE

This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Chapters:

Chapter	Title	See Page
1	Task Accomplishment Record for Boat Crew Member	2-3
2	Boat Crew Member Qualification Tasks	2-9
3	Boat Crew Member Trainee Study Guide	2-73
4	AtoN Crew Member Qualification Tasks	2-111
5	AtoN Crew Member Trainee Study Guide	2-141

Chapter 1.
Task Accomplishment Record for Boat Crew Member

NOTE Instructor should remove this chapter and place it in the trainee's training record.

TRAINEE NAME: _____ RATE: _____

INSTRUCTOR NAME: _____ RATE: _____

POSITION/QUALIFICATION CODE TO BE TRAINED FOR: _____

NOTE Instructors should line through those tasks not applicable to this qualification.

Task	Date Started	Date Completed	Instructor's Initials
BCM-01-01-ANY			
BCM-01-02-ANY			
BCM-01-03-ANY			
BCM-02-01-ANY			
BCM-02-02-ANY			
BCM-02-03-ANY			
BCM-02-04-ANY			
BCM-02-05-ANY			
BCM-02-06-ANY			
BCM-02-07-ANY			
BCM-02-08-ANY			
BCM-02-09-ANY			
BCM-02-10-ANY			
BCM-02-11-ANY			
BCM-02-12-ANY			

Task	Date Started	Date Completed	Instructor's Initials
BCM-02-13-ANY			
BCM-02-14-ANY			
BCM-02-15-TYPE			
BCM-02-16-TYPE			
BCM-02-17-ANY			
BCM-02-18-ANY			
BCM-03-01-ANY			
BCM-03-02-TYPE			
BCM-03-03-TYPE			
BCM-03-04-TYPE			
BCM-03-05-TYPE			
BCM-03-06-ANY			
BCM-03-07-ANY			
BCM-03-08-ANY			
BCM-04-01-ANY			
BCM-04-02-TYPE			
BCM-04-03-TYPE			
BCM-04-04-TYPE			
BCM-04-05-ANY			
BCM-04-06-ANY			
BCM-04-07-ANY			
BCM-04-08-ANY			
BCM-04-09-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
BCM-04-10-TYPE			
BCM-04-11-TYPE			
BCM-04-12-TYPE			
BCM-05-01-ANY			
BCM-05-02-ANY			
BCM-05-03-ANY			
BCM-06-01-ANY			
BCM-06-02-ANY			
BCM-06-03-ANY			
BCM-06-04-ANY			
BCM-06-05-ANY			
BCM-06-06-ANY			
BCM-06-07-ANY			
BCM-06-08-ANY			
BCM-06-09-TYPE			
BCM-06-10-TYPE			
BCM-06-11-TYPE			
BCM-06-12-TYPE			
BCM-06-13 TYPE			
BCM-06-14-ANY			
BCM-06-15-ANY			
BCM-07-01-TYPE			
BCM-07-02-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
BCM-07-03-ANY			
BCM-07-04-ANY			
BCM-07-05-TYPE			
BCM-07-06-ANY			
BCM-07-07-TYPE			
BCM-07-08-ANY			
BCM-07-09-ANY			
BCM-07-10-TYPE			
BCM-07-11-ANY			
BCM-07-12-TYPE			
BCM-07-13-ANY			
BCM-07-14-ANY			
BCM-07-15-TYPE			
BCM-07-16-ANY			
BCM-07-17-TYPE			
BCM-07-18-ANY			
BCM-07-19-ANY			
BCM-07-20-TYPE			
BCM-07-21-TYPE			
BCM-07-22-ANY			
BCM-07-23-TYPE			
BCM-07-24-TYPE			

AtoN Crew Member Qualification Tasks

Task	Date Started	Date Completed	Instructor's Initials
ACM-01-01-ANY			
ACM-01-02-TYPE			
ACM-01-03-TYPE			
ACM-01-04-TYPE			
ACM-01-05-TYPE			
ACM-01-06-TYPE			
ACM-01-07-TYPE			
ACM-01-08-TYPE			
ACM-01-09-TYPE			
ACM-01-10-TYPE			
ACM-01-11-TYPE			
ACM-01-12-TYPE			
ACM-01-13-TYPE			
ACM-01-14-TYPE			
ACM-01-15-TYPE			
ACM-01-16-TYPE			
ACM-02-01-TYPE			
ACM-02-02-TYPE			
ACM-02-03-TYPE			
ACM-02-04-TYPE			
ACM-03-01-TYPE			
ACM-03-02-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
ACM-03-03-TYPE			
ACM-03-04-TYPE			

Chapter 2.
Boat Crew Member Qualification Tasks

Introduction

The following are the instructions for this Chapter:

- The purpose of this Chapter is to provide guidance on the trainee's progress through the qualification tasks.
- The instructor should present the tasks to the trainee in a logical order using the instructions provided in *Part 1*.
- Tasks should be signed, dated, and placed in the trainee's training record when the instructor is satisfied that the trainee can consistently perform a task in accordance with all standards and conditions.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Crew Efficiency Factors, Risk Factors and Team Coordination	2-10
B	Physical Fitness, First-Aid, and Survival	2-12
C	Marlinespike Seamanship, Boat Nomenclature, Nautical Terminology, and Basic Stability	2-25
D	Boat Handling	2-31
E	Communications	2-40
F	Navigation	2-43
G	Mission-Oriented Operations	2-54

Section A. Crew Efficiency Factors, Risk Factors and Team Coordination

Introduction

The following are objectives of Division One:

- **Demonstrate** knowledge of the factors that effect crew performance.
- **Attend** Team Coordination Training.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-01-01-ANY	Crew Fatigue	2-10
BCM-01-02-ANY	Motion Sickness	2-11
BCM-01-03-ANY	Team Coordination Training (TCT)	2-11

TASK BCM-01-01-ANY **Crew Fatigue**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 3, Section B*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must demonstrate knowledge of each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)
1. Describe the situations that may cause fatigue.	_____
2. State the crew's responsibility.	_____
3. Describe the primary symptoms of fatigue.	_____
4. Describe the prevention measures.	_____
5. State underway limits for unit's boats.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-01-02-ANY **Motion Sickness**

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 3, Section C*
Conditions	Task should be performed at any time, at facilities available to the unit.
Standards	Trainee must demonstrate knowledge of each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)
1. Explain the causes of motion sickness.	_____
2. List the symptoms of motion sickness.	_____
3. List the prevention and medication for motion sickness.	_____
4. Explain when best to take anti-motion sickness medication.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-01-03-ANY **Team Coordination Training (TCT)**

References	a. *Team Coordination Training*, COMDTINST M1541.1 (series)
Conditions	Task should be performed at any time, at facilities available to the unit.
Standards	Trainee must attend the training as prescribed in the reference above.

NOTE Attendance at TCT must be recorded in the trainee's Training Record.

Performance Criteria	Completed (Initials)
1. Date initial training completed: _____	_____

Instructor _____ **Date** _____

Comments _____

_____

Section B. Physical Fitness, First-Aid, and Survival

Introduction

The following are objectives of Division Two:

- **Achieve** and **maintain** the level of physical conditioning necessary to safely and properly carry out the duties of a boat crew member aboard a Coast Guard boat.
- **Identify** and **become** proficient in those skills necessary for coping with open water survival situations.
- **Effectively** use all standard boat crew signaling and survival equipment.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-02-01-ANY	Personal Physical Fitness and Vision	2-13
BCM-02-02-ANY	Crew First-Aid Responsibility	2-13
BCM-02-03-ANY	Demonstrate Adult, Child, and Infant CPR	2-14
BCM-02-04-ANY	Don the Type III PFD	2-14
BCM-02-05-ANY	Don the Type III Flotation Jacket	2-15
BCM-02-06-ANY	Don Anti-Exposure Coveralls	2-15
BCM-02-07-ANY	Don the Boat Crew Dry Suit	2-16
BCM-02-08-ANY	Identify Boat Crew Survival Vest Equipment	2-16
BCM-02-09-ANY	Use the Emergency Signaling Mirror	2-17
BCM-02-10-ANY	Demonstrate the Use of the MK-124 Smoke and Illumination Signal	2-18
BCM-02-11-ANY	Demonstrate the Use of the MK-79 Illumination Signal Kit	2-19
BCM-02-12-ANY	Operate the SDU-5/E or CG-1 Strobe Light	2-20
BCM-02-13-ANY	Don the Boat Crew Survival Vest	2-20
BCM-02-14-ANY	Don the Inflatable PFD	2-21
BCM-02-15-TYPE	Explain the Manual Deployment and Boarding Procedures for the Rescue and Survival Raft	2-22
BCM-02-16-TYPE	List Survival Procedures in Event of Boat Capsize	2-22
BCM-02-17-ANY	Open Water Survival Skills	2-23
BCM-02-18-ANY	Perform Water Survival Exercise	2-24

TASK BCM-02-01-ANY **Personal Physical Fitness and Vision**

References	None.
Conditions	Task should be performed at any time, at facilities available to the unit. Steps may be done all at once or over a period of time.
Standards	Trainee must demonstrate the ability to perform the requirements set forth in the above references based on age and gender.

Performance Criteria	Completed (Initials)
1. Demonstrate normal color vision using the Farnsworth Lantern Test or the Pseudoisochromatic Plate Test.	_____
2. Accomplish all physical fitness requirements in accordance with this Manual.	_____
Age: _____ Gender: _____	

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-02-ANY **Crew First-Aid Responsibility**

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 5, Section A* b. Certifying Organization's Training Manual
Conditions	Task should be performed at any time, at facilities available to the unit. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must complete the American Red Cross, National Safety Council, or American Safety and Health Institute First-Aid Course to receive triennial certification.

Performance Criteria	Completed (Initials)
1. Certification Type and Date course completed. Course: _____ Date: ___/___/___	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-03-ANY **Demonstrate Adult, Child, and Infant CPR**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 5, Section B*
b. Certifying Organization's Training Manual

Conditions Task should be performed at any time, at facilities available to the unit. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the American Red Cross, American Heart Association, National Safety Council, or American Safety and Health Institute CPR course to receive certification.

Performance Criteria	Completed (Initials)
1. Certification Type and Date course completed. Course: _____ Date: ___/___/___	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-04-ANY **Don the Type III PFD**

References
a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards In response to the instructor, the trainee shall, without error, don the Type III PFD.

Performance Criteria	Completed (Initials)
1. Demonstrate proper donning of the Type III PFD and adjust for proper fit.	_____
2. State when the Type III PFD is required to be worn.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-05-ANY **Don the Type III Flotation Jacket**

References a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards In response to the instructor, the trainee shall, without error, don the Type III flotation jacket.

Performance Criteria	Completed (Initials)
1. Demonstrate proper donning of the Type III flotation jacket and adjust for proper fit.	_____
2. State when the Type III PFD is required to be worn.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-06-ANY **Don Anti-Exposure Coveralls**

References a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards In response to the instructor, the trainee shall, without error, don the anti-exposure coveralls.

Performance Criteria	Completed (Initials)
1. Demonstrate proper donning of the anti-exposure coveralls and adjust for proper fit.	_____
2. Demonstrate proper use of the special construction features of the anti-exposure coveralls (i.e. zipper closures; ankle, thigh and wrist straps; pillow; waist belt) and state how these increase hypothermia protection when utilized in the water.	_____
3. State when the anti-exposure coveralls are required to be worn.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-07-ANY **Don the Boat Crew Dry Suit**

References
a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions
Task should be performed at any time, at facilities available to the unit.

NOTE This task is not required to be performed at units located in District 7, 8, 14, and Activities San Diego.

Standards
In response to the instructor, the trainee shall, without error, don a boat crew dry suit.

Performance Criteria	Completed (Initials)
1. State the proper thermal protective layers to be worn under the boat crew dry suit.	_____
WARNING Cotton undergarments are not authorized.	
2. Demonstrate proper donning of the boat crew dry suit and adjust for proper fit. Demonstrate proper donning of required neoprene hood.	_____
3. State the requirements for when a boat crew dry suit is to be worn.	_____
4. State the proper method for inspecting neck and wrist seals as well as general boat crew dry suit condition. Describe proper methods for sizing neck and wrist seals. State problems that would make a boat crew dry suit unserviceable.	_____
5. State requirements and proper methods for maintenance and stowage of the boat crew dry suit.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-08-ANY **Identify Boat Crew Survival Vest Equipment**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6*
a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions
Task should be performed at any time, at facilities available to the unit.

Standards
In response to the instructor, the trainee must, without error, identify the objects in the steps.

Performance Criteria	Completed (Initials)
1. State from memory the proper location and contents of the boat crew survival vest.	_____
2. Identify each item from the vest and explain its use: a. Emergency signal mirror b. Signal whistle c. MK-124 marine smoke and illumination signal d. MK-79 signal kit e. Distress signal light f. Survival knife	_____
3. State when the boat crew survival vest is required to be worn.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-09-ANY **Use the Emergency Signaling Mirror**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section D*

b. Manufacturer Guidelines

c. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3, Section D*

Conditions

Task shall be performed while floating in water deeper than the trainee's height, during daylight hours. Trainee should be wearing survival gear consistent with the weather and water temperature, and a boat crew personnel survival vest. Sunlight should be reflected onto a predetermined target (boat, location on a wall, etc.). Trainee must accomplish the task without prompting or use of a reference.

Standards

The light rays from the sun must be reflected onto the predetermined object within one minute of trainee receiving a signal from the instructor.

Performance Criteria	Completed (Initials)
1. Locate and break out signal mirror.	_____
2. Reflect sunlight from the mirror onto a nearby surface (hand, wall, boat).	_____
3. Bring mirror to eye level, and sight target through sighting hole.	_____
4. Hold mirror close to eye and manipulate so that light spot is on designated target.	_____
5. Sweep horizon to demonstrate attention-attracting technique.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-10-ANY **Demonstrate the Use of the MK-124 Smoke and Illumination Signal**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section D*

b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3, Section D*

Conditions

Task is accomplished in two parts:

- Ashore - Trainee identifies the signal ends and describes sequence required to ignite the signal. Identification of signal ends should be done in a well-darkened room.
- Afloat - In water deeper than the trainee's height, activate the signal. Trainee should wear survival gear consistent with the weather and water temperature, and a boat crew personnel survival kit. Either end of the signal can be activated.

Trainee must accomplish the task without prompting or use of a reference.

Standards

Trainee must immediately identify the signal. Trainee must be able to distinguish between the day and night ends of the signal by touch alone. Trainee must be able to activate the signal while floating within one minute of receiving a signal from the instructor.

Performance Criteria	Completed (Initials)
1. Complete the following tasks ashore: a. Identify and break out signal. b. Identify day and night ends of the signal by touch alone.	_____
2. Complete the following tasks in the water: a. Break out signal while floating. b. Remove cap on end of signal. c. Extend plastic lever out fully. d. Hold signal downwind, at arms length, at 45-degree angle from the horizon over the side of the raft or away from dry debris. e. Pull down on tab to ignite signal.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-11-ANY **Demonstrate the Use of the MK-79 Illumination Signal Kit**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section D*

b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3, Section D*

Conditions

Task must be accomplished while afloat in water deeper than the trainee's height during daylight hours. Trainee should wear survival gear consistent with the weather and water temperature, and a boat crew personnel survival vest. Trainee should not fire the cartridge until directed by the instructor. Trainee must accomplish the task without prompting or use of a reference.

Standards

Trainee must immediately identify the signal. Trainee must be able to load the cartridge into the launcher and fire, or simulate firing the signal within two minutes of receiving a signal from the instructor. All steps must be done in the order listed.

NOTE

The requirement for the trainee to activate the signal may be waived if adequate quantities of the signal are not available for training. If this requirement is waived, the trainee shall list in writing the procedures and safety precautions to be followed when igniting the MK-79.

Performance Criteria	Completed (Initials)
1. Identify and break out MK-79 signal kit.	_____
2. Break out launcher and bandoleer from plastic envelope.	_____
3. Pull trigger screw of launcher into safety slot.	_____
4. Bend protective tab away from the signal.	_____
5. Load signal cartridge into launcher and rotate clockwise until signal is seated.	_____
6. Hold launcher over head with arm fully extended. Point launcher away from the body on a slight angle.	_____
7. On command of the instructor, fire signal by slipping the trigger screw out of the safety slot and into the firing slot.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-12-ANY **Operate the SDU-5/E or CG-1 Strobe Light**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section D*
b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3, Section D*

Conditions Task must be accomplished while afloat in water deeper than the trainee's height during daylight hours. Trainee should wear survival gear consistent with the weather and water temperature, and a boat crew personnel survival vest. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must immediately identify the signal. Trainee must be able to break out and activate the signal within one minute of entering the water or being given a signal by the instructor.

Performance Criteria	Completed (Initials)
1. Locate and remove the SDU-5/E or CG-1 strobe light from its case.	_____
2. Activate strobe light.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-13-ANY **Don the Boat Crew Survival Vest**

References
a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards In response to the instructor, the trainee shall, without error, don the boat crew survival vest.

Performance Criteria	Completed (Initials)
1. Demonstrate proper donning of the boat crew survival vest over the following PFDs and adjust for proper fit: a. Type III PFD b. Flotation jacket c. Anti-exposure coverall	_____
2. Access the following equipment: a. Strobe light b. Whistle c. Signal mirror d. MK-124 day/night signal e. MK-79 signal kit f. Knife g. Personal EPIRB (if carried) h. Tether (if carried)	_____
3. State the requirements for when the boat crew survival vest is to be worn.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-14-ANY **Don the Inflatable PFD**

References a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 4*

Conditions Task should be performed at any time, at facilities available to the unit.

NOTE This qualification task is only required at units using inflatable PFDs.

Standards In response to the instructor, the trainee shall, without error, don the inflatable PFD and explain the policy associated with the attached survival equipment.

Performance Criteria	Completed (Initials)
1. Complete the Performance Qualification Standard for each inflatable PFD type in use at the unit.	_____
NOTE Place the original PQS for the Inflatable PFD in the trainee's Training Record.	
2. State when an inflatable PFD is required to be worn. State the policy associated with carrying required survival/signal equipment as part of the inflatable PFD outfit in lieu of wearing the boat crew survival vest.	_____
3. Access the following equipment: a. Strobe light b. Whistle c. Signal mirror d. MK-124 day/night signal e. MK-79 signal kit f. Knife g. Personal EPIRB (if carried) h. Tether (if carried)	_____
4. State the requirements and proper methods for maintenance and stowage of the inflatable PFD.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-15-ANY **Explain the Manual Deployment and Boarding Procedures for the Rescue and Survival Raft**

NOTE This qualification task is only required at units using a Rescue and Survival Raft.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section G*
b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 5, Section B*

Conditions Task should be performed only for those boats equipped with a life raft. Task may be performed at any time. Trainee must accomplish the task without prompting or the use of a reference.

Standards Trainee should be able to identify equipment, and cite steps in the procedures without error. When practical, consideration should be given to deploying the raft for training (i.e. prior to yearly inspection).

Performance Criteria	Completed (Initials)
1. Identify and locate raft and container.	_____
2. List and explain procedures for deploying and manning the raft.	_____
3. Explain best location to deploy the raft dependent upon environmental conditions.	_____
4. Remove raft from rack.	_____
5. Place raft in water in best location for boarding.	_____
6. Pull the 50-foot painter line from the raft container to inflate raft.	_____
7. Board raft from alongside boat, if possible.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-16-ANY **List Survival Procedures in Event of Boat Capsize**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section H*

Conditions Trainee must accomplish the task without prompting or the use of references.

Standards Trainee should be able to list all steps in the procedure without error.

Performance Criteria	Completed (Initials)
1. State all egress routes.	_____
2. Locate nearest exit to open water.	_____
3. Inventory survival gear.	_____
4. Select best swimmer to exit first carrying line.	_____
5. First swimmer exits craft, if necessary, with PFD in hand.	_____
6. First swimmer contacts crew still inside by tapping on the hull of the boat.	_____

Performance Criteria	Completed (Initials)
7. Rest of crew exits one at a time.	_____
8. Crew stays with the boat until rescued or boat sinks.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-17-ANY **Open Water Survival Skills**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)
b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*
c. *Team Coordination Training*, COMDTINST 1541.1 (series)

Conditions Task should be performed at any time, at facilities available to the unit.

Standards In response to the instructor, the trainee shall explain risk-based decisions associated with open water survival skills.

Performance Criteria	Completed (Initials)
1. Explain the benefits associated with the different levels of hypothermia protective garments and how they relate to Tables 3-1 and 3-2 of the *Rescue and Survival Systems Manual*.	_____
2. Explain the factors that accelerate the onset of hypothermia.	_____
3. Describe the preventive measures that can be used to increase the chances for successful open water survival including methods of tethering.	_____
4. Explain the benefits for getting your body out of the water as much as possible in open water survival situations.	_____
5. Explain risk-based decisions associated with swimming in open water survival situations.	_____
6. Describe the method for: a. Climbing onto an overturned boat hull. b. Boarding a boat from the water. c. Boarding a life raft.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-02-18-ANY **Perform Water Survival Exercise**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)

b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Table 3-1*

Conditions

This exercise shall be completed by entering water from a height of approximately 3 feet above the surface or from the level of the boat's main deck. Trainee shall wear flotation, hypothermia protective garments and survival equipment consistent with the coldest weather and water temperature experienced at the unit. If this task is completed near a boat or unit docks, ensure the area is free of any dangers (i.e. debris, snags, shoals, excess currents, or biological hazards). An immediate means of response must be available to assist any member that develops trouble during the completion of this task. Trainee shall accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee shall, without error, complete all steps of the water survival exercise

Performance Criteria	Completed (Initials)
1. Don flotation, hypothermia protective garments and survival equipment, and adjust for proper fit. Personnel wearing dry suits shall don the required neoprene hood after entering the water.	_____
2. Enter the water from a height of approximately 3 feet or from the level of the boat's main deck. a. Check surrounding water for debris and depth. b. Look straight ahead when entering water, but maintain awareness of surroundings (i.e. boat movement, wave action, currents). c. Maintain vertical position (body erect) upon entry into water. d. Minimize initial immersion by spreading arms and applying a scissors kick upon entry.	_____
3. Adjust flotation, hypothermia protective garments and survival equipment to reduce water intrusion, heat loss, and to improve mobility and buoyancy.	_____
4. Swim 100 yards using an energy conserving stroke or movement.	_____
NOTE The preferred swim stroke is the resting backstroke.	
5. Demonstrate the Heat Escape Lessening Position (HELP) for a single person in the water.	_____
6. Tether to other survivors and demonstrate the HELP for multiple survivors.	_____
7. Access and demonstrate the use of the following equipment: a. Strobe light b. Whistle c. Signal mirror d. MK-124 day/night signal e. MK-79 signal kit f. Knife g. Personal EPIRB (if carried) h. Tether (if carried)	_____

Instructor _____ **Date** _____

Comments _____

_____

Section C. Marlinespike Seamanship, Boat Nomenclature, Nautical Terminology, and Basic Stability

Introduction

The following are objectives of Division Three:

- **Identify**, **explain** the use of, and be able to consistently **tie** the basic knots and hitches used aboard Coast Guard boats.
- **Demonstrate** the ability to secure lines of various sizes to several types of deck and dock fittings.
- **Identify** the different parts of a boat's ground tackle and be able to assist in anchoring a boat.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-03-01-ANY	State Common Boat Nomenclature and Terminology	2-25
BCM-03-02-TYPE	Locate and Identify the Purpose of the Equipment Aboard the Boat	2-26
BCM-03-03-TYPE	Boat Characteristics - Boat Construction	2-26
BCM-03-04-TYPE	Boat Characteristics - Watertight Integrity	2-27
BCM-03-05-TYPE	Stability	2-27
BCM-03-06-ANY	Identify the Different Parts of a Line and the Hitches Used in Line Handling	2-28
BCM-03-07-ANY	Tie Various Knots, Hitches, and Bends	2-29
BCM-03-08-ANY	Secure Lines to Cleats, Bitts, and Posts	2-30

TASK BCM-03-01-ANY — **State Common Boat Nomenclature and Terminology**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section A*

Conditions

Task should be performed onboard one of the unit's boats. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, identify different locations and positions aboard the boat.

Performance Criteria	Completed (Initials)
1. Identify bow of the boat.	_____
2. On command, move forward on the boat.	_____
3. Identify starboard side of boat.	_____
4. Identify port side of boat.	_____
5. Identify athwartships.	_____

Performance Criteria	Completed (Initials)
6. Identify outboard and inboard areas.	_____
7. Identify stern of the boat.	_____
8. Identify port quarter.	_____
9. Identify starboard bow.	_____
10. Identify windward and leeward side of the boat.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-02-TYPE **Locate and Identify the Purpose of the Equipment Aboard the Boat**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section D*

Conditions Task should be performed using a simple line diagram of a boat and the boat checkoff or boat outfit list. Trainee should list the location of each piece of equipment on the diagram. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must label and explain the use of installed equipment and fittings.

Performance Criteria	Completed (Initials)	Boat Type
1. Label each piece of equipment or fitting.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-03-TYPE **Boat Characteristics - Boat Construction**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section B*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must demonstrate knowledge of each task.

Performance Criteria	Completed (Initials)	Boat Type
1. Name and define the three basic types of hulls.	_____ _____ _____	_____ _____ _____
2. Define keel and name the two keel types.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Name and define the most common boat measurements (beam, height, fixed height, length, freeboard, and draft).	_____ _____ _____	_____ _____ _____
4. Name the parts of doors and hatches that are used to make them watertight.	_____ _____ _____	_____ _____ _____
5. Name and define the measurements used to define boat displacement.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-04-TYPE **Boat Characteristics - Watertight Integrity**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section C*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must either demonstrate knowledge of, or perform each task.

Performance Criteria	Completed (Initials)	Boat Type
1. State the watertight compartments of each boat type.	_____ _____ _____	_____ _____ _____
2. Describe the factors that should be determined before you open watertight doors, hatches, and scuttle covers on a damaged boat.	_____ _____ _____	_____ _____ _____
3. Open a watertight door and hatch.	_____ _____ _____	_____ _____ _____
4. Close a watertight door and hatch.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-05-TYPE **Stability**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 9, Section B*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must either demonstrate knowledge of or perform each task.

Performance Criteria	Completed (Initials)	Boat Type
1. State the two primary forces that affect a vessel's stability.	_____ _____ _____	_____ _____ _____
2. Define center of gravity and describe how it changes as weight is added or subtracted upon the vessel.	_____ _____ _____	_____ _____ _____
3. Define buoyancy.	_____ _____ _____	_____ _____ _____
4. Define equilibrium and describe how is it changed during rolling, heeling, and listing.	_____ _____ _____	_____ _____ _____
5. State the two types of stability.	_____ _____ _____	_____ _____ _____
6. Describe the two types of forces that affect stability.	_____ _____ _____	_____ _____ _____
7. List the general vessel design features that influence stability.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-06-ANY **Identify the Different Parts of a Line and the Hitches Used in Line Handling**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Sections A and D*

Conditions
Task should be performed at any time, ashore or afloat, without prompting or use of a reference.

Standards
In response to the instructor, the trainee must, without error, identify the different parts and configuration of a line.

Performance Criteria	Completed (Initials)
1. Define lay of line for: a. Double braid b. Plain laid	_____
2. Define line material: a. Polypropylene b. Nylon, including double braid c. Natural fiber	_____
3. Identify bitter end of line.	_____
4. Identify standing part of line.	_____
5. Make bight in the line.	_____

Performance Criteria	Completed (Initials)
6. Make overhand loop in the line.	_____
7. Make underhand loop in the line.	_____
8. Make turn around an object.	_____
9. Make round turn around an object.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-07-ANY **Tie Various Knots, Hitches, and Bends**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Section D*

Conditions Task should be performed at any time, onboard one of the unit's boats, cutter, or at the unit's pier, without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, tie the following hitches, knots and bends quickly and confidently.

Performance Criteria	Completed (Initials)
1. Tie a square (reef) knot.	_____
2. Tie bowline in the end of a mooring line.	_____
3. Put a temporary eye in towline, using a bowline.	_____
4. Untie knot by "breaking" the bowline.	_____
5. Secure line to a rail using a clove hitch.	_____
6. Secure clove hitch by using two half hitches.	_____
7. Mount fender using a slip clove hitch.	_____
8. Attach heaving line to a towline using a sheet bend, snap hook, bowline and/or clove hitch with two half hitches.	_____
9. Add length of mooring line to a towline using a double becket bend.	_____
10. Secure log, board, or other rough surfaced object, by using a timber hitch and two half hitches.	_____
11. Tie bowline around an object.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-03-08-ANY **Secure Lines to Cleats, Bitts, and Posts**

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Section E*
Conditions	Task should be performed at any time, onboard one of the unit's boats, cutter, or at the unit's pier, without prompting or use of a reference.
Standards	In response to the instructor, the trainee must demonstrate the correct method for securing a line to cleats, bitts and posts.

Performance Criteria	**Completed (Initials)**
1. Locate all standard cleats on boat.	_____
2. Place complete round turn around the base of the cleat.	_____
3. Lead line over the top of the cleat and around the horns to form a figure eight.	_____
4. Secure additional figure eights until the cleat is secured with at least three figure eights.	_____
5. Feed eye of the line through the opening in the base of the cleat.	_____
6. Loop line back over horns and pull taut.	_____
7. Place eye of first mooring line over the cleat.	_____
8. Run eye of second mooring line through the eye of the first.	_____
9. Place eye of second mooring line over the cleat.	_____
10. Identify and locate all bitts on boat.	_____
11. Make a complete turn around the near horn.	_____
12. Make three or more figure eights around both horns.	_____
13. Identify and locate sampson post on boat.	_____
14. Make complete round turn around the base of the sampson post.	_____
15. Make several figure eights around horns of the post.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section D. Boat Handling

Introduction

The following are objectives of Division Four:

- **Define** the common terms used for identification aboard a Coast Guard boat.
- **Identify** and **explain** the purpose or use of the different fittings and equipment located on a Coast Guard boat.
- **Demonstrate** the ability to participate in the common watches performed aboard Coast Guard boats.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-04-01-ANY	Rig Fenders to Side of the Boat	2-32
BCM-04-02-TYPE	Make Fast a Boat to a Pier (Bow On Mooring, No Current/Wind)	2-32
BCM-04-03-TYPE	Assist in Anchoring the Boat	2-33
BCM-04-04-TYPE	Assist in Weighing the Boat's Anchor	2-33
BCM-04-05-ANY	Identify the Common Navigation Lights Displayed by Ships and Boats	2-34
BCM-04-06-ANY	Identify the Common Sound Signals Used by Ships and Boats	2-35
BCM-04-07-ANY	Identify and Describe Accepted Maritime Distress Signals	2-35
BCM-04-08-ANY	Stand a Lookout Watch	2-36
BCM-04-09-TYPE	Act as a Helmsman and Steer a Compass Course	2-37
BCM-04-10-TYPE	Get the Boat Away from a Pier/Cutter	2-38
BCM-04-11-TYPE	Moor the Boat to a Pier/Cutter	2-38
BCM-04-12-TYPE	Boat Handling	2-39

TASK BCM-04-01-ANY **Rig Fenders to Side of the Boat**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Section D*, and *Chapter 17, Section C*

Conditions
Task should be performed at any time onboard a unit boat, without prompting or the use of a reference.

Standards
In response to the instructor, the trainee must correctly rig fenders to the side of the boat. Fenders should be the proper height to avoid damage.

Performance Criteria	Completed (Initials)
1. Tie fenders in place using a slip clove hitch.	_____
2. Position all fenders appropriately for width and height of pilings and piers.	_____
3. Place fenders at contact points between boat and pier, dock or another boat.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-02-TYPE **Make Fast a Boat to a Pier (Bow On Mooring, No Current/Wind)**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D*
b. Chapman Piloting

Conditions
Task should be performed at any time onboard a unit boat without prompting or use of a reference. Trainee may be supervised by the coxswain who will maneuver the boat.

Standards
In response to the instructor, the trainee must demonstrate, in proper sequence, the correct procedures for securing a boat to a pier using the boats mooring lines.

Performance Criteria	Completed (Initials)	Boat Type
1. Place forward spring line on pier cleat tended and secure to the boat.	_____ _____ _____	_____ _____ _____
2. Place stern line on pier cleat and secure to the boat.	_____ _____ _____	_____ _____ _____
3. Place bow line on pier cleat and secure to the boat.	_____ _____ _____	_____ _____ _____
4. Place aft spring line on pier cleat and secure to the boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-03-TYPE **Assist in Anchoring the Boat**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*

Conditions Task should be performed at any time onboard each assigned boat, without prompting or use of a reference.

Standards In response to the instructor, trainee must demonstrate, in proper sequence, the correct procedure for anchoring the boat.

Performance Criteria	Completed (Initials)	Boat Type
1. State the main parts of the anchor.	_____ _____ _____	_____ _____ _____
2. State the equipment associated with anchoring.	_____ _____ _____	_____ _____ _____
3. Establish communications with coxswain during the evolution.	_____ _____ _____	_____ _____ _____
4. Ascertain amount of scope needed based on depth of water and type of bottom.	_____ _____ _____	_____ _____ _____
5. Break out and attach anchor line to anchor.	_____ _____ _____	_____ _____ _____
6. Lower anchor over side, hand-over-hand at coxswain's command (on 47' MLB throw anchor clear of the side).	_____ _____ _____	_____ _____ _____
7. Inform coxswain of direction line tending at all times as anchor line pays out (veers).	_____ _____ _____	_____ _____ _____
8. Secure anchor line to bitt at coxswain's command.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-04-TYPE **Assist in Weighing the Boat's Anchor**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*

Conditions Task should be performed at any time onboard each assigned boat, without prompting or use of a reference.

Standards The trainee must demonstrate, in proper sequence, the procedures for weighing the boat's anchor.

Performance Criteria	Completed (Initials)	Boat Type
1. Establish communications with coxswain.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Remove slack from anchor line as boat moves ahead.	_____ _____ _____	_____ _____ _____
3. Stow anchor line below deck, away from work area, immediately as it's brought aboard.	_____ _____ _____	_____ _____ _____
4. Signal to coxswain when the anchor line is at short stay (up and down).	_____ _____ _____	_____ _____ _____
5. Break anchor free from bottom (if anchor does not break free, trainee makes fast anchor line to bitt while coxswain moves the boat ahead to break it free).	_____ _____ _____	_____ _____ _____
6. Determine if anchor is clear and clean.	_____ _____ _____	_____ _____ _____
7. Haul anchor aboard the boat.	_____ _____ _____	_____ _____ _____
8. Make up and stow all equipment.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-05-ANY **Identify the Common Navigation Lights Displayed by Ships and Boats**

References
a. Chapman Piloting
b. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Part C*

Conditions Task should be performed at night, onboard any unit boat or cutter. Trainee must identify the types of lights when presented with pictures or actual lights by the instructor. The navigation rules used should be those used in the unit's area of operations. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, verbally identify the lights listed below.

Performance Criteria	Completed (Initials)
1. Identify port side light.	_____
2. Identify starboard side light.	_____
3. Identify stern light.	_____
4. Identify anchor light.	_____
5. Identify towing lights.	_____
6. Identify sailboat masthead light.	_____
7. Identify bow combination light for boats.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-06-ANY **Identify the Common Sound Signals Used by Ships and Boats**

References
a. *Chapman Piloting*
b. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Part D*

Conditions Task should be performed at any time, onboard any unit boat or cutter. Trainee must identify the sound signals when presented with examples of the signals. The navigation rules used should be those used in the unit's area of operations. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, verbally identify the signals listed below.

Performance Criteria	Completed (Initials)
1. Identify short blast.	_____
2. Identify prolonged blast.	_____
3. Identify danger signal.	_____
4. Identify signal for intention, coming to port (inland).	_____
5. Identify whistle signal for sailing vessels during periods of reduced visibility.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-07-ANY **Identify and Describe Accepted Maritime Distress Signals**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11, Section F*
b. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Rule 37*

Conditions Task should be performed at any time, at facilities available to the unit. Trainee must accomplish the task without prompting or use of a reference.

Standards The trainee must, without error, verbally identify the distress signals listed below when given an illustration of each distress signal by the instructor.

Performance Criteria	Completed (Initials)
1. Red star shells.	_____
2. Continuous sounding fog horn.	_____
3. Orange smoke marker.	_____

Performance Criteria	Completed (Initials)
4. Dye marker (any color).	_____
5. Red parachute flare.	_____
6. Flames on a vessel.	_____
7. November code flag flown over the "Charlie" code flag.	_____
8. Emergency Position Indicating Radio Beacon (EPIRB).	_____
9. Orange board with a black square over a black circle.	_____
10. "MAYDAY" radio broadcast.	_____
11. Person waving arms.	_____
12. Black square flag flown over a black circle flag.	_____
13. Radio telephone alarm.	_____
14. Radio telegraph alarm.	_____
15. SOS – Morse code signal.	_____
16. Gun fired at intervals of one minute.	_____
17. High intensity white light flashing at intervals of 50 to 70 times per minute.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-08-ANY **Stand a Lookout Watch**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Section C*
b. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Rule 5*

Conditions Task should be performed at any time, onboard any of the unit's boats or cutter. Trainee must report the range and relative bearing of objects identified by the instructor. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, identify objects and state relative bearing and range.

Performance Criteria	Completed (Initials)
1. List the different types of buoys and their characteristics in the local area and the purpose of each.	_____
2. Identify three different local fixed aids.	_____
3. Identify and report the range and relative bearing of four different type vessels, common to the local area.	_____
4. Identify and report range and relative bearing to deadhead and/or other floating hazard to navigation.	_____
5. Identify whistle, bell, gong, and/or other local audio aids to navigation.	_____
6. Recognize and report different vessel crossing situations.	_____
7. Recognize and report meeting situations.	_____

Performance Criteria	Completed (Initials)
8. Recognize and report overtaking situations.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-09-TYPE **Act as a Helmsman and Steer a Compass Course**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section C*

Conditions Task should be performed at any time, onboard any of the unit's boats while underway. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the coxswain, the trainee must respond, without error, to various helm commands. All courses must be maintained to within five degrees of ordered course.

Performance Criteria	Completed (Initials)	Boat Type
1. Steer on the course ordered by the coxswain.	_____ _____ _____	_____ _____ _____
2. Maintain course to within five degrees of ordered course over a ten-minute staged run.	_____ _____ _____	_____ _____ _____
3. Alter course (at least 35 degrees) to new course on coxswain's command.	_____ _____ _____	_____ _____ _____
4. Steady boat up on new course and hold to within five degrees of ordered course.	_____ _____ _____	_____ _____ _____
5. Monitor engine gauges.	_____ _____ _____	_____ _____ _____
6. Keep careful watch of the surrounding area.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-10-TYPE **Get the Boat Away from a Pier/Cutter**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D*
b. Chapman Piloting

Conditions
Task will be performed at any time of day or night in light to moderate winds. The boat may be made fast to either side of the pier or mooring object. All mooring lines must be attached before task is begun. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must perform the task in accordance with the procedures in the listed steps. Any endangering of personnel or boat will cause the task to be secured until further training can be accomplished.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew on procedure to be used and their duties.	_____ _____ _____	_____ _____ _____
2. Remove mooring lines from pier as directed.	_____ _____ _____	_____ _____ _____
3. Clear stern of the boat from the pier.	_____ _____ _____	_____ _____ _____
4. Clear boat of pier.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-11-TYPE **Moor the Boat to a Pier/Cutter**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D*
b. Chapman Piloting

Conditions
Task will be performed at any time of the day or night in light to moderate winds. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must perform the task in accordance with procedures in the listed steps. Any endangering of personnel or boat will cause the task to be secured until further training can be accomplished.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew on procedure to be used and their duties.	_____ _____ _____	_____ _____ _____
2. Demonstrate checking engine control (forward and reverse on each engine.)	_____ _____ _____	_____ _____ _____
3. Approach slowly.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
4. Apply appropriate power and rudder, use spring line if desired.	_____ _____ _____	_____ _____ _____
5. Bring boat alongside.	_____ _____ _____	_____ _____ _____
6. Secure lines.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-04-12-TYPE **Boat Handling**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section B*

Conditions Task will be performed at any time of the day or night in light to moderate winds. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must perform each task to the minimum standards included in each performance step. Any endangering of personnel or boat will cause the task to be secured until further training can be accomplished.

Performance Criteria	Completed (Initials)	Boat Type
1. Determine the rudder limits.	_____ _____ _____	_____ _____ _____
2. Check engine control action.	_____ _____ _____	_____ _____ _____
3. Move boat forward in a straight line.	_____ _____ _____	_____ _____ _____
4. Maintain safe speed for trainee's ability and weather conditions.	_____ _____ _____	_____ _____ _____
5. Adjust speed to ensure wake caused no damage or injuries.	_____ _____ _____	_____ _____ _____
6. Turn the boat with the helm.	_____ _____ _____	_____ _____ _____
7. Stop the boat in a safe manner.	_____ _____ _____	_____ _____ _____
8. Hold a course while backing the vessel.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
9. Rotate boat about the pivot point.	_____ _____ _____	_____ _____ _____
10. Turn boat with a reduced tactical diameter.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section E. Communications

Introduction

The following are objectives of Division Five:

- **Demonstrate** the ability to operate a VHF-FM radiotelephone and the SSB-HF transceiver.
- **Demonstrate** the ability to use the radiotelephone to give a position or operations report.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-05-01-ANY	Operate a VHF-FM Radiotelephone	2-40
BCM-05-02-ANY	Operate a SSB-HF Transceiver	2-41
BCM-05-03-ANY	Use the VHF-FM Radiotelephone to Give a Operations and Position Report	2-42

TASK BCM-05-01-ANY **Operate a VHF-FM Radiotelephone**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11, Sections A and G*

b. *Radiotelephone Handbook*, COMDTINST 2300.7 (series)

Conditions

Task should be performed at any time, onboard one of the unit's boats or cutter. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, identify the different operating parts of the radio and operate the radio.

Performance Criteria	Completed (Initials)
1. Identify VHF-FM transceiver and speakers.	_____
2. Identify breaker that energizes radio.	_____

Performance Criteria	Completed (Initials)
3. Identify power switch and turn radio on.	_____
4. Identify channel selection switch or buttons for emergency and working frequencies.	_____
5. Identify volume controls and adjust volume.	_____
6. Identify squelch control and adjust to the point where static disappears.	_____
7. Identify microphone and transmitting button and obtain a radio check on appropriate working frequency.	_____
NOTE No radio checks are permitted on the International VHF distress and calling frequency, Channel 16.	

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-05-02-ANY **Operate a SSB-HF Transceiver**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11*
b. *Radiotelephone Handbook*, COMDTINST M2300.7 (series)
c. *SSB-HF Transceiver – Operator's Manual*

Conditions Task should be performed at any time, onboard one of the unit's boats or cutter with SSB-HF radio onboard. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, identify the different operating parts of the radio and operate the radio.

Performance Criteria	Completed (Initials)
1. Identify SSB-HF transceiver and speakers.	_____
2. Identify power switch and turn radio on.	_____
3. Identify channel selection switch or buttons and select frequency 2182KHZ.	_____
4. Identify and adjust volume control.	_____
5. Identify and adjust squelch control to just beyond the point where the static disappears.	_____
6. Identify microphone and operating button and demonstrate radio check on appropriate working frequency.	_____
NOTE No radio checks are permitted on the International Medium Frequency (MF) distress and calling frequency 2182KHZ.	

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-05-03-ANY **Use the VHF-FM Radiotelephone to Give a Operations and Position Report**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11*
b. *Radiotelephone Handbook*, COMDTINST M2300.7 (series)

Conditions

Task should be performed at any time, onboard one of the unit's boats or cutter. Message to be sent should be composed by the trainee and the instructor prior to the beginning of the task. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, send a short operations and position report. Task must be accomplished using proper radio telephone procedures, including prowords and phonetic alphabet, in accordance with the above reference.

Performance Criteria	Completed (Initials)
1. Turn on, tune, and set radio to unit's working frequency.	_____
2. Hail Station using unit's working frequency.	_____
3. Ensure that channel 16 (emergency frequency) is being monitored at the same time.	_____
4. Send status of operations and position.	_____
5. Sign off using proper prowords at conclusion of the message.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section F. Navigation

Introduction

The following are objectives of Division Six:

- **Demonstrate** the use of a nautical chart.
- **Demonstrate** the ability to identify navigation and general landmark symbols on a nautical chart.
- **Demonstrate** the ability to plan a voyage by laying down a track line across safe water and through marked channels.
- **Demonstrate** the ability to take a fix and plot a position on a chart.
- **Demonstrate** ability to calculate actual speed of vessel, determine amount of water beneath keel, and recommend adjustments to vessel's course and speed to match voyage plan.

In this Section

This section contain the following tasks:

Task Number	Task	See Page
BCM-06-01-ANY	Identify the Symbols, Abbreviations and Basic Parts of a Nautical Chart	2-44
BCM-06-02-ANY	Identify Common Aids to Navigation Used for Inland and Coastal Piloting	2-45
BCM-06-03-ANY	Identify Local Landmarks on a Nautical Chart	2-45
BCM-06-04-ANY	Plot a Position Using Latitude and Longitude	2-46
BCM-06-05-ANY	Plot a Magnetic Course on a Nautical Chart	2-46
BCM-06-06-ANY	Measure Distance on a Nautical Chart	2-47
BCM-06-07-ANY	Compute Time, Speed, and Distance	2-47
BCM-06-08-ANY	Determine the Depth of Water Using a Fathometer	2-48
BCM-06-09-TYPE	Use Radar to Identify Objects	2-49
BCM-06-10-TYPE	Determine the Range and Bearing to Objects Using Radar	2-49
BCM-06-11-TYPE	Use Radar to Obtain and Interpret Relative Bearings and Ranges to a Moving Target to Determine if Risk of Collision Exists	2-50
BCM-06-12-TYPE	Operate the VHF-FM Direction Finder and Steer on a Signal	2-51
BCM-06-13-TYPE	Obtain a Fix Using GPS/DGPS	2-52
BCM-06-14-ANY	Plot a Position Using LORAN-C TDs	2-52
BCM-06-15-ANY	Operate the Electronic Charting System	2-53

TASK BCM-06-01-ANY **Identify the Symbols, Abbreviations and Basic Parts of a Nautical Chart**

NOTE Task **DOES NOT** apply to cutter boats, skiffs or punts.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Sections A and B*
Conditions	Task should be performed ashore or afloat, at any time, using a chart of the local area. Trainee must accomplish task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, identify the different parts of a nautical chart listed in the steps below.

Performance Criteria	**Completed (Initials)**
1. Identify the longitude scale.	_____
2. Identify the latitude scale.	_____
3. Identify horizontal and vertical clearances of overhead bridges and cables.	_____
4. Identify one nautical mile using the latitude scale.	_____
5. Identify sounding numbers (feet/fathoms).	_____
6. Identify depth curves (contours).	_____
7. Identify the general information block.	_____
8. Identify the scale of a chart.	_____
9. Identify the latitude and longitude in minutes or seconds.	_____
10. Identify different colors and stated meaning of each.	_____
11. Identify the miles and yards scale.	_____
12. Identify aids to navigation.	_____
13. Identify the symbol for prominent local landmarks.	_____
14. Identify the compass rose and indicate the purpose of each of its prominent parts.	_____
15. Identify the symbol for a wreck, rock, or other submerged object.	_____
16. Identify latest changes to the chart determined by Notice to Mariners and Local Notice to Mariners.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-02-ANY **Identify Common Aids to Navigation Used for Inland and Coastal Piloting**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 13*
b. *Nautical Chart Symbols, Abbreviations, and Terms, Chart No. 1*
c. *The American Practical Navigator, Chapter 5*

Conditions Task should be performed while underway, using a nautical chart of the unit's local operating area. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, identify the stated aids to navigation and their corresponding chart symbols.

Performance Criteria	Completed (Initials)
1. Identify a nun buoy and a can buoy.	_____
2. Identify a preferred channel buoy and state its purpose.	_____
3. Identify a day beacon.	_____
4. Identify an intracoastal waterways (ICW) buoy and state its markings (if applicable).	_____
5. Identify ranges and state their purpose.	_____
6. While underway, identify by type, number, and characteristic the primary aids used for entering and exiting the unit's berths.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-03-ANY **Identify Local Landmarks on a Nautical Chart**

NOTE Task **DOES NOT** apply to cutter boats.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section B*
b. *Nautical Chart Symbols, Abbreviations, and Terms, Chart No. 1*

Conditions Task should be performed while underway, using a nautical chart of the unit's local operating area. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor pointing out aids to navigation and prominent landmarks, the trainee must, without error, correctly identify on the chart those objects pointed out.

Performance Criteria	Completed (Initials)
1. Identify all major piers and docks in the area.	_____
2. Identify any prominent dangerous submerged, or semi-submerged rocks, shoals and structures.	_____
3. Identify all prominent submerged or partially submerged wrecks in the area.	_____
4. Identify all prominent antennas and towers used as navigational landmarks in the area.	_____
5. Identify all prominent buildings and structures used as navigational landmarks in the area.	_____
6. Identify all prominent landmarks in the area.	_____

Performance Criteria	Completed (Initials)
7. Identify all bridges and their types in the area.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-04-ANY **Plot a Position Using Latitude and Longitude**

NOTE Task **DOES NOT** apply to cutter boats, skiffs or punts.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *The American Practical Navigator*

Conditions Trainee shall be given a nautical chart and five sets of coordinates expressed in longitude and latitude. Trainee must plot the five coordinates without prompting or use of a reference.

Standards The trainee must, without error, plot the latitude and longitude coordinates within five minutes. Positions must be within 100 yards.

Performance Criteria	Completed (Initials)
1. Plot five different positions on the chart within five minutes.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-05-ANY **Plot a Magnetic Course on a Nautical Chart**

NOTE Task **DOES NOT** apply to cutter boats, skiffs or punts.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section C*
b. *The American Practical Navigator*

Conditions Trainee shall be given a nautical chart (scale 1:80,000 or less), the five positions plotted in TASK BCM-06-04-ANY, and five magnetic bearings (one bearing for each position). Trainee must accomplish task without prompting or use of a reference.

Standards The trainee must, without error, plot the courses indicated within five minutes. Courses must be accurate to within three degrees.

Performance Criteria	Completed (Initials)
1. Plot five different courses on the chart.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-06-ANY **Measure Distance on a Nautical Chart**

NOTE Task **DOES NOT** apply to cutter boats, skiffs or punts.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *The American Practical Navigator*

Conditions Trainee shall be given a nautical chart (scale 1:80,000 or less) and the set of five positions plotted in task BCM-06-04-ANY on the chart (designated A through E). All distances must be measured using nautical miles or yards as indicated by the task steps. Trainee must accomplish task without prompting or use of a reference.

Standards The trainee must, without error, measure the distances indicated in the task's steps within three minutes. Distance must be accurate to within 200 yards.

Performance Criteria	Completed (Initials)
1. The distance from position A to B is _____ nautical miles.	_____
2. The distance from position B to C is _____ yards.	_____
3. The distance from position C to D is _____ yards.	_____
4. The distance from position D to E is _____ nautical miles.	_____
5. The distance from position E to A is _____ nautical miles.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-07-ANY **Compute Time, Speed, and Distance**

NOTE Task **DOES NOT** apply to cutter boats, skiffs or punts.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *The American Practical Navigator*

Conditions Trainee shall be given a nautical chart, nautical slide rule, and the positions and distance calculated in TASK BCM-06-06-ANY. All answers should be given to the nearest tenth of an hour, knot, or nautical mile as indicated in the step. Trainee must accomplish task without prompting or use of a reference.

Standards The trainee must, without error, calculate the answer indicated for each step within five minutes.

NOTE The Nautical Slide Rule may not be used for steps 2 and 5. In step 2 the trainee should also use speeds of 12 kts, 6 kts, and 3 kts to demonstrate the 3-minute/6-minute rules.

Performance Criteria	Completed (Initials)
1. State the 3-minute and 6-minute rules.	_____
2. Calculate the time, in hours, it would take a boat traveling at a speed of 8 knots to get from point A to point B.	_____
3. Calculate the speed, in knots, it would take a boat to get from point B to point C in 30 minutes.	_____
4. Calculate the speed, in knots, it would take a boat to get from point E to point C in 2 hours.	_____
5. Calculate the speed, in knots, it would take a boat to travel 200 yards in 3 minutes.	_____
6. Calculate the distance, in nautical miles, a boat would travel at a speed of 12 knots for 2.4 hours.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-08-ANY **Determine the Depth of Water Using a Fathometer**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*

Conditions Task should be performed at any time, while underway, onboard one of the unit's boats. Demonstration should be performed in an area known to have accurate charted soundings. Steps 1 through 3 should be accomplished in water greater than 5 fathoms. Steps 4 and 5 should be accomplished in water less than 30 feet. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, identify different parts of the fathometer and various functions. Soundings should be within 10% (allowing for range of tide) of the charted depth when working in water less than 30 feet. All other soundings should be within 2 fathoms of the charted depth.

Performance Criteria	Completed (Initials)
1. Identify fathometer.	_____
2. Turn on fathometer.	_____
3. Adjust illumination from "Lamp 3 through Off". (High through Off)	_____
4. Demonstrate entering "Offset Setup". Set appropriate depth.	_____
5. Adjust "Display Contrast".	_____
6. State the depth in three different positions. Instructor should fix position and verify readings.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-09-TYPE **Use Radar to Identify Objects**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Radar Operator's Handbook*
c. *The American Practical Navigator*

Conditions

Task should be performed at any time, while underway, onboard each of the unit's boats. All of the objects listed must be identified using the installed radar and a local area chart, and then verified by sight. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, correctly demonstrate the steps in the task.

Performance Criteria	Completed (Initials)	Boat Type
1. Turn radar power switch on and allow unit to warm up.	_____ _____ _____	_____ _____ _____
2. Turn radar for maximum target return.	_____ _____ _____	_____ _____ _____
3. State the use of "gain", "sea clutter" and "rain clutter".	_____ _____ _____	_____ _____ _____
4. Use "gain", "sea clutter" and "rain clutter" as necessary.	_____ _____ _____	_____ _____ _____
5. Recognize and visually verify three different prominent landmarks.	_____ _____ _____	_____ _____ _____
6. Recognize and visually verify two different aids to navigation.	_____ _____ _____	_____ _____ _____
7. Recognize and visually verify two different moving targets.	_____ _____ _____	_____ _____ _____
8. Identify a RACON on the radar screen (if applicable).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-10-TYPE **Determine the Range and Bearing to Objects Using Radar**

NOTE Task **DOES NOT** apply to cutter boats.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Radar Operator's Handbook*
c. *The American Practical Navigator*

Conditions

Task should be performed at any time, while underway, onboard each of the unit's boats. Weather should be calm to moderate. All of the steps must be accomplished using the installed radar and a local area chart, and then verified by sight. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, identify the objects and correctly utilize the VRM and EBL functions to complete tasks two and three.

Performance Criteria	Completed (Initials)	Boat Type
1. Turn radar on and tune for maximum target return.	_____ _____ _____	_____ _____ _____
2. Report the ranges to three different objects.	_____ _____ _____	_____ _____ _____
3. Report the lines of position (LOPs) to three different objects.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-11-TYPE **Use Radar to Obtain and Interpret Relative Bearings and Ranges to a Moving Target to Determine if Risk of Collision Exists**

NOTE Task **DOES NOT** apply to cutter boats.

References

a. *Knight's Modern Seamanship*
b. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series)
c. *Radar Operator's Handbook*
d. The *American Practical Navigator*

Conditions Task should be performed at any time, while underway, onboard each of the unit's boats. Weather should be calm to moderate. All of the steps must be accomplished using the installed radar and verified by sight. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must be able to determine the relative motion of the target within a "reasonable" amount of time and recommend an adjustment to the boat's course to a risk of collision.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify a moving target on the boat's radar.	_____ _____ _____	_____ _____ _____
2. Use the VRM and EBL functions to establish the target range and relative bearing.	_____ _____ _____	_____ _____ _____
3. Determine if the target is in a meeting situation or would be passing ahead or astern of the CG boat by monitoring the range and relative bearing.	_____ _____ _____	_____ _____ _____
4. Recommend course alteration, if necessary, to avoid the other vessel.	_____ _____ _____	_____ _____ _____
5. State the meaning of "Constant Bearing, Decreasing Range".	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-12-TYPE **Operate the VHF-FM Direction Finder and Steer on a Signal**

NOTE Task **DOES NOT** apply to cutter boats.

References a. Manufacturer's Operating Manual

Conditions Task should be performed at any time, while underway, onboard one of the unit's boats. Task will require the use of another radio transceiver at a known location. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must demonstrate the use of the FM direction finder. Course should be steered within 5 degrees of the charted LOP.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify direction finder and speakers.	_____ _____ _____	_____ _____ _____
2. Identify off/on switch and turn direction finder on.	_____ _____ _____	_____ _____ _____
3. Identify front panel indicator and controls.	_____ _____ _____	_____ _____ _____
4. Identify volume control and adjust.	_____ _____ _____	_____ _____ _____
5. Identify squelch control and adjust to just beyond the point where static disappears.	_____ _____ _____	_____ _____ _____
6. Establish communications with another unit using appropriate working frequency.	_____ _____ _____	_____ _____ _____
7. Press the CH key.	_____ _____ _____	_____ _____ _____
8. Enter the appropriate channel using the numerical keypad, then press ENT.	_____ _____ _____	_____ _____ _____
9. State the direction of the signal.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-13-TYPE **Obtain a Fix Using GPS/DGPS**

NOTE Cutter boats will perform steps 1 and 2 only.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *GPS Operator's Handbook*
c. *The American Practical Navigator*

Conditions Task should be performed at any time, while underway, onboard each of the unit's boats.

Standards In response to the instructor, the trainee must correctly demonstrate the use of the GPS/DGPS receiver.

Performance Criteria	Completed (Initials)	Boat Type
1. Energize set and verify set receiving a signal.	_____ _____ _____	_____ _____ _____
2. Read and report latitude and longitude position to instructor.	_____ _____ _____	_____ _____ _____
3. Plot latitude and longitude position on chart.	_____ _____ _____	_____ _____ _____
4. Demonstrate using "Sailplan" and "Reverse Sailplan" (as applicable).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-14-ANY **Plot a Position Using LORAN-C TDs**

NOTE Task **DOES NOT** apply to cutter boats.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *The American Practical Navigator*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must either demonstrate knowledge or perform each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)
1. Describe LORAN-C and its purpose.	_____
2. Explain Time Difference (TD) and how it is used.	_____
3. Use TDs to plot three positions within one-tenth of a nautical mile utilizing the interpolator.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-06-15-TYPE **Operate the Electronic Charting System**

NOTE Task **DOES NOT** apply to cutter boats.

References a. *Electronic Charting System Operation Manual*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must either demonstrate knowledge or perform each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)	Boat Type
1. Describe the purpose of electronic charting.	_____ _____ _____	_____ _____ _____
2. State the specific features of the electronic charting system.	_____ _____ _____	_____ _____ _____
3. Describe the information provided in the cursor data box.	_____ _____ _____	_____ _____ _____
4. Describe the basic purpose of the soft keys, dedicated keys, and trackpad.	_____ _____ _____	_____ _____ _____
5. Perform the basic procedures for changing the chart scale and displaying information about objects.	_____ _____ _____	_____ _____ _____
6. Complete procedure for using quick routes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section G. Mission-Oriented Operations

Introduction

The following are objectives of Division Seven:

- **Demonstrate** actions to take during a man overboard emergency.
- **Demonstrate** procedures to signal an emergency.
- **Demonstrate** procedures for helo hoist operation.
- **Demonstrate** procedures for towing astern and alongside.
- **Demonstrate** procedures for dewatering another vessel.
- **Demonstrate** procedures to combat a fire onboard own vessel or another vessel.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
BCM-07-01-TYPE	Participate in a Man Overboard Evolution as a Pointer	2-55
BCM-07-02-TYPE	Participate in a Man Overboard Evolution as a Recovery/Pickup Person	2-56
BCM-07-03-ANY	Participate in a Man Overboard Evolution as a Surface Swimmer	2-56
BCM-07-04-ANY	Stokes Litter	2-57
BCM-07-05-TYPE	Recover a Person-in-the-Water with the Stokes Litter	2-58
BCM-07-06-ANY	Helicopter Operations	2-59
BCM-07-07-TYPE	Conduct Helo-Ops	2-59
BCM-07-08-ANY	Fire the MK-127A1 Parachute Illumination Signal	2-60
BCM-07-09-ANY	Bend a Heaving Line to a Bridle and Pass the Heaving Line to Another Boat	2-60
BCM-07-10-TYPE	Pass a Towline to Another Boat	2-61
BCM-07-11-ANY	Connect a Towline to a Trailer Eyebolt Using a Shackle or Skiff Hook	2-62
BCM-07-12-TYPE	Secure an Alongside Tow	2-62
BCM-07-13-ANY	Prepare the Portable Pump for Operation, Start, and Obtain Suction	2-63
BCM-07-14-ANY	Assist in Passing a Portable Pump Directly to Another Boat	2-64
BCM-07-15-TYPE	Rig and Operate an Eductor to Obtain Suction	2-64
BCM-07-16-ANY	Identify the Different Classes of Fires, State the Fuel Sources, and State the Extinguishing Agents for Each Class of Fire	2-65
BCM-07-17-TYPE	Locate and Identify the Fire Fighting Equipment Carried Onboard the Boat	2-66

Task Number	Task	See Page
BCM-07-18-ANY	Demonstrate Knowledge of the Operation of a CO2 Fire Extinguisher	2-66
BCM-07-19-ANY	Demonstrate Knowledge of the Operation of a Dry Chemical Fire Extinguisher	2-67
BCM-07-20-TYPE	Assemble Equipment for the Boat's Main Fire Fighting System	2-68
BCM-07-21-TYPE	Engage the Boat's Main Fire Pump	2-68
BCM-07-22-ANY	Operate a Vari-Nozzle	2-69
BCM-07-23-TYPE	Demonstrate Knowledge of the Procedures to Combat a Fire in the Engine Space	2-70
BCM-07-24-TYPE	Demonstrate the Appropriate Response to the Basic Engineering Casualty Control Exercises (BECCE)	2-71

TASK BCM-07-01-TYPE **Participate in a Man Overboard Evolution as a Pointer**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*

Conditions

Task should be performed during the day and at night, while underway onboard each of the unit's boats. Where possible, this task should be performed with an actual person in the water. When not possible due to weather conditions or water temperature, a life-like dummy, (180 pounds dry) or Oscar must be used. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must move to his/her correct Station and perform the task steps without hesitat ion.

Performance Criteria	Completed (Initials)	Boat Type
1. Keep PIW in sight continuously and sound alarm.	_____ _____ _____	_____ _____ _____
2. Proceed immediately to assigned position.	_____ _____ _____	_____ _____ _____
3. Keep coxswain continuously informed of PIW position both vocally and by pointing.	_____ _____ _____	_____ _____ _____
4. Upon command, move to assigned position, and assist with pickup of PIW.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-02-TYPE **Participate in a Man Overboard Evolution as a Recovery/Pickup Person**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*

Conditions

Task should be performed during the day and at night, while underway onboard each of the unit's boats. Where possible, this task should be performed with an actual person in the water. When not possible due to weather conditions or water temperature, a life-like dummy, (180 pounds dry) Oscar may be used. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must move to his/her correct Station and perform the task steps without hesitation.

Performance Criteria	Completed (Initials)	Boat Type
1. Proceed immediately to assigned position (should be lowest point of free board away from screws).	_____ _____ _____	_____ _____ _____
2. Prepare a rescue heaving line, if PIW is conscious.	_____ _____ _____	_____ _____ _____
3. On command, throw a rescue heaving line to PIW, if PIW is conscious.	_____ _____ _____	_____ _____ _____
4. Pull PIW alongside the boat, if PIW is conscious.	_____ _____ _____	_____ _____ _____
5. Pull the PIW aboard using two persons.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-03-ANY **Participate in a Man Overboard Evolution as a Surface Swimmer**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M 16114.5 (series), *Chapter 16, Section A*

b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)

c. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Task should be performed during daylight hours in calm sea conditions, while underway onboard one of the unit's boats. This task must be done with a life-like dummy, (180 pounds dry) Oscar in the water. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must perform the task steps without hesitation. Review the policy outlined in references (b) and (c).

NOTE The intent of this task is to ensure crew member can remove another person from the water. Task may need to be modified, depending upon equipment carried as part of boat outfit.

Performance Criteria	Completed (Initials)
1. State the surface swimmer policy as outlined in the above references.	_____
2. Don necessary rescue equipment/PPE.	_____
3. On command, enter the water feet first.	_____
4. Hold PIW in cross shoulder position, while pulled back to boat by tender.	_____
5. Place PIW in stokes litter (only if person is seriously injured and seas are calm).	_____
6. Assist while PIW hauled onboard.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-04-ANY **Stokes Litter**

References a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 2*

Conditions Task should be performed at any time at facilities available to the unit.

Standards Trainee must either demonstrate knowledge or perform each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)
1. Review stokes litter policy and guidelines provided in the *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series).	_____
2. State what type of stokes litter is authorized for Coast Guard use.	_____
3. State procedures necessary for securing a patient in the litter.	_____
4. State flotation kit requirements.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-05-TYPE **Recover a Person-in-the-Water with the Stokes Litter**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*
b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)

Conditions

Task should be performed during daylight hours, in calm sea conditions, while underway onboard one of the unit's boats. This task must be done with a lifelike dummy (180 pounds), Oscar, or unit personnel in the water. Trainee must accomplish task without prompting or use of a reference.

Standards

In response to the instructor the trainee must perform the task steps without hesitation. Review the policy outlined in the *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series) and the *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series).

NOTE The intent of this task is to ensure crew member can remove another person from the water. Task may need to be modified, depending upon equipment carried as part of the boat outfit.

Performance Criteria	Completed (Initials)	Boat Type
1. Make ready stokes litter manila tending lines and patient securing straps.	_____ _____ _____	_____ _____ _____
2. Place stokes litter in water and tend with assistance of another crew member.	_____ _____ _____	_____ _____ _____
3. Place patient or Oscar in litter and attach all straps in correct order.	_____ _____ _____	_____ _____ _____
4. Assist while patient is hauled onboard (head first).	_____ _____ _____	_____ _____ _____
5. Check the patient to assess their physical condition and give first-aid as needed.	_____ _____ _____	_____ _____ _____
6. Assist in carrying stokes litter with patient from the boat to the shore.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-06-ANY **Helicopter Operations**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19*

Conditions Task should be performed at any time at facilities available to the unit.

Standards Trainee must either demonstrate knowledge or perform each task to the minimum standards included in each performance step.

Performance Criteria	Completed (Initials)
1. Review air operations chapter of the *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series).	_____
2. State delivery and hoisting methods.	_____
3. State safety precautions associated with delivery and hoisting.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-07-TYPE **Conduct Helo-Ops**

NOTE Task **ONLY** applies to boats 30' and above.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Section B*

Conditions Task should be performed while underway during daylight hours, in fair weather conditions. All crew members should be wearing gloves, helmets, goggles, PFDs or appropriate exposure gear and boat crew personnel survival vests. Rescue device and/or line must not become entangled or otherwise attached to the boat at any time. Rescue device must be grounded to the boat before crew members handle it. Trainee must accomplish task without prompting or use of a reference.

NOTE If no helicopter training is available, this task may be deferred. Task must be completed at the earliest possible time.

Standards In response to the instructor, the trainee should perform the tasks in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Secure loose gear before operations.	_____ _____ _____	_____ _____ _____
2. Ground rescue device using a deadman stick.	_____ _____ _____	_____ _____ _____
3. Bring rescue device onto the boat's deck by hand or by using a tag line.	_____ _____ _____	_____ _____ _____
4. Tend rescue device as it is lifted from boat and hoisted to helicopter.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-08-ANY **Fire the MK-127A1 Parachute Illumination Signal**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section F*

Conditions Task should be performed at night, ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must break out, prepare, and launch the MK-127A1 signal.

Performance Criteria	Completed (Initials)
1. Remove signal from its container.	_____
2. Hold signal in left hand with red band facing up.	_____
3. Withdraw firing cap from lower end.	_____
4. Inspect cork sealing disc for looseness. If disc is loose, flare should not be fired.	_____
5. Point ejection end, opposite the red band, away from body and other people or objects.	_____
6. Push firing cap slowly onto primer end until cap is aligned with the lower edge of the red band.	_____
7. Position signal so that firing end is perpendicular to the deck with the firing cap facing downward.	_____
8. Fire signal by striking firing cap bottom with the palm of the right-hand.	_____
9. Keep the arm rigid and pointed straight up.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-09-ANY **Bend a Heaving Line to a Bridle and Pass the Heaving Line to Another Boat**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*

Conditions Task should be performed at any time onboard one of the unit's boats. Heaving line used should be at least 75 feet long. The target boat must be at least 40 feet away from the boat at the time of the toss. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must pass the line to the target boat, in accordance with the steps listed below, on two out of three throws. The heaving line should pass over the target boat, but not hit it.

Performance Criteria	Completed (Initials)
1. Wet down heaving line to relieve stiffness.	_____

Performance Criteria	Completed (Initials)
2. Bend one heaving line onto the bridle eye using a bowline and second onto the throat using a clove hitch with two half hitches, or a snap hook.	_____
3. Make heaving line into tight coils.	_____
4. Place two-thirds of coil in casting hand.	_____
5. Instruct people on other boat to take cover.	_____
6. On command, throw heaving line over the target boat and tend.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-10-TYPE **Pass a Towline to Another Boat**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*

Conditions Task should be performed at any time, onboard any of the unit's boats, while taking another boat in tow. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, in accordance with the procedures listed below, perform all line handling related to passing a tow line.

Performance Criteria	Completed (Initials)	Boat Type
1. Using heaving lines, pass towline to the boat to be towed.	_____ _____ _____	_____ _____ _____
2. Tend towline while people on other vessel make attachment.	_____ _____ _____	_____ _____ _____
3. Place a proper working turn around the towing bitt and pay out the line, as directed.	_____ _____ _____	_____ _____ _____
4. On command, secure towline to the towing bitt.	_____ _____ _____	_____ _____ _____
5. On command, break towing bitt down to a working turn, pay towline out.	_____ _____ _____	_____ _____ _____
6. On command, make up bitt.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-11-ANY **Connect a Towline to a Trailer Eyebolt Using a Shackle or Skiff Hook**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*

Conditions Task should be performed at any time, onboard any of the unit's boats, while taking another boat in tow. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, in accordance with the procedures listed below, perform all line handling related to connecting a towline to a boat's trailer eyebolt.

Performance Criteria	Completed (Initials)
1. Prepare towing line with skiff hook assembly or shackle attached.	_____
2. Connect towline to eyebolt using skiff hook assembly or shackle, while disabled boat is off either quarter.	_____
3. Tend towline from towing boat with proper working-turn around the tow bitt.	_____
4. On command, secure towline to the tow bitt.	_____
5. On command, break down the tow bitt to a working turn, and pay out towline.	_____
6. On command, make up tow bitt.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-12-TYPE **Secure an Alongside Tow**

NOTE Task **DOES NOT** apply to cutter boats.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*

Conditions Task should be performed at any time, onboard each of the unit's boats. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without prompting, correctly tend and secure the towline and side lines in accordance with the procedures listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Rig fenders and set up lines on the side where tow will be secured.	_____ _____ _____	_____ _____ _____
2. If using stern towline, upon command, walk towline forward and fake out excess line on deck, out of the way.	_____ _____ _____	_____ _____ _____
3. If using stern towline, upon command, lead tow line forward and use as the bow line.	_____ _____ _____	_____ _____ _____
4. Secure other lines as directed by the coxswain.	_____ _____ _____	_____ _____ _____
5. Explain the purpose of each line (bow, stern, towing strap, back spring).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-13-ANY **Prepare the Portable Pump for Operation, Start, and Obtain Suction**

NOTE Task **DOES NOT** apply to cutter boats.

References
a. *Dewatering Pump Manufacturer's Instructions*
b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)

Conditions
Task should be performed at any time, ashore, afloat or onboard one of the unit's boats. Trainee must accomplish task without prompting or use of a reference.

Standards
In response to the instructor, the trainee must, without error, prepare and start the pump in accordance with the procedures listed below. The pump must take suction in order for this task to be considered successful.

Performance Criteria	Completed (Initials)
1. Open and remove pump from pump can.	_____
2. Check oil. Fill if needed.	_____
3. Mount and connect fuel tank (if applicable).	_____
4. Connect and unroll discharge hose.	_____
5. Connect suction hose.	_____
6. Place suction hose strainer in water.	_____
7. Prime pump.	_____
8. Start pump engine within six pulls.	_____
9. Take suction and discharge water from the pump.	_____
10. Drain, flush out with freshwater, clean up and secure pump.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-14-ANY **Assist in Passing a Portable Pump Directly to Another Boat**

NOTE Task **DOES NOT** apply to cutter boats.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*
Conditions	Task should be performed at any time, onboard one of the unit's boats, acting as a member of a two-man team. Trainee must accomplish task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must demonstrate passing the pump in accordance with the procedures listed below.

Performance Criteria	Completed (Initials)
1. Attach mooring line to pump can handle.	_____
2. Secure heaving line to mooring line using bowline or double becket bend.	_____
3. Attach mooring line to other handle.	_____
4. Pass heaving line to other boat.	_____
5. Tend pump can using mooring line while people on other boat haul it in (lines never allowed to lay slack in the water around the boats).	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-15-TYPE **Rig and Operate an Eductor to Obtain Suction**

NOTE Task **DOES NOT** apply to cutter boats.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*
Conditions	Task should be performed at any time, pierside or underway, on each of the boats carrying eductor equipment. Task should be performed using the installed pump onboard the boat. Trainee must accomplish task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must prepare the eductor and put it into operation in accordance with the procedures listed below. The eductor must take suction in order for this task to be considered successful.

Performance Criteria	Completed (Initials)	Boat Type
1. Connect eductor supply hose to pump outlet using 25-foot length of hose.	_____ _____ _____	_____ _____ _____
2. Connect 1½-inch supply hose to the eductor.	_____ _____ _____	_____ _____ _____
3. Connect 2½-inch discharge hose to the eductor.	_____ _____ _____	_____ _____ _____
4. Submerge eductor in the water to be pumped.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
5. Engage pump engine.	_____ _____ _____	_____ _____ _____
6. Observe suction and discharge water through the eductor. Ensure discharge flowing overboard.	_____ _____ _____	_____ _____ _____
7. Secure pump.	_____ _____ _____	_____ _____ _____
8. Drain, flush out with freshwater, clean up and secure pump.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-16-ANY **Identify the Different Classes of Fires, State the Fuel Sources, and State the Extinguishing Agents for Each Class of Fire**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Sections C* and *D*

Conditions Task should be performed at any time ashore or afloat. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error state, the answers called for in the steps below.

Performance Criteria	Completed (Initials)
1. State most common fuels for Class A fires, and state the primary extinguishing agent for a Class A fire.	_____
2. State most common fuels for Class B fires, and state the primary extinguishing agent for a Class B fire.	_____
3. State most common source for Class C fires, and state the primary extinguishing agent for a Class C fire.	_____
4. State most common fuels for Class D fires, and state the primary agents for containing a Class D fire.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-17-TYPE **Locate and Identify the Fire Fighting Equipment Carried Onboard the Boat**

References a. Boat outfit or daily checkoff list for the boat

Conditions Task should be performed at any time, onboard the type boat being qualified on. Only those items carried on the boat need to be identified. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must identify all of the fire fighting equipment carried on the boat, and state the purpose of each piece.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify and state the purpose of the installed fire pump and controls.	_____ _____ _____	_____ _____ _____
2. Identify and state the purpose of the portable fire pump(s).	_____ _____ _____	_____ _____ _____
3. Identify and state the purpose of all fire hoses.	_____ _____ _____	_____ _____ _____
4. Identify and state the purpose and capabilities of the nozzle.	_____ _____ _____	_____ _____ _____
5. Identify and state the purpose of all tri-gates and hose fittings.	_____ _____ _____	_____ _____ _____
6. Identify and state the purpose of the fire monitor and controls.	_____ _____ _____	_____ _____ _____
7. Identify and state the purpose of all spanner wrenches.	_____ _____ _____	_____ _____ _____
8. Identify and state the purpose of the fixed extinguishing system.	_____ _____ _____	_____ _____ _____
9. Identify and state the purpose of all CO_2 fire extinguishers.	_____ _____ _____	_____ _____ _____
10. Identify and state the purpose of all dry chemical extinguishers.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-18-ANY **Demonstrate Knowledge of the Operation of a CO_2 Fire Extinguisher**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*

Conditions Task should be performed at any time, ashore or afloat. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must demonstrate the use of a CO_2 fire extinguisher in accordance with the guidelines listed below.

Performance Criteria	Completed (Initials)
1. Carry extinguisher in upright position.	_____
2. Identify the locking pin and explain its removal from the valve.	_____
3. Ground cylinder by placing it on deck.	_____
4. Point horn at target and explain how to activate the extinguisher.	_____
5. Direct CO_2 at the base of the fire (simulate).	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-19-ANY **Demonstrate Knowledge of the Operation of a Dry Chemical Fire Extinguisher**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*

Conditions Task should be performed at any time, ashore or afloat. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must demonstrate the use of a dry chemical fire extinguisher in accordance with the guidelines listed below.

Performance Criteria	Completed (Initials)
1. Check fill cap for tightness.	_____
2. Identify and explain removal of the locking pin from the cutter assembly.	_____
3. Explain how puncture lever is pushed down, and why this is done.	_____
4. Approach fire from the windward side.	_____
5. Remain at least 8 feet from the fire.	_____
6. Point extinguisher at base of fire, explain discharge procedure.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-20-TYPE **Assemble Equipment for the Boat's Main Fire Fighting System**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section F*

Conditions Task should be performed at any time, acting as a member of a team, onboard the specified boat type. Only those steps applicable to the boat type need to be accomplished. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must correctly connect those pieces of equipment necessary to use the boat's fire fighting equipment for fighting a fire. Demonstration should be completed within 15 minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Mount fire monitor, if applicable.	_____ _____ _____	_____ _____ _____
2. Connect tri-gate to the firemain.	_____ _____ _____	_____ _____ _____
3. Connect fire monitor to tri-gate with 2½-inch x 30-foot hose.	_____ _____ _____	_____ _____ _____
4. Connect 1½-inch hose to tri-gate and attach vari-nozzle.	_____ _____ _____	_____ _____ _____
5. Place correct gates of the tri-gate in open position.	_____ _____ _____	_____ _____ _____
6. Charge fire hose.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-21-TYPE **Engage the Boat's Main Fire Pump**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time, onboard the specific boat type. Task need only be done for those boats with an installed fire fighting system, or a semi-attached portable pump used for fire fighting. Only those steps applicable to the boat type should be done. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must correctly demonstrate the use of the boat's fire pump in accordance with the guidelines listed below. Task must be completed within ten minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Place engine in neutral.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Open firemain sea suction valve.	_____ _____ _____	_____ _____ _____
3. Energize fire pump.	_____ _____ _____	_____ _____ _____
4. Break out and rig portable pump.	_____ _____ _____	_____ _____ _____
5. Connect all gates and hoses.	_____ _____ _____	_____ _____ _____
6. Open discharge valve.	_____ _____ _____	_____ _____ _____
7. Open air vent valve.	_____ _____ _____	_____ _____ _____
8. Start pump engine (if separate).	_____ _____ _____	_____ _____ _____
9. Engage and charge system.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-22-ANY	**Operate a Vari-Nozzle**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section F*
Conditions	Task should be performed at any time, onboard any of the unit's boats. Hose should be charged and water discharged. Trainee must accomplish task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must demonstrate the use of the vari-nozzle in accordance with the guidelines listed below. Task should be completed within five minutes.

Performance Criteria	Completed (Initials)
1. Connect nozzle to 1½-inch hose.	_____
2. Man nozzle and open nozzle.	_____
3. Demonstrate wide-angle fog.	_____
4. Demonstrate narrow angle fog (power cone).	_____
5. Demonstrate straight stream.	_____
6. Demonstrate flush feature.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-23-TYPE **Demonstrate Knowledge of the Procedures to Combat a Fire in the Engine Space**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time, acting as a member of a team, onboard each specific boat type. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must demonstrate the use of the main fire extinguishing system and the procedures for fighting engine space fires in accordance with the guidelines listed below. The demonstration must be accomplished in five minutes or less.

Performance Criteria	Completed (Initials)	Boat Type
1. Sound alarm to other crew members by shouting: "FIRE, FIRE, FIRE."	_____ _____ _____	_____ _____ _____
2. Secure engines.	_____ _____ _____	_____ _____ _____
3. Secure air supply to engine space (if possible).	_____ _____ _____	_____ _____ _____
4. Simulate and explain activating fixed fire fighting system, if available.	_____ _____ _____	_____ _____ _____
5. Aim fire extinguisher, if used, at base of the fire simulating fighting the fire.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK BCM-07-24-TYPE	**Demonstrate the Appropriate Response to the Basic Engineering Casualty Control Exercises (BECCE)**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* b. Manufacturers Operator's Manual and Technical Publication
Conditions	Task should be performed at any time onboard each of the unit's boats, including non-standard boats, without the use of any references or prompting.
Standards	In response to the instructor, the trainee must, without error, demonstrate the steps taken for each of the BECCEs listed, as stated in the above reference.

Performance Criteria	Completed (Initials)	Boat Type
1. Fire in the engine room.	_____	_____
2. Loss of steering. (cable/hydraulic)	_____	_____
3. Loss of steering. (jammed rudder)	_____	_____
4. Accidental grounding.	_____	_____
5. Collision with submerged object.	_____	_____
6. Reduction gear failure.	_____	_____
7. Main engine high water temperature.	_____	_____
8. Loss of main engine lube oil pressure.	_____	_____
9. Loss of fuel oil pressure.	_____	_____
10. Loss of control of engine RPM.	_____	_____
11. General starting difficulties, including engine not starting and emergency starting procedures.	_____	_____
12. Cooling system casualties.	_____	_____
13. Propeller damage and excessive cavitation.	_____	_____
14. Immersed outboard.	_____	_____
15. Loss of electrical power.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 3.
Boat Crew Member Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee to keep. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainee's answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	2-74
B	Reading Assignments - Division Two	2-76
C	Reading Assignments - Division Three	2-84
D	Reading Assignments - Division Four	2-88
E	Reading Assignments - Division Five	2-95
F	Reading Assignments - Division Six	2-97
G	Reading Assignments - Division Seven	2-103

Section A. Reading Assignments - Division One

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-01-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5, (series), *Chapter 3, Section B*	2-75
BCM-01-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 3, Section C*	2-75
BCM-01-03-ANY	• None assigned	

TASK BCM-01-01-ANY: Crew Fatigue

1. Mental and physical fatigue is among the _____ during rough weather operations.
2. The primary symptoms of fatigue are:
   a.
   b.
   c.
   d.
   e.
   f.
3. Some preventive measures are:
   a.
   b.
   c.
   d.
   e.
   f.
4. Some other environmental conditions that also promote fatigue are:
   a.
   b.
   c.
   d.

TASK BCM-01-02-ANY: Motion Sickness

1. Motion sickness occurs when there is an imbalance between _____images and the portion of the _____which senses motion.
2. Reading chart work, or other tasks that require close attention, will _____motion sickness.
3. *Antimotion Sickness Medications*, COMDTINST M6710.15 (series), restricts medication use. Specifically, it must not be given under the following circumstances:
   a.
   b.
   c.

Section B. Reading Assignments - Division Two

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-02-01-ANY	• None Assigned	
BCM-02-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 5*	2-78
BCM-02-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 5*	2-79
BCM-02-04-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-79
BCM-02-05-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-79
BCM-02-06-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-80
BCM-02-07-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-80
BCM-02-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section D* • *Rescue and Survival Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-80
BCM-02-09-ANY	• None assigned	
BCM-02-10-ANY	• None assigned	
BCM-02-11-ANY	• None assigned	
BCM-02-12-ANY	• None assigned	
BCM-02-13-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*	2-81
BCM-02-14-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 4*	2-81

Task Number	Reading Assignment	See Page
BCM-02-15-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section G* • *Rescue and Survival Manual*, COMDTINST M10470.10 (series), *Chapter 5, Section B*	2-81
BCM-02-16-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section H*	2-82
BCM-02-17-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series) • *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), Chapter 3 • *Team Coordination Training*, COMDTINST 1541.1 (series)	2-82
BCM-02-18-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series) • *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Table 3-1*	2-83

TASK BCM-02-02-ANY: Crew First-Aid Responsibility

1. What are dressings and bandages used for?

2. What is the first step in caring for bleeding wounds?

3. What should you do if you think a victim has serious internal bleeding?

4. What should you do for someone who is suffering from a heat-related illness?

5. What should you do if you find someone with a piece of glass sticking out of their arm?

6. Why should you cover burns with a clean or sterile dressing?

TASK BCM-02-03-ANY: Demonstrate Adult, Child, and Infant CPR

1. In a life-threatening situation, what is the most important thing you can do to help?

2. What is a signal of breathing difficulty?

3. What should you do to determine whether or not a victim requires rescue breathing?

4. What should you do for a conscious adult who is choking and cannot cough?

5. When should you stop CPR?

6. One cycle of CPR for an adult includes ____ compressions and ____ breath(s).
7. Where on an adult victim should you feel for a pulse?

8. Where do you check for a pulse on an infant?

9. How often should you give rescue breaths to a child who is not breathing, but does have a pulse?

10. One cycle of CPR for a child includes ____ compressions and _____ breath(s).

TASK BCM-02-04-ANY: Don the Type III PFD

1. The Type III PFD is normally worn aboard boats when _____ _____ _____ is required.
2. True or False. The Type III PFD will turn a crew member face up if they fall overboard and are rendered unconscious.
3. The Type III PFD has a tendency to _____ _____ on the wearer in the water.

TASK BCM-02-05-ANY: Don the Type III Flotation Jacket

1. The waist straps on the Type III flotation jacket should be adjusted to a _____ _____ before entering the water.
2. The Type III flotation jacket has _____ flotation characteristics.
3. True or False. Zippers on the Type III flotation jacket should be open before entering the water to create air pockets for additional flotation.

TASK BCM-02-06-ANY: Don Anti-Exposure Coveralls

1. True or False. Wearing a Type I or III PFD over an anti-exposure coverall may be dangerous in certain situations.
2. The anti-exposure coveralls have straps located at the _____, _____, _____ and _____ which should be tightened before entering the water.
3. The anti-exposure coveralls is ideal for cold weather operations with _____ cockpit boats.

TASK BCM-02-07-ANY: Don the Boat Crew Dry Suit

1. The dry suit shall be worn in _____ cockpit boats when the water temperature is below _____ °F and the air temperature is below _____ °F.
2. The dry suit has watertight seals at the _____, _____ and _____.
3. To afford the maximum protection from hypothermia, the dry suit must be worn with the _____ _____.
4. True or False. The dry suit must never be worn over regular clothing.
5. A _ _ _ must be worn over a dry suit at all times.

TASK BCM-02-08-ANY: Identify Boat Crew Survival Vest Equipment

1. The boat crew survival vest was designed to aid personnel to _____ in hazardous situations.
2. The survival knife is used to _____ yourself if you become entangled.
3. The emergency signaling mirror is used to attract the attention of passing _____, _____ or boats.
4. Reflected light from the emergency signal mirror can be seen at a _____ from the point of origin.
5. It does this by _____ light at them.
6. To use the mirror, you should face a point about _____ between the sun and the object you wish to signal.
7. The night end of the MK-124 smoke and illumination signal produces a _____.
8. The day end of the signal produces _____ smoke.
9. Two prominent bands around the circumference identify the _____ end.
10. After the seal has been broken, the signal is activated by a pull on the _____.
11. The signal should be held downwind and overhead at a _____-degree angle _____ flame.
12. The signal in the MK-79 kit can be fired to an altitude of 250 feet to _____ feet.
13. The second step in preparing the signal for launching is to move the _____ screw into the safety slot.
14. The protective tab should be bent _____ from the signal.
15. The signal should be mated to projector and rotated _____ until the signal is seated.
16. When firing, the arm should be extended _____.
17. Spent signals or misfires should be _____ overboard.
18. The SDU-5/E or CG-1 strobe light emits a high _____ visual distress signal visible for great distances.
19. The light is intended to omit approximately ____ - ____ flashes per minute.
20. If the light, with a new battery, does not operate within limits, _____ the light from service.

TASK BCM-02-13-ANY: Don the Boat Crew Survival Vest

1. The Type III PFD is normally worn when the water temperature is greater than_____ °F.
2. The Type III PFD has a minimum of _____ pounds of buoyancy.
3. The flotation jacket provides a minimum of _____pounds of buoyancy.
4. True or False. The flotation jacket provides minimal protection against hypothermia.
5. The flotation characteristics of the anti-exposure coveralls is similar to those of a Type _____PFD.
6. The anti-exposure coveralls have an orally inflated _____for better flotation angle.
7. True or False. The anti-exposure coveralls are the same as a dry suit.
8. True or False. The Boat Crew Survival Vest should only be worn under a PFD.

TASK BCM-02-14-ANY: Don the Inflatable PFD

1. The inflatable type PFD uses_____ as the inflating agent.
2. True or False. The inflatable type PFD should be inflated before entering the water.
3. The inflatable type PFD will probably have a _____ and _____ attached to it.
4. To maintain the buoyancy of the inflatable PFD, an _____ _____ tube is provided.

TASK BCM-02-15-TYPE: Explain the Manual Deployment and Boarding Procedures for the Rescue and Survival Raft

1. The raft may be inflated either _____ or automatically.
2. The raft may be inflated manually by completely pulling the _____ line from the raft container.
3. The raft should be considered as a means of _____ persons stranded in areas where a boat cannot go.
4. If practical, the raft should be _____ directly from the boat - avoid entering the _____.
5. After boarding the raft, you should try to remain in the same general area as the _____.
6. Food and water should be _____.

TASK BCM-02-16-TYPE: List Survival Procedures in Event of Boat Capsize

1. While capsizing, personnel should _____ something sturdy.
2. If trapped in or under a boat, personnel should seek out an _____ near the _____.
3. Before attempting to escape, an inventory should be made of all _____ that might be taken along.
4. Because air will eventually leak or run out, every effort should be made to _____.
5. Sometimes it is necessary to _____ your PFD in order to exit. If necessary, it should be attached to a _____ so it can be _____ after exiting.
6. If the engines are still running, you should _____ the stern.
7. When trapped in an open cockpit, you should exit by swimming _____ the gunwales and _____ alongside the boat.
8. If trapped in an enclosed cabin, you must remember that all exits are _____ when the boat capsizes.
9. If line is available, the _____ swimmer should exit first taking an end of the line with him/her.
10. If no line is available, the _____ swimmer should go out first, followed by the _____ swimmers, and lastly by a _____ swimmer.
11. When free, the first swimmer out should contact the people inside by _____.

TASK BCM-02-17-ANY: Open Water Survival Skills

1. State the four types of hypothermia clothing used by the Coast Guard.
   a.
   b.
   c.
   d.
2. _____ clothing robs the body of heat by breaking down the thermal protection of insulated clothing.
3. If a dry suit is worn, boat crew members must wear a _____ at all times.
4. The anti-exposure coveralls are Type _____PFD.
5. True or False. If possible, board the life raft from the sinking vessel to avoid entering the water.
6. The length of time a person can stay alive in cold water depends on three factors. What are these three factors ?
7. True or False. It is best to climb on an overturned boat hull from the windward side.
8. If a Coast Guard boat is greater than _____feet, it will normally carry a survival raft.
9. If trapped under an inverted boat, seek out an _____ _____ near the top.
10. True or False. When swimming out from under an inverted boat, a PFD should be worn at all times.

TASK BCM-02-18-ANY: Perform Water Survival Exercise

1. The bright light spot on the signal mirror is used to _____ the mirror.
2. Where can directions for use of the signal mirror be easily found ?
3. The use of a whistle is especially helpful to rescuers during periods of _____ _____.
4. A signal whistle's audible sound may be heard up to _____ yards.
5. The MK-124 day/night pyrotechnic device produces_____ colored smoke for daytime conditions and _____ colored flare as a night signal.
6. Each end of the MK-124 will burn for about _____ seconds.
7. In the dark, the night end of the MK-124 is identifiable by _____ on the night end.
8. Each MK-79 signal kit contains _____ cartridge type aerial flares and _____ pencil type projector.
9. The aerial flares in the MK-79 signal kit can attain an altitude of _____ to _____ feet and remain illuminated for about _____ seconds.
10. The strobe light is designed to emit about _____ flashes per minute and is capable of flashing _____ hours if used continuously.
11. Define the acronym HELP in regards to water survival.
12. True or False. Swimming in cold water will warm you up and increase your chances for survival.

Section C. Reading Assignments - Division Three

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-03-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section A*	2-85
BCM-03-02-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section D*	2-85
BCM-03-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8*	2-86
BCM-03-04-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8*	2-86
BCM-03-05-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 9, Section B*	2-87
BCM-03-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Sections A* and *D*	2-87
BCM-03-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Section D*	2-87
BCM-03-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 7, Section E*	2-87

TASK BCM-03-01-ANY: State Common Boat Nomenclature and Terminology

1. The front end of the boat is the _____.
2. When proceeding toward the bow, you are going _____.
3. The right side of the bow is the _____ bow.
4. The central or middle area of the boat is _____.
5. The left center side of the boat is the _____ _____.
6. The rear of the boat is the _____.
7. The left rear section of the boat is the port _____.
8. A line running from one side of the boat to the other is said to be _____.
9. From the center line toward either side is referred to as _____.
10. From either side toward the centerline is called _____.
11. The side of the boat against a dock is also called _____.
12. If you go down inside the boat, you are going _____.
13. If you are up into the rigging of the boat, you are going _____.

TASK BCM-03-02-TYPE: Locate and Identify the Purpose of the Equipment Aboard the Boat

1. A _____ is used to allow the anchor line to spin freely.
2. 75' and 100' _____ _____ are used for passing the towline when maneuverability is restricted.
3. A _____ is used to attach a towline to a trailer eyebolt on boats.
4. When securing chafing gear to a line, you should use _____.
5. Ring _____ are used during man overboard emergencies.

TASK BCM-03-03-TYPE: Boat Characteristics – Boat Construction

1. The three basic types of hull forms based on vessel speed are _____, _____, and semi-displacement.
2. A displacement hull boat pushes away (displaces) water allowing the _____ to _____ _____ into the water.
3. Heavy displacement hulls cannot exceed a speed of _____ times the _____ _____ of their waterline length without requiring excessive power.
4. Once "on top," the _____ _____ skims along the _____ of the water, whereas the displacement hull always forces water around it.
5. The semi-displacement hull is a combination of characteristics of the _____ hull and the _____ hull. Many _____ _____ boats are this type.
6. The _____ is the backbone of the boat.
7. _____ are attached to the keel, which extend athwartships. The _____ of the boat is attached to the frames.
8. _____ _____ controls the direction of the boat and may vary widely in size, design, and method of construction.
9. The three rudder types are _____, _____, and _____.
10. _____ is the distance a propeller advances in _____ revolution with no slip.
11. _____ frames provide hull strength along the _____ of the hull.
12. A _____ is a seagoing floor and provides strength to the _____by reinforcing the transverse _____ and deck beams.
13. If decks are seagoing floors, then hatches are seagoing _____.
14. _____ are small openings.
15. Watertight doors are designed to resist as much _____ as the _____ through which they provide access.

TASK BCM-03-04-TYPE: Boat Characteristics – Watertight Integrity

1. _____doors are designed to resist as much pressure as the bulkheads through which they provide access.
2. If _____ are seagoing floors, then _____ are seagoing doors.
3. Watertight closures must have clean, bright, unpainted, smooth _____ for gaskets to press against.
4. Scuttles must be secured for _____ at all times except when they are open for inspection, cleaning, or painting.
5. The interior of a boat is compartmentalized into bulkheads, decks, and hatches. The hatches are actually "doors" though the bulkheads. With the hatches closed, the space between them becomes watertight and is called a _____.

TASK BCM-03-05-TYPE: Stability

1. The tendency to remain upright is its (the vessel's) _____.
2. _____ and _____ are the two primary forces acting upon a floating vessel that affect stability.
3. The _____is the point at which the weight of the boat acts vertically downwards.
4. The _____is the upward force of water displaced by the hull.
5. When a boat is at rest, the center of buoyancy acting upward/vertically is below the center of gravity acting downwards. A boat is considered to be in _____.
6. A boat has two principal types of stability: _____ and _____.
7. The two principal forces that affect stability are _____ and _____forces.
8. General vessel design features that influence stability include:

   a.

   b.

TASK BCM-03-06-ANY: Identify the Different Parts of a Line and Hitches Used in Line Handling

1. The running or free end of a line is called the _____ _____.
2. The long, unused, or belayed end is called the _____ _____.
3. An overhang loop is made by crossing the _____ _____ over the standing part.
4. A bight is a _____ _____ formed by turning the line back on itself.
5. A _____ is a single turn and a _____ _____ is two complete turns around an object.

TASK BCM-03-07-ANY: Tie Various Knots, Hitches, and Bends

1. The advantage of a bowline is that it does not _____.
2. The best all-around hitch for securing a line to a ring, spar, or other round or near round object is the _____.
3. Timber hitches are used to secure a line to logs, planks, or other _____ objects.
4. _____ are used to lengthen one line by bending one to another.

TASK BCM-03-08-ANY: Secure Lines to Cleats, Bitts, and Posts

1. Deck fittings permit easy handling of lines and reduce _____ and friction on lines.
2. When securing a line to a cleat, bitt, or post, you should first take a _____ _____ around the deck fitting.
3. You should finish securing the line by forming several figure _____ and securing them with a half _____ over each horn.
4. To facilitate speed and safety, the dipping the _____ method should be used when two mooring lines have to be placed on the same cleat.

Section D. Reading Assignments - Division Four

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-04-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section C*	2-90
BCM-04-02-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D* • *Chapman Piloting*, 61st edition, Pages 200-201	2-90
BCM-04-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*	2-90
BCM-04-04-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*	2-90
BCM-04-05-ANY	• *Chapman Piloting*, 61st Edition, Chapter 7 • *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Part C*	2-91
BCM-04-06-ANY	• *Chapman Piloting*, 61st Edition, Chapter 6 • *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Part D*	2-91
BCM-04-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11, Section F* • *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), *Rule 37*	2-92
BCM-04-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Section C* • *Navigation Rules International-Inland*, COMDTINST M16672.2 (series), Rule 5	2-92
BCM-04-09-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Section C*, and *Chapter 14, Section C*	2-92

Task Number	Reading Assignment	See Page
BCM-04-10-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D* • *Chapman Piloting*, 61st Edition, Page 207	2-93
BCM-04-11-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D*	2-93
BCM-04-12-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Sections A* and *B*	2-94

TASK BCM-04-01-ANY: Rig Fenders to Side of the Boat

1. When docking or taking another boat alongside, you should always rig fenders to prevent _____ damage.
2. Fenders should be adjusted to cushion points of _____.
3. Fenders should be secured using a _____ _____ or _____ _____.
4. Fenders should be secured to a stanchion, a _____ _____, bitt, or cleat.

TASK BCM-04-02-TYPE: Make Fast a Boat to a Pier

1. All fenders should be rigged and _____ _____ should be broken out and ready before reaching the dock.
2. The _____ of the mooring line should be secured to the dock before the bitter end is fixed to the boat cleat.
3. Normally the after _____ spring line is secured first.
4. The order in which the lines are attached depends on the _____ evaluation of the situation.

TASK BCM-04-03-TYPE: Assist in Anchoring the Boat

1. Most Coast Guard boats use a _____ type anchor.
2. The _____ of the anchor are the parts that dig into the bottom to provide holding power.
3. The anchor line, or chafing chain, is secured to the _____.
4. A _____ is used to attach the chain so that the anchor line can spin freely.
5. Never stand in the _____ of an anchor line.
6. The anchor line should be tended directly from the _____ locker if possible.
7. The anchor should be _____ over the side, never _____.
8. The anchor line should always form an angle of _____ or less with the bottom.

TASK BCM-04-04-TYPE: Assist in Weighing the Boat's Anchor

1. Slack in the anchor line should be _____ as the boat is moved ahead.
2. As the line is brought aboard, it should be faked on deck or stowed below _____.
3. If the anchor refuses to break free, the line should be _____ around the forward bitt while the coxswain moves ahead a few feet to break it free.

TASK BCM-04-05-ANY: Identify the Common Navigation Lights Displayed by Ships and Boats

1. The purpose of navigational lights is to _____ vessels of the presence or approach of another vessel.
2. Navigational lights also aid in determining the _____ of the vessel.
3. Lights must be used from _____ to _____ and in times of restricted visibility.
4. A green sidelight means you are looking at a vessel's _____ side.
5. A red sidelight means you are looking at a vessel's _____ side.
6. If you see both a red and green sidelight, it means you are looking at the vessel _____.
7. A power-driven vessel 50 meters or more in length must display red and _____ sidelights, a masthead light, a stern light, and a _____ light.
8. A power-driven vessel less than 50 meters in length must display red and _____ sidelights, a masthead light, and a _____ light.
9. A power-driven vessel less than 7 meters and whose maximum speed does not exceed 7 knots only has to show an _____ _____ light.
10. Sailing vessels less than 12 meters (international) or 20 meters (inland) in length must display red and green sidelights, or a red and green _____ light, along with a stern light.
11. On sailboats and rowboats less than 7 meters in length, if regular running lights are unavailable, they may display _____ or torch.

TASK BCM-04-06-ANY: Identify the Common Sound Signals Used by Ships and Boats

1. A short blast is a blast of about _____ second(s) duration.
2. A prolonged blast is from _____ to _____ seconds in duration.
3. Vessels 12 meters in length or more must carry a _____ along with a whistle.
4. If you hear a gong, you know the vessel is at least _____ meters long.
5. Vessels under 12 meters in length are required to _____.
6. A power-driven vessel underway in conditions of reduced visibility sounds _____.
7. Sailing vessels during periods of reduced visibility sound _____.
8. Bells and gongs are used by vessels that are _____.

TASK BCM-04-07-ANY: Identify and Describe Accepted Maritime Distress Signals

1. MAYDAY, MAYDAY, MAYDAY is the_____ priority of urgency call.
2. A gun fired at intervals of about _____ minute(s) may be used as an emergency signal.
3. Rockets, shells, or flares should be of a _____ color to indicate an emergency.
4. A square flag above a _____ _____ also can be a distress signal.
5. Two _____ lights in a _____ line may be used to indicate that a vessel is broken down.
6. Slowly _____ and _____ outstretched arms indicates an emergency.
7. The signal ··· - - - ··· means_____ _____ _____ and indicates an _____ situation.

TASK BCM-04-08-ANY: Stand a Lookout Watch

1. It is the lookout's job to report everything _____ or _____ to the boat coxswain.
2. When making reports, the lookout should first _____ the object and than give the direction in _____ _____ to the object.
3. Lookouts should always remain at their Station until _____
4. If a report to the coxswain is not acknowledged, it should be _____.
5. When looking for a person or object in the water, a _____ scanning technique should be used.
6. Dark adaptation requires _____ or more, but may be destroyed in less than _____.

TASK BCM-04-09-TYPE: Act as a Helmsman and Steer a Compass Course

1. The arc of the compass card is divided into _____ degrees.
2. A reading of 000 degrees on the compass card should point toward _____ North.
3. The _____ _____ is in line with the boat's centerline and indicates the boat's _____.
4. To ensure understanding, the helmsman should always _____ all orders given to him/her by the coxswain.
5. The helmsman should attempt to maintain a course within _____ degrees.
6. The helmsman should not execute any orders unless _____ by the coxswain.

TASK BCM-04-10-TYPE: Get the Boat Away From a Pier

Single-Screw Boats

1. While leaving a pier, when in the clear, the coxswain moves ahead, and applies right or left rudder _____.
2. The pivot point is normally _____ of the way aft of the bow.
3. When clearing a pier, against a current, the coxswain should go ahead slowly, then put the rudder over toward the _____.
4. When the stern is clear, the bow _____ should be cast off and the coxswain should shift the rudder and back away.

Twin-Screw Boats

5. The screws are arranged so that the top of each blade moves _____ _____.
6. The starboard screw is right-handed and the port screw is _____-handed.
7. With the starboard screw astern and the port screw stopped, the stern of the boat will move to _____.
8. With the starboard screw ahead and the port screw astern, the boat will _____ in a leftward direction.
9. When clearing a pier, port side to, against the wind or current, the coxswain should go ahead on the _____ engine and astern on the _____ with full _____ rudder, until the stern clears.

TASK BCM-04-11-TYPE: Moor the Boat

Single-Screw Boats

1. When mooring port side to, with a wind or current from astern, the approach should be made using an approximately _____-degree angle.
2. When mooring port side to, against the wind or current, the approach should be made on an angle, as the wind will tend to throw the _____ _____ out.
3. When mooring port side to, against the wind or current, after the bow spring line is secured, the coxswain should use full _____ rudder and kick the engine _____.
4. When mooring starboard side to, with no wind or current, the approach angle should be as _____ as possible.

Twin-Screw Boats

5. When mooring port side to, the approach should be made slowly at an approximately _____-degree angle.
6. When mooring port side to, after securing the bow line, the coxswain should apply _____ full rudder and go ahead on the _____ engine.

TASK BCM-04-12-TYPE: Boat Handling

Environmental Forces	1.	The _____ acts on the hull, topsides, and, on smaller boats, the crew.
	2.	_____ affect the boat handling in various ways, depending on their height and direction and the particular vessel's characteristics.
	3.	A one-knot _____ may affect a vessel to the same degree as 30 knots of wind. Strong _____ will easily move a vessel upwind.
Vessel Generated Forces	4.	When rotating to move in a forward direction, a _____ draws its supply of water from every direction forward of and around the blades.
	5.	Regardless of whether the propeller is turning to go ahead or astern, the water flow pattern in the propeller's arc of rotation is called _____.
	6.	In addition to the thrust along the shaft axis, another effect of propeller rotation is _____.
	7.	The speed of the water flowing past the _____greatly enhances the _____ force.
	8.	When a hull moves forward through the water, the effective _____ moves forward.
	9.	In single-screw vessels, propeller side force presents a major obstacle to _____ in the direction you want.

Section E. Reading Assignments - Division Five

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-05-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11*, *Sections A* and *G*	2-96
BCM-05-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11* • *SSB-HF Transceiver – Operator's Manual*	2-96
BCM-05-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 11*	2-96

TASK BCM-05-01-ANY: Operate a VHF-FM Radiotelephone

1. The effective range of the VHF-FM radio is up to _____ miles.
2. The squelch control should be turned counterclockwise until just beyond the point where the _____ disappears.
3. The CG VHF-FM radios will automatically monitor channel _____.
4. 156.65 MHz, channel 13 is the vessel _____ to _____ frequency.
5. 156.8 MHz, channel _____ is the international VHF-FM calling and distress frequency.

TASK BCM-05-02-ANY: Operate a SSB-HF Transceiver

1. Most Coast Guard boats carry an AM radio as a _____ communications system.
2. The noise limiter should be _____ as necessary to reduce _____ noise (static) while receiving.
3. The international distress and calling frequency is _____ KHz.
4. 2670 KHz is designated a _____ _____ frequency, and use by other Stations is restricted to communications with them.

TASK BCM-05-03-ANY: Use the VHF-FM Radiotelephone to Give a Position or Operations Report

1. Every transmission should be ended with the words _____ or _____.
2. Message should be sent _____ so that the receiving party will have a chance to copy the entire message.
3. The microphone should not be _____ until you are ready to speak.
4. Unofficial conversations <u>should/should not</u> be transmitted.
5. Only _____ prowords or abbreviations should be used.
6. The _____ alphabet is used to spell difficult words, which are hard to understand over a radio.

Section F. Reading Assignments - Division Six

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-06-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Sections A* and *B* • *Nautical Chart Symbols Abbreviations and Terms Chart No. 1*	2-99
BCM-06-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 13* • *Nautical Chart Symbols Abbreviations and Terms Chart No. 1* • *The American Practical Navigator, Chapter 5*	2-99
BCM-06-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section B* • *Nautical Chart Symbols Abbreviations and Terms Chart No. 1*	2-100
BCM-06-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5*	2-100
BCM-06-05-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section C* • *The American Practical Navigator, Chapter 5*	2-100
BCM-06-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section B* • *The American Practical Navigator, Chapter 5*	2-100
BCM-06-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5*	2-100

Task Number	Reading Assignment	See Page
BCM-06-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *Fathometer Operator's Handbook*	2-101
BCM-06-09-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5* • *Radar Operator's Handbook*	2-101
BCM-06-10-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5* • *Radar Operator's Handbook*	2-101
BCM-06-11-TYPE	• *Knights Modern Seamanship; Eighteenth Edition, Pages 611-616* • *The American Practical Navigator, Chapter 5* • *Radar Operator's Handbook*	2-102
BCM-06-12-TYPE	• *Manufacturer's Operating Manual*	2-102
BCM-06-13-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5*	2-102
BCM-06-14-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D* • *The American Practical Navigator, Chapter 5*	2-102
BCM-06-15-ANY	• None assigned	

TASK BCM-06-01-ANY: Identify the Symbols, Abbreviations and Basic Symbols of a Nautical Chart

1. One degree is equal to _____ minutes.
2. One minute of _____ is equal to one nautical mile.
3. _____ of latitude are normally indicated by lines running from side to side.
4. Latitude scales are normally indicated along the _____ margins.
5. The meridian that passes through Greenwich, England is designated as _____(o).
6. All meridians intersect at the _____.
7. Charts are oriented with _____ at the top.
8. Any location on a chart can be expressed in terms of _____ and _____.
9. True direction is printed around the _____ of the compass rose.
10. The sounding numbers show the water level at _____ _____ tide.
11. The scale of a chart is a ratio of a distance on the chart and the actual distance on the _____.
12. A buoy's type is indicated by the _____ printed with it.
13. The color of a buoy symbols print indicates the _____ of the buoy.
14. The symbol for a lighthouse or other fixed light is a black _____ with a magenta _____.
15. Ranges are indicated by the symbol for lights and a _____ _____ indicating the direction.
16. Day beacons are indicated by small _____.
17. Coastlines are viewed at both _____ and _____ water.

TASK BCM-06-02-ANY: Identify Common Aids to Navigation Used for Inland and Coastal Piloting

1. When steering on a range, if the top and bottom marks are in line, it means you are _____ of the center of the channel.
2. A cylindrical buoy that tapers to a blunt point at the top is called a _____ buoy.
3. Channel buoys that are painted green should be taken on the _____ side of the boat when entering a harbor.
4. Permanent navigation aids positioned the same as a buoy are _____ beacons.
5. If the top stripe of an obstruction or junction buoy were red, it would indicate that it should be taken on the _____ side when leaving the harbor.

TASK BCM-06-03-ANY: Identify Local Landmarks on a Nautical Chart

1. Prominent landmarks such as towers, smoke stacks, and flagpoles are pinpointed by a standard symbol of a dot surrounded by a _____.
2. All symbols and abbreviations found on a nautical chart are defined in _____.
3. How are piers, jetties, and wharves displayed on a nautical chart?

TASK BCM-06-04-ANY: Plot a Position Using Latitude and Longitude

1. They (lines) are parallel to the Equator and known as _____.
2. To measure latitude, put one point of a pair of dividers on the _____nearest the object.
3. To measure longitude, put one point of a pair of dividers on the _____nearest the object.
4. For latitude, use the _____scale.
5. For longitude, use the _____scale.

TASK BCM-06-05-ANY: Plot a Magnetic Course on a Nautical Chart

1. Direction, generally referred to as a bearing, is measured in degrees _____ through _____.
2. In boat navigation you will usually use _____ courses and bearings.
3. When measuring magnetic direction using a parallel rule, place the rule so the edge passes through the _____ of the compass rose and the bearing number on the inner ring.

TASK BCM-06-06-ANY: Measure Distance on a Nautical Chart

1. In piloting distance is measured in _____ or _____.
2. The _____ mile is used for measurement on most navigable waters.
3. One nautical mile is approximately _____ yards.
4. Distance should be measured using the latitude scale _____ to the latitude where the distance is being measured.
5. When the distance to be measured is greater than the span of the dividers, the dividers should be set at a given number of minutes and then used to _____ off the distance between the points to be measured.

TASK BCM-06-07-ANY: Compute Time, Speed, and Distance

1. In working time, distance, and speed problems when piloting a boat, the distance is always measured in _____ miles, the speed in _____, and the time in _____.
2. Distance should be expressed to the nearest _____ of a nautical mile, speed to the nearest _____ of a knot, and time to the nearest _____.
3. The nautical _____ _____ was designed to solve time, distance, and speed problems.
4. By setting any two of the values on their opposite scales, the third can be read from the appropriate _____.

TASK BCM-06-08-ANY: Determine the Depth of Water Using a Fathometer

1. Because the transducer for the fathometer is normally mounted above the low point of the hull, the difference must be _____ from the reading in order for the reading to be accurate.
2. Water depth is indicated by a _____ _____ on the video screen per digital readout.
3. The fathometer is turned on by turning the _____ switch.
4. The fathometer can be set to measure either _____ or _____.

TASK BCM-06-09-TYPE: Use Radar to Identify Objects

1. Radar navigation depends on the operator's _____ with radar operation and knowledge of the _____ operating area.
2. The advantages of radar are:
   a. Can be used at night or periods of _____ visibility.
   b. Fixes can be obtained _____.
   c. Fixes are available at greater distances from _____than from most other methods of piloting.
3. The disadvantages of radar are:
   a. It is subject to mechanical and _____ failure.
   b. There are both _____ and _____ range limitations.
   c. Charts do not always give information necessary for the _____ of radar echoes.
4. The brilliance control should be set so that the sweep is barely _____.
5. The _____ control adjusts the receiver for best reception.
6. The _____ selects the operating range and marker interval.
7. The plan position indicator indicates _____ bearing of a target and presents a _____ representation of the area around the boat.
8. The center of the screen represents the position of your _____.
9. Sandy spits, mud flats, and sandy beaches return the _____ and _____ echoes.
10. Buoys with radar reflectors will appear _____ to their actual size.

TASK BCM-06-10-TYPE: Determine the Range and Bearing to an Object Using Radar

1. The bearing of a target is represented by the direction of its _____ from the center of the screen and the range is represented by its _____.
2. Radar bearings are measured _____ the same as you would visual bearings.
3. When reading bearings, the cursor line is placed over the target and the bearing is read where the cursor crosses the _____ ring.
4. When obtaining target ranges, _____ must be used between rings.
5. If the radar has a _____ range marker, the ranges can be read directly.

TASK BCM-06-11-TYPE: Use Radar to Obtain and Interpret Relative Bearings and Ranges to a Moving Target to Determine if Risk of Collision Exists

1. When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own _____side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing _____of the other vessel.
2. Unless otherwise agreed, when two power-driven vessels are meeting on _____or nearly _____courses so as to involve risk of collision, each shall alter her course to starboard so that each shall pass on the _____side of the other vessel.
3. Just as is true of a visual bearing, the radar bearing of an approaching vessel that remains fairly _____ (with a decreasing _____), is indicative of a collision course and requires immediate and substantial action.
4. Assumptions shall not be made on the basis of _____, especially scanty radar information.

TASK BCM-06-12-TYPE: Operate the VHF-FM Direction Finder and Steer on a Signal

1. The VHF-FM homer allows you to zero in on the _____ of FM radio signal you are receiving.
2. The direction is shown on a _____ _____ display screen.
3. The source must continue to _____ as you track it.
4. After tuning the set, the boat is swung in the direction of the pointer until it _____ itself.
5. After centering, the boat's head should be swung _____-degree to be sure the source is ahead, not aft.

TASK BCM-06-13-TYPE: Obtain a Fix Using GPS/DGPS

1. GPS is a radio navigation system of ____ satellites operated by the _____.
2. It is available _____ hours per day,_____ , in all weather conditions.
3. In a process called "_____", a GPS receiver on the boat uses the signal to determine the distance between it and the satellite.
4. Once the receiver has computed the range for at least _____ satellites, it processes a three-dimensional position that is accurate to about _____ meters.
5. GPS provides two levels of service -_____ (SPS) for civilian users, and _____ (PPS) for military users.

TASK BCM-06-14-ANY: Plot a Position Using LORAN-C TDs

1. LORAN-C is used for precise _____ over long distance.
2. LORAN-C can pinpoint a vessel position within _____ of a mile almost anywhere in the world.
3. You determine your position by matching the line figures displayed on the set to set of Loran _____ superimposed on a chart.

Section G. Reading Assignments - Division Seven

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
BCM-07-01-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*	2-105
BCM-07-02-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	2-105
BCM-07-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series) • *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)	2-105
BCM-07-04-ANY	• None assigned	
BCM-07-05-TYPE	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)	2-105
BCM-07-06-ANY	• None assigned	
BCM-07-07-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), Chapter 19	2-106
BCM-07-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6, Section F*	2-106
BCM-07-09-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*	2-106
BCM-07-10-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*	2-107

Task Number	Reading Assignment	See Page
BCM-07-11-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	2-107
BCM-07-12-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*	2-107
BCM-07-13-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*	2-107
BCM-07-14-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*	2-108
BCM-07-15-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*	2-108
BCM-07-16-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Sections C and D*	2-108
BCM-07-17-TYPE	• None assigned	
BCM-07-18-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*	2-108
BCM-07-19-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*	2-109
BCM-07-20-TYPE	• None assigned	
BCM-07-21-TYPE	• None assigned	
BCM-07-22-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section F*	2-109
BCM-07-23-TYPE	• Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	2-109
BCM-07-24-TYPE	• None assigned	

TASK BCM-07-01-TYPE: Participate in a Man Overboard Evolution as a Pointer

1. The first crew member to observe a person overboard should give the alarm by yelling "man _____" followed by either "_____ side" or "_____ side".
2. The pointer should _____ proceed to his/her _____ Station.
3. The pointer will keep the victim in _____ and continuously _____ to the victim's position.

TASK BCM-07-02-TYPE: Participate in a Man Overboard Evolution as a Recovery/Pickup Person

1. The recovery/pickup person prepares the _____ heaving line for casting to the victim.
2. After the victim has been brought alongside the boat, the recovery/pickup person should _____ aboard.

TASK BCM-07-03-ANY: Participate in a Man Overboard Evolution as a Surface Swimmer

1. A rescue swimmer is designated when the man overboard is _____ or _____.
2. The rescue swimmer must wear a _____ or wet _____, with a PFD, a swimmers _____, and a helmet.

TASK BCM-07-04-TYPE: Recover a Person-in-the-Water with the Stokes Litter

1. The stokes litter will float upright at a _____ angle with the foot submerged.
2. The stokes litter is _____-righting.
3. Five restraining straps and mesh netting are for patient restraint. The strap colors are _____, _____, _____, _____, and _____ with flotation pad.
4. The _____ strap goes first, under the patient's arms and over the chest.
5. Secure the remaining restraint around the patient working from _____ to _____.
6. The litter may be a _____ one-piece or _____ two-piece design.

TASK BCM-07-06-TYPE: Conduct Helo-Ops

1. Emergency exits on USCG helicopters are marked with _____ _____ and _____ lettering.
2. There are _____ emergency exits on the HH3F.
3. The basket should be _____ before being touched by any crew member.
4. Trail line, basket slings, or hoisting cables should never be _____ to the boat during the operation.
5. The hoisting cable and trail lines should be _____ at all times.
6. During breakaway procedures, the crew member is responsible for _____ the litter or basket, _____ line, and loose cable over the side.

TASK BCM-07-07-ANY: Fire the MK-127A1 Parachute Illumination Signal

1. Upon ignition, the MK-127A1 produces a _____ star.
2. The MK-127A1 can climb to an altitude of _____ to _____ feet.
3. The flare will provide illumination for approximately _____ seconds.

TASK BCM-07-08-ANY: Bend a Heaving Line to a Bridle and Pass the Heaving Line to Another Boat

1. A minimum of _____ turns of towline should always be kept on the reel.
2. For offshore work, it is recommended that a minimum of _____ feet of towline be carried.
3. You cannot tow beyond the design characteristics of any towing boat simply by _____ the line size.
4. Thimbles are used to _____ load on the eye and provide maximum protection to the inner top of the eye from abrasion and wear.
5. The towline should be inspected frequently for damage resulting from cutting, _____, fusing, and snagging.
6. A towing bridle should be used in cases where a _____ _____ attachment point is not available on the boat to be towed.
7. The message line is simply a length of light line, which can be _____, propelled, or floated further than the tow line.
8. Having the _____ working with the heaving line increases the range.
9. The heaving line should be _____ to make it more flexible and less susceptible to becoming tangled.

TASK BCM-07-09-TYPE: Pass a Towline to Another Boat

1. Where conditions permit and the towing boat can maneuver enough, the towline should be passed _____ to one of the people on the other boat.
2. Before attaching the towline, make certain the fitting attachment it is to be attached to is _____ to the deck with through bolts and backing plates.
3. When attaching to tow bow cleats or bitts, a _____ should be used.
4. Single leg bridles are generally used in towing _____.

TASK BCM-07-10-ANY: Connect a Towline to a Trailer Eyebolt Using a Shackle or Skiff Hook

1. The trailer eyebolt is normally located on the _____.
2. Skiff hook assemblies breaking strength should be _____ or greater than the breaking strength of the towline.
3. Connecting the towline with a shackle should only be done in _____ or moderate weather conditions.
4. After tightening the shackle _____, it should be moused.

TASK BCM-07-11-TYPE: Secure an Alongside Tow

1. When taking a boat alongside, the _____ _____ takes the strain of forward movement.
2. When taking a boat alongside, the _____ _____ takes the strain of backing down.
3. Always rig _____ to prevent hull damage.
4. When shortening the tow, you should _____ in the slack from the towline to bring the disabled vessel along side.
5. When securing the vessel alongside, you should lead the _____ forward to use as the bow line.

TASK BCM-07-12-ANY: Prepare Portable Pump for Operation, Start, and Obtain Suction

1. Pull the handle to release a _____ _____ on the storage container.
2. Connect a discharge hose and lay it out on deck so there are no _____ or _____.
3. A pump can run dry for _____, but it was designed to be started only after suction has been taken.
4. The engine will run approximately _____ hours on one tank of fuel, depending on conditions.
5. A pump watch must be alert for _____ around the strainer and must ensure the strainer remains _____. Watch for _____ _____.

TASK BCM-07-13-ANY: Assist in Passing a Portable Pump Directly to Another Boat

1. The bridle should be attached to the _____ container handles.
2. A _____ line should be rigged to control the movement of the pump after the pump is in the water.
3. After passing the heaving line, the _____ is lowered over the side and the people on the other boat are directed to _____ in on the line.

TASK BCM-07-14-TYPE: Rig and Operate an Eductor to Obtain Suction

1. Dewatering, using an eductor, is performed when weather conditions permit your boat to _____ _____ the disabled boat safely.
2. After rigging, the eductor is _____ in the flooded area.
3. Vacuum, or _____ pulls the water up through the suction hose and out the discharge hose.

TASK BCM-07-15-ANY: Identify the Different Classes of Fires and State the Fuel Sources; State the Primary Extinguishing Agents for Each Class of Fire

1. Fire is a chemical _____ known as combustion.
2. The four elements of a fire are oxygen, heat, _____, and _____ chain reaction.
3. Fires fueled by common combustible materials, such as wood, cloth, or paper, are classified as Class _____ fires. The best extinguishing agent for this class fire is _____.
4. Fires fueled by flammable or combustible liquids, flammable gases, or similar material are classified as Class _____ fires. The primary extinguishing agent for this class fire is _____.
5. Fires involving combustible _____, with fuel sources such as sodium, potassium, or magnesium, are classified as Class _____ fire. Given that these type fires are not easily extinguished, the best agents to use for control of the fire are _____ or _____.
6. Fires involving energized _____ equipment, such as conductors or appliances, are classified as Class _____ fires.
7. The principle remedy for these type fires is to secure the _____ and to apply _____ to the fire.

TASK BCM-07-17-ANY: Demonstrate Knowledge of the Operation of a CO_2 Fire Extinguisher

1. The standard CO_2 fire extinguisher used on Coast Guard boats is the _____ pound.
2. The range of the extinguisher is approximately _____ feet.
3. The CO_2 is released in the form of a fine white _____.
4. Be careful not to let the extinguisher's discharge touch your _____.
5. When using the extinguisher, the cylinder should be kept _____.

TASK BCM-07-18-ANY: Demonstrate Knowledge for the Operation of a Dry Chemical Fire Extinguisher

1. The effective range for a dry chemical fire extinguisher is _____ feet.
2. When using dry chemical approach the fire from the _____ side of the fire.
3. The dry chemical should be pointed at the _____ of the fire and use a _____ motion.

TASK BCM-07-21-ANY: Operate a Navy Vari-Nozzle

1. Straight stream is employed when _____ _____ and penetrating power are critical.
2. Wide-angle fog can cool a much _____surface than a steady stream.
3. The vari-nozzle has _____ different positions.
4. When the handle is forward the nozzle is in the _____ position.
5. To change patterns you _____the black tip.
6. When the handle is back, the nozzle is in the _____ _____ position.

TASK BCM-07-22-TYPE: Demonstrate Knowledge of the Procedures to Combat a Fire in the Engine Space

1. The first thing to do in the case of an engine space fire is to secure the _____(s).
2. Some of the causes of engine space fires are electrical, _____ line leaks, and lube oil line leaks.
3. The quickest most likely way to attack an engine space fire is with CO_2 and _____ _____ extinguishers.
4. After all fire extinguishers have been expended, and if possible, the _____ supply to the space should be secured.

Chapter 4.
AtoN Crew Member Qualification Tasks

Introduction

In addition to the crew member qualification tasks, personnel assigned to Aids to Navigation units will complete the following Sections.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Buoy Deck Crew Member	2-112
B	Boom/Crane Operator	2-128
C	Buoy Deck Supervisor (BDS)	2-134

Section A. Buoy Deck Crew Member

Introduction

The following are objectives of Division One:

- **Demonstrate** knowledge of the factors that effect crew performance.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ACM-01-01-ANY	AtoN Procedures	2-113
ACM-01-02-TYPE	Roles and Responsibilities of Buoy Deck Crew	2-113
ACM-01-03-TYPE	Safety Precaution Fundamentals	2-114
ACM-01-04-TYPE	Terminology Fundamentals	2-116
ACM-01-05-TYPE	Rigging Safety Precaution Fundamentals	2-117
ACM-01-06-TYPE	Buoy Deck Tool Fundamentals	2-120
ACM-01-07-TYPE	Cutting and Heating with Oxygen Acetylene	2-120
ACM-01-08-TYPE	Hand Signal Fundamentals	2-122
ACM-01-09-TYPE	Buoy Deck Limitations and Parameters	2-123
ACM-01-10-TYPE	Use and Application of AtoN Buoy Deck Equipment	2-123
ACM-01-11-TYPE	Buoy Deck Seamanship and Associated Hardware	2-124
ACM-01-12-TYPE	Mooring Maintenance	2-125
ACM-01-13-TYPE	Griping Buoys and Sinkers	2-126
ACM-01-14-TYPE	Buoy Maintenance	2-126
ACM-01-15-TYPE	Mooring Evolution	2-127
ACM-01-16-TYPE	Towing a Buoy	2-128

TASK ACM-01-01-ANY **AtoN Procedures**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Short Range AtoN Servicing Guide*, COMDTINST M16500.19 (series)

Conditions Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

NOTE Completion of task does not lead to an AtoN technician qualification code.

Performance Criteria	Completed (Initials)
1. Assemble and install a 155-mm lantern.	_____
2. Demonstrate ability to time a flasher insuring the proper flash characteristic.	_____
3. Charge and install solar batteries.	_____
4. Explain proper protective equipment that is worn while handling AtoN batteries.	_____
5. Explain battery tracking procedures.	_____
6. Assemble and install solar panels.	_____
7. Conduct a blocking diode test and determine the condition.	_____
8. Take voltage readings before and after load testing a battery and determine the condition.	_____
9. Take megohmeter readings on power cable and determine condition.	_____
10. Conduct a routine inspection and determine the condition of the lighting equipment.	_____
11. Explain/demonstrate procedures for conducting air tests on buoys.	_____
12. Troubleshoot and correct problems in lighting and power equipment.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-02-ANY **Roles and Responsibilities of Buoy Deck Crew**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21(series)
b. *United States Coast Guard Regulations 1992*, COMDTINST M5000.3 (series)

Conditions Task will be performed onboard underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)
1. Explain the roles and relationship of the buoy deck crew: a. Buoy deck crew member b. Boom/crane operator c. Buoy deck supervisor d. Coxswain	_____
2. Explain the importance of the evolution pre-brief and the assignment of personnel.	_____
3. Observe a minimum of five AtoN evolutions from the pilothouse.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-03-ANY **Safety Precaution Fundamentals**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21(series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Coast Guardsman Manual*
d. *Knights Modern Seamanship*
e. Naval Ships Technical Manual (as applicable)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)
1. Discuss the following safety equipment and describe when and how it is to be used: a. Hard hats with proper chin straps to include proper color designations. b. Proper eye protection for specific situations. c. Proper types of personal flotation devices and their associated equipment. d. Proper use of safety belts and harnesses. e. Explain why knives are to be worn by all buoy deck personnel. f. Proper clothing and footwear during buoy deck evolutions to include clothing required for foul weather operations. g. Boat's eye wash stations. h. Situations when hearing protection is to be worn to include types of hearing protection. i. Situations and dangers that require gloves to be worn. j. Appropriate safety markings for the buoy deck and associated equipment (e.g. trip hazards, lifting hooks, etc.).	_____ _____ _____
2. State the minimum distance that personnel should remain clear of fairlead blocks, bitts, cleats, deck winches, and chocks.	_____ _____ _____
3. Explain why personnel should remain clear of a bight of line, wire and chain.	_____ _____ _____

Performance Criteria	Completed (Initials)
4. Explain why line and wire must be handled hand-over-hand.	_____ _____ _____
5. Explain the proper method for fairleading cross deck winches.	_____ _____ _____
6. Discuss why and how suspended hooks must be tended.	_____ _____ _____
7. Discuss the importance of minimizing noise during buoy deck operations.	_____ _____ _____
8. For each of the following, identify the associated hazards and what safety precautions apply: a. Working near suspended or moving loads b. Cleaning buoys c. Painting buoys d. Handling/working near AtoN batteries e. Working on/near buoys with sound signals f. Working with hand tools g. Working with electric tools and electricity h. Working with pneumatic tools and compressed air i. Entering/leaving the buoy deck j. Working in foul weather k. Working atop a buoy (servicing, hot packing) l. Working around open hatches and unguarded openings m. Hoisting loads from the water or over the stern n. Working with hazardous material in general o. Working on an icy or unusually slippery deck p. Working with pressure washing equipment q. Wearing jewelry during buoy deck evolutions **PROHIBITED** r. Handling wire s. Overloading of load handling equipment	_____ _____ _____
9. Identify and explain the danger zones associated with the following: a. Line handling b. Wire rope c. Running rigging d. Snatch blocks e. Hoisting and moving loads f. Pulling and faking chain g. Deck boxes and handrails	_____ _____ _____

Performance Criteria	Completed (Initials)
10. Identify and explain escape routes associated with the following: a. Line handling b. Wire rope c. Running rigging d. Snatch blocks e. Hoisting and moving loads f. Pulling and faking chain	_____ _____ _____
11. Discuss how the following external forces affect buoy deck operations: a. Adverse weather b. Roll c. Boat control difficulties d. Pitch e. Fouled mooring f. List g. Current	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-04-ANY **Terminology Fundamentals**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Coast Guardsman Manual*
d. *Knights Modern Seamanship*
e. Naval Ships Technical Manual (as applicable)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)
1. Define the following terms and explain how the terms pertain to the buoy deck evolutions:	_____ _____ _____

Performance Criteria		Completed (Initials)
a. Avast	aa. Hook	
b. Bale/bail	bb. Hoist (whip)	
c. Bight	cc. Lead line	
d. Bitts	dd. Lifeline	
e. Bitter end	ee. Line	
f. Block	ff. Link	
g. Boat hook	gg. Live chain	
h. Boom/crane	hh. Master link	
i. Bull chain	ii. Marker buoy	
j. Chain stopper	jj. Padeye	
k. Chain hook	kk. Saddle	
l. Check	ll. Safety chain	
m. Chock (closed)	mm. Safe working load (SWL)	
n. Cross deck	nn. Slack	
o. Cleat	oo. Sounding pole	
p. Deck load	pp. Snatch block	
q. Dor-Mor® anchors	qq. Stand by	
r. Dunnage	rr. Stow	
s. Ease	ss. Strain	
t. Fender	tt. Tag line	
u. Grapnel hook	uu. Tension	
v. Hand-over-hand	vv. Two-block	
w. Head block	ww. Winch	
x. Heave around	xx. Wire rope	
y. Hold	yy. Wire drag	
z. Horse collar	zz. Working load limit (WLL)	

Instructor **Date**

Comments _____

_____

TASK ACM-01-05-ANY	**Rigging Safety Precaution Fundamentals**
References	a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) c. *Knights Modern Seamanship*
Conditions	Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)
1. Discuss safety precautions and rigging requirements in preparing to load/off-load buoy deck.	_____ _____ _____
2. Explain how and why routine visual inspections are conducted prior to use of the following equipment: a. Bull chain (1) Slings (2) Wire rope (3) Chain b. Synthetic fiber c. Gripe chains d. Chain stopper e. Horse collar f. Modeer shackle g. Aircraft tie-downs h. Steamboat jacks i. Snatch blocks j. Blocks, sheaves, pins k. Hooks (assorted types) l. Shackles (assorted types) m. Lines n. Padeyes o. Wire rope p. Pelican hook q. Tag lines & snap hooks	_____ _____ _____
3. Discuss what to do with load handling equipment that is found to be defective.	_____ _____ _____
4. Define SWL and WLL. Explain the importance of knowing the WLL or SWL following rigging equipment: a. Wire rope b. Slings (1) Wire rope (2) Chain (3) Synthetic fiber c. Steamboat jacks d. Hooks e. Shackles f. Lines g. Padeyes h. Gripe chains i. Snatch blocks	_____ _____ _____
5. Discuss why it is necessary to know the weight of the load to be lifted.	_____ _____ _____

Performance Criteria	Completed (Initials)
6. Discuss why the landing area must be clear before lifting the load.	_____ _____ _____
7. Explain the use of tag lines when moving a load.	_____ _____ _____
8. Explain how to properly attach slings to a load.	_____ _____ _____
9. Discuss the possible consequences of attempting to hoist a load with improperly rigged slings.	_____ _____ _____
10. Explain the proper care and stowage of rigging equipment.	_____ _____ _____
11. Explain the importance of properly reeving hooks into bales, padeyes and chains.	_____ _____ _____
12. Explain the importance of setting the chain in the stopper after every pull.	_____ _____ _____
13. Explain how to properly attach slings to a load: a. Wire rope clip b. Chain (open link) c. Deck load d. End fitting e. Fairlead f. Bridle g. Pigtail h. Mechanical advantage	_____ _____ _____
14. Explain the proper use of dunnage.	_____ _____ _____
15. Identify the various sizes and classes of buoys serviced.	_____ _____ _____
16. Identify the size of chain serviced.	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-06-TYPE **Buoy Deck Tool Fundamentals**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify and discuss how to use the following tools:	_____	_____
a. Anvil (heat and beat)	_____	_____
b. Bars (crow, wrecking, cheater)	_____	_____
c. Chain hook		
d. Hacksaw		
e. Hammer (sledge, pin, split key 30 and 45 degree)		
f. Hatchet (axe)		
g. Pliers		
h. Buoy scraper		
i. Screwdrivers (assorted sizes and types)		
j. Tape measure		
k. Calipers		
l. Wrench		
m. Boat hook		
n. Knives		
o. Reeving line device (happy hooker)		
p. Marlinespike		

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-07-ANY **Cutting and Heating with Oxygen Acetylene**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)
1. Identify and explain the following: a. Oxygen b. Acetylene c. Torch handle d. Cutting tip e. Oxygen cylinder f. Acetylene cylinder g. Rosebud tip h. Check valves i. Cutting goggles/face shield j. Flashback arrestors k. Tip cleaning tool l. Oxy/acetylene hoses m. Striker n. Regulators	_____ _____ _____
2. Discuss the following safety related items: a. Personal protective equipment (e.g. eye protection, hot work gloves, etc.). b. Inspection of hoses and torch. c. Operation of flashback arrestors and check valves. d. Inspection of regulators. e. Proper sequence for lighting torch. f. Dangers of excessive acetylene pressure. g. Presence of flammables in cutting/slag area. h. Protecting deck and adjacent compartments. i. Dangers of cutting on concrete sinkers. j. Incompatibility of petroleum products and oxygen. k. Security of cylinders in rack. l. Dangers of cutting on metal painted with lead, chromate or vinyl based paints. m. Dangers of heating or cutting around buoy battery pocket vent lines. n. Importance of keeping acetylene cylinders upright prior to and during use. o. Fire watch requirements during and after hot work. p. Hazards of conducting hot work on galvanized metals. q. Emergency shutdown procedures.	_____ _____ _____
3. Explain hazards of cutting or heating buoy hulls.	_____ _____ _____
4. Cut and heat with oxygen-acetylene outfit as follows: a. Select proper size cutting tip and/or rosebud tip. b. Select proper regulator settings. c. Cut various chain and shackles. d. Perform heat and beat installation.	_____ _____ _____

Performance Criteria	Completed (Initials)
5. Secure torch as follows: a. Shut off torch. b. Secure gas bottles. c. Secure hoses and regulators. d. Stow all gear.	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-08-ANY **Hand Signal Fundamentals**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. Boatswain Mate 3 & 2, NAVEDTRA10121-G1

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)
1. Discuss/identify and demonstrate the following hand signals used during buoy deck evolutions: a. Boom/crane forward b. Boom/crane aft c. Raise/lower port whip d. Raise/lower starboard whip e. Raise/lower both whips f. Heave around on the cross deck g. Ease the cross deck h. Boom/crane aft/ease the cross deck i. Boom/crane forward/heave around on the cross deck	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-09-TYPE **Buoy Deck Limitations and Parameters**

References

a. *49' Buoy Utility Stern Loading (BUSL) Boat Operator's Handbook*, COMDTINST M16114.22 (series)

b. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)

c. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

d. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed onboard each boat type. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. State the WLL of the boom/crane and cross decks.	_____ _____ _____	_____ _____ _____
2. State the maximum deck load (weight).	_____ _____ _____	_____ _____ _____
3. State the WLL of the bull chain padeyes.	_____ _____ _____	_____ _____ _____
4. State the WLL of the recessed tie-down padeyes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-10-TYPE **Use and Application of AtoN Buoy Deck Equipment**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)

b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Rig and demonstrate the proper use of: a. Choker b. Synthetic slings c. Hammer locks d. Grapnel hook e. Come-along f. Aircraft tie-downs g. Steam boat jacks h. Snatch blocks i. Horse collar j. Calipers k. Sounding pole/lead line l. Marker float	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-11-TYPE **Buoy Deck Seamanship and Associated Hardware**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify the use and application of the following types/classes of shackles: a. Screw pin b. Heat and beat (rivet pin) c. Split key	_____ _____ _____	_____ _____ _____
2. Identify the types/classes of swivels.	_____ _____ _____	_____ _____ _____
3. Identify and determine the size of chain.	_____ _____ _____	_____ _____ _____
4. Identify different types of buoy bridles.	_____ _____ _____	_____ _____ _____
5. Identify the different sizes of sinkers.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
6. Identify the types/sizes of Dor-Mor anchors and their holding power.	_____ _____ _____	_____ _____ _____
7. Demonstrate the ability to perform the following: a. Split a split key shackle. b. Install a heat and beat. c. Mouse hooks to lifting bails (NO WEATHER HITCHES). d. Attach a swivel to a mooring bail. e. Attach chain to a sinker. f. Install a buoy bridle or mooring pendant (5x9).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-12-TYPE **Mooring Maintenance**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed onboard each boat type. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct mooring maintenance as follows: a. Check personal equipment. b. Break the buoy. c. Hook up the buoy. d. Determine chain wear. e. Hook up a sinker. f. Inspect bridle and swivel. g. Secure equipment after use.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-13-TYPE **Griping Buoys and Sinkers**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed onboard each boat type. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Gripe down buoys and sinkers as follows:	_____	_____
a. Check personal equipment.	_____	_____
b. Set up deck.	_____	_____
c. Position saddle under buoy.		
d. Set headblock.		
e. Gripe buoy.		
f. Gripe sinker.		
g. Position dunnage.		
h. Secure equipment after use.		

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-14-ANY **Buoy Maintenance**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed ashore or underway. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Perform buoy maintenance as follows:	_____	_____
a. Check personal equipment.	_____	_____
b. Lay out AtoN equipment.	_____	_____
c. Scrape and paint a buoy.		
d. Inspect and replace retro as needed.		
e. Inspect and replace vent valves as needed.		
f. Prepare buoy for recharge.		
g. Rig buoy for air testing.		
h. Secure equipment after use.		

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-15-TYPE **Mooring Evolution**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed onboard each boat type. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Participate in a mooring evolution as follows: a. Check personal equipment. b. Rig bull chain. c. Rig pelican hooks. d. Rig horse collar. e. Rig tagline. f. Rig modeer shackle/nipper chain/shackle. g. Hookup for hoist. h. Seat chain in stopper. i. Fake chain on deck. j. Tie rotten stops. k. Strike horse collar. l. Trip pelican hook on the “Stand by” command. m. Trip chain stopper on the “Set the buoy” command. n. Secure equipment after use.	_____ _____ _____	_____ _____ _____
2. Make proper reports to the coxswain on how the chain tends throughout the evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-01-16-TYPE **Towing a Buoy**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed onboard each boat type. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Rig the deck for towing a buoy.	_____ _____ _____	_____ _____ _____
2. Rig buoy for towing.	_____ _____ _____	_____ _____ _____
3. Set tow watch.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section B. Boom/Crane Operator

Introduction

The following are objectives of Division Two:

- **Demonstrate** knowledge of the factors that effect crew performance.

In addition to the crew member and AtoN crew member qualification tasks, personnel assigned to aids to navigation units will complete the following section, if applicable.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ACM-02-01-TYPE	Boom/Crane Operator Safety Fundamentals	2-129
ACM-02-02-TYPE	Boom/Crane Operator Fundamentals	2-130
ACM-02-03-TYPE	Boom/Crane System and Components	2-131
ACM-02-04-TYPE	Boom/Crane Operation	2-132

TASK ACM-02-01-TYPE **Boom/Crane Operator Safety Fundamentals**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. Boatswain Mate 3 & 2, NAVEDTRA10121-G1
c. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed onboard each boat type upon completion of *Chapter 4, Section A* of this Part. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Discuss the following safety topics:	_____	_____
a. When tag lines are required on lifts.	_____	_____
b. The maximum height a load should be lifted and why landing area shall be clear prior to lifting the load.	_____	_____
c. The dangers of shock-loading the boom/crane.		
d. Why the boom/crane operator must follow the buoy deck supervisor's hand signals.		
e. The special or emergency situations when the boom/crane operator should take independent action.		
f. The warnings that may be seen or heard from faulty equipment or equipment under heavy strain.		
g. The precautions necessary when lifting loads near the rated capacity of the boom/crane.		
h. Why excessive speed and sudden starts or stops should be avoided on lifting equipment.		
i. Describe the minimum number of turns required on wire rope drums.		
j. The dangers of exceeding limits when boom/craning forward and aft.		
k. How external factors such as roll, pitch and wind affect boom/crane operations.		
l. Explain the importance of exercising the boom/crane.		
m. Explain importance of evenly distributing the deck load.		

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-02-02-TYPE **Boom/Crane Operator Fundamentals**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1
c. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions

Task will be performed onboard each boat type upon completion of TASK ACM -02-01-TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards

Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. State the lifting limits of the boom/crane and the whips.	_____ _____ _____	_____ _____ _____
2. Identify the following blocks and tackles (as applicable): a. Single whip b. Wire rope snatch blocks	_____ _____ _____	_____ _____ _____
3. Explain the following characteristics of wire rope: a. Wire rope diameter b. Wire rope construction c. Types of wire rope cores d. Wire rope grade e. Explain how to determine serviceability f. Discuss restrictions on use	_____ _____ _____	_____ _____ _____
4. Discuss the importance of and procedures for wire rope lubrication and maintenance.	_____ _____ _____	_____ _____ _____
5. Explain the inspection standards for each of the following conditions which would cause the removal of wire rope from service: a. Crushing b. Broken wires/strands c. Kinks d. Loss of diameter e. Corrosion f. Excessive wear of outer wires	_____ _____ _____	_____ _____ _____
6. Identify and discuss the following relating to daily inspections prior to boom/crane operation: a. Wire rope spooling b. Wire rope lubrication c. Wire rope condition d. Condition of hooks and swivels e. Condition of end fittings f. Cotter pins and keepers g. Lubrication of fittings h. Operation of controls prior to energizing boom/crane i. Condition of blocks and sheaves	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
7. Discuss the indications of improper operation for each of the following when the boom/crane is being exercised: a. Boom/crane controls b. Emergency shutoffs c. Swivels d. Rough or unsmooth operation e. Blocks f. Sheaves	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-02-03-TYPE **Boom/Crane System and Components**

References

a. *49' Buoy Utility Stern Loading (BUSL) Boat Operator's Handbook*, COMDTINST M16114.22 (series)
b. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
c. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
d. *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1
e. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed onboard each boat type upon completion of TASK ACM -02-02 -TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. Discuss the following boom/crane system components applicable to the boom/crane: a. Controls b. Whip hoist c. Winches d. Brakes e. Drum f. Winch motor g. Rams h. Wire rope i. Limit cutoff switch	_____ _____ _____	_____ _____ _____
2. Discuss the following electrical system components associated with the boom/crane: a. Circuit breakers	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Discuss the following hydraulic system components: a. Generator PTO b. Hydraulic pump c. Hydraulic motor d. Relief valve e. Temperature gauge f. Directional control valve g. Reservoir h. Filters i. Pressure gauge	_____ _____ _____	_____ _____ _____
4. Explain how to properly energize boom/crane hydraulics.	_____ _____ _____	_____ _____ _____
5. State the pressure and temperature operating parameters.	_____ _____ _____	_____ _____ _____
6. Discuss the effects of contaminants/air in hydraulic systems.	_____ _____ _____	_____ _____ _____
7. Discuss the identification of fluid leaks and the procedure for correcting leaks.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-02-04-TYPE **Boom/Crane Operation**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1
d. Naval Ships Technical Manual (as applicable)
e. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed onboard each boat type upon completion of TASK ACM-02-03-TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct a pre-exercise inspection of boom/crane and cross deck.	_____ _____ _____	_____ _____ _____
2. Exercise the boom/crane and cross decks.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Operate the boom/crane with no load to limits of arc following hand signals from BDS.	_____ _____ _____	_____ _____ _____
4. Load/offload sinkers, chain, and unlighted buoys.	_____ _____ _____	_____ _____ _____
5. Load/offload lighted buoys.	_____ _____ _____	_____ _____ _____
6. Load/offload general cargo.	_____ _____ _____	_____ _____ _____
7. U/W work unlighted buoys and moorings.	_____ _____ _____	_____ _____ _____
8. U/W work lighted buoys and moorings.	_____ _____ _____	_____ _____ _____
9. Retrieve mudded/sanded in sinker.	_____ _____ _____	_____ _____ _____
10. Retrieve fouled mooring.	_____ _____ _____	_____ _____ _____
11. Retrieve a mooring with paper-clipped chain.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section C. Buoy Deck Supervisor (BDS)

Introduction

The following are objectives of Division Two:

- **Demonstrate** knowledge of the factors that effect crew performance.

In addition to the crew member and AtoN crew member qualification tasks, personnel assigned to aids to navigation units will complete the following section, if applicable.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ACM-03-01-TYPE	Buoy Deck Supervisor Safety Fundamentals	2-134
ACM-03-02-TYPE	Buoy Deck Supervisor Fundamentals	2-136
ACM-03-03-TYPE	Buoy Deck Supervisor Rigging Fundamentals	2-138
ACM-03-04-TYPE	Supervise a Buoy Deck Evolution	2-139

TASK ACM-03-01-TYPE **Buoy Deck Supervisor Safety Fundamentals**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. Boatswain Mate 3 & 2, NAVEDTRA10121-G1
d. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions

Task will be performed onboard each boat type upon completion of *Chapter 4, Sections A and B* of this Part. Trainee must accomplish task without prompting or use of a reference.

Standards

Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. Discuss the following safety topics:	_____	_____
a. When tag lines are required on lifts.	_____	_____
b. The maximum height a load should be lifted and why landing area shall be clear prior to lifting the load.	_____	_____
c. The dangers of shock loading the boom/crane.		
d. Why the boom/crane operator must follow the buoy deck supervisor's hand signals.		
e. The special or emergency situations when the boom/crane operator should take independent action.		
f. The warnings that may be seen or heard from faulty equipment or equipment under heavy strain.		
g. The precautions necessary when lifting loads near the rated capacity of the boom/crane.		
h. Why excessive speed and sudden starts or stops should be avoided on lifting equipment.		
i. Describe the minimum number of turns required on wire rope drums.		

Performance Criteria	Completed (Initials)	Boat Type
j. The dangers of exceeding limits when boom/craning forward and aft. k. How external factors such as roll, pitch and wind affect boom/crane operations. l. Explain importance of evenly distributing the deck load. m. Explain air testing requirements and safety precautions.		
2. Explain the coordination required between the buoy deck supervisor and coxswain.	_____ _____ _____	_____ _____ _____
3. Explain the importance of the evolution pre-brief and the assignment of personnel.	_____ _____ _____	_____ _____ _____
4. Discuss how the following external forces affect buoy deck operations: a. Adverse weather b. Roll c. Boat control difficulties d. Pitch e. Fouled mooring f. List g. Current	_____ _____ _____	_____ _____ _____
5. Explain the importance of conducting operational pre-checks.	_____ _____ _____	_____ _____ _____
6. Explain the importance of exercising the boom/crane.	_____ _____ _____	_____ _____ _____
7. Explain what actions a BDS should take to ensure safety in the following situations. a. Operating with a full deck load b. Swinging load c. Fouled tagline d. Two-blocked e. Loss of power during: (1) Hoisting a buoy (2) Pulling chain (3) Setting the buoy (4) Hanging the sinker (5) Pulling the sinker f. Parting the whip, during: (1) Hoisting a buoy (2) Pulling chain (3) Setting the buoy (4) Hanging the sinker (5) Pulling the sinker g. Loss of main engines during: (1) Hoisting a buoy (2) Pulling chain (3) Setting the buoy (4) Hanging the sinker (5) Pulling the sinker	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
h. Loss of cross deck control during: (1) Hoisting a buoy (2) Setting the buoy (3) Hanging the sinker (4) Pulling the sinker i. Loose buoy on deck		
8. Define shock load and identify what safety precautions to take to prevent it.	_____ _____ _____	_____ _____ _____
9. Discuss the following abnormal situations, difficulties, dangers, and procedures: a. Retrieving a sunken buoy b. Working in ice c. Knotted chain d. Fouled mooring e. Inverted buoy f. Mudded/sanded-in sinker g. Working a buoy with divers h. Working a diving buoy i. Towing buoys on to Station j. Retrieving stray buoys	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-03-02-TYPE **Buoy Deck Supervisor Fundamentals**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1
d. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions Task will be performed onboard each boat type upon completion of TASK ACM -03-01-TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. State the lifting limits of the boom/crane and whips.	_____ _____ _____	_____ _____ _____
2. Identify the following blocks and tackles (as applicable): a. Single whip. b. Wire rope snatch blocks.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Explain the following characteristics of wire rope: a. Wire rope diameter b. Wire rope construction c. Types of wire rope cores d. Wire rope grade e. How to determine serviceability f. Restriction on use	_____ _____ _____	_____ _____ _____
4. Discuss the importance of and procedures for wire rope lubrication and maintenance.	_____ _____ _____	_____ _____ _____
5. Explain the inspection standards for each of the following conditions which would cause the removal of wire rope from service: a. Crushing b. Broken wires/strands c. Kinks d. Loss of diameter e. Corrosion f. Excessive wear of outer wires	_____ _____ _____	_____ _____ _____
6. Identify and discuss the following relating to daily inspections prior to boom/crane operation: a. Wire rope spooling b. Wire rope lubrication c. Wire rope condition d. Condition of hooks and swivels e. Condition of end fittings f. Cotter pins and keepers g. Lubrication of fittings h. Operation of controls prior to energizing boom/crane i. Conditions of hangers, blocks, straps, and sheaves	_____ _____ _____	_____ _____ _____
7. Discuss the indications of improper operation for each of the following when the boom/crane is being exercised: a. Boom/crane controls b. Emergency shutoffs c. Swivels d. Rough or unsmooth operation e. Blocks f. Sheaves	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-03-03-TYPE **Buoy Deck Supervisor Rigging Fundamentals**

References

a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)
c. *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1
d. *Naval Engineering Manual*, COMDTINST M9000.6 (series)

Conditions

Task will be performed onboard each boat type upon completion of TASK ACM -03-02 -TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards

Trainee must complete the task in accordance with the steps below.

Performance Criteria	Completed (Initials)	Boat Type
1. Define SWL and WLL. Explain the importance of knowing the WLL or SWL and how to determine it on the following rigging equipment: a. Wire rope b. Slings (1) Wire rope (2) Chain (3) Synthetic c. Steamboat jacks	_____ _____ _____	_____ _____ _____
2. Explain horizontal sling angles.	_____ _____ _____	_____ _____ _____
3. Discuss the authorized method for lifting compressed gas cylinders.	_____ _____ _____	_____ _____ _____
4. Describe two-blocking and the dangers involved.	_____ _____ _____	_____ _____ _____
5. Explain the importance of loads being level prior to lifting.	_____ _____ _____	_____ _____ _____
6. Explain the importance of establishing and maintaining a proper lead to control loads.	_____ _____ _____	_____ _____ _____
7. Explain the danger involved with point loading of hooks.	_____ _____ _____	_____ _____ _____
8. Explain the requirements for rated capacity tags on slings.	_____ _____ _____	_____ _____ _____
9. Discuss the safety considerations for towing buoys on to Station.	_____ _____ _____	_____ _____ _____
10. Discuss the safety considerations for retrieving stray buoys.	_____ _____ _____	_____ _____ _____
11. Explain how to drag a sinker on Station.	_____ _____ _____	_____ _____ _____
12. State the weight of the various types of buoys, sizes of chains and bridles serviced.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
13. State the weight of the various types of buoys serviced by your unit when they are flooded.	_____ _____ _____	_____ _____ _____
14. Describe the boom/crane position for the following evolutions: a. Hooking a buoy b. Pulling chain c. Bringing the sinker onboard d. Hanging the sinker e. Setting the buoy f. Loading and off-loading g. Moving loads on deck in a seaway	_____ _____ _____	_____ _____ _____
15. Discuss the required frequencies and conduct rigging inspections and weight/load testing for the following equipment: a. Boom/crane b. Whips c. Hooks d. Cross decks e. Chain stop f. Recessed padeyes g. Pelican hook h. Gripe down chains i. Slings j. Wire rope	_____ _____ _____	_____ _____ _____
16. Slush wire rope	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK ACM-03-04-TYPE **Supervise a Buoy Deck Evolution**

References
a. *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series)
b. *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)

Conditions Task will be performed onboard each boat type upon completion of TASK ACM -03-03-TYPE. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must complete the task in accordance with the steps below. Task must be accomplished so as not to endanger either the boat or its crew.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct a pre-exercise inspection of boom/crane and cross deck.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Exercise the boom/crane and cross decks with no load to limits of arc using proper hand signals.	_____ _____ _____	_____ _____ _____
3. Supervise loading/offloading sinkers, chain, and unlighted buoys.	_____ _____ _____	_____ _____ _____
4. Supervise loading/offloading lighted buoys.	_____ _____ _____	_____ _____ _____
5. Supervise loading/offloading general cargo.	_____ _____ _____	_____ _____ _____
6. Supervise hanging and setting various unlighted buoys used in unit operational area (OPAREA).	_____ _____ _____	_____ _____ _____
7. Supervise hanging and setting various lighted buoys used in unit OPAREA.	_____ _____ _____	_____ _____ _____
8. Supervise servicing lighted and unlighted buoys on deck.	_____ _____ _____	_____ _____ _____
9. Retrieve mudded/sanded in sinker.	_____ _____ _____	_____ _____ _____
10. Retrieve fouled mooring.	_____ _____ _____	_____ _____ _____
11. Retrieve a mooring with paper-clipped chain.	_____ _____ _____	_____ _____ _____
12. Explain procedures for retrieval of a flooded buoy.	_____ _____ _____	_____ _____ _____
13. Explain procedures for retrieval of a sunken buoy by dragging.	_____ _____ _____	_____ _____ _____
14. Supervise retrieving, servicing and deploying lighted and unlighted buoys in adverse weather conditions.	_____ _____ _____	_____ _____ _____
15. Supervise towing buoys onto Station.	_____ _____ _____	_____ _____ _____
16. Supervise the retrieving of a stray buoy.	_____ _____ _____	_____ _____ _____
17. Conduct post buoy operation debriefs.	_____ _____ _____	_____ _____ _____
18. Explain procedures of a man overboard drill while at AtoN Stations.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 5.
AtoN Crew Member Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee to keep. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainee's answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	2-142
B	Reading Assignments - Division Two	2-152
C	Reading Assignments - Division Three	2-155

Section A. Reading Assignments - Division One

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ACM-01-01-ANY	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Short-Range Aids to Navigation Servicing Guide*, COMDTINST M16500.19 (series)	2-144
ACM-01-02-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *United States Coast Guard Regulations 1992*, COMDTINST M5000.3 (series).	2-144
ACM-01-03-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Coast Guardsman Manual* • *Knights Modern Seamanship* • Naval Ships Technical Manual (as applicable)	2-145
ACM-01-04-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Coast Guardsman Manual* • *Knights Modern Seamanship* • Naval Ships Technical Manual (as applicable)	2-146
ACM-01-05-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Knights Modern Seamanship*	2-147
ACM-01-06-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-147

Task Number	Reading Assignment	See Page
ACM-01-07-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-148
ACM-01-08-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1	2-148
ACM-01-09-TYPE	• *49' BUSL Boat Operator's Handbook*, COMDTINST M16114.22 (series) • *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-149
ACM-01-10-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-149
ACM-01-11-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-149
ACM-01-12-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-150
ACM-01-13-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-150
ACM-01-14-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-150
ACM-01-15-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-151
ACM-01-16-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-151

TASK ACM-01-01-ANY: AtoN Procedures

1. Most lighted shore aids use _____mm lanterns and _____ watt solar panels.
2. A _____ is used to check the buoy battery power cables prior to installation of a new battery.
3. When looking at the schematic symbol for a diode, what denotes the direction of current flow?
4. Why are air tests conducted on buoys, and state the pressure normally applied and the allowable pressure loss?
5. The _____ and _____ charger should be checked for proper operation after a new battery is installed.
6. Where are the critical gaskets and weather seals located when assembling a lantern?
7. What are the correct disposal techniques for AtoN batteries that are no longer serviceable?
8. Name at least four external forces which affect buoy deck operations.

TASK ACM-01-02-TYPE: Roles and Responsibilities of Buoy Deck Crew

1. Who is in charge of all evolutions when handling buoys or other aids to navigation ?
2. On some craft, the boom/crane operator may also be the _____.
3. The most important item to be accomplished during the evolution pre-brief is _____.
4. State at least two ways the buoy deck supervisor may communicate with the boom/crane operator.
   a.
   b.

TASK ACM-01-03-TYPE: Safety Precaution Fundamentals

1. List at least five pieces of safety equipment or apparel that must be worn on the buoy deck during buoy handling evolutions.

2. Define a “bight” in reference to line, wire or chain and explain its apparent danger to personnel.

3. Wire and line must be handled hand-over-hand to prevent _____ ____ _____.
4. State the location of eye wash station on your assigned boat.

5. From how many points (minimum) should loads on suspended hooks be tended?

6. What is the minimum distance that buoy deck crew members should remain clear of cross deck winch cables when under load?

7. What jewelry can be worn by personnel on the buoy deck during buoy deck evolutions?

8. What four external forces (there are more than four) effect buoy deck operations?

TASK ACM-01-04-TYPE: Terminology Fundamentals

1. What is the difference between SWL and WLL?

2. What is dunnage?

3. Define the term “live chain”.

4. What is a sounding pole?

5. What is the difference between an open chock and a closed chock?

6. What is a head block?

7. Define the term “lead line”.

8. Explain how a snatch block might be used during the lifting or lowering of a buoy.

9. What is a tag line normally used for?

10. Explain the difference between a cleat and a padeye.

TASK ACM-01-05-TYPE: Rigging Safety Precaution Fundamentals

1. What is a steamboat jack used for?

2. Line should never be stored while ____ or _____.
3. Explain the term 6 x 37 wire rope.

4. The WLL of wire rope used in slings is based on a _____ to _____ safety factor.
5. Blocks are classified by the number of _____.
6. What size and class buoys can be safely serviced by the 49' BUSL?

7. When should buoy handling equipment (boom/crane, hydraulic pumps and motors, cross deck winches) be inspected?

TASK ACM-01-06-TYPE: Buoy Deck Tools Fundamentals

1. During buoy handling evolutions, where should tools be stowed that are not required for the evolution?

2. What is the reeving line device (happy hooker) normally used for?

3. What personnel safety equipment is required when using a buoy scraper?

4. The angle of the teeth on a hacksaw blade should be _____ from the handle.

TASK ACM-01-07-TYPE: Cutting and Heating with Oxygen Acetylene

1. What color(s) are normally used to identify industrial oxygen containers?

2. What safety equipment is essential when using an oxygen-acetylene torch?

3. Where are the oxygen-acetylene bottles stowed?

4. Explain the difference (function and description) between a rosebud tip and a cutting tip?

5. Explain the fire watch requirements when conduction hot work?

6. The greatest hazard when cutting or heating a buoy hull is _____.
7. The danger of cutting or heating around buoy battery vents is the presence of _____.

TASK ACM-01-08-TYPE: Hand Signal Fundamentals

1. The buoy deck supervisor shall only give signals to the _____ _____ or appointed _____.
2. If the deck supervisor has his arms bent upward at the elbows and fists clenched, it is the signal for _____ ____.
3. What is the hand signal for the deck supervisor transfer?

4. What is the hand signal for raising the boom/crane?

5. If the deck supervisor has his hands clasped in front of his body, it is the signal for _____.

TASK ACM-01-09-TYPE: Buoy Deck Limitations and Parameters

1. What is the safe working load for the boom/crane and the cross deck winches?

2. What is the safe working load of the tow bull chain tie-downs on the BUSL buoy deck?

3. What is the safe working load of the fourteen tie-downs on the BUSL buoy deck?

TASK ACM-01-10-TYPE: Use and Application of AtoN Buoy Deck Equipment

1. Describe and define the use of the following buoy deck equipment:
   a. Snatch blocks

   b. Grapnel hook

   c. Lead line

   d. Horse collar

   e. Come-along

TASK ACM-01-11-TYPE: Buoy Deck Seamanship and Associated Hardware

1. The three most common types of shackles are _____, _____, and _____.
2. The most common sinker weights are _____ and _____ pounds.
3. Most sinkers have _____bails, one on _____and one on the _____.
4. Swivels are necessary to _____ _____ _____ of the load.
5. What are the types and sizes of Dor-Mor anchors and state each of their holding power?

6. What terms are used to identify the type and size of chain?

TASK ACM-01-12-TYPE: Mooring Maintenance

1. When ____ percent of the bar diameter has been worn away, the chain must be replaced.
2. What is meant by the term break the buoy?
3. State all the personnel protective gear that must be worn during mooring maintenance.
4. Buoy moorings consists of a bridle which is _____ short lengths of _____, connected by an _____ _____.

TASK ACM-01-13-TYPE: Griping Buoys and Sinkers

1. A headblock is used in conjunction with a _____ _____.
2. What is meant by the term gripe in relation to buoy handling evolutions?
3. Where are the deck lockers located in relation to the buoy deck?

TASK ACM-01-14-TYPE: Buoy Maintenance

1. When handling buoys, it is advisable to keep the load _____ and handle it _____.
2. What is the purpose for air testing a buoy?
3. What is the function of the vent valve in a buoy?
4. What is one of the primary safety hazards when recharging a buoy battery?

TASK ACM-01-15-TYPE: Mooring Evolution

1. A rotten stop is a _____ _____ intend to _____ _____ _____.
2. What is meant by the command strike the horse collar?
3. A nipper chain is a section of chain with _____ on both ends.
4. A modeer shackle is a 1- or 2-inch_____ shackle with a _____ _____ type pin.
5. What is a tag line used for?

TASK ACM-01-16-TYPE: Towing a Buoy

1. Never attempt to tow a buoy unless you know the _____ of the sinker and the size, _____ and _____ of mooring.
2. Always tow from the _____ _____ of the buoy.
3. When attempting to tow a buoy with the 49' BUSL, it is recommended that the _____ _____ tie-downs be used.

Section B. Reading Assignments - Division Two

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ACM-02-01-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-153
ACM-02-02-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-153
ACM-02-03-TYPE	• *49' BUSL Boat Operator's Handbook*, COMDTINST M16114.22 (series) • *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-154
ACM-02-04-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • Naval Ships Technical Manual (as applicable) • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-154

TASK ACM-02-01-TYPE: Boom/Crane Operator Safety Fundamentals

1. Why are hand signals so important to the boom/crane operator during buoy handling operations?

2. Tag lines are required to _____.
3. On a 49' BUSL, what is the maximum sea state for buoy operations?

4. In pounds, what is the maximum hoisting capacity (buoy safe working load) for the 49' BUSL?

5. The minimum number of turns required on a wire rope drum is _____ turns.
6. All hand signals during boom/crane operations should originate from the _____ _____ _____.

TASK ACM-02-02-TYPE: Boom/Crane Operator Fundamentals

1. The A-frame winches contain _____ feet of _____-inch steel wire rope.
2. The line speed of each A-frame winch is 0 to _____ feet per minute.
3. The cross deck winches contain _____ feet of ____-inch steel wire rope.
4. From how many different locations may the A-frame and cross deck winches be operated?

5. What is the size of the lanyard attached to the chain stopper?

6. What are at least four inspection items that are used to determine the serviceability of wire rope?
   a.
   b.
   c.
   d.
7. What will support the load on the boom/crane if hydraulic pressure fails during a lifting operation?

8. How can the load be lowered to the deck if suspended and there is no hydraulic pressure?

TASK ACM-02-03-TYPE: Boom/Crane System and Components

1. What is the function of the A-frame actuators on the 49' BUSL?

2. What is the function of the quick disconnect fittings at each A-frame and cross deck winch?

3. What is the function of the chain stopper, chain guard and release assembly on the transom of the BUSL?

4. Where is the buoy handling system hydraulic fluid heat exchanger located?

5. How many disposable oil filters are located in the BUSL buoy handling hydraulic system?

6. If pressure in the buoy handling system drops below _____ PSI or the temperature of the fluid exceeds _____ °F. an alarm will sound in the pilothouse.
7. What drives the hydraulic pump for buoy operation on the 49' BUSL?

TASK ACM-02-04-TYPE: Boom/Crane Operation

1. The 49' BUSL can relieve floating aids up to and including a _____ by _____ foot lighted buoy, up to a _____ class lighted buoy, a sinker up to _____ pounds and up to a _____-inch chain can be handled.
2. The _____ must be in operation to perform power on pre-start check to the buoy handling equipment.
3. List four topside components associated with buoy handling equipment that should be inspected for hydraulic leaks when the system is static and operating.

   a.

   b.

   c.

   d.
4. The _____ _____ _____ will provide hand signals to the boom/crane operator during all buoy handling operations.
5. Before bringing a lighted buoy on deck attach a _____ and _____ to prevent the buoy from swinging.

Section C. Reading Assignments - Division Three

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ACM-03-01-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-156
ACM-03-02-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-157
ACM-03-03-TYPE	• *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series) • *Boatswain Mate 3 & 2*, NAVEDTRA10121-G1 • *Naval Engineering Manual*, COMDTINST M9000.6 (series)	2-158
ACM-03-04-TYPE	• *49' BUSL Boat Operator's Handbook*, COMDTINST M16114.22 (series) • *Aids to Navigation Manual - Seamanship*, COMDTINST M16500.21 (series) • *Aids to Navigation Manual - Technical*, COMDTINST M16500.3 (series)	2-158

TASK ACM-03-01-TYPE: Buoy Deck Supervisor Safety Fundamentals

1. Why are tag lines required when lifting loads?

2. The deck supervisor must conduct _____ inspection of the buoy handling equipment if use is anticipated.
3. What are the minimum number dead wraps on the drum for the deck winches and A-frame winches on the 49' BUSL?

4. How does the buoy deck supervisor relay commands for buoy lifting and lowering operations to the boom/crane operator/coxswain?

5. What will happen if hydraulic power is lost and a buoy is suspended on the boom/crane?

6. What is the most inherent danger if the whip should part during any buoy handling operation?

7. The buoy deck supervisor should conduct a briefing prior to beginning buoy deck operations. The following topics should be included:

   a.

   b.

   c.

   d.
8. What operating indications will the buoy deck supervisor observe if a buoy is being raised and the mooring in fouled?

TASK ACM-03-02-TYPE: Buoy Deck Supervisor Fundamentals

1. What are the safe working load limits for the cross deck winches and A-frame winches on the assigned buoy boat?

2. What is the size, material, and length of the wire rope installed on the deck winches and A-frame winches on the assigned buoy boat?

3. What is the difference between strands and wire when expressing the size and serviceability of wire rope?

4. What are five physical inspection standards that should be observed when visually inspecting wire rope?

   a.

   b.

   c.

   d.

   e.

5. Daily inspection and _____ of buoy handling equipment fittings is essential to maintain equipment serviceability.
6. If the boom/crane/A-frame is being exercised and the operation is rough or erratic with audible noise in the hydraulic fluid flow, it is most likely an indication of _____ in the _____ _____.
7. Where are the manual release features located on your boat to safely lower a load if hydraulic pressure fails?

8. What is meant by slushing a wire rope?

TASK ACM-03-03-TYPE: Buoy Deck Supervisor Rigging Fundamentals

1. What is the danger of horizontal sling angles during any lifting operation?

2. What is the normal safety factor required when testing slings and where can the last load test date of a sling be located?

3. True or False. It is never a good practice to tow or drag a buoy from the chain stopper.
4. The deck winches on the 49' BUSL have a WLL of _____ pounds each.
5. A sinker of _____ lbs and a chain up to _____inches can be handled by the 49' BUSL.
6. What is meant by the term two-blocking and what must be done if this situation occurs?

7. For buoy handling operations, the line size used for rotten stops is determined by the _____ and _____ of the _____.

TASK ACM-03-04-TYPE: Supervise a Buoy Deck Evolution

1. What action might the BDS recommend the coxswain take if a sinker is mudded or sanded-in?

2. The AtoN boat can relieve up to a _____ class unlighted buoy.
3. What is the function of the A-frame limit switch and where is it located on the 49' BUSL?

4. Do not use _____ _____ to mouse the hooks when lifting or lowering loads.
5. Explain at least four items that should be included in the safety brief prior to buoy deck operations.
   a.
   b.
   c.
   d.
6. The bridle is normally connected to the buoy with _____ _____ shackles.
7. If the throat opening of a hook has been enlarged greater than _____ percent, then it should be replaced.
8. What safety gear must be worn by any buoy deck personnel that is engaged in battery maintenance?

Part 3
Engineer Qualification

Introduction

This Part contains a collection of tasks, which must be learned, practiced, and performed by the trainee. These tasks represent the minimum elements of skill and knowledge necessary for safe and effective performance of a Coast Guard engineer.

NOTE

This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Chapters:

Chapter	Title	See Page
1	Task Accomplishment Record for Engineer	3-3
2	Engineer Qualification Tasks	3-5
3	Engineer Trainee Study Guide	3-43

Chapter 1.
Task Accomplishment Record for Engineer

NOTE Instructor should remove this chapter and place it in the trainee's training record.

TRAINEE NAME: _____ RATE: _____

INSTRUCTOR NAME: _____ RATE: _____

POSITION/QUALIFICATION CODE TO BE TRAINED FOR: _____

NOTE Instructors should line through those tasks not applicable to this qualification.

Task	Date Started	Date Completed	Instructor's Initials
ENG-01-01-ANY			
ENG-01-02-ANY			
ENG-01-03-ANY			
ENG-01-04-ANY			
ENG-01-05-ANY			
ENG-01-06-ANY			
ENG-01-07-ANY			
ENG-01-08-ANY			
ENG-01-09-ANY			
ENG-02-01-ANY			
ENG-02-02-ANY			
ENG-02-03-ANY			
ENG-02-04-ANY			
ENG-02-05-ANY			
ENG-02-06-ANY			

Task	Date Started	Date Completed	Instructor's Initials
ENG-02-07-ANY			
ENG-02-08-ANY			
ENG-02-09-ANY			
ENG-02-10-ANY			
ENG-02-11-ANY			
ENG-02-12-ANY			
ENG-02-13-ANY			
ENG-02-14-ANY			
ENG-02-15-ANY			
ENG-02-16-ANY			
ENG-03-01-ANY			
ENG-03-02-ANY			
ENG-03-03-ANY			
ENG-03-04-ANY			
ENG-03-05-ANY			
ENG-03-06-ANY			
ENG-03-07-ANY			
ENG-04-01-ANY			

Chapter 2.
Engineer Qualification Tasks

Introduction

The following are the instructions for this Chapter:

- The purpose of this Chapter is to provide guidance on the trainee's progress through the qualification tasks.
- The instructor should present the tasks to the trainee in a logical order using the instructions provided in *Part 1*.
- Tasks should be signed, dated, and placed in the trainee's training record when the instructor is satisfied that the trainee can consistently perform a task in accordance with all standards and conditions.

Prerequisites

A prospective Engineer must:

- Be a certified crew member on the boat type for which they are seeking this higher level of qualification.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Pre-Operational Checks	3-6
B	Propulsion System Start Checks and Casualty Responses	3-19
C	Boat Disabling Casualties	3-33
D	Post-Operational Checks	3-40

Section A. Pre-Operational Checks

Introduction

The following are objectives of Division One:

- **Demonstrate** the knowledge of the casualties and discrepancies that would prevent a boat from getting underway.
- **Demonstrate** the ability to perform Engineering Casualty Control on a boat.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ENG-01-01-ANY	Locate Installed Equipment and Fittings on the Boat	3-6
ENG-01-02-ANY	Locate Components and Accessories of the Boat's Propulsion and Electrical Systems	3-8
ENG-01-03-ANY	Locate Components and Accessories of the Boat's Auxiliary System	3-11
ENG-01-04-ANY	Conduct a Pre-Start Checkoff	3-13
ENG-01-05-ANY	List the Disabling Casualties and Restrictive Discrepancies that Prevent the Boat from Getting Underway	3-15
ENG-01-06-ANY	State the Equipment Casualties That Will Prevent the Boat from Getting Underway	3-16
ENG-01-07-ANY	Energize the Electrical and Electronic Systems	3-16
ENG-01-08-ANY	Set Watertight Integrity	3-17
ENG-01-09-ANY	Draw/List the Boat's Systems	3-18

TASK ENG-01-01-ANY — **Locate Installed Equipment and Fittings on the Boat**

References

a. Applicable Outfit Lists
b. Applicable Technical Manuals
c. Boston Whaler Manual
d. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

This task may be performed when the boat is out of the water. The task will be performed during normal unit training and lecture programs pertaining to boat operations.

Standards

Aboard the boat, without reference material, the trainee must locate and describe the operation or purpose of each installed piece of equipment and fittings as listed below.

Performance Criteria	Completed (Initials)
1. Locate and state the purpose of the following: a. Deck fittings (cleats, chocks, bitts). b. Anchor and anchor rope components. c. Mooring and towing gear. d. Navigation lights. e. Spotlight and/or blue light. f. Hoisting, trailer, or tie-down points. g. Bilge access plate. h. Forward drain plug. i. Forward lift rings. j. Compass sending unit. k. Main deck/deck storage: (1) Escape hatch. (2) Portable dewatering pump sea suction. (3) Window wash reservoir and pump. (4) Shore-tie receptacle. (5) Heat, ventilation and air conditioning (HVAC) raw water discharge ports. (6) Portable dewatering pump. (7) Fuel tank vent. (8) Fuel fill/sounding rod. (9) Bilge pump discharge ports.	_____
2. Locate and describe the functions of the following: a. Compass. b. Radios. c. Fathometer. d. GPS/DGPS. e. Radar. f. Loudhailer. g. Battery switches. h. Main circuit breakers. i. 12-volt accessories switch panel. j. Start/stop switches. k. Kill switch. l. Battery parallel switch. m. Engine air shutdown pull handles.	_____

Performance Criteria	Completed (Initials)
3. Reduction Gear Space: a. Transducer. b. Propeller shaft seals. c. Bilge pumps and water level switches. d. Fuel stripping port. e. Speed log. f. Cardan shaft seals. g. Fuel tank inspection covers. h. HVAC overboard discharge. i. All outfitted equipment.	_____
4. Lazarette: a. Bilge pump and water sensor switch. b. Standpipes. c. Servo/power cylinder. d. Rudder feedback units. e. Bilge pump overboard discharge. f. Rudder post glands. g. Tie rod. h. Vents. i. Emergency tiller.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-02-ANY	**Locate Components and Accessories of the Boat's Propulsion and Electrical Systems**
References	a. Applicable Technical Manuals b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series) c. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed pierside, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the pierside instructions should be followed by related underway exercises.
Standards	Aboard the boat, without reference material, the trainee must locate components and accessories of the propulsion and electrical systems following the steps listed below.

Performance Criteria	Completed (Initials)
1. Locate the main engines and ship's service generator (if installed), and state the following: a. Make and model. b. Horsepower of each engine. c. Cruising and maximum engine RPMs. d. Rotation of each engine. e. Lube oil capacity and type of oil of each engine. f. Describe the Airsep system. g. Generator rating (kW), as applicable.	_____
2. Describe the fuel oil system: a. State the location of the fuel tank. b. State the capacity of the fuel tank. c. State the usable capacity of the tank. d. Locate the fill tube, sounding rod and fuel gauge. e. Locate the fuel tank vent. f. Locate the manual emergency shutoff valves. g. Locate the primary filters, secondary filters, generator fuel filters, priming pump and stripping port. h. Locate the fuel pump, ECM cooler plate and fuel cooler. i. Locate and state the size and purpose of the restricted orifice. j. Locate the primer bulb.	_____
3. Describe the engine cooling system: a. State the type of system used. b. Locate the sea suction valves and the sea strainers. c. State how the propulsion and generator engines are cooled. d. State how the reduction gears are cooled. e. State how the exhaust gases are cooled. f. State how the raw water system is protected from corrosion. g. Locate and state the purpose of the raw water pump, restrictor plate and shaft seal. h. State the jacket water capacity of the propulsion and generator engines. i. Locate the jacket water pump, oil cooler, aftercooler, thermostats, coolant expansion tank and hot start, as applicable on propulsion and generator engines.	_____
4. State the following parameters for idle and cruising: a. Engine and generator water temperature. b. Engine and generator lube oil pressure. c. Reduction gear clutch apply pressure. d. Reduction gear lube oil temperature.	_____
5. Locate and state the purpose of the following engine stop systems: a. Engine stop buttons (switches). b. Emergency fuel cutout valves. c. Emergency air shutdowns.	_____

Performance Criteria	Completed (Initials)
6. Locate the marine gears and state the following: a. Make, model and configuration of gear box. b. Gear ratio in forward and reverse. c. Oil dipstick and where oil is added. d. Oil capacity of the gears and what type of oil is used.	_____
7. Describe the boat shafts and propellers, stating the following: a. Diameter of shaft. b. Purpose of the shaft seal. c. Propeller diameter and pitch. d. Number of blades. e. Direction of rotation in forward and reverse.	_____
8. Describe and state the purpose of the compressed air system: a. Locate the air compressor and state the PSI. b. Locate the air tank and state capacity. c. Pressure gauge and bleed valve. d. Cut in/out pressure. e. Relief valve setting.	_____
9. Describe the fixed fire fighting and installed eductor systems: a. Locate the fire pump. b. State the pressure range of the fire pump. c. State the output of the fire pump in gallons per minute. d. State the maximum engine RPMs with the fire pump engaged. e. Locate and state the purpose of the installed eductor and isolation valves.	_____
10. Describe the hydraulic steering system: a. Locate the steering pump. b. Locate and state the capacity of the oil reservoir. c. State the type of oil used. d. Locate and state the purpose of the flow divider. e. Locate and state the purpose of the relief valve.	_____
11. Locate and state the purpose of the fixed fire extinguishing system: a. Type of agent. b. Cylinder and state the PSI. c. Engine shutdown cylinders. d. Thermal sensors and at what temperature the alarm will sound. e. State what will happen when the cylinder is discharged.	_____
12. Describe the engine alarm system: a. State the purpose of the engine alarm system and at what temperature or pressure the alarm is activated. b. State the purpose of the alarm cutoff switch.	_____

Performance Criteria	Completed (Initials)
13. Locate the following DC power equipment: a. Batteries. b. Alternators. c. DC power panels and their voltages. d. Main breakers. e. Battery cutout switches. f. Voltage regulators. g. Multi-battery isolators. h. Shore-tie battery charger.	_____
14. Locate the following AC power equipment: a. Shore-tie box. b. AC power panel. c. Generators. d. Main breaker.	_____
15. State the power output and purpose of the alternators and generators.	_____
16. Explain how the batteries are connected.	_____
17. State when the batteries are paralleled.	_____
18. Explain the purpose of the start batteries. Describe the results of a battery failure or low voltage in the start batteries.	_____
19. Explain the purpose of the service batteries. Describe the results of a battery failure or low voltage in the service batteries.	_____
20. Explain the purpose and function of the multi-battery isolators. Describe the results of a failed or improperly installed multi-battery isolator.	_____
21. Describe the operation of the battery charging system.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-03-ANY	**Locate Components and Accessories of the Boat's Auxiliary System**
References	a. Applicable Technical Manual b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed pierside, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the pierside instructions should be followed by related underway exercises.
Standards	Aboard the boat, without reference material, the trainee must locate components and accessories of the auxiliary systems following the steps listed below.

Performance Criteria	Completed (Initials)
1. Locate and state the purpose of the following hydraulic steering system components: a. Steering pumps. b. Reservoir/filter/cooler assembly. c. Steering control valve. d. Auto pilot pump. e. Helm unit. f. Jog levers. g. Servo/power cylinder. h. Steering feedback units. i. Steering pressure alarm and components. j. State the capacity and what type fluid is used in the steering system. k. Describe the two hydraulic circuits that are used in the steering system. l. State the head pressure of the system. m. State the relief pressure of the steering system and of the servo/power cylinder.	_____
2. Locate and state the purpose of the following HVAC system components: a. Sea suction valve. b. Sea strainer. c. Raw water pumps. d. HVAC raw water piping. e. HVAC units. f. HVAC control panel. g. HVAC system circuit breakers/switches. h. Explain how the HVAC unit both cools and heats. i. Locate and describe the 47' MLB ventilation intakes and ducting.	_____
3. Locate and state the purpose of the fire detection and suppression system components: a. Mechanical actuators/nitrogen bottles. b. Agent. c. Siren. d. Pressure switches. e. Engine room air inlet damper. f. 30-second delay bottle. g. Strobe light. h. System status panel. i. Discharge nozzle. j. Fire alarm warning lights. k. Smoke and heat detector. l. Explain how the system works when actuated.	_____
4. Locate and state the purpose of the fixed dewatering system components: a. Bilge pumps. b. Water sensor switches. c. Bilge pump control and alarm panel. d. Bilge pump overboard discharge points. e. Engine room dewatering standpipe.	_____

Performance Criteria	Completed (Initials)
5. Locate and state the purpose of the emergency window release system components: a. Compressor and reservoir assembly. b. System parameters. c. Latch assembly. d. Water sensor switches. e. System test switch. f. CO_2 backup actuator.	_____
6. Locate and state the purpose of the gray water system components (if installed): a. Gray water tank. b. Gray water pump. c. Grease trap. d. Deck connection and inport discharge hose. e. Controls and control switches. f. Alarms.	_____
7. Locate and state the purpose of the potable water system (if installed): a. Potable water tank. b. Potable water pump. c. Deck connections and fill hose. d. Controls and control switches. e. Hot water tank. f. Alarms.	_____
8. Locate and state the purpose of the sewage system (if installed): a. Sewage tank. b. Sewage discharge pump. c. Macerator pump. d. Controls and control switches. e. Deck connection and inport discharge hose. f. Alarms.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-04-ANY **Conduct a Pre-Start Checkoff**

References
a. Applicable Technical Manuals
b. NSB Manufacturer Manuals
c. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions
This task will be performed when the boat is out of the water, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises.

Standards The trainee must properly complete all steps below in order to successfully complete this task.

Performance Criteria	Completed (Initials)
1. Sound fuel tank with sounding rod. Fuel should be at or near 95 percent.	_____
2. Secure and disconnect shore power electrical cable as appropriate.	_____
3. Secure battery charger and jacket water heater, as applicable.	_____
CAUTION ! Never start or run the engines with the battery charger energized. Damage to the alternator may occur.	
NOTE Coolant level must be rechecked after the engine warms up and when the boat stops to take on fuel.	
NOTE Reduction gear oil will normally be above the H mark when the reduction gear is not turning. The reduction gear oil level must be checked again with the engine running at low idle. At low idle, the level must be between the L and the H marks on the dipstick.	
4. Ensure HVAC system raw water cooling valve is open.	_____
5. Check compartments and deck for unsecured or loose gear.	_____
6. Check bilges for water, fuel, and oil.	_____
7. Check that bilge drain plugs are in place (transom) and overboard discharge scuppers are clear.	_____
8. Check the marine gear and engine oil levels.	_____
CAUTION ! Do not open the coolant expansion tank cap on a hot engine.	
9. Check steering fluid level.	_____
10. Visually check sea strainer for debris. Clean if necessary.	_____
11. Open sea suction valve.	_____
12. Check for proper valve alignment of fuel system.	_____
13. Check engine controls for free movement.	_____
14. Check belts for proper tension (no greater than $^{7}/_{16}$ inch per foot of span).	_____
15. Inspect bilges for excessive amounts of water. Look for signs of spilled fuel or oils. Pump and clean as necessary.	_____
16. Check coolant by removing cap and looking into the expansion tank, it should be full. The fluid recovery tank should be ¼ to ½ full.	
17. Ensure air intake is clear and machinery space ventilation flapper is open.	_____
18. Ensure all breakers on 120-VAC power panel are on.	_____
19. Ensure all breakers on all 12- or 24-VDC power panels are on.	_____
20. Visually inspect the bottom of the fuel oil filter bowl for the presence of water and sediment. Drain and dispose of as required.	_____
21. Check steering and steering fluid levels.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-05-ANY	**List the Disabling Casualties and Restrictive Discrepancies that Prevent the Boat from Getting Underway**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series) b. Unit Instructions or Policy
Conditions	This task will be performed pierside, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the pierside instructions should be followed by related underway exercises.
Standards	With reference material and without error, the trainee must state the equipment that, should a casualty or discrepancy occur, will prevent the boat from getting underway for an operational mission. The trainee must know the difference between disabling casualties and mission critical casualties. The trainee must know what steps must be followed when a casualty or discrepancy is found.

Performance Criteria	**Completed (Initials)**
1. State the equipment problems or symptoms that would constitute disabling casualties. Each of these would "make the boat not serviceable" as defined in *Part 4, Readiness and Standardization*, of the *U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I*, COMDTINST M16114.32 (series). Describe the actions to be taken if the disabling casualty is found while underway and at dockside.	_____
2. State the equipment problems or symptoms that would constitute restrictive discrepancies. Each of these would "restrict the operations of the boat such that it can perform some missions, but not all missions safely" as defined in *Part 4, Readiness and Standardization*, of the *U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I*, COMDTINST M16114.32 (series). Describe the actions to be taken if the restrictive discrepancy is found while underway and at dockside.	_____
3. Describe examples of problems or symptoms that would constitute major discrepancies. These are important maintenance issues that "degrade the effectiveness of the boat to perform one or more missions" as defined in *Part 4, Readiness and Standardization*, of the *U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I*, COMDTINST M16114.32 (series). These must be documented and corrected but do not otherwise restrict the boat's service or impact safety of the crew.	_____
4. State the equipment or condition listed in the Specific Boat Type Operator's Handbook, COMDTINST M16114 (series) that constitutes a disabling casualty.	_____
5. State the equipment or condition listed in the Specific Boat Type Operator's Handbook, COMDTINST M16114 (series) that constitutes a restrictive or major discrepancy.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-06-ANY **State the Equipment Casualties That Will Prevent the Boat from Getting Underway**

References
a. Boston Whaler Manual
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
c. Unit Standing Orders

Conditions This task will be performed at any time, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, classroom instruction should be followed by related underway exercises.

Standards With reference material and without error, the trainee must state the equipment that, should a casualty or discrepancy occur, will prevent the boat from getting underway for an operational mission.

Performance Criteria	Completed (Initials)
1. State the equipment that, should a casualty occur, will prevent a boat from getting underway on an operational mission: a. Radar. b. Engine. c. Steering system. d. VHF-FM radio. e. Depth finder. f. Compass. g. GPS/DGPS.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-07-ANY **Energize the Electrical and Electronic Systems**

References
a. Applicable Technical Manuals
b. Boston Whaler Manual

Conditions This task will be performed on a boat when making preparations for getting underway, under direct supervision of the engineer, or while normal unit training and lecture programs pertaining to boat operations are being conducted. All power switches must be in the off position, both at the power panels and on the equipment, before energizing the main breaker.

Standards The trainee must properly complete all steps below in order to successfully complete this task.

Performance Criteria	Completed (Initials)
1. State the purpose of the boat alternators or generator and explain how the charging system works.	_____
2. Describe the functions of the electrical systems on the boat: a. Port engine battery switch services the port engine and ship's service loads. b. AUX battery switch services power for electronics and communications equipment. c. Starboard engine battery switch services the starboard engine and the electric bilge pumps. d. AC generator (if installed).	_____

Performance Criteria	Completed (Initials)
3. State the purpose of the battery parallel system onboard the boat. In the event the engine fails to start due to insufficient charge of the batteries, the parallel system will allow the available power from both batteries to be used for engine starting.	_____
NOTE Never turn the battery switches to the off position when the engine is running. Serious damage to the engine's electrical system may result. When using emergency battery parallel switch, release the switch once the engine has started or if the engine starter is not cranking. The parallel solenoid is designed for momentary use only and will be damaged if used continuously.	
4. State the purpose of the battery charger (if installed).	_____
5. State the procedures for removing shore power (if applicable).	_____
6. Conduct pre-start checks and start the AC generator (if applicable).	_____
7. Energize the following power switches on the 12-volt circuit breaker panels: a. Console power (battery switches). b. Main circuit breaker. c. VHF radio. d. Radar. e. Navigation lights. f. Blue lights. g. Fathometer.	_____
8. Turn on the power switches at the individual electrical and electronic units, and check for proper operation.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-08-ANY	**Set Watertight Integrity**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed pierside, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the pierside instructions should be followed by related underway exercises.
Standards	The trainee, without error, must state the number and location of all watertight compartments, hatches and doors aboard the boat. The trainee must secure all hatches and doors for watertightness.

Performance Criteria	Completed (Initials)
1. State the purpose of watertight integrity.	_____

Performance Criteria	Completed (Initials)
2. State the number and location of the following watertight closure devices and compartments aboard the boat: a. Watertight hatches. b. Quick-acting watertight doors. c. Watertight compartments.	_____
3. Set watertight integrity.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-01-09-ANY	**Draw/List the Boat's Systems**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed pierside. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must correctly trace out and draw the following systems and list all communications and navigation systems.

Performance Criteria	Completed (Initials)
1. Trace out and draw the following systems: a. Fuel oil system. b. Engine cooling water system. c. Potable water system. d. Hydraulic steering system. e. Lube oil system. f. Fixed fire fighting system. g. Installed dewatering system. h. Reduction gear lube oil system. i. Buoy handling system. j. Gray water and sewage. k. Electrical charging system. l. Steering system. m. DC electrical system. n. AC electrical system (if applicable).	_____
2. List all communications and navigation systems.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section B. Propulsion System Start Checks and Casualty Responses

Introduction

The following are objectives of Division Two:

- **Demonstrate** the knowledge of the casualties and discrepancies that would prevent a boat from getting underway.
- **Demonstrate** the ability to perform Engineering Casualty Control on a boat.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
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ENG-02-02-ANY	Engine Will Not Turn Over or Start	3-21
ENG-02-03-ANY	Engine Failing to Start with the Starter Turning Over	3-22
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ENG-02-10-ANY	Outboard Motor Vibration or Spun Propeller	3-27
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ENG-02-13-ANY	Reduction Gear Failure	3-29
ENG-02-14-ANY	Overheating Shaft Packing Gland	3-30
ENG-02-15-ANY	Excessive Shaft Seal Leakage	3-30
ENG-02-16-ANY	Steering Casualty	3-31

TASK ENG-02-01-ANY **Start the Boat**

References

a. Applicable Technical Manuals
b. Applicable Manufacturer Manuals
c. Boston Whaler Manual
d. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

This task will be performed when the boat is out of the water while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises.

Standards

The trainee must properly complete all steps below in order to successfully complete this task.

Performance Criteria	Completed (Initials)
1. Energize the battery switches, main switch/breaker and all required switches/breakers for start.	_____
2. Ensure engine kill switches are in place and properly set.	_____
3. Ensure throttles are in the neutral position.	_____
4. Ensure fuel system is primed and properly aligned for start.	_____
5. Squeeze the primer bulbs, if installed, until they become firm.	_____
6. Ensure outboards or outdrive units are in water and trimmed properly.	_____
7. Depress the starter button (or key) and hold until engine starts. Repeat for other engine. If an engine does not start within 15 seconds, let it stand for 30 seconds before further attempt.	_____
8. Check raw water overboard discharge, as applicable.	_____
9. Energize and inspect all electrical equipment.	_____
10. Check engine for fuel oil, jacket water, exhaust, raw water, and oil leaks, or other abnormal conditions.	_____
NOTE Diesel engines are best warmed up under load. When practical, get underway as soon as checkoff procedures are completed.	
11. Check propeller shaft packing gland or other through hull fitting for leakage.	_____
12. Monitor gauges on console for correct engine operating parameters.	_____
CAUTION ! Do not depress both starter buttons simultaneously. Start engines one at a time.	
13. The following procedures must be performed in the post-start inspection: a. Check the following gauges: (1) Main engine lube oil gauges. (2) Marine gear lube oil pressure gauges. (3) Main engine jacket water temperature gauges. (4) Alternator or voltmeter. b. Check the following items for discrepancies, and correct and report: (1) Jacket water system and raw water system for leaks. (2) Main engine and marine gear for lube oil leaks. (3) Fuel oil system for leaks. (4) Marine gear oil level. (5) Exhaust leaks.	_____

Performance Criteria	Completed (Initials)
NOTE With the main engine at idle, the oil level of the marine gear must be between the L and H marks on the dipstick. If additional oil is required, the main engine for the affected marine gear MUST be secured before adding the oil.	
CAUTION ! If proper oil pressure is not evident, immediately secure engine and investigate.	
14. Complete the following steps prior to getting underway:	
a. Close (turn on) all of the remaining breakers on the 24-volt DC and 12-volt DC power panels.	_____
b. Energize and test all installed electronic components.	_____
c. Test throttle operation in forward and reverse.	_____
d. Ensure gear is properly stowed and watertight integrity is set.	_____
e. Inform coxswain on the status of all engineering and electronic systems and if the boat is ready to get underway.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-02-ANY **Engine Will Not Turn Over or Start**

References
a. Applicable Technical Manuals
b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)

Conditions This task will be performed when the boat is in the cradle or underway during daylight hours, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Ensure kill switch or kill switch lanyard is in proper position.	_____
2. Ensure main power switch or breakers are in proper position.	_____
3. Check battery voltage. Use installed voltmeter if applicable.	_____
4. Check battery and starter cables for broken, loose, or corroded connections.	_____
5. Ensure throttle is in neutral.	_____
6. Inspect fuel system for air leaks, prime, and correct valve alignment.	_____
7. If actions above do not solve casualty, call unit for assistance.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-03-ANY **Engine Failing to Start with the Starter Turning Over**

References
a. Applicable Technical Manuals

Conditions
This task will be performed on a boat while making preparations for getting underway, during daylight hours, in calm or moderate weather conditions. The instructor will simulate the casualty by providing the trainee with the casualty symptoms. The trainee will be assigned as Engineer.

Standards
The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Inspect fuel hoses.	_____
2. Inspect fuel filter and housing.	_____
3. Check engine main circuit breaker.	_____
4. Check fuel system priming bulbs.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-04-ANY **Main Engine High Water Temperature**

References
a. Applicable Technical Manuals
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions
This task will be performed while underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards
The instructor will ask the trainee to state the proper jacket water temperature range and at what temperature the alarm will sound. The trainee must state the correct temperatures. Upon being given the casualty symptoms, the trainee will simulate and state correct procedures to be taken.

Performance Criteria	Completed (Initials)
1. Reduce RPMs.	_____
2. Identify affected engine.	_____
3. Notify crew of casualty.	_____

Performance Criteria	Completed (Initials)
WARNING If steam is flowing from the expansion tank vent, the engine(s) should be secured and cooled naturally. If the pressure is released when extremely hot by removing the expansion tank cover, the coolant will either flash to steam or boil with a serious potential for injury.	
4. If steam is present or if the temperature is 205 ºF or above, secure the engine(s).	_____
CAUTION ! While the engine is secured and the fuel stop is in the up position, to prevent seizure until the engine cools, periodically rotate the engine with the starter.	
5. Check overboard discharge.	_____
6. Engineer: Check engine to assess the situation.	_____
7. Crew member: If necessary, rig the anchor.	_____
8. Ensure sea suction valves are open.	_____
9. Check sea strainers. If necessary, shift strainers.	_____
10. Check bilges.	_____
11. Check cooling lines.	_____
12. Check raw water pump with back of hand or telltale cooling water line.	_____
13. Check expansion tank after engine has cooled.	_____
14. If applicable, check the jacket water level.	_____
NOTE Anti-freeze is poisonous. Do not inhale the fumes.	
15. Check lube oil for proper quantity and quality.	_____
NOTE Oil alarms and sensors are directly related to engine temperature. An overheating engine will often set off lube oil alarms.	
16. If applicable, secure and trim up affected motor. Inspect seawater suction for debris.	_____
17. If applicable, trim down motor, start up, and check discharge.	_____
18. Notify Station of situation.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-05-ANY **Loss of Main Engine Lube Oil Pressure**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The instructor will ask the trainee to state the proper oil pressure range and at what pressure the alarm will sound. The trainee must state the correct pressures. Upon being given the casualty symptoms, the trainee will simulate and state correct procedures to be taken. The trainee, upon being given the casualty symptoms, will simulate and state the correct procedures, following the steps listed below:

Performance Criteria	Completed (Initials)
1. Reduce engine RPMs and identify which engine has a loss of lube oil pressure. Shut down the affected engine immediately unless circumstances warrant continued operation due to safety of the crew.	_____
WARNING If engine oil pressure gauge reads zero, SECURE engine immediately.	
2. Notify crew of casualty.	_____
3. Ensure fire extinguishers are on scene.	_____
4. Verify the oil level when the affected engine has been shut down.	_____
5. Check the cooling system recovery bottle for contamination.	_____
6. If applicable, check lube oil for quality and quantity.	_____
7. Notify Station of situation.	_____
8. Return to Station if cause cannot be determined or repaired.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-06-ANY **Loss of Fuel Oil Pressure**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below:

Performance Criteria	Completed (Initials)
1. The coxswain should reduce RPMs and determine which engine has lost power and inform the crew.	_____
2. Check the emergency fuel cutout valves to ensure that they are open.	_____
3. Check the primary fuel filter for accumulated sediment and water in the bowls. Replace if suspect. Re-prime the system.	_____

Performance Criteria	Completed (Initials)
4. Check the entire fuel system for obvious leaks; check fuel tank level.	_____
5. Restart the engine and check for proper operation.	_____
6. If the problem still persists, secure the engine.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-07-ANY **Main Engine High Lube Oil Pressure**

References a. Applicable Information Book

Conditions This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. If lube oil pressure exceeds normal range after engine is at operating temperature, reduce speed and investigate cause.	_____
NOTE Water intrusion in the engine will cause high lube oil pressure. Leaky engine hatch gaskets in heavy seas or rain can lead to water intrusion at the engine air intakes.	
NOTE It is necessary to shut the engine down to obtain a correct lube oil level reading.	
2. Check oil on dipstick for milky appearance. a. If oil has milky appearance, there is water in the lube oil. Secure the engine. b. If there is no water in the oil, suspect internal mechanical problem. Monitor engine and engine lube oil pressure closely.	_____
3. Notify Station of situation.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-08-ANY **Engine Oil System Failure**

References a. Applicable Technical Manuals

Conditions This task will be performed on the boat while underway, during daylight hours, in calm or moderate weather conditions. The instructor will simulate the casualty by providing the trainee with the casualty symptoms. The trainee will be assigned as Engineer.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Identify the symptoms for engine oil system failure: a. System check. b. S.L.O.W.	_____
2. Note engine RPMs.	_____
3. Bring throttles to neutral/idle.	_____
4. Secure engine.	_____
5. Check oil levels.	_____
6. Inspect oil distribution manifold and oil lines along with connections around variable ratio oiler (VRO) pump.	_____
7. Prime oil system using priming bulb.	_____
8. Check water around lower unit for oil sheen or visual oil leaks.	_____
9. Restart engine.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-09-ANY **Outboard Failing to Engage Forward or Reverse**

References a. Applicable Technical Manuals

Conditions This task will be performed on a boat both dockside and while underway, during daylight hours, in calm or moderate weather conditions. The instructor will simulate the casualty by providing the trainee with the casualty symptoms. The trainee will be assigned as Engineer.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Check if propeller is spinning.	_____
2. Check shift linkage at the console.	_____
3. Check shift linkage at the engine.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-10-ANY **Outboard Motor Vibration or Spun Propeller**

References a. Applicable Technical Manuals

Conditions This task will be performed on a boat while underway, during daylight hours, in calm or moderate weather conditions. The instructor will simulate the casualty by providing the trainee with the casualty symptoms. The trainee will be assigned as engineer.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Note engine RPMs.	_____
2. Bring throttles to neutral and note vibration.	_____
3. Secure the engine.	_____
4. Trim up outboard. Inspect propeller and lower unit condition.	_____
5. Trim down outboard and restart. Note vibration.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-11-ANY **Engine Running Uneven or Stalls**

References a. Applicable Technical Manuals

Conditions This task will be performed when the boat is in the cradle or underway during daylight hours, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Ensure fuel stop “T handle” is in the run position.	_____
2. Ensure fuel supply valve is open and fuel system correctly aligned.	_____
3. Ensure fuel stop linkage is intact.	_____

Performance Criteria	Completed (Initials)
4. Check level of fuel tank.	_____
5. Check fuel supply lines for air leaks, repair and bleed if necessary.	_____
6. Check intake air system for restrictions.	_____
7. Check fuel filter(s) for contamination.	_____
8. If actions above do not solve casualty, call unit for assistance.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-12-ANY **Loss of Control of Engine RPMs**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. If applicable, ensure the active light is lit for the throttle control station in use.	_____
2. Bring the engine control back to idle.	_____
3. If this fails to control the engine RPMs, switch to a different control station, if applicable, and attempt to take control.	_____
4. If this fails, push and hold down the engine stop button for the affected engine.	_____
5. If the engine fails to secure, the engineer should pull the fuel cutoff valve handle for the affected engine and allow the engine to run out of fuel.	_____
6. If time does not allow for the affected engine to run out of fuel, or if the fuel cutoff fails to secure the engine, the coxswain should pull the emergency air shutdown for the affected engine.	_____
7. Do not restart the engine until the problem has been corrected.	_____
WARNING Do not use the CO_2 or Halon system to secure the engine. Depleting the fire fighting capabilities of the boat can be dangerous.	

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-13-ANY	**Reduction Gear Failure**
References	a. Applicable Technical Manuals
Conditions	This task will be performed when the boat is underway during daylight hours, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.
Standards	The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	**Completed (Initials)**
1. Bring engine control to the neutral position. Check marine gear lube oil pressure. If there is no pressure, secure engine immediately. a. If pressure is in the normal range for idle; place control in clutch ahead. If pressure rises to the clutched in range, but doesn't engage, bring control back to neutral and secure the engine. Malfunction is internal. b. If pressure does not rise to the normal clutched in range, check linkage in the control head and at the selector valve.	_____
NOTE Even though the controls and linkage may be actuating the selector valve, mis-adjustment of the linkage may be preventing the gear from engaging. Perform the steps listed below to eliminate faulty linkage or linkage adjustment as the cause of the casualty.	
2. The engineer should check throttle control system breakers on the power panel to ensure the breakers have not tripped.	_____
3. Ensure cables are attached to reduction gear controls.	_____
4. Check the reduction gear lube oil level.	_____
5. Request permission from the coxswain to manually engage the marine gear. a. Disconnect linkage at selector valve and shift lever into forward position. If the marine gear will not engage using this method, secure engine and notify Station of situation. b. If the marine gear engages, the problem is in the linkage adjustment or cable clamps in the control head or at the marine gear. Adjust/repair as necessary to obtain positive engagement in forward and reverse.	_____
6. If all mechanical checks have been made, proceed to troubleshooting the electronic controls.	_____
7. Attempt to take throttle control at each of the remaining throttle control stations.	_____
8. If the affected transmission will not respond electronically to clutch engagement, manually lock the clutch in the forward station and proceed to port for repairs.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-14-ANY **Overheating Shaft Packing Gland**

References
a. Applicable Technical Manuals
b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)

Conditions This task can be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, after being given the casualty symptoms, must accurately identify the casualty and perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. Reduce speed, but do not secure the engine or shaft.	_____
2. Cool down the shaft and packing gland with raw water.	_____
3. Evenly back off hex nuts on gland to loosen packing until enough leakage is obtained to keep shaft and gland cool (normally 6-10 drops of water per minute).	_____
CAUTION ! Use caution when working in the vicinity of a rotating shaft.	
4. Adjust and recheck as needed to obtain normal shaft and packing gland temperatures throughout the entire speed range.	_____
5. If above actions do not solve the casualty, call unit for assistance.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-15-ANY **Excessive Shaft Seal Leakage**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task can be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, after being given the casualty symptoms, must accurately identify the casualty and perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. The engineer should inform the crew of the casualty.	_____
2. The coxswain should place throttles to neutral and secure the affected engine.	_____
CAUTION ! De-energize the start switch in the engine room to prevent inadvertent starting of the engine while working around the shaft.	
3. The engineer should realign the seal assembly and check to see if the seal clamp has backed off.	_____

Performance Criteria	Completed (Initials)
4. If the clamp ring remains tight, restart the engine after realignment and roll the shaft. If excessive water continues to leak from the seal, secure the engine and shaft.	_____
5. The engineer should then loosen the seal clamp ring and reposition it in a position that properly compresses the seal bellows.	_____
6. Restart the engine and roll the shaft. If the seal continues to leak excessively, secure the engine.	_____
7. Is applicable, secure the shaft cooling water pump.	_____
8. Secure the affected shaft with line to prevent rotation and subsequent damage. Perform required damage control to slow the rate of leakage.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-02-16-ANY	**Steering Casualty**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed while underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.
Standards	The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below.

Performance Criteria	Completed (Initials)
1. The following procedures must be performed if a steering hose is broken: a. Bring both main engine throttle controls to the neutral or minimum steerage clutch position if in a running sea. Try to put the seas on the bow. b. Notify crew of casualty. c. Coxswain: Steer with engines, if needed. d. Engineer: Investigate the casualty. e. Crew member: If necessary, rig the anchor. f. Crew member: Remove emergency tiller from stowage bracket. g. Place engines in neutral. h. Carefully mount the emergency tiller. i. Gain control of the rudders using the emergency tiller. j. Test rudders for complete range of motion (full port to full starboard). k. Bring the tiller arm about until the rudder arm position indicates the rudders are amidship. l. Engage each shaft separately to reduce propeller thrust on the rudder blades and emergency tiller. m. Keep the main engine RPMs at a minimum to reduce strain on the crew tending the emergency tiller. n. The coxswain shall give standard steering commands to the crew members tending the rudder. a. Notify Station of situation. o. Check electrical power source for steering. p. Check system from stern to helm for cause of casualty (e.g. low fluid).	_____

Performance Criteria	Completed (Initials)
2. Gain control of rudders using the tiller located in the lazarette.	_____
3. The following procedures must be performed to regain control with a jammed rudder: a. Reduce RPMs on both engines. Bring both main engine throttle controls to the neutral or minimum steerage clutch position if in a running sea. Try to put the seas on the bow. b. Notify crew of casualty. c. Coxswain: Steer with engines, if needed. d. Engineer: Investigate the casualty. e. Crew Member: If necessary, rig the anchor. f. Crew Member: Remove emergency tiller from stowage bracket. g. Place engines in neutral. h. Carefully install emergency tiller, mounting it on the port rudder post. Maintain positive control. i. Detach release pin on starboard rudder post to disconnect steering cable/hydraulic ram. j. Turn steering wheel to isolate cable/ram damage. k. Reinstall steering cable/hydraulic ram release pin. l. Maintain control of the port rudder with the tiller and the starboard rudder with the steering wheel. m. Engineer: If necessary, carefully remove the tie rod bar connecting the port and starboard rudder posts. n. Use caution while exercising each rudder to determine which rudder is jammed. Determine the cause, if possible (i.e., debris, damage, etc.).	_____
NOTE If the port rudder is jammed, lash the emergency tiller/rudder arm with mooring lines to the stern cleats to prevent movement. If the starboard rudder is jammed, keep the ram attached to prevent movement.	
o. If unable to free the jammed rudder (using attempts to rack it back and forth with the emergency tiller or by clearing any debris), secure it, as soon as possible, to prevent movement. p. After securing the jammed rudder, adjust the opposite rudder to gain the greatest steerage. Use main engines, throttles shafts, and propellers, to regain and maintain steerage. q. Keep main engine RPMs at a minimum to reduce stress on the crew tending the emergency tiller. r. The coxswain shall give standard steering commands to the crew members tending the rudder.	
WARNING To prevent injury, man the tiller at **all** times while it is installed on a rudder post. Backing down produces a heavy surge on the rudder. If sternway is necessary, do not exceed 1000 RPM.	
s. Notify Station of situation.	

Instructor _____ **Date** _____

Comments _____

_____

Section C. Boat Disabling Casualties

Introduction

The following are objectives of Division Three:

- **Demonstrate** the knowledge of the casualties and discrepancies that would prevent a boat from getting underway.
- **Demonstrate** the ability to perform Engineering Casualty Control on a boat.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ENG-03-01-ANY	Basic Casualty Response	3-33
ENG-03-02-ANY	Fire in the Engine Room	3-35
ENG-03-03-ANY	Fire Onboard	3-35
ENG-03-04-ANY	Fire in the Auxiliary Machinery Space	3-36
ENG-03-05-ANY	Capsizing	3-37
ENG-03-06-ANY	Flooding	3-38
ENG-03-07-ANY	Collision with a Submerged Object	3-39

TASK ENG-03-01-ANY **Basic Casualty Response**

References

a. Applicable Technical Manuals

Conditions

This task will be performed when the boat is underway during daylight hours, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards

The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below:

Performance Criteria	Completed (Initials)
1. Respond to a loss of steering casualty. a. Maintain heading or control with engines keeping the seas on the bow if possible. b. Inspect steering gear or system for damage or fouling. c. Demonstrate use of any emergency steering system if applicable. d. Test steering for complete range and function after repair.	_____
2. Respond to striking a submerged object or temporary grounding casualty. a. Maneuver to safe water. b. Inspect hull, bilges and compartments for leaks or damage. c. Test steering system for damage or restrictions. d. Test propulsion system (each engine individually) by running up slowly to check for damage or vibrations. e. Tilt each outboard or outdrive unit up and inspect lower unit and propeller for damage.	_____

Performance Criteria	Completed (Initials)
3. Respond to engine high water temperature (overheating) casualty. a. Reduce engine RPMs and observe changes. b. Check for overboard discharge. c. Check for fouling of the cooling water intake. d. Check cooling system integrity and coolant level. Check quantity and quality of coolant.	_____
4. Respond to a loss of oil pressure casualty. a. Bring throttles to neutral/idle. b. Secure effected engine. c. Check oil level. Check quantity and quality of oil for signs of contamination (milky). d. Check water around lower unit for oil sheen or visual oil leaks. e. Check bilges for signs of oil leaks.	_____
5. Respond to engine vibration, outboard motor vibration or damaged propeller. a. Note engine RPM. b. Bring throttles back to neutral and check for vibration. c. Secure engine(s) and trim up outboard or outdrive to inspect propeller and lower unit. d. Trim down outboard or outdrive and restart. e. Check each engine individually by engaging into forward and reverse gears and bringing up RPMs slowly. Note vibration.	_____
6. Respond to loss of shift control casualty (engine fails to engage in forward or reverse). a. Bring throttle controls to neutral/idle. b. Check if propeller is turning. c. Secure engine if necessary. d. Check shift linkage at console. e. Check shift linkage at engine.	_____
7. Respond to a fire onboard. a. Unit and other vessels in vicinity notified of situation. b. Bring throttle controls to neutral/idle, then secure. c. Secure electrical power (if situation warrants). d. Use onboard fire extinguishers and any other means available to extinguish fire. e. Consider risk versus gain of abandoning boat.	_____
8. Unit notified and kept informed during all of the above casualty response scenarios.	_____
9. Demonstrate rigging and deploying anchor as appropriate in any of the above casualty scenarios.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-02-ANY **Fire in the Engine Room**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions
This task can be performed while underway or pierside. The instructor will simulate the casualty by providing the symptoms to the trainee. Given a boat with required fire fighting equipment and installed systems, take corrective action.

Standards
Trainee shall demonstrate proper methods of controlling and extinguishing an engine room fire too large to be combated with only the portable fire extinguishers aboard, in accordance with the steps listed below:

Performance Criteria	Completed (Initials)
NOTE Ensure power to one VHF-FM radio is maintained for communications.	
1. The coxswain should secure the engines and generator, if applicable, and inform all crewmembers.	_____
2. Secure all sources of DC electrical power except those required to operate VHF radios.	_____
3. The engineer should proceed to the machinery space and ensure the engine room watertight door is tightly closed, then secure the fuel oil by pulling the emergency fuel cutout valves.	_____
4. The engineer should try to determine size and source of fire by looking through the portlight in the watertight door. If fire is observed or cause of smoke cannot be determined, discharge the installed fire extinguishing system.	_____
WARNING Ensure that crewmembers are aware of the installed fire fighting agent (CO_2 or Halon).	
5. Notify the unit once the situation is under control.	_____
6. Keep the engine room secured until towed ashore and secured.	_____
WARNING It is extremely dangerous to enter a compartment during or after a fire. After the engine room has been flooded with CO_2, extensive ventilation is necessary to ensure safety when entering, however, any introduction of oxygen into the compartment may ignite a fire reflash. Keep the space sealed until towed ashore and secured.	
7. As much as possible, stay off of the after deck as the heat may have caused structural damage.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-03-ANY **Fire Onboard**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)

Conditions
This task will be performed on a boat dockside during daylight hours in calm or moderate weather conditions. Where practicable, the dockside training should be followed up by underway exercises. The instructor will simulate the casualty by providing the trainee with the casualty symptoms. The trainee will be assigned as engineer.

Standards The trainee will demonstrate the proper methods of controlling and extinguishing a fire onboard without prompting or use of a reference, following the steps listed below:

Performance Criteria	Completed (Initials)
1. If underway, ensure throttles brought to neutral on both engines, then secured.	_____
2. Notify unit of situation, if possible.	_____
3. Secure electrical power, if situation warrants.	_____
4. Use fire extinguishers and any other means available to extinguish fire.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-04-ANY **Fire in the Auxiliary Machinery Space**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below:

Performance Criteria	Completed (Initials)
1. The coxswain should secure the engines, inform all crew members and notify the Station.	_____
2. The engineer should proceed to the survivor's compartment and secure the battery cutout switches on the port forward bulkhead.	_____
3. Ensure that the watertight doors leading to the auxiliary machinery space are closed.	_____
4. Keep the auxiliary machinery space sealed until towed to safe moorage and secured.	_____
WARNING In the event of a fire in the space, do not enter the auxiliary machinery space compartment under any circumstances. There is not an installed fire fighting system for this compartment.	
WARNING Do not hook up the shore-tie. Complete inspection of the electrical system should be made once the compartment has been deemed safe to enter.	

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-05-ANY	**Capsizing**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task will be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.
Standards	The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below:

Performance Criteria	**Completed (Initials)**
1. Upon re-righting, check to see if both engines are running and if the coxswain has engine and steering control. Assist coxswain in regaining control of the boat. Take precautions if operating in surf.	_____
2. Check the crew to ensure no one was lost overboard or injured.	_____
3. When in safe water and upon direction of the coxswain, the boat engineer should go below to check for damage.	_____
4. Investigate the condition of the engine room by looking through the window in the watertight door. The engine room may be coated with water and oil, presenting a fire hazard.	_____
5. Begin dewatering the vessel by energizing all of the installed electric pumps. If the flooding is too severe to be handled by the electric bilge pumps, rig the portable dewatering pump on the aft deck and connect the suction line to the engine room suction standpipe.	_____
6. Once dewatering is complete, check the oil in both main engines (engines must be secured to ensure an accurate reading). Add oil as necessary.	_____
NOTE Engines should be shut down to check oil level; if circumstances make securing the engines inappropriate, wait to check the oil levels until the situation has further stabilized. In the mean time, keep a close eye on the engine oil pressure.	
7. Closely check the material condition of each compartment. Report results to the coxswain.	_____
8. After damage has been assessed, determine whether it is safe to proceed with the mission or whether to return to the unit.	_____
9. Upon returning to the Station, all electronic and electrical equipment must be tested and cleaned. When applicable, electronic or electrical components will be replaced.	_____
NOTE A backup means of communications is critical after a capsizing or knockdown. A portable VHF/FM radio is the best means of passing critical situation reports immediately following this type of situation.	
WARNING Do not hook up the shore-tie. Electronic equipment in all below-deck spaces may be soaked with water.	
NOTE All compartments must be inspected for water intrusion and damage. Each compartment should be thoroughly wiped or washed down as appropriate. All wiring must be cleaned, dried and inspected. Once complete, all electrical equipment must be tested thoroughly. The engine room must be washed down and all insulation material in the survivor's compartment must be inspected. All fluids and associated filters, such as reduction gear, hydraulic system, and main engine oil should be replaced whenever the possibility of contamination has occurred.	

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-06-ANY **Flooding**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series)
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions This task can be performed pierside or underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.

Standards The trainee, after being given the casualty symptoms, must accurately identify the casualty and perform the correct procedures, following the steps listed below:

Performance Criteria	Completed (Initials)
1. The engineer or coxswain will check the control panel to identify the space where flooding is indicated. Push the RESET button to silence the alarm.	_____
WARNING In the event of engine room flooding, secure the generator set before entering the space. If flooding is detected in other spaces, secure the power panels that feed the spaces before entering.	
NOTE A sounding of the alarm will indicate water in the bilge space.	
2. The engineer and a crew member will proceed to the flooded space indicated by the control panel, look through the portlight in the watertight door, and report status to coxswain. If directed, enter the space to investigate.	_____
3. The engineer shall report to the coxswain the extent, cause and corrective actions necessary to control or stop the flooding.	_____
4. The crew will prepare to apply basic casualty control procedures, making ready the damage control kit and dewatering pump as required.	_____
5. The crew shall check the material condition of each compartment, then report the results to the coxswain.	_____
6. After damage has been assessed, the coxswain shall determine whether it is safe to proceed with the mission or return to the unit.	_____
CAUTION ! The bilge flooding alarm system is designed to notify the crew of an onboard **EMERGENCY** underway as well as dockside. This system should be confirmed operational prior to and upon return from any missions or sorties.	

Instructor _____ **Date** _____

Comments _____

_____

TASK ENG-03-07-ANY	**Collision with a Submerged Object**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	This task can be performed while underway. The instructor will simulate the casualty by providing the trainee with the casualty symptoms.
Standards	The trainee, upon being given the casualty symptoms, will perform the correct procedures, following the steps listed below:

Performance Criteria	**Completed (Initials)**
1. Reduce engine RPMs throttles to neutral, and try to determine what the boat hit; inform the rest of the crew.	_____
2. Check for flooding. Verify status of bilge alarms and physically check areas below the waterline.	_____
3. The engineer and a crew member should proceed to the machinery space to check shafting for damage.	_____
4. For outboard or outdrive equipped crafts, stop engines, trim/tilt engines up and investigate propeller, lower unit or outdrive.	_____
5. The crew member should check all forward compartments for damage. The engineer should check the engine room and lazarette for damage. Make reports to the coxswain.	_____
6. Individually bring up the engine RPMs to determine range and severity of vibration. Also, check shaft seals for leakage.	_____
7. Maintain engine RPMs, 200 RPM below range of vibration. If vibration is too severe, place that shaft into neutral or secure engine.	_____
NOTE If possible, the boat should be hoisted to determine extent of damage, especially if there is a vibration.	
8. Conduct steering check by turning helm hard port and starboard. Check for normal rudder movement stop-to-stop.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section D. Post-Operational Checks

Introduction

The following are objectives of Division Four:

- **Demonstrate** the ability to secure a boat after operations.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
ENG-04-01-ANY	Secure the Boat After Operations	3-40

TASK ENG-04-01-ANY **Secure the Boat After Operations**

References

a. Applicable Technical Manuals
b. Applicable Manufacturer Manuals
c. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

This task will be performed when the boat is out of the water, while normal unit training and lecture programs pertaining to boat operations are being conducted. Where practicable, the instructions should be followed by related underway exercises.

Standards

The trainee must properly complete all steps below in order to successfully complete this task:

Performance Criteria	Completed (Initials)
1. Allow the engines to idle 4-5 minutes; especially if recently run at high RPM.	_____
2. Secure all electrical gear with the exception of the main switch.	_____
3. Shut down the engine. Allow associated alarm to activate, then secure alarm.	_____
4. If equipped, trim/tilt outboard engine or outdrive into storage position as appropriate.	_____
5. Shift electrical load from ship to shore power.	_____
6. Secure all breakers in the 24-VDC power panel in the machinery space except for those required to maintain fire, flooding, and lighting systems.	_____
7. Secure start system battery cutout switch.	_____
8. Secure fuel supply valves to engine.	_____
9. Close generator seawater suction valve.	_____
10. Check all machinery fluid levels and refill as necessary.	_____
CAUTION ! Do not check engine coolant levels until temperature has dropped to 140 °F or below.	
NOTE It may be necessary to wait 30 minutes to obtain an accurate reading on engine lube oil levels.	
11. Conduct a visual inspection of the engine room bilges for any obvious abnormalities.	_____
12. Close all doors, windows, hatches and scuttles.	_____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 3.
Engineer Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee to keep. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainee's answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	3-44
B	Reading Assignments - Division Two	3-55
C	Reading Assignments - Division Three	3-62
D	Reading Assignments - Division Four	3-66

Section A. Reading Assignments - Division One

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ENG-01-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section D* • Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-46
ENG-01-02-ANY	• Applicable Technical Manuals • *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section D* • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-48
ENG-01-03-ANY	• None assigned	
ENG-01-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Appendix 1-A and Chapter 8, Section D* • Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-51
ENG-01-05-ANY	• Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-52
ENG-01-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-52
ENG-01-07-ANY	• Boston Whaler Manual/Applicable Technical Manuals	3-53
ENG-01-08-ANY	• Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-53

Task Number	Reading Assignment	See Page
ENG-01-09-ANY	• Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-54

TASK ENG-01-01-ANY: Locate Installed Equipment and Fittings on the Boat

1. State the location of the following items:
   a. Weapons mount
   b. Bilge pump access plate
   a. Anchor locker
   c. Forward drain plug
   d. Battery parallel switch(es)
   e. Loudhailer control
   f. Start/Stop switch
   g. Engine circuit breakers
   h. Kill switch
   i. Main circuit breakers
   j. Depth finder transducer
2. Locate and state the purpose of the following:
   a. Navigation lights (color and location)

   b. Spotlights or searchlights

   c. Deck fittings (cleats, chocks, bitts, lifting eyes)

   d. Anchor, anchor line, tow line (if equipped)

   e. Lanyard for engine kill switch

   f. Electric and manual bilge pumps

   g. Inflatable collar fittings (if equipped)

   h. Weapons and ammunition stowage

3. Describe the location and purpose of the following communications/navigation equipment:
   a. GPS or DGPS

   b. Surface radar

   c. Fathometer (location of transmitter)

   d. Loudhailer control and speakers

   e. UHF radios

   f. VHF radios

   g. Installed onboard intercom system (if equipped)

   h. EPIRB

   i. Standby compass (magnetic compass)

4. The installed bilge pump system is a _____ system.
5. It will require approximately _____ of water in a bilge space to activate the bilge pumps when set in the _____ mode.
6. The craft's cooling water (raw water) system is used for _____.

TASK ENG-01-02-ANY: Locate Components and Accessories of the Boat's Propulsion and Electrical Systems

1. The main engines are _____. State make and model.

2. The AC generator is _____. State make and model (if installed).

3. State the following specifications for the engines:
   a. _____ horsepower
   b. _____ stroke
   c. _____ cylinder
   d. _____ cooled
4. State the following specifications for the AC generator set engine (if installed):
   a. _____ horsepower
   b. _____ stroke
   c. _____ cylinder
   d. _____ cooled
   e. _____ kW rating
5. _____ _____ rotation standing aft looking forward
6. The boat's fuel (_____ _____ diesel) is carried in a _____-gallon tank located in the _____.
7. Operating fuel pressure at _____ RPM should be between _____-_____ PSI.
8. Direct cooling of the engines is done by a _____-_____ freshwater system.
9. The engine alarm system is operated by the _____-volt _____ electrical system and consists of:
   a.
   b.
   c.
   d.
   e.
10. Normal clutch-apply pressure is _____ to _____ PSI.
11. State the location of the fuel tank(s) and capacity at 95 percent, the location of the filler neck, vent valve and if applicable, primer bulb.

12. State the location of the following components on the engine:
    a. Alternator
    b. Freshwater reservoir/expansion tank
    c. Oil level dipstick
    d. Fuel pump
    e. Throttle control connection
    f. Oil fill cap

g. Raw water (seawater) pump
h. Oil filter
i. Fuel filter(s)
j. Glow plugs (if installed)
k. Hot start system (if installed)
l. Engine coolant heat exchanger
m. Turbocharger (if installed)
n. Oil cooler (if installed)
o. Intercooler (if installed)

13. State the location of the following gauges:
    a. Oil level gauge
    b. Trim level gauge
    c. Tachometers
    d. Water temperature

14. State the idle and cruising readings for the following gauges:
    a. Engine lube oil pressure
    b. Engine coolant temperature
    c. Marine gear oil pressure (if installed)
    d. Boost pressure (if installed)
    e. Engine RPM at idle/cruising

15. State the location of installed seawater strainers and seachest suction valves.

16. The cooling system suction is located _____ and the cooling system weep hole is located _____.

17. Describe the DC electrical system on your craft and state the location of the following components:
    a. Batteries
    b. Battery charger
    c. Shore power connector

d. Battery switch and indicator

e. Essential breakers and switches

18. The engine stop controls are located _____.
19. Batteries are located _____.
20. Compassing sending unit is located _____.
21. Describe the boat's steering system. Include all major components. State how to fill and purge the system.

22. Describe the cathodic protection system installed in the assigned boat.

23. State the type of coolant, oil or lubricant required for the engine, outdrive, outboard and steering system.

24. State the function of the engine kill switch.

25. Describe the gray water system (if installed) on the assigned boat.

26. Describe the sewage system (if installed) on the assigned boat.

27. Describe the potable water system (if installed) on the assigned boat.

TASK ENG-01-04-ANY: Conduct a Pre-Start Checkoff

1. The fuel tanks should be at or near _____ percent during pre-start checks.
2. State the correct procedure for disconnecting the shore power cable.
3. State the coolant, fluid, lubricant or lubricating oil level that must be checked prior to operation.
4. Check engine drive belt tension. No greater than _____-inch deflection per foot of span is allowed.
5. The engine steering and throttle controls should be checked for _____ _____ _____.
6. Visually inspect the _____ filter for the presence of sediment and water.
7. Ensure the _____ suction valve is open.
8. With the engine cool or cold, state the location and level for the engine coolant system.
9. State why the engine should not be operated with the shore power system energized.
10. State the location (side of engine, near) of the engine oil dipstick.
11. State in what position the battery switch(es) should be for starting.
12. When the engine is secured, the marine gear oil level _____ should be above the _____ mark on the dipstick.
13. The marine gear oil level must be rechecked after the engine is _____ and _____ to confirm the correct level on the _____.
14. Never start or _____ the engines with the _____ _____ power energized. Damage to the _____ may occur.
15. Ensure all _____ electrical power switches are in the _____ position.
16. When the engine is secured, the marine gear oil level _____ should be above the _____ mark on the dipstick.
17. The marine gear oil level must be rechecked after the engine is _____ and _____ to confirm the correct level on the _____.

TASK ENG-01-05-ANY: List the Disabling Casualties and Restrictive Discrepancies that Prevent the Boat from Getting Underway

1. A disabling casualty is a casualty that makes the boat _____ _____.
2. Define the term restrictive discrepancy.
3. Describe what actions must be taken if a disabling casualty occurs while underway.
4. Give some examples of major discrepancies for an assigned boat.
5. State what must be done if a restrictive discrepancy occurs while underway or dockside.
6. List three restrictive discrepancies for an assigned boat.

   a.
   b.
   c.
7. List three disabling casualties for an assigned boat.

   a.
   b.
   c.
8. The Operational Commander will be notified immediately or within _____ hours after the casualty has been discovered.
9. If the casualty cannot be repaired within 48 hours, a _____ shall be sent within _____ hours.

TASK ENG-01-06-ANY: State the Equipment Casualties That Will Prevent the Boat from Getting Underway

1. List the eight pieces of equipment that, should a casualty occur, would prevent the boat from getting underway.

   a.
   b.
   c.
   d.
   e.
   f.
   g.
   h.

TASK ENG-01-07-ANY: Energize the Electrical and Electronic Systems

1. What is the purpose of the boat stators?

2. The port engine battery switch serves the _____ and _____ loads.
3. The AUX battery switch supplies power to _____.
4. The starboard engine battery switch serves the _____ and the _____.
5. What is the function of the battery parallel system?

TASK ENG-01-08-ANY: Set Watertight Integrity

1. How many watertight compartments are aboard the boat?

2. Name them and list fore and aft bulkheads:

3. The following are secondary watertight compartments which aid in self-righting the craft in event of a capsize:
   a.
   b.
   c.
   d.

TASK ENG-01-09-ANY: Draw the Boat's Systems

1. Draw the following systems and label all components:
   a. Fuel oil system (tank to engine)

   b. Raw water (seawater) cooling system

   c. Freshwater cooling system

   d. Steering system

   e. Electrical system(s), AC and DC (include shore power interface)

Section B. Reading Assignments - Division Two

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ENG-02-01-ANY	• Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-57
ENG-02-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-57
ENG-02-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-58
ENG-02-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-58
ENG-02-05-ANY	• Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-58
ENG-02-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-59
ENG-02-07-ANY	• Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-59

Task Number	Reading Assignment	See Page
ENG-02-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-59
ENG-02-09-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-59
ENG-02-10-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals	3-59
ENG-02-11-ANY	• Applicable Technical Manuals • *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E*	3-60
ENG-02-12-ANY	• Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-60
ENG-02-13-ANY	• Applicable Technical Manuals • *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-60
ENG-02-14-ANY	• Applicable Technical Manuals • *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-61
ENG-02-15-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-61
ENG-02-16-ANY	• Applicable Technical Manuals • Specific Boat Type Operator's Handbooks, COMDTINST M16114 (series)	3-61

TASK ENG-02-01-ANY: Start the Boat

1. State the location and purpose of the engine kill switch (if equipped).
2. The throttle should be in _____ prior to engaging the starter.
3. The start button should be depressed for _____ seconds. If the engine fails to start, release the button and wait _____ seconds before attempting another start.
4. State the location of the raw water (seawater) overboard discharge for engine cooling.
5. At idle, the oil pressure gauge should read at or above _____ PSI.
6. At idle, the engine RPM should be approximately _____ RPM.
7. State what visual checks should be conducted on the engine prior to getting the boat underway.
8. State any procedures for energizing the installed communications/navigation equipment.
9. Do not depress both starter buttons_____. Start engines ____at a time.
10. With the main engines at idle, the oil levels of the marine gear should between _____ and _____ on the dipstick.
11. If proper oil pressure is not evident, _____ _____ _____ and investigate.
12. At idle the water temperature should be _____ ºF and the water pressure _____ PSI.
13. The primer bulb should be squeezed _____.
14. List the possible causes for an engine that will not start:

TASK ENG-02-02-ANY: Engine Will Not Turn Over or Start

1. The engine/throttle should be in the _____.
2. Depress the _____ engine _____ button and hold until the engine starts. If an engine does not start within _____ seconds, release the _____ button and let stand _____ minutes, and repeat starting procedures.
3. State the location of the engine kill switch and in what position it should be prior to start.
4. What is the normal battery voltage for the assigned craft and where can it be read?
5. Where is the engine starter located?
6. Describe (if applicable) how to prime the engine fuel system for the assigned craft.
7. If outside temperature is below freezing, state what systems might need to be energized to start the craft.

TASK ENG-02-03-ANY: Engine Failing to Start with the Starter Turning Over

1. Check the _____ switch _____.
2. Check the condition of the fuel system _____ bulbs.
3. Check the fuel system, in particular the system _____ and the _____ and housing.
4. Check the engine main _____ _____.

TASK ENG-02-04-ANY: Main Engine High Water Temperature

1. What is the normal operating range for the water temperature?
2. State the six corrective actions to be taken for engine high water temperature:

   a.
   b.
   c.
   d.
   e.
   f.
3. What procedure should be followed to keep an engine from seizing?
4. If steam is present or engine temperature is above _____ ºF, _____ engine.
5. Removing _____ _____ _____ while engine is hot may cause coolant to flash to steam causing _____ _____.
6. If the strainers are clean, check the _____ _____ pump cover lightly with the _____ of the _____ for coolness.
7. If the _____ is burned up, the cover will be very hot.

TASK ENG-02-05-ANY: Loss of Main Engine Lube Oil Pressure

1. If engine oil pressure gauge reads _____, _____ engine immediately.
2. Check the following for possible problems:

   a.
   b.
   c.
   d.
   e.
   f.
3. The operating parameters are _____ min _____ max at idle _____ min _____ max at cruising.

TASK ENG-02-06-ANY: Loss of Fuel Oil Pressure

1. The engineer should request that the coxswain reduce the engine RPMs to _____ _____.
2. Check the primary _____ _____ for _____ and/or _____.
3. Verify the _____ _____ levels.
4. If necessary _____ the fuel system.

TASK ENG-02-07-ANY: Main Engine High Lube Oil Pressure

1. Water _____ in the engine will cause _____ _____ _____ pressure.
2. Leaky engine hatch gaskets in _____ _____ or _____ can lead to water intrusion at the _____ _____ intakes.

TASK ENG-02-08-ANY: Engine Oil System Failure

1. If an engine experiences no/low oil pressure, the throttles should be placed in _____ and the engines secured.
2. Perform a quick _____- _____ and if oil pressure continues to decrease _____ the _____.
3. The oil system should be _____ using the _____ bulb.
4. Once the engine is secured, check for an _____ _____ around the lower unit.
5. State what S.L.O.W. means in regards to an engine oil failure casualty.

TASK ENG-02-09-ANY: Outboard Failing to Engage Forward or Reverse

1. Check the linkage at the _____ and the _____.
2. With the engine operating, verify that the _____ is _____.

TASK ENG-02-10-ANY: Outboard Motor Vibration or Spun Propeller

1. Note the _____ at which the vibration occurs.
2. Bringing throttles t o _____ note any change in vibration.
3. Secure the engine and _____ _____ the outboard to inspect the _____ and _____.

TASK ENG-02-11-ANY: Engine Running Uneven or Stalls

1. Check the fuel system _____ alignment if the engine runs uneven or stalls.
2. Check the _____ _____ for visual contamination.
3. Check the _____ linkage for security and worn or missing hardware.
4. Verify the _____ _____ level.
5. Verify the _____ intake system for obstructions.

TASK ENG-02-12-ANY: Loss of Control of Engine RPMs

1. Bring the engine back to _____ _____.
2. If the engine fails to secure, the engineer should proceed to the _____ _____ and pull the fuel _____ _____ for the affected and allow the engine to _____.
3. DO NOT use the _____ system to secure the engine.

TASK ENG-02-13-ANY: Reduction Gear Failure

1. Ensure that the _____ light is lit at the control station in use.
2. Check the _____-volt power p anel for tripped breakers.
3. Check that the _____ are attached to the reduction gear controls.
4. Check oil level and restart the engine and check the clutch apply pressure, should be _____ to _____ PSI.
5. The _____ valve on the reduction gear allows for _____ operation.
6. When the clutch is engaged, the clutch-apply pressure should be _____-_____ PSI.
7. Using the free wheel feature, fill the marine gear _____ with oil.
8. List the steps that need to be accomplished after you free wheel for over 8 hours of operation.

   a.
   b.
   c.

TASK ENG-02-14-ANY: Overheating Shaft Packing Gland

1. If there is no water coming from the shaft packing gland _____ to _____ drops per and the _____ box gland is too hot to _____, immediately take the following three corrective actions:

   a.

   b.

   c.

2. Do not place a _____ near the turning _____ until you bring the _____ to clutch speed.

TASK ENG-02-15-ANY: Excessive Shaft Seal Leakage

1. The engineer should realign the _____ assembly and check to see if the _____ _____ has backed off.
2. If after alignment excessive water continues to leak from the seal, the engineer should recommend _____.
3. If after alignment the seal continues to leak, stop the engine, _____ the affected shaft with _____.

TASK ENG-02-16-ANY: Steering Casualty

1. List the four likely causes of steering loss:

   a.
   b.
   c.
   d.

2. If the helm turns _____ without any effect on the _____, suspect a broken _____ _____, air in the system, or _____ fitting.
3. _____ oil is used in the steering system.
4. Where is the emergency tiller located on the boat?

Section C. Reading Assignments - Division Three

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ENG-03-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E*, and *Chapter 18*	3-63
ENG-03-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section E* • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-64
ENG-03-03-ANY	• Boston Whaler Manual/Applicable Technical Manuals	3-64
ENG-03-04-ANY	• Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-64
ENG-03-05-ANY	• Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-64
ENG-03-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Sections I and K* • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-65
ENG-03-07-ANY	• Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-65

TASK ENG-03-01-ANY: Basic Casualty Response

1. State three actions that should be taken in the event of a steering casualty.

   a.

   b.

   c.

2. State three actions that must be taken if the boat strikes a submerged object or runs temporarily aground.

   a.

   b.

   c.

3. Check for actions that should be taken in response to the following casualties:

   a. High cooling water (freshwater) temperature
   b. Loss of engine oil pressure
   c. Unusual engine outdrive or outboard vibration
   d. Loss of engine control (fails to engage in forward or reverse)

4. State all the actions that must be taken and considerations that must be evaluated if a fire occurs onboard.

5. If equipped, demonstrate the rigging and deploying of the anchor if required by any casualty.

6. Describe what action should be taken in regards to restarting the boat if the coxswain of the boat falls overboard or is ejected from the craft.

TASK ENG-03-02-ANY: Fire in the Engine Room

1. The most logical and best _____ action is to remain _____ and take early _____ action when fire _____ conditions are observed.
2. The fixed _____ _____ fire extinguishing system has the capacity to extinguish and _____ _____ fire provided the _____ for its use are followed carefully.
3. If at any _____ there is doubt as to the ability to _____ and extinguish and _____ _____ fire, or if it is determined to be _____ the capability of the portable fire extinguishers, use the _____ _____ _____ _____fire extinguishing system.
4. The fixed Halon 1301 fire extinguishing system is _____ operated.
5. The fixed CO_2 fire extinguishing system must be _____ operated.
6. How long should the compartment be ventilated?

TASK ENG-03-03-ANY: Fire Onboard

1. Bring the _____ to neutral and _____ the _____.
2. Notify the _____.
3. If required by the location/type of fire, secure the _____.

TASK ENG-03-04-ANY: Fire in the Auxiliary Machinery Space

1. True or False - There are no fire or smoke detectors in the auxiliary machinery space.
2. The engineer should proceed to the survivor's compartment and secure the _____ _____ _____ on the _____ _____ bulkhead.

TASK ENG-03-05-ANY: Capsizing

1. The average time under water will be approximately _____ to _____ seconds.
2. Once dewatering is complete, check the _____ in both main engines.
3. Do not hook up the _____ _____. Electronic equipment in all below deck spaces may be soaked with _____ and _____.

TASK ENG-03-06-ANY: Flooding

1. The engineer will check the _____ _____ to identify the space where flooding is indicated.
2. What is the bilge flooding alarm system designed for?
3. The central alarm panel located _____ _____ _____ will provide and audible and visual indication of flooding.
4. When is it required to verify the operation of the bilge alarm system?
5. The engineer should proceed to the space with the flooding alarm and report to the coxswain the _____, _____ and _____ _____ _____.
6. List the location of the installed electric bilge pump(s).

TASK ENG-03-07-ANY: Collision with a Submerged Object

1. List the four actions that the crew should take after striking a submerged object:
   a.
   b.
   c.
   d.
2. If engine vibration is noted after striking a submerged object, the engine RPM should be kept at _____ RPM below the vibration range.
3. Bring the _____ to neutral. Notify the crew.
4. Check _____ and _____ for flooding.

Section D. Reading Assignments - Division Four

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
ENG-04-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114 (series), *Chapter 8, Section E* • Boston Whaler Manual/Applicable Technical Manuals • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	3-67

TASK ENG-04-01-ANY: Secure the Boat After Operations

1. The engine should be allowed to idle _____ to _____ minutes prior to securing.
2. Prior to stopping the engine, secure all _____ _____ except for the main DC power switch.
3. Once the engine is stopped, trim or tilt the outdrive into the _____ position.
4. Refill the fuel tank(s) to _____ percent.
5. Once shore power is energized, the _____ _____ and _____ _____ should be turned on.
6. Inspect all _____ compartments and _____ all hatches and _____.
7. If necessary, when the boat is installed in a trailer or boat davit cradle, it may be necessary to _____ the engine(s).

Part 4
Coxswain Qualification

Introduction

This Part contains a collection of tasks, which must be learned, practiced, and performed by the trainee. These tasks represent the minimum elements of skill and knowledge necessary for safe and effective performance of a Coast Guard coxswain.

NOTE

This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Chapters:

Chapter	Title	See Page
1	Task Accomplishment Record for Coxswain	4-3
2	Coxswain Qualification Tasks	4-7
3	Coxswain Trainee Study Guide	4-89

Chapter 1.
Task Accomplishment Record for Coxswain

NOTE Instructor should remove this chapter and place it in the trainee's training record.

TRAINEE NAME: _____ RATE: _____

INSTRUCTOR NAME: _____ RATE: _____

POSITION/QUALIFICATION CODE TO BE TRAINED FOR: _____

NOTE Instructors should line through those tasks not applicable to this qualification.

Task	Date Started	Date Completed	Instructor's Initials
COX-01-01-ANY			
COX-01-02-ANY			
COX-02-01-TYPE			
COX-02-02-TYPE			
COX-02-03-TYPE			
COX-02-04-TYPE			
COX-02-05-TYPE			
COX-02-06-ANY			
COX-03-01-ANY			
COX-03-02-ANY			
COX-03-03-TYPE			
COX-03-04-TYPE			
COX-03-05-TYPE			
COX-03-06-TYPE			
COX-03-07-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
COX-03-08-TYPE			
COX-03-09-TYPE			
COX-03-10-TYPE			
COX-03-11-TYPE			
COX-03-12-TYPE			
COX-03-13-TYPE			
COX-03-14-TYPE			
COX-03-15-TYPE			
COX-03-16-TYPE			
COX-03-17-TYPE			
COX-03-18-TYPE			
COX-03-19-TYPE			
COX-03-20-TYPE			
COX-03-21-TYPE			
COX-03-22-TYPE			
COX-04-01-ANY			
COX-05-01-ANY			
COX-05-02-ANY			
COX-05-03-ANY			
COX-05-04-ANY			
COX-05-05-ANY			
COX-05-06-ANY			
COX-05-07-TYPE			
COX-05-08-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
COX-05-09-TYPE			
COX-05-10-TYPE			
COX-05-11-TYPE			
COX-05-12-TYPE			
COX-05-13-TYPE			
COX-05-14-ANY			
COX-05-15-ANY			
COX-05-16-ANY			
COX-06-01-ANY			
COX-06-02-ANY			
COX-06-03-ANY			
COX-06-04-ANY			
COX-06-05-ANY			
COX-06-06-ANY			
COX-06-07-ANY			
COX-06-08-ANY			
COX-06-09-ANY			
COX-06-10-ANY			
COX-07-01-TYPE			
COX-07-02-TYPE			
COX-07-03-TYPE			
COX-07-04-TYPE			
COX-07-05-TYPE			
COX-07-06-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
COX-07-07-ANY			
COX-07-08-TYPE			
COX-07-09-ANY			
COX-07-10-TYPE			
COX-07-11-TYPE			
COX-07-12-TYPE			
COX-07-13-ANY			
COX-08-01-ANY			
COX-08-02-ANY			
COX-08-03-ANY			
COX-08-04-ANY			
COX-08-05-TYPE			
COX-08-06-ANY			
COX-08-07-ANY			
COX-08-08-TYPE			
COX-08-09-TYPE			
COX-08-10-TYPE			
COX-09-01-ANY			

Chapter 2.
Coxswain Qualification Tasks

Introduction

The following are the instructions for this Chapter:

- The purpose of this Chapter is to provide guidance on the trainee's progress through the qualification tasks.
- The instructor should present the tasks to the trainee in a logical order using the instructions provided in *Part 1*.
- Tasks should be signed, dated, and placed in the trainee's training record when the instructor is satisfied that the trainee can consistently perform a task in accordance with all standards and conditions.

Prerequisites

A prospective Coxswain must:

- Be a certified crew member.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Crew Efficiency Factors and Team Coordination	4-8
B	Boat Characteristics and Stability	4-9
C	Boat Handling	4-16
D	Rules of the Road	4-38
E	Boat Piloting and Navigation	4-40
F	Search and Rescue (SAR)	4-55
G	Rescue and Assistance	4-65
H	Towing and Salvage	4-78
I	Law Enforcement, Homeland Security and Defense Operations	4-88

Section A. Crew Efficiency Factors and Team Coordination

Introduction

The following are objectives of Division One:

- **Demonstrate** knowledge of the crew fatigue standards.
- **Attend** team coordination training (TCT) training.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-01-01-ANY	Crew Fatigue Standards	4-8
COX-01-02-ANY	Team Coordination Training (TCT)	4-8

TASK COX-01-01-ANY **Crew Fatigue Standards**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), Chapter 3, Section B

b. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Task should be performed at any time, at facilities available to the unit.

Standards

Trainee must demonstrate knowledge of each task to the minimum standards included in each performance step.

Performance Criteria	Complete d (Initials)
1. State the crew fatigue guidelines as listed in the above references.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-01-02-ANY **Team Coordination Training (TCT)**

References

a. *Team Coordination Training*, COMDTINST M16114.5 (series)

Conditions

Task should be performed at any time, at facilities available to the unit.

Standards

Trainee must attend the training as prescribed in the reference above.

NOTE Attendance at TCT must be recorded in the trainee's Training Record.

Performance Criteria	Completed (Initials)
1. Date initial training completed: _____	_____

Instructor _____ **Date** _____

Comments _____

_____

Section B. Boat Characteristics and Stability

Introduction

The following are objectives of Division Two:

- **Identify** and **describe** the structural features of a Coast Guard boat.
- **Locate** and **explain** the use of all equipment and accessories.
- **Perform** those tasks necessary for preparing and getting the boat underway.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-02-01-TYPE	State Basic Construction and Design Features of the Boat	4-9
COX-02-02-TYPE	State the Characteristics of, and Set Watertight Integrity Aboard the Boat	4-10
COX-02-03-TYPE	Locate and State the Purpose of Deck Equipment and Fittings Onboard the Boat	4-11
COX-02-04-TYPE	Locate Installed Engineering and Propulsion Equipment and Fittings Onboard the Boat	4-12
COX-02-05-TYPE	Locate Installed Electrical and Electronic Equipment and Fittings Onboard the Boat	4-13
COX-02-06-ANY	Recognize Warning Signs of an Unstable Vessel Before Boarding	4-15

TASK COX-02-01-TYPE **State Basic Construction and Design Features of the Boat**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), Chapter 8, Section B
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

Task should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, point out and state the basic construction features of the boat as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. State hull construction material.	_____ _____ _____	_____ _____ _____
2. State interval between the hull frames.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. State cabin/superstructure construction material.	_____ _____ _____	_____ _____ _____
4. Point to the highest fixed point of the boat and state its height in feet and inches.	_____ _____ _____	_____ _____ _____
5. Point to the highest unfixed point of the boat and state its height in feet and inches.	_____ _____ _____	_____ _____ _____
6. State length of the boat in feet and inches.	_____ _____ _____	_____ _____ _____
7. State beam of the boat at its widest point in feet and inches.	_____ _____ _____	_____ _____ _____
8. State amount of freeboard at the bow in feet and inches.	_____ _____ _____	_____ _____ _____
9. State amount of freeboard at the lowest point in feet and inches.	_____ _____ _____	_____ _____ _____
10. State full load displacement of the boat in pounds.	_____ _____ _____	_____ _____ _____
11. State draft of the boat in feet and inches.	_____ _____ _____	_____ _____ _____
12. State location of deepest draft.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-02-02-TYPE **State the Characteristics of, and Set Watertight Integrity Aboard the Boat**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Sections B* and *C*

b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, point out and state the basic watertight characteristics of the boat and secure the boat's watertight fittings as outlined in the step s listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. State number of watertight compartments.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Locate all watertight hatches.	_____ _____ _____	_____ _____ _____
3. Locate all scuttles and state which can be secured.	_____ _____ _____	_____ _____ _____
4. Locate all through hull drain fittings.	_____ _____ _____	_____ _____ _____
5. Locate all vents and state which can be secured.	_____ _____ _____	_____ _____ _____
6. Set and check watertight integrity throughout the boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-02-03-TYPE **Locate and State the Purpose of Deck Equipment and Fittings Onboard the Boat**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8*

b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

Task should be performed using a simple line diagram of each boat type and the boat's checkoff or outfit list. Trainee should list the location of each piece of equipment on the diagram. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, locate and state the purpose and use of installed equipment and fittings as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Locate the following applicable equipment and explain use and purpose:	_____ _____ _____	_____ _____ _____

Performance Criteria		Completed (Initials)	Boat Type
a. Anchors	t. Sluice valve		
b. Anchor line reel and line	u. T-handle wrench		
c. Cap cover with hook	v. Fire monitor		
d. Bull nose	w. Freshwater jug/tank		
e. Key wrench	x. EMT kit		
f. Dry chemical extinguisher	y. First-aid kit		
g. Bilge inspection port	z. Scuttle		
h. Battle lantern	aa. Vents		
i. Marine toilet	bb. 4- or 6-man life raft		
j. Clock	cc. Safety belt pad eyes		
k. Bell	dd. Air horn pull handle		
l. CO_2 fire extinguisher	ee. Sink		
m. Emergency tiller	ff. Sink drain valve		
n. Stokes litter	gg. Compass		
o. Air horn	hh. Towline and reel		
p. Wheel	ii. Tow/taff rail		
q. Chart table	jj. Main fire valve		
r. Portable pump	kk. Towing bitt		
s. Windshield wiper speed control	ll. Leadline		

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-02-04-TYPE	**Locate Installed Engineering and Propulsion Equipment and Fittings Onboard the Boat**
Reference	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	Tasks should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, point out engineering and propulsion system components as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Locate the following equipment:	_____ _____ _____	_____ _____ _____

Performance Criteria		Completed (Initials)	Boat Type
a. Fuel tank sounding tubes	l. Fuel tank vent pipe		
b. Fuel tank fill pipe	m. Fuel sounding rod		
c. Freshwater fill pipe	n. Freshwater tank		
d. Installed Halon/CO_2 fire system	o. Sea chest, sea suction cutoff valves		
e. Power take-off	p. Air compressor		
f. Rudder arm	q. Air compressor bleeder valve		
g. Engine controls	r. Engine neutral throttles		
h. Tachometers	s. Windshield wiper bottle		
i. Hot water supply lines	t. Hydraulic steering pump		
j. Pressurized hydraulic fluid hose	u. Hydraulic ram and pin		
k. Rudder stock	v. Steering cable		

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-02-05-TYPE	**Locate Installed Electrical and Electronic Equipment and Fittings Onboard the Boat**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	Task should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, point out electrical and electronic system components as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Locate the following equipment:	_____ _____ _____	_____ _____ _____

Performance Criteria		Completed (Initials)	Boat Type
a. Underway heater switch b. Shore power compartment heater c. DC circuit breaker panel d. Alarm cut out switch e. Amp meter f. SSB-HF transceiver g. SSB-HF transceiver antenna coupler h. VHF-FM radio converter i. SSB-HF transceiver antenna j. VHF-FM radio k. GPS/DGPS antennas l. Radar set m. Radar antenna n. Depth finder o. Sidelights p. Searchlight switch q. Anchor light r. Towing lights (2) s. Stern light t. All interior lights u. Auxiliary machinery fan v. Battery charger	w. Underway compartment heater x. Shore-tie receptacle y. AC power panel z. Volt meter aa. GPS/DGPS receiver bb. VHF-FM direction finder receiver cc. VHF-FM radio antenna dd. VHF-FM direction finder ee. Radio and loudhailer speakers ff. Loudhailer gg. Digital fathometer display hh. Radar power supply ii. Radar wave guide jj. Digital fathometer display kk. Electric horn button ll. Hand-held portable search light mm. Masthead lights (2) nn. Deck floodlight oo. Law enforcement light switch pp. Auto pilot qq. Electronic compass rr. Hot starts		

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-02-06-ANY	**Recognize Warning Signs of an Unstable Vessel Before Boarding**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 9*
Conditions	Task should be performed underway observing other vessels in various situations (i.e. towing, trawling, etc.) and weather conditions.
Standards	The observer must note: • Listing • Setting high or low in the water • Trimming bow up or down • Wind/sea conditions • Your boat's reaction to the sea compared with that of the distressed vessel

Performance Criteria	**Completed (Initials)**
1. Determine if other vessel is listing.	_____
2. Determine if other vessel is riding high or low in the water.	_____
3. Determine if other vessel is down by the bow or the stern.	_____
4. Determine wind and sea conditions.	_____
5. Compare own boat's righting moment with other vessels in the area.	_____
6. Determine if other vessel is damaged.	_____
7. State the causes and effects of the following: a. Free surface effect b. Downflooding c. Topside icing	_____

Instructor _____ **Date** _____

Comments _____

_____

Section C. Boat Handling

Introduction

The following are objectives of Division Three:

- **Define** and **state** the principal forces that effect boat handling.
- **Handle** a boat proficiently during various common maneuvers.
- **State** the different safety aspects involved in boat handling.

In this section

This Section contains the following tasks:

Task Number	Task	See Page
COX-03-01-ANY	State the Forces that Affect Boat Handling	4-17
COX-03-02-ANY	State the Basic Principles of Boat Handling	4-18
COX-03-03-TYPE	State the Operational Characteristics and Limitations of the Boat	4-18
COX-03-04-TYPE	Locate and State the Characteristics of the Components and Accessories of the Boat's Propulsion System	4-20
COX-03-05-TYPE	Energize the Electrical and Electronic Systems on the Boat	4-21
COX-03-06-TYPE	Conduct a Pre-Start Checkoff for the Boat	4-22
COX-03-07-TYPE	Start the Boat	4-24
COX-03-08-TYPE	Conduct a Pre-Underway Checkoff for the Boat	4-25
COX-03-09-TYPE	Shifting Steering and Throttle Stations	4-26
COX-03-10-TYPE	Conduct a Normal Cruising Checkoff	4-27
COX-03-11-TYPE	Secure the Boat After Operations	4-27
COX-03-12-TYPE	Get the Boat Away from a Pier	4-28
COX-03-13-TYPE	Maneuver the Boat in Tight Quarters	4-29
COX-03-14-ANY	Come About in a Narrow Channel	4-30
COX-03-15-TYPE	Operate the Boat and Apply its Handling Characteristics in a Following Sea	4-31
COX-03-16-TYPE	Maneuver in Heavy Weather	4-32
COX-03-17-TYPE	Maneuver in Rivers	4-32
COX-03-18-TYPE	Identify Heavy Weather Terms	4-33
COX-03-19-TYPE	Correct for Hard Chine Lock-Up	4-33
COX-03-20-TYPE	Moor the Boat	4-34
COX-03-21-TYPE	Anchor the Boat	4-35
COX-03-22-TYPE	Weigh the Boat's Anchor	4-37

TASK COX-03-01-ANY **State the Forces that Affect Boat Handling**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 9* and *Chapter 10*

b. *Chapman Piloting*

c. *Knight's Modern Seamanship*

Conditions Task should be performed at any time, at facilities available to the unit. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the basic forces that affect boat handling as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the two types of stability.	_____
2. State the meaning of the term "force of buoyancy".	_____
3. State the meaning of the term "righting moment".	_____
4. State the meaning of the word "set" as related to current and drift.	_____
5. State the meaning of the word "drift" as related to current.	_____
6. State the effect of an ebb tide on a bar or entrance.	_____
7. State the effect of running with a current.	_____
8. State the effect of running against a current.	_____
9. State the effects of leeway.	_____
10. State the effects of wind blowing out an entrance.	_____
11. State the causes of cavitation.	_____
12. State the effects of slip.	_____
13. State the effects of dynamic propeller thrust.	_____
14. State the effects of "unequal blade thrust".	_____
15. State the effects of "side force".	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-02-ANY **State the Basic Principles of Boat Handling**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10*
b. *Chapman Piloting*

Conditions Task should be performed at any time, at facilities available to the unit. Steps 1 through 5 are for single screw boats and steps 6 through 8 are for twin screw boats. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the basic principles of boat handling as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the reaction of the boat with sternway on and the rudder amidships.	_____
2. State the reaction of the boat with sternway on and the rudder left.	_____
3. State the reaction of the boat with headway on and the rudder left.	_____
4. State the reaction of the boat with the headway on and the rudder right.	_____
5. State the reaction of the boat when commencing forward motion from no way-on.	_____
6. State the reaction of a twin screw boat when the port screw is placed ahead and the starboard screw in reverse.	_____
7. State the reaction of a twin screw boat with the port screw ahead, the starboard screw in reverse, and the rudders to the right.	_____
8. State the reaction of a twin screw boat with the port screw ahead, the starboard screw in reverse, and the rudders to the left.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-03-TYPE **State the Operational Characteristics and Limitations of the Boat**

References
a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time. Trainee must accomplish the task without prompting or use of a reference.

NOTE If boat type is an MLB or SPC (surf), trainee should perform step 14.

Standards In response to the instructor, the trainee must, without error, state the basic principles of boat handling as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. State the maximum speed of the boat in knots.	_____ _____ _____	_____ _____ _____
2. State the most economical cruising RPMs.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. State the maximum range of the boat at cruising RPMs in nautical miles.	_____ _____ _____	_____ _____ _____
4. State the minimum crew size of the boat.	_____ _____ _____	_____ _____ _____
5. State the maximum endurance of the boat at cruising RPMs.	_____ _____ _____	_____ _____ _____
6. State the maximum number of people that can be carried on the boat.	_____ _____ _____	_____ _____ _____
7. State the maximum following seas in which the boat may operate.	_____ _____ _____	_____ _____ _____
8. State the maximum wind speed in which the boat may operate.	_____ _____ _____	_____ _____ _____
9. State the maximum size vessel, in gross tons, that the boat may tow.	_____ _____ _____	_____ _____ _____
10. State the maximum size vessel, in feet, that the boat may tow.	_____ _____ _____	_____ _____ _____
11. State whether the boat may be used to break ice, and if so, how thick.	_____ _____ _____	_____ _____ _____
12. State whether or not the boat may be operated in breaking surf or bar conditions.	_____ _____ _____	_____ _____ _____
13. State the maximum size surf the boat can take abeam without capsizing.	_____ _____ _____	_____ _____ _____
14. State at what RPMs and under what conditions the boat will experience dynamic instability or "caught on the hard chine". **[MLB or SPC (surf) only]**	_____ _____ _____	_____ _____ _____
15. State the equipment that must be onboard and/or operative before the boat can get underway.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-04-TYPE	**Locate and State the Characteristics of the Components and Accessories of the Boat's Propulsion System**
References	a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	Task should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, point out and state the characteristics of the boat's propulsion system components as outlined in the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. State the model number of the engine(s).	_____ _____ _____	_____ _____ _____
2. State the horsepower of each engine.	_____ _____ _____	_____ _____ _____
3. State the direction of the shaft rotation for each engine.	_____ _____ _____	_____ _____ _____
4. State the maximum shaft RPMs for each engine.	_____ _____ _____	_____ _____ _____
5. Locate the gauges and state the normal readings for each engine at idle and cruising speeds: a. Water temperature in degrees Fahrenheit. b. Lube oil pressure in pounds. c. Marine gear oil pressure in pounds.	_____ _____ _____	_____ _____ _____
6. Locate and state the purpose of the emergency engine stop control.	_____ _____ _____	_____ _____ _____
7. State the type of fuel used in the engine(s).	_____ _____ _____	_____ _____ _____
8. Locate and state the maximum capacity of the fuel tank(s) in gallons.	_____ _____ _____	_____ _____ _____
9. State the usable capacity of the fuel tank(s) as a percentage of maximum.	_____ _____ _____	_____ _____ _____
10. State the capacity of the lube oil system in quarts.	_____ _____ _____	_____ _____ _____
11. Locate and state the type of cooling system used on the engine(s).	_____ _____ _____	_____ _____ _____
12. Locate and state the reason why the simplex/duplex strainer(s) must be cleaned one at a time.	_____ _____ _____	_____ _____ _____
13. Locate and state the purpose of the engine control module on the 47' MLB.	_____ _____ _____	_____ _____ _____
14. State the freshwater capacity of each engine in gallons.	_____ _____ _____	_____ _____ _____
15. State the purpose of the engine alarm system.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
16. Locate and state the type and model number of the marine gear used on the boat.	_____ _____ _____	_____ _____ _____
17. State the ratio of the forward gear.	_____ _____ _____	_____ _____ _____
18. State the ratio of the reverse gear.	_____ _____ _____	_____ _____ _____
19. State the diameter of the propellers in inches.	_____ _____ _____	_____ _____ _____
20. State the number of blades on the propeller(s).	_____ _____ _____	_____ _____ _____
NOTE Steps 21 and 22 are not applicable to the 47' MLB.		
21. Locate the fire pump and state the gallons per minute that it can deliver.	_____ _____ _____	_____ _____ _____
22. State the maximum engine RPMs allowable with the fire pump engaged.	_____ _____ _____	_____ _____ _____
23. Locate and state the purpose of the installed bilge pump(s).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-05-TYPE **Energize the Electrical and Electronic Systems on the Boat**

References
a. Electrical/Electronic Operator's Manuals
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time onboard each boat type. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must energize the boat's electrical and electronic systems following the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Locate AC shore-tie panel and de-energize the following power switches: a. Battery charger b. Shore-tie power breaker c. Electronic test receptacle d. Engine heaters (hot starts) e. Electric space heaters/HVAC f. Engine room receptacle	_____ _____ _____	_____ _____ _____
2. Secure shore-tie power pierside.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Ensure all power switches are in the off position, both at the power panels and on the individual electrical and electronic units.	_____ _____ _____	_____ _____ _____
4. Locate and energize the following circuit breaker panels and power switches if applicable to boat type: a. Main breakers b. General lighting c. Starter motors d. Engine alarm system	_____ _____ _____	_____ _____ _____
5. Notify Coxswain/Engineer that the power switches listed above have been energized so that the main engines can be started.	_____ _____ _____	_____ _____ _____
6. Energize the following power switches, as applicable: a. Engine space lights b. Blue lights c. Towing lights d. Siren/loudhailer e. Hot cups f. Sidelights g. Searchlights h. Individual electronics equipment i. Compass and all gauge lights j. Cabin heaters/HVAC k. Other interior lights l. Normal running lights	_____ _____ _____	_____ _____ _____
7. Locate and energize the following power switches on the DC power panel: a. Loudhailer b. Dock lights c. All radios	_____ _____ _____	_____ _____ _____
8. Energize and check power switches at the individual electronic and electric units for proper operation.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-06-TYPE **Conduct a Pre-Start Checkoff for the Boat**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed at any time onboard each boat type while pierside. Trainee must accomplish the task without prompting or use of a reference.

Standards Task steps must be completed, without error and in sequential order, using the steps applicable to the boat type.

Performance Criteria	Completed (Initials)	Boat Type
1. Secure shore power at pierside.	_____ _____ _____	_____ _____ _____
2. Secure shore power at the boat's power panel.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Disconnect shore-tie cable.	_____ _____ _____	_____ _____ _____
4. Ensure that all electrical power switches are in the off position both at the power panel and on individual units.	_____ _____ _____	_____ _____ _____
5. Energize main breaker at the circuit breaker panel.	_____ _____ _____	_____ _____ _____
6. Energize general lighting at the circuit breaker panel.	_____ _____ _____	_____ _____ _____
7. Check bilges for excessive fuel or water.	_____ _____ _____	_____ _____ _____
8. Locate dipsticks and check engine and gear oil levels.	_____ _____ _____	_____ _____ _____
9. Check engine coolant level.	_____ _____ _____	_____ _____ _____
10. Open sea suction valves and check sea strainers for cleanliness.	_____ _____ _____	_____ _____ _____
11. Check and open fuel line valves and return valves.	_____ _____ _____	_____ _____ _____
12. Sound fuel tanks using the sounding rod.	_____ _____ _____	_____ _____ _____
13. Check drain valve on the primary strainer of filter for water.	_____ _____ _____	_____ _____ _____
14. Check all belts for proper tension.	_____ _____ _____	_____ _____ _____
15. Check air intake on turbo chargers for cleanliness.	_____ _____ _____	_____ _____ _____
16. Ensure engine room is free of all loose gear.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-07-TYPE **Start the Boat**

References
a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions
Task should be performed at any time onboard each boat type while pierside. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must, without error, start the engine(s) on the applicable boat type in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct pre-start checkoff, ensuring that main breaker and general lighting systems are energized.	_____	_____
2. Place throttles in neutral position.	_____	_____
3. Throw switches to energize starting systems.	_____	_____
4. Push down engine shutdown cables (T Handles).	_____	_____
5. Depress starter button(s).	_____	_____
6. Check for overboard discharge.	_____	_____
7. Wait thirty seconds and repeat the procedure in steps 4 and 5 if engine does not start.	_____	_____
8. State likely causes for an engine not starting.	_____	_____
9. State recommended engine temperature readings before applying a load (engaging the engine).	_____	_____
10. Check correct oil and fuel pressures and temperature, while engines are warm.	_____	_____
11. Check for external water or oil leaks, or any other abnormal conditions.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-08-TYPE	**Conduct a Pre-Underway Checkoff for the Boat**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Appendix A* b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	Task should be performed at any time onboard each boat type while pierside. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must, without error, conduct a pre-underway checkoff for the boat. Procedure should be accomplished in accordance with the steps listed below applicable to the boat.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct daily boat checkoff using the checkoff list provided.	_____ _____ _____	_____ _____ _____
2. Brief the crew, fully covering the following items: a. Purpose of the mission b. Any special circumstances concerning the mission c. Working radio frequency to be used for the mission d. Plan of action at destination e. Route to be taken to destination f. Expected weather and sea conditions g. Risk assessment with crew using green-amber-red (GAR)/severity-probability-exposure (SPE) or similar applicable models	_____ _____ _____	_____ _____ _____
3. Set watertight integrity.	_____ _____ _____	_____ _____ _____
4. Secure boat for sea (no loose gear).	_____ _____ _____	_____ _____ _____
5. Ensure all equipment necessary to the mission, including the complete boat's outfit, is onboard (using daily boat checkoff).	_____ _____ _____	_____ _____ _____
6. Ensure crew members are wearing required survival gear.	_____ _____ _____	_____ _____ _____
7. Receive engineering report from the boat's engineer, including the following: a. Fuel onboard b. Oil levels – engine and marine gears c. Cooling water level d. Hydraulic steering oil e. Sea suction open f. Engine and marine gear oil pressure g. Electrical and electronic systems status h. Navigational lights (night or reduced visibility) status i. Shore-tie status j. Overboard discharge	_____ _____ _____	_____ _____ _____
8. Test the following electronic equipment: a. Radio b. Depth sounder c. Radar d. All navigation systems	_____ _____ _____	_____ _____ _____
NOTE Coxswain must take throttle control at the appropriate conning station on a 47' MLB.		

Performance Criteria	Completed (Initials)	Boat Type
9. Test engine controls for both forward and astern propulsion; note the reaction for both directions.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-09-TYPE **Shifting Steering and Throttle Stations**

References a. *47' Motor Lifeboat Operator's Handbook*, COMDTINST 16114.25 (series)

Conditions Task should be performed at any time onboard the unit's boat. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, explain and demonstrate the steps to be taken to shift steering and throttle stations.

Performance Criteria	Completed (Initials)	Boat Type
1. Activate one of the three throttle stations after engine start-up.	_____ _____ _____	_____ _____ _____
2. Place throttle station in neutral for engine warm-up.	_____ _____ _____	_____ _____ _____
3. Energize all steering stations.	_____ _____ _____	_____ _____ _____
4. State steering default location.	_____ _____ _____	_____ _____ _____
5. Shift steering and throttle stations while not making way.	_____ _____ _____	_____ _____ _____
6. Shift steering and throttle stations while making way.	_____ _____ _____	_____ _____ _____
7. Energize and operate emergency backup throttle station.	_____ _____ _____	_____ _____ _____
8. Place throttle station in low idle.	_____ _____ _____	_____ _____ _____
9. Place throttle station in sync mode.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-10-TYPE **Conduct a Normal Cruising Checkoff**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Appendix B*

Conditions Task should be performed at any time onboard each boat type while pierside. The boat's complete outfit and daily checklist is required. Trainee must accomplish the task without prompting or use of a reference, other than the daily boat checklist.

Standards Checkoff must be completed using the unit's daily boat checkoff sheet. Trainee should ensure that all boat equipment is in its proper place, and in serviceable condition. At the completion of the task, the boat should be ready for operations.

Performance Criteria	Completed (Initials)	Boat Type
1. Properly post and brief lookouts.	_____ _____ _____	_____ _____ _____
2. Stow all boat equipment properly.	_____ _____ _____	_____ _____ _____
3. Check propulsion machinery and associated instruments.	_____ _____ _____	_____ _____ _____
4. Check all electronic gear.	_____ _____ _____	_____ _____ _____
5. Note and correct all discrepancies.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-11-TYPE **Secure the Boat After Operations**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task should be performed while pierside after each boat type has been operated for a minimum of forty-five minutes. Trainee will conduct all of the procedures necessary to secure the boat after operations. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must, without error, secure the boat after operations. Task must be accomplished in the order of presentation.

Performance Criteria	Completed (Initials)	Boat Type
1. Allow engines to idle for 4 to 5 minutes.	_____ _____ _____	_____ _____ _____
2. Place all power switches in the off position, both at the individual electrical and electronic units and at the power panels.	_____ _____ _____	_____ _____ _____
3. Shut down engine(s) by pulling up on the engine stops or securing the ignition system.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
4. Secure main breaker and starter motor switches.	_____ _____ _____	_____ _____ _____
5. Reconnect shore-tie and energize pierside power.	_____ _____ _____	_____ _____ _____
6. Energize shore-tie panel main power breaker and place battery charger and engine heater (hot starts) power switches in the on position.	_____ _____ _____	_____ _____ _____
7. Conduct the following engineering checks: a. Sound and record fuel tanks. b. Top off fuel tank(s). c. Check oil levels in the engines, marine gears, and add if necessary. d. Check hydraulic steering oil and add if necessary. e. Pump bilges using shore-side equipment and wipe down engines. f. Make a visual check of all hoses, wiring, belts, and other items subject to wear.	_____ _____ _____	_____ _____ _____
8. Stow all gear in accordance with the boat's daily checkoff list.	_____ _____ _____	_____ _____ _____
9. Activate bilge alarm systems.	_____ _____ _____	_____ _____ _____
10. Set watertight integrity.	_____ _____ _____	_____ _____ _____
11. Secure all doors and windows.	_____ _____ _____	_____ _____ _____
12. Wash boat down with freshwater.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-12-TYPE **Get the Boat Away from a Pier**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section D*
b. *Chapman Piloting*

Conditions
Task will be performed onboard each boat type at any time of day or night. Wind and current must equal a speed of at least fifteen knots and be setting the boat against the pier. The boat must be sitting port side to the pier or mooring object. All mooring lines must be attached before task is begun. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Task must be accomplished within five minutes of beginning the evolution.

Performance Criteria	Completed (Initials)	Boat Type
1. State the expected effects of the wind and current on the movement of the boat described.	_____ _____ _____	_____ _____ _____
2. Brief crew on the procedure to be used and their duties.	_____ _____ _____	_____ _____ _____
3. Take in all mooring lines except the bow spring line.	_____ _____ _____	_____ _____ _____
4. Clear stern of the boat by going ahead slowly and springing the stern out.	_____ _____ _____	_____ _____ _____
5. Take in bow spring line when stern is well clear of the pier.	_____ _____ _____	_____ _____ _____
6. Back boat down until clear with room to move ahead.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-13-TYPE **Maneuver the Boat in Tight Quarters**

NOTE Task **MAY BE DEFERRED** for cutter boats operating in open waters.

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10*
b. *Chapman Piloting*

Conditions
Task should be performed onboard each boat type at any time, in any type of weather conditions. Task must be accomplished within the confines of a slip or other area where maneuverability is limited. At the beginning of the task, the boat must be facing into the slip. Trainee will bring the boat completely about and out of the slip. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must turn the boat 180 degrees within the confines of the slip or other limited area in accordance with the steps listed below. Trainee must perform the task without casualty to personnel or boat.

Performance Criteria	Completed (Initials)	Boat Type
1. Describe expected effects of the wind and current during maneuvering of the boat.	_____ _____ _____	_____ _____ _____
2. Brief crew on procedure to be used and their duties.	_____ _____ _____	_____ _____ _____
3. Maneuver away from pier and moved slowly ahead.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
4. Engage engine(s) and apply rudder in order to bring the stern around.	_____ _____ _____	_____ _____ _____
5. Back boat as far as possible before moving ahead.	_____ _____ _____	_____ _____ _____
6. Shift rudder and move boat ahead, bringing the boat out of the confined area.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-14-ANY **Come About in a Narrow Channel**

NOTE Task **MAY BE DEFERRED** for cutter boats operating in open waters.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section G*

Conditions Task will be performed onboard each boat type at any time, in any type of weather conditions. Task must be accomplished within the confines of a narrow channel, river, or harbor entrance with limited maneuverability. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must turn the boat 180 degrees within the confines of a narrow channel, river, or harbor entrance in accordance with the steps listed below. Trainee must perform the task without casualty to personnel or boat.

Performance Criteria	Completed (Initials)
1. Brief crew on procedure to be used and their duties.	_____
2. Maintain a position in the center of the channel for at least three minutes.	_____
3. Bring boat around in the channel from an into the current position to a with the current position.	_____
4. Bring boat around in the channel from a with the current position to an into the current position.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-15-TYPE **Operate the Boat and Apply its Handling Characteristics in a Following Sea**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section F*
b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions

For MLB, UTB and SPC (surf):	Task will be performed while underway during daylight, in 15- to 30-knot winds, and following seas of not less than 3 feet but not greater than 6 feet.
For all others:	Task will be performed while underway during daylight, in 10- to 30-knot winds, and following seas of not greater than 4 feet.

Trainee must accomplish the task without prompting or use of a reference.

NOTE Surf, breaking bars, and adverse inlets are to be avoided while doing this task.

Standards

Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Describe expected effects of a following sea upon the handling characteristics of the boat.	_____ _____ _____	_____ _____ _____
2. State operational limitations of the boat pertaining to the following conditions: a. Following seas in open water b. Following seas in surf or bar conditions c. Towing in following seas d. Maximum wind	_____ _____ _____	_____ _____ _____
3. Brief crew on procedure to be used and their duties before beginning operations.	_____ _____ _____	_____ _____ _____
4. Keep boat's stern square to the seas to prevent broaching.	_____ _____ _____	_____ _____ _____
5. Steer into any tendency of the stern to slip sideways.	_____ _____ _____	_____ _____ _____
6. Ride on the back of the swells and avoid allowing the boat to ride on the face of a swell.	_____ _____ _____	_____ _____ _____
7. Slow down, when necessary, to allow overtaking seas to pass beneath the boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-16-TYPE **Maneuver in Heavy Weather**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section F*

Conditions Task should be performed onboard each boat type at any time, during heavy weather.

Standards Trainee must demonstrate knowledge of and perform the task to the minimum standards in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Demonstrate knowledge of vessel motions to maintain stability.	_____ _____ _____	_____ _____ _____
2. Approach seas at correct angles to keep propellers and rudders working.	_____ _____ _____	_____ _____ _____
3. Demonstrate the ability to keep the vessel in the water to prevent injury to the crew and avoid damage to the vessel.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-17-TYPE **Maneuver in Rivers**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section G*

Conditions Task should be performed at any time, on a river within the unit's area of responsibility (AOR).

Standards Trainee must perform the task to the minimum standards in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. Prevent sheering by controlling bank cushion and suction.	_____ _____ _____	_____ _____ _____
2. Demonstrate "Hug the Point" maneuver.	_____ _____ _____	_____ _____ _____
3. Demonstrate "Stay in the Bend" maneuver.	_____ _____ _____	_____ _____ _____
4. Demonstrate "Proceed on the Bend Side, Middle of the Channel" maneuver.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-18-TYPE **Identify Heavy Weather Terms**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions Task should be performed at any time, at facilities available to the unit.

Standards Trainee must demonstrate knowledge of and perform the task to the minimum standards in accordance with the steps listed below.

Performance Criteria	Completed (Initials)	Boat Type
1. State definition of surf.	_____ _____ _____	_____ _____ _____
2. Discuss the effects of wind on waves.	_____ _____ _____	_____ _____ _____
3. Determine wave height using height of eye on freeboard.	_____ _____ _____	_____ _____ _____
4. Determine wave height by comparing with floating structures.	_____ _____ _____	_____ _____ _____
5. Determine wave height by comparing with fixed structures.	_____ _____ _____	_____ _____ _____
6. Determine wave height using a depth sounder.	_____ _____ _____	_____ _____ _____
7. Identify the types of breaking waves.	_____ _____ _____	_____ _____ _____
8. Identify windows, wave saddles, close outs, and the high and low side of a wave.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-19-TYPE **Correct for Hard Chine Lock-Up**

References
a. *47' Motor Lifeboat Operator's Handbook*, COMDTINST M16114.25 (series)
b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8*

Conditions Task should be performed while underway in moderate to heavy weather.

Standards In response to the instructor, the trainee must, without error, explain and demonstrate the steps to be taken if hard chine lock-up occurs.

Performance Criteria	Completed (Initials)	Boat Type
1. State the sea conditions that will put the 47' MLB in hard chine lock-up.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. State the corrective action for hard chine lock-up.	_____ _____ _____	_____ _____ _____
3. State action to be taken to prevent hard chine lock-up.	_____ _____ _____	_____ _____ _____
4. Inform crew of possibility of hard chine lock-up.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-20-TYPE **Moor the Boat**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10*

Conditions Task will be performed onboard each boat type at any time of day or night. Wind and current must equal a speed of at least fifteen knots and be setting the boat away from the pier. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Mooring must be accomplished cleanly without extended maneuvering for position correction within five minutes of beginning the evolution.

Performance Criteria	Completed (Initials)	Boat Type
1. State expected effects of the wind and current on the mooring of the boat.	_____ _____ _____	_____ _____ _____
2. Brief crew on procedure to be used and their duties.	_____ _____ _____	_____ _____ _____
3. Instruct one crew member to stand by on the bow with a fender.	_____ _____ _____	_____ _____ _____
4. Approach pier slowly on an angle.	_____ _____ _____	_____ _____ _____
5. Ensure crew member secures the bow spring line when the bow is alongside the intended mooring point on the pier.	_____ _____ _____	_____ _____ _____
6. Apply full rudder away from the pier, spring or pivot stern toward the pier.	_____ _____ _____	_____ _____ _____
7. Secure stern line, bowline, and aft spring line.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-21-TYPE **Anchor the Boat**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*

Conditions

Task will be performed onboard each boat type while underway, at any time of the day or night. Instructor should provide the trainee with a general location for anchorage. Trainee should select the specific spot for placing the anchor. Trainee must accomplish the task without prompting or use of a reference.

For MLB and SPC (surf):	Task will be performed while underway during daylight, in 15- to 30-knot winds, and seas of not less than 6 feet but not greater than 8 feet.
For UTB:	Task will be performed while underway during daylight, in 10- to 20-knot winds, and seas of not less than 3 feet but not greater than 6 feet.
For all others:	Task will be performed while underway during daylight, in 0- to 15-knot winds, and seas not greater than 4 feet.

Standards

Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Boat must be anchored with room to swing. Scope of anchor line should be based upon the following guidelines:

Calm to moderate seas:	3 to 5 times the water depth
Heavy seas:	5 to 7 times the water depth

Performance Criteria	Completed (Initials)	Boat Type
1. Select and plot position for placement of the anchor; note the depth of water, bottom contours, and characteristics.	_____ _____ _____	_____ _____ _____
2. Brief crew on procedures to be used and establish crew hand signals.	_____ _____ _____	_____ _____ _____
3. Pilot boat into the selected position.	_____ _____ _____	_____ _____ _____
4. State expected effects of wind and current on the boat.	_____ _____ _____	_____ _____ _____
5. Determine scope of anchoring by checking the depth of water and the room available for boat swing.	_____ _____ _____	_____ _____ _____
6. Ensure crew rigs the anchor.	_____ _____ _____	_____ _____ _____
7. Approach anchorage keeping the boat headed into the wind and/or current.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
8. Check boat's headway at the charted anchoring position.	_____ _____ _____	_____ _____ _____
9. Ensure crew puts the anchor over the side; hand over hand, without throwing it.	_____ _____ _____	_____ _____ _____
NOTE Line is not tended from storage reel on 47' MLB.		
10. Ensure crew lowers the anchor to the bottom with a round turn around the bitt.	_____ _____ _____	_____ _____ _____
11. Back boat down slowly, away from the anchor with the crew slowly veering (paying out) the line until the anchor is held.	_____ _____ _____	_____ _____ _____
12. Veer line until proper scope is reached.	_____ _____ _____	_____ _____ _____
13. Ensure crew makes line fast to the forward bitt with at least three figure eights.	_____ _____ _____	_____ _____ _____
14. Notify unit that boat is anchored and give position.	_____ _____ _____	_____ _____ _____
15. Fix actual position and visual anchor bearings (minimum of 3), or establish and record radar ranges.	_____ _____ _____	_____ _____ _____
16. Check and record water depth using depth finder.	_____ _____ _____	_____ _____ _____
17. Ensure the anchor is not dragging.	_____ _____ _____	_____ _____ _____
18. Set anchor watch, brief crew members on responsibilities.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-03-22-TYPE	**Weigh the Boat's Anchor**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*
Conditions	Task will be performed onboard each boat type upon completion of TASK COX-03-21-TYPE. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below.

Performance Criteria	**Completed (Initials)**	**Boat Type**
1. Brief crew on procedure to be used and establish communications.	_____ _____ _____	_____ _____ _____
2. Move boat ahead slowly, using the engines.	_____ _____ _____	_____ _____ _____
3. Ensure crew takes up the slack in the anchor line and fakes it on deck out of the way.	_____ _____ _____	_____ _____ _____
4. Make line off when anchor is at short stay.	_____ _____ _____	_____ _____ _____
5. Ensure crew breaks loose the anchor.	_____ _____ _____	_____ _____ _____
6. Make the anchor line around the forward bitt and advance the boat in a wide circle if the anchor does not free.	_____ _____ _____	_____ _____ _____
7. Ensure the anchor line does not approach the boat's screw(s).	_____ _____ _____	_____ _____ _____
8. Ensure crew brings anchor onboard, tending line at all times.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section D. Rules of the Road

Introduction

The following are objectives of Division Four:

- **Display** competence in the knowledge and use of the International-Inland Rules of the Road.

In this Section

This Section contains the following task:

Task Number	Task	See Page
COX-04-01-ANY	Successfully Complete the Navigation Rules Requirements for both Advancement and Coxswain Certification	4-38

TASK COX-04-01-ANY **Successfully Complete the Navigation Rules Requirements for both Advancement and Coxswain Certification**

NOTE Task **DOES NOT** apply to cutter boat trainees who will only operate within sight of the cutter. Certification letters must state coxswain's operating limitations.

NOTE Members not completing this task will be **ineligible** for the coxswain insignia.

References

a. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series)

b. *U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I*, COMDTINST M16114.32 (series)

Conditions

Task may be performed at any time in a manner prescribed by the above references and the course or examination issuing authority.

Standards

Trainee must either successfully complete an approved Merchant Marine Rules of the Road Exam or receive a passing score on the CG Institute NAVRULS End-of-Course Test, Deck Watch Officer Examination, or the Merchant Marine Rules of the Road Exam.

Performance Criteria	Completed (Initials)
1. Receive passing score on the CG Institute NAVRULS End-of-Course Test.	_____
OR	
2. Receive passing score on the Deck Watch Officer Examination.	_____
OR	
3. Receive passing score on the Merchant Marine Rules of the Road Exam (Module 054XX)	_____
NOTE Successful completion of this requirements must be reported by forwarding a copy of the final test results or completion letter to CG INST (NRT), 5900 SW 64th Street, Oklahoma City, OK 73169-6990.	
OR	
4. Successfully complete an approved Rules of the Road course listed at www.uscg.mil/hq/g-m/marpers/examques/rules.pdf.	_____

Performance Criteria	Completed (Initials)
NOTE Successful completion of this requirements must be reported by forwarding a copy of t he final test results or completion letter to CG INST (NRT), 5900 SW 64th Street, Oklahoma City, OK 73169-6990.	

Instructor _____ **Date** _____

Comments _____

_____

Section E. Boat Piloting and Navigation

NOTE The tasks within this Section **DO NOT** apply to cutter boat trainees who will only operate within sight of the cutter. Certification letters must state coxswain's operating limitations.

Introduction

The following are objectives of Division Five:

- **Identify** and **state** the use of various common navigational references.
- **Demonstrate** the ability to pilot using the installed electronic navigational equipment found on U.S. Coast Guard boats.
- **Demonstrate** the ability to pilot a U.S. Coast Guard boat using dead reckoning (DR) techniques.
- **Demonstrate** knowledge of the local operations area.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-05-01-ANY	Identify Navigational Publications	4-41
COX-05-02-ANY	Determine a Compass Course from a True Course	4-41
COX-05-03-ANY	Pilot the Boat Using Dead Reckoning (DR) Techniques	4-42
COX-05-04-ANY	Pilot a Boat Using "Seaman's Eye"	4-43
COX-05-05-ANY	Determine the Location of a Boat Using Radar Ranges and Bearings	4-43
COX-05-06-ANY	Conn a Boat Using Radar	4-44
COX-05-07-TYPE	Operate the GPS/DGPS	4-45
COX-05-08-TYPE	Determine the Location of a Boat Using GPS/DGPS	4-47
COX-05-09-TYPE	Pilot a Boat Using GPS/DGPS	4-48
COX-05-10-TYPE	Operate the GPS/DGPS	4-49
COX-05-11-TYPE	Operate, Determine the Location of, and Pilot a Non-Standard Boat Using GPS/DGPS	4-50
COX-05-12-TYPE	Operate Electronic Charting	4-51
COX-05-13-TYPE	Operate the Auto Pilot	4-52
COX-05-14-ANY	Pilot a Boat Using All Electronic Equipment, a Navigation Kit, Charts, and Tables	4-53
COX-05-15-ANY	Distance, Speed, and Time	4-54
COX-05-16-ANY	Demonstrate Plotting a Position Using LORAN-C Time Difference (TD) Coordinates	4-54

TASK COX-05-01-ANY **Identify Navigational Publications**

References

a. Coast Pilot
b. *Light List*
c. Nautical Charts of Local Area
d. Nautical Chart Symbols, Abbreviations and Terms, Chart No. 1
e. *Navigation Rules International-Inland*, COMDTINST M16672.2 (series)
f. Notice to Mariners/Local Notice to Mariners
g. *The American Practical Navigator*
h. Tide Tables/Tidal Current Tables

Conditions Task may be completed at any time. Trainee must accomplish the task without prompting or use of any further reference.

Standards Trainee must identify, without error, the commonly used navigational publications listed below, and state the use of each one. Trainee must specify those volumes or chapters of these publications that pertain to the local operating area.

Performance Criteria	Completed (Initials)
1. State and identify Navigation Rules and their use.	_____
2. Identify and state the use of the Coast Pilot and the appropriate entries for local area.	_____
3. Identify and state the use of the *Light List* and the appropriate entries for local area.	_____
4. Identify and state the use of the Local Notice to Mariners.	_____
5. Identify and state the use of the Tide Tables and the appropriate entries for the local area.	_____
6. Identify and state the use of the Tidal Current Tables and the appropriate entries for the local area.	_____
7. Identify all Nautical Charts for Local Area.	_____
8. Identify and state the use of Chart No. 1.	_____
9. Identify and state the use of *The American Practical Navigator*.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-02-ANY **Determine a Compass Course from a True Course**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section C*
b. *The American Practical Navigator*

Conditions Task should be performed at any time, given a chart of the local area and a deviation table for any unit boat. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must, without error, convert given true courses into compass courses for the boat used in accordance with the steps listed below.

Performance Criteria	Completed (Initials)
1. Identify magnetic variation and the annual change for the local area.	_____

Performance Criteria	Completed (Initials)
2. Plot and label from five positions provided by the instructor.	_____
3. Connect the five positions with true courses.	_____
4. Determine and list magnetic and compass course for each true course.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-03-ANY **Pilot the Boat Using Dead Reckoning (DR) Techniques**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*

b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)

c. *The American Practical Navigator*

Conditions

Task must be performed while underway, day or night, in calm to moderate weather conditions, using only the installed compass, speed/engine RPM curve, stopwatch, navigational kit, and charts found on the boat. The course to be run must be at least five miles long with at least four turns. All courses and speeds to turn points are to be given to the trainee by the instructor. Trainee must accomplish the task without prompting or use of a reference.

Standards

All turn point locations must be within one quarter of a nautical mile. All plotting on charts must be done using proper chart notation and symbols. All locations must be verified by taking a simultaneous sounding using the fathometer (if available). The instructor should verify all locations using the boat's installed navigation systems.

Performance Criteria	Completed (Initials)
1. Lay out compass course on the chart indicating predicted turns.	_____
2. Predict estimated time of arrival (ETA) to first turn point.	_____
3. Pilot boat to the first predicted position using only the boat's compass, speed/engine RPM curve, and stopwatch.	_____
4. Predict ETA to next turn point with course and correct speed to make good to second position.	_____
5. Pilot boat to the next predicted position using only the boat's compass, speed/engine RPM curve, and stopwatch.	_____
6. Repeat steps 4 and 5 until voyage is complete.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-04-ANY **Pilot a Boat Using "Seaman's Eye"**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. *The American Practical Navigator*

Conditions

Task must be performed while underway, day or night, in calm to moderate weather conditions. Task should be run over a course provided by the instructor of at least 3 nautical miles and containing at least 8 course changes, using only a local chart of the area, local knowledge of the area, aids to navigation, terrestrial landmarks, and "Seaman's Eye". Visibility must be at least 1 nautical mile. Trainee must accomplish the task without prompting or use of a reference.

Standards

Courses must be steered directly without wandering or requiring any stopping or back tracking in order to stay on course or within any channels. At no time may the vessel or crew be put in danger.

Performance Criteria	Completed (Initials)
1. Lay out and label courses on the chart.	_____
2. Clear the pier and start boat on course.	_____
3. Identify terrestrial landmark or aids to navigation to be used to steer to first turn point.	_____
4. Steer boat directly to first turn point.	_____
5. Turn boat upon reaching first turn point.	_____
6. Identify terrestrial landmark or aids to navigation to be used to steer to second turn point.	_____
7. Steer boat directly to next turn point.	_____
8. Repeat steps 5 through 7 until voyage is complete.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-05-ANY **Determine the Location of a Boat Using Radar Ranges and Bearings**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. Radar Operator's Handbook
d. *The American Practical Navigator*

Conditions

Task must be performed while underway, at night or during a period of restricted visibility, in calm to moderate weather, using only the installed radar, compass, fathometer, navigation kit, and charts found on the boat. The charts used should be harbor charts or some other larger scale charts (no smaller than 1:80,000). Trainee must accomplish the task without prompting or use of a reference.

Standards

All fixed positions must be accurate to within one-tenth of a nautical mile using two radar LOPs. All plotting on charts should be done using proper chart notation and symbols. All locations should be verified by taking a simultaneous sounding using the fathometer.

Performance Criteria	Completed (Initials)
1. Activate and properly tune radar set.	_____
2. Determine position of the boat within standards while underway, but with no way-on.	_____
3. Determine position of the boat within standards while underway at slow speed.	_____
4. Take two or more fixes over a course of at least three miles.	_____
5. Verify all positions by utilizing the fathometer to check the soundings.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-06-ANY **Conn a Boat Using Radar**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. Radar Operator's Handbook

Conditions

Task must be performed while underway, at night or during periods of restricted visibility, in calm weather. Task should be run over a course provided by the instructor of at least 3 nautical miles and containing at least 5 course changes (of 10 degrees or more), using only a local chart of the area, local knowledge of the area, aids to navigation, terrestrial landmarks, and the boat's radar. Trainee must accomplish the task without prompting or use of a reference.

Standards

Courses must be steered directly without wandering or requiring any stopping or back tracking in order to stay on course or within any channels. Two or more fixes must be taken over a course of at least 3 nautical miles. At no time may the vessel or crew be put in danger.

Performance Criteria	Completed (Initials)
1. Activate and properly tune radar set.	_____
2. Correctly lay out courses on the chart.	_____
3. Steer boat directly to turn point using proper helm commands.	_____
4. State range to closest point of land.	_____
5. State range and bearing to local hazards to navigation.	_____
6. Use proper commands to steer boat directly to first turn point.	_____
7. Plot turn bearing correctly and utilize for turn.	_____
8. Repeat steps 3 through 7 until voyage is completed.	_____
9. Identify contacts and take avoidance, if necessary.	_____
10. Take two or more fixes over a course of at least 3 nautical miles.	_____
11. Determine speed over ground using the radar.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-07-TYPE **Operate the GPS/DGPS**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. GPS/DGPS Operator's Handbook
d. *The American Practical Navigator*

Conditions

Task should be performed onboard each boat type while underway or moored, day or night, under any weather conditions, using only the installed GPS/DGPS. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, t he trainee must, without error, perform the steps listed below. Each step should be completed within 5 minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify and state the use of the soft, special, and function keys.	_____ _____ _____	_____ _____ _____
2. Identify the three "traffic lights" and state the meaning of each.	_____ _____ _____	_____ _____ _____
3. Energize the GPS/DGPS.	_____ _____ _____	_____ _____ _____
4. Adjust screen for daytime and nighttime viewing.	_____ _____ _____	_____ _____ _____
5. Demonstrate entering Setup (Presentation 1:1).	_____ _____ _____	_____ _____ _____
6. Determine: a. Range in nautical miles b. Speed, drift in knots c. Antenna height in feet d. 24-hour time selected e. Navigation in rhumb line	_____ _____ _____	_____ _____ _____
7. Enter boat data (Setup 2:1). a. Ensure appropriate boat type. b. Ensure appropriate antenna height.	_____ _____ _____	_____ _____ _____
8. Enter geographical location (Setup 4:1). a. Ensure appropriate time and time offset. b. Ensure appropriate datum selected, referencing local charts.	_____ _____ _____	_____ _____ _____
9. Demonstrate entering Sailplan 2 (Waypoint Bank).	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
10. Enter a minimum of 5 waypoints into the waypoint bank using positions provided by the instructor. Name each waypoint either by text information or number.	_____ _____ _____	_____ _____ _____
11. Demonstrate creating a sailplan utilizing the waypoints previously entered in the waypoint bank.	_____ _____ _____	_____ _____ _____
12. Demonstrate creating a route utilizing previously entered waypoints.	_____ _____ _____	_____ _____ _____
13. Demonstrate entering appropriate waypoint pass criteria (recommend using "D").	_____ _____ _____	_____ _____ _____
14. Demonstrate soft key proficiency in Sailplan 2 (Waypoint Bank).	_____ _____ _____	_____ _____ _____
15. Enter PLOTTER and demonstrate proficiency.	_____ _____ _____	_____ _____ _____
16. Demonstrate clear track.	_____ _____ _____	_____ _____ _____
17. Demonstrate activating the man overboard (MOB) function.	_____ _____ _____	_____ _____ _____
18. Locate MOB position in the Waypoint Bank.	_____ _____ _____	_____ _____ _____
19. Demonstrate re-enabling the MOB function.	_____ _____ _____	_____ _____ _____
20. Enter ALARM LIMITS, Alarm 1.	_____ _____ _____	_____ _____ _____
21. Demonstrate appropriate alarm activation. a. X-track error limit b. Waypoint, approach distance	_____ _____ _____	_____ _____ _____
22. Set appropriate alarm limits.	_____ _____ _____	_____ _____ _____
23. Enter WARNING AREAS, Alarm 3.	_____ _____ _____	_____ _____ _____
24. Program warning areas (minimum of 2).	_____ _____ _____	_____ _____ _____
25. Enter WARNINGS, Alarm 4. Check display.	_____ _____ _____	_____ _____ _____
26. Enter ALARM STATUS, Alarm 5. Acknowledge all active alarms.	_____ _____ _____	_____ _____ _____
27. Enter DGPS Control, GPS 3.	_____ _____ _____	_____ _____ _____
28. Activate DGPS mode (if installed).	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
29. Enter SETUP, Accessories, National Marine Electronics Association (NMEA) Data Output.	_____ _____ _____	_____ _____ _____
30. Ensure NMEA 1 and NMEA 2 are displaying proper configurations while in DGPS mode.	_____ _____ _____	_____ _____ _____
31. Locate DGPS icon.	_____ _____ _____	_____ _____ _____
32. Power off unit.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-08-TYPE **Determine the Location of a Boat Using GPS/DGPS**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. GPS/DGPS Operator's Handbook
d. *The American Practical Navigator*

Conditions

Task must be performed on each boat type while underway, day or night, under any weather conditions, using only the installed GPS/DGPS, navigation kit, and local charts of the area. Trainee must accomplish the task without prompting of use of a reference.

Standards

The location must be within 100 yards. All plotting on charts should be done using proper chart notation and symbols.

Performance Criteria	Completed (Initials)	Boat Type
1. Energize GPS/DGPS.	_____ _____ _____	_____ _____ _____
2. Enter GPS 2 (GPS Status) and verify quality of satellite signal and number of satellites tracked.	_____ _____ _____	_____ _____ _____
3. Plot position of boat using latitude and longitude coordinates obtained from the boat's GPS/DGPS.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-09-TYPE **Pilot a Boat Using GPS/DGPS**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. GPS/DGPS Operator's Handbook
d. *The American Practical Navigator*

Conditions

Task must be performed onboard each boat type while underway, day or night, under any weather conditions. Task must be run over a course provided by the instructor of at least 3 nautical miles and containing at least 4 course changes, using only the installed GPS/DGPS, a stopwatch or clock, navigation kit, and local charts of the area. Trainee must accomplish the task without prompting or use of a reference.

Standards

The boat must remain within one-tenth of a nautical mile of the intended course. All turns must be made within 50 yards of the turn point. Times must be within one minute (plus or minus) of the estimated time of turn and speeds must be within one knot. Course must be completed within 5 minutes (plus or minus) of the ETA to the final destination. Two or more fixes are required on legs of at least 3 nautical miles. All chart plotting must be accomplished using proper notation and symbols. The instructor should verify positions and speeds using the available navigational instruments.

Performance Criteria	Completed (Initials)	Boat Type
1. Activate the GPS/DGPS.	_____ _____ _____	_____ _____ _____
2. Clear Sailplan 1.	_____ _____ _____	_____ _____ _____
3. Determine and lay out courses and waypoints for turns on the chart.	_____ _____ _____	_____ _____ _____
4. Predict boat's speed and ETA to first turn point.	_____ _____ _____	_____ _____ _____
5. Enter waypoints into the GPS/DGPS.	_____ _____ _____	_____ _____ _____
6. Insert waypoints into a sailplan.	_____ _____ _____	_____ _____ _____
7. Enter Navigate mode (Navigate 2), and reset cross track error (XTE) function. (XTE reset only at beginning of run).	_____ _____ _____	_____ _____ _____
8. Activate the waypoint function on the radar.	_____ _____ _____	_____ _____ _____
9. Clear boat from pier and start on course.	_____ _____ _____	_____ _____ _____
10. Determine boat's speed using the GPS/DGPS, stopwatch, or clock.	_____ _____ _____	_____ _____ _____
11. Steer boat directly to first turn point.	_____ _____ _____	_____ _____ _____
12. Continue until voyage is complete.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
13. Demonstrate "Reverse Sailplan" for return trip.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-10-TYPE **Operate the GPS/DGPS**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. GPS/DGPS Operator's Handbook
d. *The American Practical Navigator*

Conditions

Task should be performed while underway or moored, day or night, under any weather conditions, using only the installed GPS/DGPS. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, perform the steps listed below. Each step should be completed within 5 minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Energize GPS/DGPS unit.	_____ _____ _____	_____ _____ _____
2. Adjust contrast/back lighting.	_____ _____ _____	_____ _____ _____
3. Determine signal status.	_____ _____ _____	_____ _____ _____
4. Demonstrate the following functions: a. Waypoint b. Event c. Position d. Course Deviation Variance (CDV) e. Route f. MOB g. Alarm h. Navigation i. GOTO	_____ _____ _____	_____ _____ _____
5. Determine horizontal dilution of precision (HDOP) quality.	_____ _____ _____	_____ _____ _____
6. Enter setup menu and ensure the following are correct: a. Map datum b. Variation c. Time d. DGPS selected, if installed e. Date	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-11-TYPE **Operate, Determine the Location of, and Pilot a Non-Standard Boat Using GPS/DGPS**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. GPS/DGPS Operator's Handbook

Conditions Task must be performed while underway, day or night, under any weather conditions. Task must be run over a course of 3 nautical miles, using only an installed or handheld GPS/DGPS, stopwatch or clock, navigation kit, and local charts of the area. Trainee must accomplish the task without prompting or use of a reference.

Standards The boat must remain within one-tenth of a nautical mile of the intended course, and within 3 minutes of the ETA when the final destination is reached.

Performance Criteria	Completed (Initials)	Boat Type
1. Determine and lay out courses and waypoints on the chart.	_____ _____ _____	_____ _____ _____
2. Predict boat's speed and ETA.	_____ _____ _____	_____ _____ _____
3. Enter waypoints into the GPS/DGPS properly.	_____ _____ _____	_____ _____ _____
4. Clear docks and start on course.	_____ _____ _____	_____ _____ _____
5. Steer boat directly to final destination.	_____ _____ _____	_____ _____ _____
6. Determine boat's speed utilizing GPS/DGPS.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-12-TYPE **Operate Electronic Charting**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. RAYCHART Plotter Operator's Handbook

Conditions

Task should be performed while underway or moored, day or night, under any weather conditions, using only the installed chart plotter. Trainee must accomplish the task without prompting or use of a reference.

Standards

In response to the instructor, the trainee must, without error, perform the steps listed below. Each step should be completed within 5 minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Energize the chart plotter unit.	_____ _____ _____	_____ _____ _____
2. Adjust contrast/backlighting.	_____ _____ _____	_____ _____ _____
3. Determine signal status.	_____ _____ _____	_____ _____ _____
4. Operate cursor to identify objects/symbols.	_____ _____ _____	_____ _____ _____
5. Demonstrate the use of the track pad.	_____ _____ _____	_____ _____ _____
6. Demonstrate the MOB function.	_____ _____ _____	_____ _____ _____
7. Demonstrate the mark function.	_____ _____ _____	_____ _____ _____
8. Demonstrate the event function.	_____ _____ _____	_____ _____ _____
9. Demonstrate the display function.	_____ _____ _____	_____ _____ _____
10. Demonstrate the range function.	_____ _____ _____	_____ _____ _____
11. Explain the function of clear and enter.	_____ _____ _____	_____ _____ _____
12. Enter the main menu and demonstrate the following functions: a. Enter, edit, and delete a waypoint b. Start, edit, and delete tracks c. Alarm/timers d. Set up and use a route	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
13. Enter setup menu and ensure the following are correct: a. Map datum b. Variation c. Date/time d. Nautical miles and knots selected	_____ _____ _____	_____ _____ _____
14. Demonstrate how to install/remove chart cards.	_____ _____ _____	_____ _____ _____
15. Turn unit off.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-13-TYPE **Operate the Auto Pilot**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. RAYCHART Plotter Operator's Handbook

Conditions Task should be performed while underway or moored, day or night, under any weather conditions, using only the installed chart plotter. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, perform the steps listed below. Each step should be completed within 5 minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Adjust backlighting.	_____ _____ _____	_____ _____ _____
2. Explain and demonstrate the compass mode.	_____ _____ _____	_____ _____ _____
3. Explain and demonstrate the navigation mode.	_____ _____ _____	_____ _____ _____
4. Explain and demonstrate the power steer mode.	_____ _____ _____	_____ _____ _____
5. Identify and explain all of the alarms.	_____ _____ _____	_____ _____ _____
6. Locate the installed GPS/DGPS providing navigational information.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-14-ANY **Pilot a Boat Using All Electronic Equipment, a Navigation Kit, Charts, and Tables**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14*

b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)

Conditions

Task must be performed while underway at night, under any weather conditions. Task must be run over a course provided by the instructor of at least 10 miles and containing at least 5 course changes (of 10 degrees or more), using only the installed GPS/DGPS, radar, fathometer, compass, a stopwatch or clock, navigation kit, and appropriate charts of the boat. Trainee must accomplish the task without prompting or use of a reference.

Standards

The boat must remain within one-tenth of a nautical mile of the intended course. All turns must be made within 50 yards of the turn point. Times must be within one minute (plus or minus) of the estimated time of turn and speeds must be within one knot. All chart plotting must be accomplished using proper notation and symbols. The instructor should verify positions and speeds using the available navigational instruments.

Performance Criteria	Completed (Initials)
1. Determine and lay out courses for turns on the chart.	_____
2. Predict boat's speed and ETA for each turn point.	_____
3. Compute running time in minutes for each leg at desired speed.	_____
4. Activate and tune GPS/DGPS, radar, and fathometer.	_____
5. Clear pier and start on course.	_____
6. Determine boat's speed using the GPS/DGPS.	_____
7. Steer boat directly to first turn point.	_____
8. Take two or more fixes on each leg.	_____
9. Steer boat directly to each turn point using proper helm commands.	_____
10. Continue until voyage is complete.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-15-ANY **Distance, Speed, and Time**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. *The American Practical Navigator*

Conditions Task should be performed at any time onboard the boat. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the basic concepts related to navigation as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the importance of computing distance, speed, and time.	_____
2. State units of measurements and formulas for distance, speed, and time.	_____
3. State understanding of nautical slide rule.	_____
4. Complete 5 distance, speed and time problems provided by the instructor.	_____
5. Demonstrate the 3-minute rule.	_____
6. Demonstrate the 6-minute rule.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-05-16-ANY **Demonstrate Plotting a Position Using LORAN-C Time Difference (TD) Coordinates**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section E*
b. *Coast Guard Navigation Standards*, COMDTINST M3530.2 (series)
c. *The American Practical Navigator*

Conditions Task should be performed at any time, given a LORAN-C overprinted chart, onboard the boat. Trainee must accomplish the task without prompting or use of a reference. The instructor will provide the time difference figures.

Standards Trainee must plot the time difference coordinates utilizing the LORAN-C Interpolator. All positions must be accurate to within one-tenth of a nautical mile.

Performance Criteria	Completed (Initials)
1. Define LORAN-C time difference.	_____
2. Demonstrate plotting LORAN-C time difference using the interpolator on a LORAN-C overprinted chart.	_____
3. State time difference position from latitude and longitude.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section F. Search and Rescue (SAR)

NOTE The tasks within this Section **DO NOT** apply to cutter boats, skiffs and punts.

Introduction

The following are objectives of Division Six:

- **Demonstrate** knowledge of SAR organization and responsibility.
- **Demonstrate** knowledge of SAR fundamentals.
- **Demonstrate** the ability to plot and execute commonly used search patterns.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-06-01-ANY	Organization and Responsibility	4-56
COX-06-02-ANY	Legal Aspects and USCG Policy	4-56
COX-06-03-ANY	Successfully Complete the CG Institute's SAR Fundamentals Course or Maritime SAR Planning (Resident) Course	4-57
COX-06-04-ANY	Plot the Following Search Patterns: Expanding Square (SS), Sector (VS), Parallel (PS), Creeping Line (CS), Track Line Non-Return (TSN), and Track Line Return (TSR)	4-58
COX-06-05-ANY	Execute a Single Unit Expanding Square Search (SS) Pattern	4-58
COX-06-06-ANY	Execute a Single Unit Sector Search (VS) Pattern	4-59
COX-06-07-ANY	Execute a Single Unit Parallel Search (PS) Pattern	4-60
COX-06-08-ANY	Execute a Single Unit Creeping Line Search (CS) Pattern	4-61
COX-06-09-ANY	Execute a Single Unit Track Line Non-Return Search (TSN) Pattern	4-62
COX-06-10-ANY	Execute a Single Unit Track Line Return Search (TSR) Pattern	4-63

TASK COX-06-01-ANY **Organization and Responsibility**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section A* b. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)
Conditions	Task should be performed at any time onboard the boat. Trainee must accomplish the task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, state the basic concepts related to organization and responsibility as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the four primary geographic divisions of responsibility for U.S. SAR.	_____
2. State the two geographic areas of Coast Guard responsibility for SAR.	_____
3. State the three general objectives that provide guidance for the SAR program.	_____
4. State the two SAR program goals.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-02-ANY **Legal Aspects and USCG Policy**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section C* b. District SOP c. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)
Conditions	Task should be performed at any time onboard the boat. Trainee must accomplish the task without prompting or use of a reference.
Standards	In response to the instructor, the trainee must, without error, state the basic concepts related to legal aspects and USCG policy as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State an understanding of the statutory authority for the SAR program.	_____
2. State an understanding of “SAR agreements”.	_____
3. State which distress beacon the CG endorses.	_____
4. State the response policy for distress beacons.	_____

Performance Criteria	Completed (Initials)
5. State the response policy for flare incidents.	_____
6. State the definition of a false alarm.	_____
7. State the definition of a hoax.	_____
8. State an understanding of the policy for closing hoax and false alarm cases.	_____
9. State an understanding of the CG Maritime SAR Assistance policy.	_____
10. State an understanding of the CG General Salvage policy other than towing.	_____
11. State an understanding of CG fire fighting activities.	_____
12. State an understanding of the policy for persons trapped in capsized vessels.	_____
13. State an understanding of the District SAR policy on the above topics.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-03-ANY **Successfully Complete the CG Institute's SAR Fundamentals Course or Maritime SAR Planning (Resident) Course**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References a. Coast Guard Institute SAR Fundamentals Course 0431

Conditions None.

Standards None.

Performance Criteria	Completed (Initials)
1. Successfully complete the SAR Fundamentals Course or Maritime SAR Planning (Resident) Course.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-04-ANY **Plot the Following Search Patterns: Expanding Square (SS), Sector (VS), Parallel (PS), Creeping Line (CS), Track Line Non-Return (TSN), and Track Line Return (TSR)**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Sections E* and *F*

b. Coast Guard Institute SAR Fundamentals Course 0431

c. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Task should be performed at any time onboard the boat. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, commence search point (CSP), track spacing, major axis, minor axis, and search speed. Trainee must accomplish the task without prompting or use of a reference.

Standards

Commence search point must be accurate to within 100 yards, track lines must be within 3 degrees, and times to run within 60 seconds.

Performance Criteria	Completed (Initials)
1. Lay out search pattern correctly on chart with CSP in the proper location and orient the first leg in the correct direction for each pattern.	_____
2. Calculate time to complete the search and time to turn for each search leg for the designated pattern.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-05-ANY **Execute a Single Unit Expanding Square Search (SS) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*

b. Coast Guard Institute SAR Fundamentals Course 0431

c. GPS Operator's Handbook

d. Radar Operator's Handbook

e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

Trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. The pattern will be run for a minimum of 5 legs, all turns must be 90 degrees to the right and within 50 yards of the predetermined turning points. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____
2. Arrive within 100 yards of plotted CSP.	_____
3. Deploy datum marker buoy at CSP.	_____
4. Report on-scene weather and start time of pattern to SMC.	_____
5. Run first leg of pattern in direction of drift.	_____
6. State speed over ground (SOG).	_____
7. Utilize fathometer to verify depth.	_____
8. Complete turns within 50 yards of their plotted positions.	_____
9. Navigate vessel in accordance with rules of the road.	_____
10. Identify and utilize aids to navigation.	_____
11. Use illumination without compromising night vision, if task is conducted at night.	_____
12. Pass final position of datum to SMC.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-06-ANY **Execute a Single Unit Sector Search (VS) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*
b. Coast Guard Institute SAR Fundamentals Course 0431
c. GPS Operator's Handbook
d. Radar Operator's Handbook
e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

The trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. All turns shall be 120 degrees to the right and within 15 seconds of the estimated time. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____

Performance Criteria	Completed (Initials)
2. Arrive within 100 yards of plotted CSP.	_____
3. Deploy datum marker buoy at CSP.	_____
4. Advise SMC of on-scene weather and start time of pattern.	_____
5. Run first leg of pattern in direction of drift.	_____
6. Adjust the 3rd, 6th and 9th legs to pass through datum.	_____
7. State SOG.	_____
8. Utilize fathometer to verify depth.	_____
9. Complete turns within 50 yards of their plotted positions.	_____
10. Navigate vessel in accordance with rules of the road.	_____
11. Identify and utilize aids to navigation.	_____
12. Use illumination without compromising night vision, if task is conducted at night.	_____
13. Pass final position of datum to SMC.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-07-ANY **Execute a Single Unit Parallel Search (PS) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*
b. Coast Guard Institute SAR Fundamentals Course 0431
c. GPS Operator's Handbook
d. Radar Operator's Handbook
e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

Trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. The CG boat shall commence search within 100 yards of the CSP. All turns shall be 90 degrees and within 50 yards of plotted turn points. The search pattern shall be run for a minimum of 5 legs. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____

Performance Criteria	Completed (Initials)
2. Enter all turns into GPS as waypoints.	_____
3. Arrive within 100 yards of plotted CSP.	_____
4. Adjust course and speed to stay on track line.	_____
5. Complete turns within 50 yards of plotted positions.	_____
6. Utilize XTE function.	_____
7. Utilize SOG function.	_____
8. Utilize ETA function.	_____
9. Utilize fathometer to verify water depth.	_____
10. Navigate vessel in accordance with rules of the road.	_____
11. Identify and utilize aids to navigation.	_____
12. Use illumination without compromising night vision, if task is conducted at night.	_____
13. Advise SMC of completion time of pattern.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-08-ANY **Execute a Single Unit Creeping Line Search (CS) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*
b. Coast Guard Institute SAR Fundamentals Course 0431
c. GPS Operator's Handbook
d. Radar Operator's Handbook
e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

Trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. The CG boat shall commence search within 100 yards of the CSP. All turns shall be 90 degrees and within 50 yards of plotted turn points. The search pattern shall be run for a minimum of 5 legs. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____

Performance Criteria	Completed (Initials)
2. Enter all turns into GPS as waypoints.	_____
3. Arrive within 100 yards of plotted CSP.	_____
4. Adjust course and speed to stay on track line.	_____
5. Complete turns within 50 yards of plotted positions.	_____
6. Utilize XTE function.	_____
7. Utilize SOG function.	_____
8. Utilize ETA function.	_____
9. Utilize depth sounder to verify water depth.	_____
10. Navigate vessel in accordance with rules of the road.	_____
11. Identify and utilize aids to navigation.	_____
12. Use illumination without compromising night vision, if task is conducted at night.	_____
13. Advise SMC of completion time of pattern.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-09-ANY **Execute a Single Unit Track Line Non-Return Search (TSN) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*
b. Coast Guard Institute SAR Fundamentals Course 0431
c. GPS Operator's Handbook
d. Radar Operator's Handbook
e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

Trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. The CG boat shall commence search within 100 yards of the CSP. All turns shall be made within 50 yards of plotted turn points. The search pattern shall be run in its entirety. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____

Performance Criteria	Completed (Initials)
2. Enter all turns into GPS as waypoints.	_____
3. Arrive within 100 yards of CSP.	_____
4. Advise SMC of on-scene weather and start time of pattern.	_____
5. Adjust course and speed to stay on track line.	_____
6. Complete turns within 50 yards of plotted positions.	_____
7. Utilize XTE function.	_____
8. Utilize SOG function.	_____
9. Utilize ETA function.	_____
10. Utilize depth sounder to verify water depth.	_____
11. Navigate vessel in accordance with rules of the road.	_____
12. Identify and utilize aids to navigation.	_____
13. Use illumination without compromising night vision, if task is conducted at night.	_____
14. Advise SMC of completion time of the pattern.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-06-10-ANY **Execute a Single Unit Track Line Return Search (TSR) Pattern**

NOTE Task **DOES NOT** apply to cutter boats, skiffs and punts.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E*
b. Coast Guard Institute SAR Fundamentals Course 0431
c. GPS Operator's Handbook
d. Radar Operator's Handbook
e. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Trainee will be given a CG boat with operational GPS, radar, radio, compass, corrected chart of the operating area, and a certified crew operating within prescribed limitations. Instructor will provide the trainee with a Search Action Plan, including area description, pattern description, CSP, track spacing, major axis, minor axis, and search speed. Task will be performed while underway, day or night, in calm to moderate weather.

Standards

Trainee must plot the search pattern in accordance with TASK COX-06-04-ANY. The CG boat shall commence search within 100 yards of the CSP. All turns shall be made within 50 yards of plotted turn points. The search pattern shall be run in its entirety. The search pattern shall be completed within 5 minutes of the calculated completion time.

Performance Criteria	Completed (Initials)
1. Brief crew on mission.	_____
2. Enter all turns into GPS as waypoints.	_____
3. Arrive within 100 yards of plotted CSP.	_____
4. Advise SMC of on-scene weather and start time of pattern.	_____
5. Adjust course and speed to stay on track line.	_____
6. Complete turns within 50 yards of plotted positions.	_____
7. Utilize XTE function.	_____
8. Utilize SOG function.	_____
9. Utilize ETA function.	_____
10. Utilize depth sounder to verify water depth.	_____
11. Navigate vessel in accordance with rules of the road.	_____
12. Identify and utilize aids to navigation.	_____
13. Use illumination without compromising night vision, if task is conducted at night.	_____
14. Advise SMC of completion time of pattern.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section G. Rescue and Assistance

Introduction

The following are objectives of Division Seven:

- **Demonstrate** the ability to rescue personnel in various distress situations.
- **Demonstrate** the ability to deliver personnel or equipment to vessels in distress.
- **Demonstrate** the knowledge and ability to use standard U.S. Coast Guard boat salvage equipment.
- **Demonstrate** the knowledge and ability to transfer personnel safely between different types of units.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-07-01-TYPE	Recover a Person from the Water Using the Direct Pickup Method	4-66
COX-07-02-TYPE	Recover a Life-Like Dummy (Oscar) in 2- to 4-Foot Seas	4-67
COX-07-03-TYPE	Maneuver the Boat Alongside Another Boat, with No Way-On, and Transfer Personnel	4-68
COX-07-04-TYPE	Maneuver the Boat Alongside Another Boat, with Way-On, and Transfer Personnel	4-68
COX-07-05-TYPE	Maneuver the Boat Alongside a Ship and Transfer Personnel	4-69
COX-07-06-TYPE	Combat a Boat Fire from the Boat	4-70
COX-07-07-ANY	Use a Portable Pump to Dewater a Sinking or Swamped Boat	4-71
COX-07-08-TYPE	Use an Eductor to Dewater a Sinking or Swamped Boat	4-72
COX-07-09-ANY	Attend a Static Display Given by a CG Helicopter Air Crew	4-73
COX-07-10-TYPE	Participate in a Basket Hoist Using the Direct Delivery Method	4-74
COX-07-11-TYPE	Participate in a Basket Hoist Using the Trail Line Delivery Method	4-75
COX-07-12-TYPE	Participate in a Rescue Swimmer Transfer Using the Rescue Strap	4-76
COX-07-13-TYPE	Demonstrate the Appropriate Responses to the Basic Engineering Casualty Control Exercises (BECCE)	4-76

TASK COX-07-01-TYPE **Recover a Person from the Water Using the Direct Pickup Method**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16*, *Section A*

Conditions

Given an operational CG boat and a certified crew operating within prescribed limitations, trainee will pick up a live person or a life-like dummy (Oscar) from the water. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas. The MOB shall wear a helmet, PFD, boat crew survival vest, and if conditions warrant, a wet suit or dry suit. Trainee must accomplish the task without prompting or use of a reference.

Standards

Task must be completed without placing the MOB in any danger and should be completed within 3 minutes of the time the initial warning was given.

Performance Criteria	Completed (Initials)	Boat Type
1. Coxswain receives report of MOB.	_____ _____ _____	_____ _____ _____
2. Boat comes about toward the side from which the MOB fell or in a safe manner.	_____ _____ _____	_____ _____ _____
3. Pointer is assigned and positioned, and coxswain is informed of MOB's position.	_____ _____ _____	_____ _____ _____
4. Deploy life ring and strobe light correctly, if able.	_____ _____ _____	_____ _____ _____
5. Depress MOB button on the GPS/DGPS.	_____ _____ _____	_____ _____ _____
6. Brief crew on pickup.	_____ _____ _____	_____ _____ _____
7. Base approach to MOB on prevailing weather conditions.	_____ _____ _____	_____ _____ _____
8. Recover MOB within 3 minutes.	_____ _____ _____	_____ _____ _____
9. Notify Station.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-02-TYPE **Recover a Life-Like Dummy (Oscar) in 2- to 4-Foot Seas**

NOTE Task **DOES NOT** apply to skiffs and punts.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*

Conditions Given an operational CG boat and a certified crew operating within prescribed limitations, trainee will recover a life-like dummy (Oscar) from the water. Task will be performed while underway, during daylight hours, with a minimum sea height of 4 feet. Trainee must accomplish the task without prompting or use of a reference.

Standards Task must be completed without placing the simulated MOB in danger and should be completed within 3 minutes of the time the initial warning was given.

Performance Criteria	Completed (Initials)	Boat Type
1. Coxswain receives report of MOB.	_____ _____ _____	_____ _____ _____
2. Boat comes about toward the side from which the MOB fell or in a safe manner.	_____ _____ _____	_____ _____ _____
3. Pointer is assigned and positioned, and coxswain is informed of MOB's position.	_____ _____ _____	_____ _____ _____
4. Correctly deploy life ring and strobe light.	_____ _____ _____	_____ _____ _____
5. Depress MOB button on the GPS/DGPS.	_____ _____ _____	_____ _____ _____
6. Brief crew on pickup.	_____ _____ _____	_____ _____ _____
7. Base approach to MOB on prevailing conditions.	_____ _____ _____	_____ _____ _____
8. Recover MOB within 3 minutes.	_____ _____ _____	_____ _____ _____
9. Notify Station.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-03-TYPE **Maneuver the Boat Alongside Another Boat, with No Way-On, and Transfer Personnel**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section E*

Conditions Given an operational CG boat, a certified crew operating within prescribed limitations, and another boat underway but with no way-on, trainee will safely transfer personnel from the CG boat to the other boat with no way-on. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

Standards Task must be completed without placing the personnel of either boat in danger. Task should be performed in a controlled manner and without unnecessary maneuvering.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Establish communications with the other boat.	_____ _____ _____	_____ _____ _____
3. Brief personnel on the other boat.	_____ _____ _____	_____ _____ _____
4. Rig all fenders. Roving fender is available if needed.	_____ _____ _____	_____ _____ _____
5. Make approach to other boat.	_____ _____ _____	_____ _____ _____
6. Bring CG boat alongside other boat.	_____ _____ _____	_____ _____ _____
7. Transfer personnel to other boat.	_____ _____ _____	_____ _____ _____
8. Maneuver CG boat away from other boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-04-TYPE **Maneuver the Boat Alongside Another Boat, with Way-On, and Transfer Personnel**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section E*

Conditions Given an operational CG boat, a certified crew operating within prescribed limitations, and another boat underway with way-on, trainee will safely transfer personnel from the CG boat to the other boat with way-on. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

Standards Task must be completed without placing the personnel of either boat in danger. Task should be performed in a controlled manner and without unnecessary maneuvering.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Establish communications with the other boat.	_____ _____ _____	_____ _____ _____
3. Brief personnel on the other boat.	_____ _____ _____	_____ _____ _____
4. Rig all fenders. Roving fender is available if needed.	_____ _____ _____	_____ _____ _____
5. Make approach to other boat.	_____ _____ _____	_____ _____ _____
6. Bring CG boat alongside other boat.	_____ _____ _____	_____ _____ _____
7. Transfer personnel to other boat.	_____ _____ _____	_____ _____ _____
8. Maneuver CG boat away from other boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-05-TYPE **Maneuver the Boat Alongside a Ship and Transfer Personnel**

NOTE Task **ONLY** applies to cutter boats.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section E*

b. Knight's Modern Seamanship

Conditions

Given an operational CG boat, a certified crew operating within prescribed limitations, and a ship or large vessel with an accommodation ladder, Jacob's ladder, or cargo net, trainee will safely transfer personnel from the CG boat to the ship or large vessel. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

Standards

Task must be completed without placing the personnel of either vessel in danger. Task should be performed in a controlled manner and without unnecessary maneuvering.

NOTE Accomplishment of this task depends on the availability of a ship or large vessel. If the geographical location of a unit prevents practical demonstration of this task, it may be postponed until an opportunity presents itself. Task should be accomplished at the earliest possible time.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Establish communications with the other vessel.	_____ _____ _____	_____ _____ _____
3. Brief shipboard personnel and determine method of transfer.	_____ _____ _____	_____ _____ _____
4. Rig all fenders. Roving fender is available if needed.	_____ _____ _____	_____ _____ _____
5. Obtain permission from ship CO to come alongside.	_____ _____ _____	_____ _____ _____
6. Make approach to ship using a 15- to 30-degree angle.	_____ _____ _____	_____ _____ _____
7. Receive sea painter and secure to an inboard cleat just aft of the bow, if applicable.	_____ _____ _____	_____ _____ _____
8. Hold boat at desired position alongside the ship.	_____ _____ _____	_____ _____ _____
9. Transfer personnel to the ship.	_____ _____ _____	_____ _____ _____
10. Request and receive permission to maneuver away from the ship.	_____ _____ _____	_____ _____ _____
11. Maneuver CG boat away from the ship.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-06-TYPE **Combat a Boat Fire from the Boat**

NOTE Task **DOES NOT APPLY** to cutter boats.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*, *Section A*

b. *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)

Conditions

Given an operational CG boat, a certified crew operating within prescribed limitations, and another boat with a simulated fire onboard, trainee will combat the fire on the other boat. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

NOTE It is not necessary to actually place water on the drill boat for this task. All of the equipment must be activated, but in order to minimize salt spray on the drill boat the fire fighting steps may be simulated.

Standards Task must be completed without placing the personnel of either boat in danger. Task should be performed in a controlled manner and without unnecessary maneuvering.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Approach distressed boat from upwind.	_____ _____ _____	_____ _____ _____
3. Account for all persons from the distressed boat upon arrival.	_____ _____ _____	_____ _____ _____
4. Prepare fire fighting equipment for use.	_____ _____ _____	_____ _____ _____
5. Engage fire pump and start portable pump.	_____ _____ _____	_____ _____ _____
6. Rescue any persons in extremis and address medical needs.	_____ _____ _____	_____ _____ _____
7. Fight fire keeping CG boat upwind.	_____ _____ _____	_____ _____ _____
8. Make preparations to dewater distressed vessel.	_____ _____ _____	_____ _____ _____
9. Dewater distressed vessel if able to do so safely.	_____ _____ _____	_____ _____ _____
10. Keep SMC advised of status.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-07-ANY **Use a Portable Pump to Dewater a Sinking or Swamped Boat**

NOTE Task **DOES NOT APPLY** to cutter boats.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*

Conditions Given an operational CG boat, a certified crew operating within prescribed limitations, and another boat simulating taking on water, trainee will dewater the other boat using a portable pump. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

Standards Task must be completed without placing the personnel of either boat in danger. Trainee should maintain positive control over both boats during the dewatering. Task should be performed in a controlled manner and without unnecessary maneuvering.

WARNING Do not use a drop/portable pump to dewater a boat with fuel contamination in its bilges.

Performance Criteria	Completed (Initials)
1. Brief crew and assign duties.	_____
2. Account for all persons from the distressed boat upon arrival and remove them from the boat if necessary.	_____
3. Rescue any persons in extremis and address medical needs.	_____
4. Make portable pump ready for use.	_____
5. Conduct risk assessment before placing CG personnel onboard distressed vessel.	_____
6. Start portable pump and obtain/maintain suction.	_____
7. Dewater distressed vessel.	_____
8. Determine if flooding was controlled.	_____
9. Safely identify source of flooding.	_____
10. Safely reduce or stop flooding.	_____
11. Set flood watch.	_____
12. Keep SMC advised of status.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-08-TYPE **Use an Eductor to Dewater a Sinking or Swamped Boat**

NOTE Task **DOES NOT APPLY** to cutter boats.

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*

Conditions Given an operational CG boat, a certified crew operating within prescribed limitations, and another boat simulating taking on water, trainee will dewater the other boat using an eductor. Task will be performed while underway, during daylight hours, in fair weather conditions and calm seas.

Standards Task must be completed without placing the personnel of either boat in danger. Trainee should maintain positive control over both boats during the dewatering. Task should be performed in a controlled manner and without unnecessary maneuvering.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Account for all persons from the distressed boat upon arrival and remove them from the boat, if necessary.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Rescue any persons in extremis and address medical needs.	_____ _____ _____	_____ _____ _____
4. Make eductor ready for use.	_____ _____ _____	_____ _____ _____
5. Conduct risk assessment before placing CG personnel onboard distressed vessel.	_____ _____ _____	_____ _____ _____
6. Start fire pump and obtain/maintain suction.	_____ _____ _____	_____ _____ _____
7. Dewater distressed vessel.	_____ _____ _____	_____ _____ _____
8. Determine if flooding is controlled.	_____ _____ _____	_____ _____ _____
9. Safely identify source of flooding.	_____ _____ _____	_____ _____ _____
10. Safely reduce or stop flooding.	_____ _____ _____	_____ _____ _____
11. Set flood watch.	_____ _____ _____	_____ _____ _____
12. Keep SMC advised of status.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-09-ANY **Attend a Static Display Given by a CG Helicopter Air Crew**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections C* and *D*

Conditions

Task will be performed at any time with both helicopter types on deck for a static display, prior to conducting helicopter operations.

NOTE

Task **MAY BE DEFERRED** if no helicopter training is available. Task must be completed at the earliest possible time. For cutter boats, task only applies to flight-deck equipped cutters.

Standards

Task must be completed in accordance with the steps listed below.

Performance Criteria	Completed (Initials)
1. Attend static display given by a CG helicopter aircrew prior to conducting helicopter operations.	_____
2. Identify tow points for each type of helicopter.	_____

Performance Criteria	Completed (Initials)
3. Identify all emergency exits for each type of helicopter.	_____
4. Discuss emergency breakaway procedures with the helicopter aircrew.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-10-TYPE **Participate in a Basket Hoist Using the Direct Delivery Method**

NOTE Task **ONLY** applies to boats 30' and above.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*

Conditions

Task will be performed while underway, during daylight hours, in fair weather conditions. Task should be accomplished during a scheduled helicopter operations training session. All crew members should be wearing helmets, PFDs or wet suits, and boat crew personnel survival kits. Trainee must accomplish the task without prompting or use of a reference.

NOTE Task **MAY BE DEFERRED** if no helicopter training is available. Task must be completed at the earliest possible time.

Standards

Task must be performed so as not to endanger any crew members or the helicopter. Basket and/or cable must not become entangled or otherwise attached to the boat at any time. Basket must be grounded to the boat before crew members handle it.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Establish communications with the helicopter.	_____ _____ _____	_____ _____ _____
3. Agree on breakaway procedures between helicopter and boat.	_____ _____ _____	_____ _____ _____
4. State number of persons onboard (POBs) on helicopter and boat.	_____ _____ _____	_____ _____ _____
5. Establish and maintain boat heading and speed.	_____ _____ _____	_____ _____ _____
6. Bring basket onto CG boat by hand.	_____ _____ _____	_____ _____ _____
7. Lift basket from CG boat and hoist up to helicopter.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-11-TYPE **Participate in a Basket Hoist Using the Trail Line Delivery Method**

NOTE Task **ONLY** applies to boats 30' and above.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*

Conditions

Task will be performed while underway, during daylight hours, in fair weather conditions. Task should be accomplished during a scheduled helicopter operations training session. All crew members should be wearing helmets, PFDs or wet suits, and boat crew personnel survival kits. Trainee must accomplish the task without prompting or use of a reference.

NOTE Task **MAY BE DEFERRED** if no helicopter training is available. Task must be completed at the earliest possible time.

Standards

Task must be performed so as not to endanger any crew members or the helicopter. Basket and/or cable must not become entangled or otherwise attached to the boat at any time. Basket must be grounded to the boat before crew members handle it.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Establish communications with the helicopter.	_____ _____ _____	_____ _____ _____
3. Agree on breakaway procedures between helicopter and boat.	_____ _____ _____	_____ _____ _____
4. State number of POBs on helicopter and boat.	_____ _____ _____	_____ _____ _____
5. Establish and maintain boat heading and speed.	_____ _____ _____	_____ _____ _____
6. Bring basket onto CG boat using the trail line.	_____ _____ _____	_____ _____ _____
7. Lift basket from CG boat and hoist up to helicopter.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-12-TYPE **Participate in a Rescue Swimmer Transfer Using the Rescue Strap**

NOTE Task **ONLY** applies to boats 30' and above.

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*

Conditions

Task will be performed while underway, during daylight hours, in fair weather conditions. Task should be accomplished during a scheduled helicopter operations training session. All crew members should be wearing helmets, PFDs or wet suits, and boat crew personnel survival kits. Trainee must accomplish the task without prompting or use of a reference.

NOTE Task **MAY BE DEFERRED** if no helicopter training is available. Task must be completed at the earliest possible time.

Standards

Task must be performed so as not to endanger any crew members or the helicopter. Rescue strap and/or cable must not become entangled or otherwise attached to the boat at any time. The cable must be grounded to the boat before crew members handle it.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Establish communications with the helicopter.	_____ _____ _____	_____ _____ _____
3. Agree on breakaway procedures between helicopter and boat.	_____ _____ _____	_____ _____ _____
4. State number of POBs on helicopter and boat.	_____ _____ _____	_____ _____ _____
5. Establish and maintain boat heading and speed.	_____ _____ _____	_____ _____ _____
6. Transfer rescue swimmer to CG boat using the rescue strap.	_____ _____ _____	_____ _____ _____
7. Hoist rescue swimmer back to helicopter.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-07-13-TYPE **Demonstrate the Appropriate Responses to the Basic Engineering Casualty Control Exercises (BECCE)**

References

a. Manufacturers' Operator's Manual and Technical Publications

Conditions

Task should be performed at any time onboard each of the unit's boats, including non-standard boats, without the use of any references or prompting.

Standards In response to the instructor, the trainee must, without error, demonstrate the steps taken for each of the BECCEs listed, as stated in reference (a) above.

Performance Criteria	Completed (Initials)	Boat Type
1. Fire in the engine room.		
2. Loss of steering (cable/hydraulic).		
3. Loss of steering (jammed rudder).		
4. Accidental grounding.		
5. Collision with submerged object.		
6. Reduction gear failure.		
7. Main engine high water temperature.		
8. Loss of main engine lube oil pressure.		
9. Loss of fuel oil pressure.		
10. Loss of control of engine RPMs.		
11. General starting difficulties including engine not starting and emergency starting procedures.		
12. Cooling system casualties.		
13. Propeller damage and excessive cavitation.		
14. Immersed outboard.		
15. Loss of electrical power.		

Instructor _____ **Date** _____

Comments _____

_____

Section H. Towing and Salvage

Introduction

The following are objectives of Division Eight:

- **Define** and **state** the static and dynamic forces that come into play during various towing evolutions.
- **Demonstrate** the procedures used when preparing to take a vessel in tow.
- **Demonstrate** the procedures for inspecting both fixed and running towing gear.
- **Demonstrate** the procedures for taking a boat in tow using different approaches.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-08-01-ANY	State General Towing Safety Precautions	4-79
COX-08-02-ANY	State the Principle Forces that Affect Boat Towing	4-79
COX-08-03-ANY	Inspect the Towline and Associated Hardware	4-80
COX-08-04-ANY	Make Preparations for Taking a Vessel in Tow	4-80
COX-08-05-TYPE	Use a “Heavy Weather” Approach to Take a Vessel in Stern Tow	4-81
COX-08-06-ANY	Use a Shackle or Skiff Hook Assembly Connection to Take a Vessel in Stern Tow	4-83
COX-08-07-ANY	Take a Boat in Stern Tow Using a Bridle Connection	4-84
COX-08-08-TYPE	Take a Boat in Alongside Tow from a Stern Tow	4-85
COX-08-09-TYPE	Moor a Disabled Vessel in Alongside Tow to a Float or Pier	4-86
COX-08-10-TYPE	Take a Vessel at Anchor, Near Shoal Water in Tow	4-86

TASK COX-08-01-ANY **State General Towing Safety Precautions**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Appendix 17-A*

Conditions Task should be performed at any time. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the basic policy precautions taken during towing evolutions as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the precautions regarding removal of personnel from disabled boats.	_____
2. State the policy regarding wearing of PFDs by persons onboard the disabled boats.	_____
3. State the precautions regarding the throwing of heaving lines.	_____
4. State the policy regarding establishing and maintaining communications.	_____
5. State the precautions regarding personnel around the towline.	_____
6. State the precautions regarding the breaking strength of shackles used.	_____
7. State the precautions regarding the towed boat's hull capability and speed.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-02-ANY **State the Principle Forces that Affect Boat Towing**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section B*

Conditions Task should be performed at any time. Trainee must accomplish the task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the principle forces effecting boat towing as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. State the causes and effects of static forces.	_____
2. State the types, causes, and effects of dynamic forces.	_____
3. State the cause of towline strain.	_____
4. State the cause and effect of shock load.	_____
5. State the effect that lengthening the towline has on shock load.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-03-ANY **Inspect the Towline and Associated Hardware**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section C*

Conditions
Task will be performed dockside during daylight hours. All hawsers, bridles, shackles, hooks, and other gear carried aboard the boat and associated with towing will be inspected. Trainee must accomplish the task without prompting or use of a reference.

Standards
All gear should be inspected in accordance with the above reference and as outlined in the steps listed below.

Performance Criteria	Completed (Initials)
1. Inspect the towline and state the warning signs for wear or defective condition.	_____
2. Inspect the double-braided bridles and state the warning signs for wear or defective condition.	_____
3. Inspect the shackles and kicker/skiff hook and state the warning signs for defective condition.	_____
4. Inspect wire rope bridles and state the warning signs for wear or defective condition.	_____
5. Inspect bitts, cleats, chocks, and the towline storage reel and state the warning signs for defective condition.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-04-ANY **Make Preparations for Taking a Vessel in Tow**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D* and *Appendix 17-A*

Conditions
Task will be performed while underway for training or towing operations during daylight:

For MLB: 20- to 30-knot winds, and seas of not less than 6 feet but not greater than 8 feet.

For UTB: 20- to 30-knot winds, and seas of not less than 4 feet but not greater than 8 feet.

For all others: 10- to 20-knot winds, and seas of not less than 2 feet.

A messenger should be used for passing the towline, and a bridle may be used for hookup. Trainee must accomplish the task without prompting or use of a reference.

Standards
Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Proper radio procedure and prowords shall be used during all radio communications.

Performance Criteria	Completed (Initials)
1. Establish communications using a Coast Guard working frequency.	_____
2. Determine material condition of the vessel to be towed.	_____
3. Determine physical condition of the people onboard the vessel to be towed.	_____

Performance Criteria	Completed (Initials)
4. Direct people onboard the vessel to be towed to don life preservers.	_____
5. Bend heaving line to towline for passing to the vessel to be towed.	_____
6. Brief people onboard vessel to be towed regarding the hookup and towing procedure to be used, including the following: a. Hookup procedure b. Line handling c. Safety d. Chafing gear fitting for towing line or bridle e. Breakaway procedure f. Operating procedure (steering behind, etc.) g. Towing approach	_____
7. Establish communications schedule to be followed for the duration of the tow.	_____
8. Establish backup emergency signal(s).	_____
9. Ensure that the operator of the distressed vessel understands the above procedures.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-05-TYPE **Use a "Heavy Weather" Approach to Take a Vessel in Stern Tow**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*

Conditions

Task will be performed while underway for training or towing operations during day light in:

For MLB: 20- to 30-knot winds, and seas of not less than 6 feet but not greater than 8 feet.

For UTB: 20- to 30-knot winds, and seas of not less than 4 feet but not greater than 8 feet.

For all others: 10- to 20-knot winds, and seas of not less than 2 feet.

A messenger should be used for passing the towline and a bridle may be used for hookup. Trainee must accomplish the task without prompting or use of a reference.

Standards

Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Towline must be passed on the first pass without resorting to backing down and with no risk of fouling the towline.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew on assigned duties.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
2. Make preparations for taking a boat in tow in accordance with TASK COX-08-04-ANY, including the establishment of the best place to attach a line and the rigging of a bridle if one is to be used.	_____ _____ _____	_____ _____ _____
3. Maneuver boat onto the same heading as the disabled vessel and stop astern of it.	_____ _____ _____	_____ _____ _____
4. Determine vessel's relative rate of drift by observing which vessel drifts to leeward faster.	_____ _____ _____	_____ _____ _____
5. Make approach into predominate weather/seas.	_____ _____ _____	_____ _____ _____
6. Keep boat stationed in optimal position.	_____ _____ _____	_____ _____ _____
7. Ensure crew member passes the heaving line to the disabled vessel.	_____ _____ _____	_____ _____ _____
8. Pay out and tend line away from boat's screws.	_____ _____ _____	_____ _____ _____
9. Place working turn on tow bitt after towline is secured on disabled vessel.	_____ _____ _____	_____ _____ _____
10. Set initial course.	_____ _____ _____	_____ _____ _____
11. Pay out appropriate length of towline.	_____ _____ _____	_____ _____ _____
12. Make up tow bitt.	_____ _____ _____	_____ _____ _____
13. Adjust scope of towline to put towed vessel in step.	_____ _____ _____	_____ _____ _____
14. Set and maintain tow watch.	_____ _____ _____	_____ _____ _____
15. Display proper lights and sound signals given for the weather conditions present.	_____ _____ _____	_____ _____ _____
16. Install chafing gear as needed.	_____ _____ _____	_____ _____ _____
17. Maintain safe towing speed.	_____ _____ _____	_____ _____ _____
18. Check status of towed vessel.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-06-ANY	**Use a Shackle or Skiff Hook Assembly Connection to Take a Vessel in Stern Tow**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task will be performed while underway for training or towing operations, during daylight, in calm to moderate weather conditions. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below.

Performance Criteria	**Completed (Initials)**
1. Brief crew on assigned duties.	_____
2. Make preparations for taking a boat in tow in accordance with TASK COX-08-04-ANY.	_____
3. Begin approach from off the bow and downwind of the disabled vessel.	_____
4. Maneuver boat to position in front of the disabled vessel.	_____
5. Ensure crew member passes the shackle or attaches the skiff hook to the disabled vessel.	_____
6. Pay out and tend line away from boat's screws.	_____
7. Place working turn on tow bitt after towline is secured on disabled vessel.	_____
8. Set initial course.	_____
9. Pay out appropriate length of towline.	_____
10. Make up tow bitt.	_____
11. Adjust scope of towline to put towed vessel in step.	_____
12. Set and maintain tow watch.	_____
13. Display proper lights and sound signals given for the weather conditions present.	_____
14. Install chafing gear as needed.	_____
15. Maintain safe towing speed.	_____
16. Check status of towed vessel.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-07-ANY **Take a Boat in Stern Tow Using a Bridle Connection**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*

Conditions Task will be performed while underway for training or towing operations, during daylight, in calm to moderate weather conditions. Trainee must accomplish the task without prompting or use of a reference.

Standards Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Towline must be passed on the first pass without resorting to backing down and with no risk of fouling the towline.

Performance Criteria	Completed (Initials)
1. Brief crew on assigned duties.	_____
2. Make preparations for taking a boat in tow in accordance with TASK COX-08-04-ANY including the establishment of the best place to rig a bridle.	_____
3. Maneuver boat onto the same heading as the disabled vessel and stop astern of it.	_____
4. Determine vessel's relative rate of drift by observing which vessel drifts to leeward faster.	_____
5. Make approach into predominate weather/seas.	_____
6. Keep boat stationed in optimal position.	_____
7. Ensure crew member passes the heaving line to the disabled vessel.	_____
8. Pay out and tend line away from boat's screws.	_____
9. Place working turn on tow bitt after towline is secured on disabled vessel.	_____
10. Set initial course.	_____
11. Pay out appropriate length of towline.	_____
12. Make up tow bitt.	_____
13. Adjust scope of towline to put boat-towed vessel in step.	_____
14. Set and maintain tow watch.	_____
15. Display proper lights and sound signals given for the weather conditions present.	_____
16. Install chafing gear as needed.	_____
17. Maintain safe towing speed.	_____
18. Check status of towed vessel.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-08-TYPE	**Take a Boat in Alongside Tow from a Stern Tow**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task will be performed while underway for training or towing operations, during daylight, in calm weather conditions. The disabled vessel should be at least ¾ the length of the towed boat. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Towline must not be placed near the screws at any time.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew on assigned duties.	_____	_____
2. Brief vessel to be towed on procedures to be used.	_____	_____
3. Prepare deck for alongside tow. a. Rig fenders on appropriate side of towing vessel. b. Make alongside lines ready.	_____	_____
4. Slow speed in increments and shorten tow if needed. Maintain positive control of the tow and keep towline in view and appropriate relative position while shortening tow.	_____	_____
5. Break down tow bitt, haul slack towline aboard, and fake out of the way (clear of well deck).	_____	_____
6. Drop towline of disabled vessel or properly execute backdown approach.	_____	_____
7. Move towline to the #1 line position.	_____	_____
8. Pass and secure tow strap to disabled vessel ensuring the stern of the boat is aft of the tow.	_____	_____
9. Secure aft spring line and stern line.	_____	_____
10. Energize appropriate navigation lights as needed.	_____	_____
11. Attach forward spring line.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-09-TYPE **Moor a Disabled Vessel in Alongside Tow to a Float or Pier**

NOTE Task **DOES NOT** apply to cutter boats.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task will be performed while underway for training or towing operations, during daylight, in calm weather conditions. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Towline must not be placed near the screws at any time. Boat must be moored on the first try with a minimum of maneuvering.

Performance Criteria	Completed (Initials)	Boat Type
1. State the expected effects of the wind and current on the mooring of the boat.	_____ _____ _____	_____ _____ _____
2. Brief crew on the procedure to be used and assign duties.	_____ _____ _____	_____ _____ _____
3. Brief towed boat on mooring method, location, and procedures.	_____ _____ _____	_____ _____ _____
4. Brief bow pointer and position in effective location.	_____ _____ _____	_____ _____ _____
5. Approach pier slowly, at an angle.	_____ _____ _____	_____ _____ _____
6. Safely moor vessel(s).	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK COX-08-10-TYPE **Take a Vessel at Anchor, Near Shoal Water in Tow**

NOTE Task **DOES NOT** apply to cutter boats.

References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task will be performed while underway for training or towing operations, during daylight, in calm to moderate weather conditions. Trainee must accomplish the task without prompting or use of a reference.
Standards	Trainee must perform the task without casualty to personnel or boat in accordance with the steps listed below. Towline must be passed on the first pass with no risk of fouling the towline.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew on assigned duties.	_____ _____ _____	_____ _____ _____
2. Make preparations for taking a boat in tow in accordance with TASK COX-08-04-ANY including the establishment of the best place to rig a bridle.	_____ _____ _____	_____ _____ _____
3. Identify nearest hazard and adjust approach as necessary.	_____ _____ _____	_____ _____ _____
4. Maneuver towed boat to safest position where heaving line can be passed.	_____ _____ _____	_____ _____ _____
5. Keep station while heaving line and pass towline/bridle to disabled vessel.	_____ _____ _____	_____ _____ _____
6. Direct crew to tend line with no strain until connection is completed.	_____ _____ _____	_____ _____ _____
7. Recover anchor of disabled boat or cut anchor line	_____ _____ _____	_____ _____ _____
8. Tend bitt while boat and tow move clear of restricted waters.	_____ _____ _____	_____ _____ _____
9. Pay out appropriate length of line for size and type of boat being towed.	_____ _____ _____	_____ _____ _____
10. Adjust speed accordingly for the type of boat and conditions.	_____ _____ _____	_____ _____ _____
11. Adjust scope of towline to put boat and towed vessel in step.	_____ _____ _____	_____ _____ _____
12. Set tow watch.	_____ _____ _____	_____ _____ _____
13. Display proper navigational lights and sound signals for the current weather conditions.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

Section I. Law Enforcement, Homeland Security and Defense Operations

Introduction

The following are objectives of Division Nine:

- **Complete** the following Boarding Officer and Boarding Team Member PQS.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
COX-09-01-ANY	Law Enforcement, Homeland Security and Defense Operations	4-88

TASK COX-09-01-ANY **Law Enforcement, Homeland Security and Defense Operations**

References

a. *Boarding Officer/Boarding Team Member Personal Qualification Standard (PQS),* COMDTINST M16247.3 (series)

Conditions

Task should be performed at any time. Trainee must accomplish the task without prompting or use of a reference.

NOTE This task **MUST** be accomplished by **ALL** coxswain trainees.

Standards

Task must be completed in accordance with the above reference.

Performance Criteria	Completed (Initials)
1. Complete the following Boarding Team Member tasks:	_____
a. 1-04 Authority and Jurisdiction	_____
b. 1-05 Use of Force Continuum	_____
2. Complete the following Boarding Officer tasks:	_____
a. 2-01 Authority and Jurisdiction	_____
b. 2-10 Use of Force Against Non-Compliant Vessels	_____
3. Complete the following specialty and optional task:	_____
a. 3-07 Less than Lethal Delivery Systems	_____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 3.
Coxswain Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee to keep. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainee's answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	4-90
B	Reading Assignments - Division Two	4-92
C	Reading Assignments - Division Three	4-94
D	Reading Assignments - Division Four	4-101
E	Reading Assignments - Division Five	4-102
F	Reading Assignments - Division Six	4-105
G	Reading Assignments - Division Seven	4-112
H	Reading Assignments - Division Eight	4-118
I	Reading Assignments - Division Nine	4-122

Section A. Reading Assignments - Division One

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-01-01-ANY	• *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-91
COX-01-02-ANY	• None assigned	

TASK COX-01-01-ANY: Crew Fatigue Standards

1. The crew fatigue standards are based on a _____ period.
2. A _____ shall be sent when a station reaches crew fatigue.
3. The maximum crew underway time in seas greater then four feet is _____ hours.

Section B. Reading Assignments - Division Two

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-02-01-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Section B*	4-93
COX-02-02-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8, Sections B* and *C*	4-93
COX-02-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 8* • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	4-93
COX-02-04-TYPE	• None assigned	
COX-02-05-TYPE	• None assigned	
COX-02-06-ANY	• None assigned	

TASK COX-02-01-TYPE: State Basic Construction and Design Features of the Boat

1. The hull consists of a _____ framework and a skin or shell plating.
2. As a displacement hull moves through the water, the water _____ at the bow and then closes behind it.
3. With enough speed, the planing hull is _____ up onto the surface of the water.
4. Once the boat is planing, the power must be decreased _____ to move the boat from the planing mode to the displacement mode.
5. The _____ is the backbone of the boat.
6. Transverse frames extend _____ and are perpendicular to the keel.
7. With the hatches shut, the space between bulkheads becomes _____.
8. Net tons refer to the _____ capacity of the boat expressed in tons of 100 cubic feet.

TASK COX-02-02-TYPE: State the Characteristics of, and Set Watertight Integrity Aboard the Boat

1. A boat may sustain heavy damage and remain _____, provided watertight integrity is maintained.
2. Doors, hatches, and scuttle covers must be _____ _____ while the boat is underway and while it is moored and unattended by crew members.
3. Watertight closures must have clean, bright, unpainted, smooth _____ _____ for the gaskets to press against.
4. Small openings to water and fuel tanks, as well as void spaces, are called _____.
5. Watertight doors and hatches, having individually opened dogs, should be opened starting with the dog _____ the hinges.

TASK COX-02-03-TYPE: Locate and State the Purpose of Deck Equipment and Fittings Onboard the Boat

1. The complete list of each piece of equipment required onboard a boat is contained in a document called the _____ _____ _____.
2. Chafing chain assists in preventing chafing of the _____ _____ on the bottom.
3. Chafing gear is used to protect the _____ line.
4. Personnel survival kits are used by _____ in the event of capsizing or man overboard.

Section C. Reading Assignments - Division Three

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-03-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 9, Section B*, and *Chapter 10, Section A*	4-96
COX-03-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Sections A* and *B*	4-96
COX-03-03-TYPE	• None assigned	
COX-03-04-TYPE	• None assigned	
COX-03-05-TYPE	• None assigned	
COX-03-06-TYPE	• None assigned	
COX-03-07-TYPE	• None assigned	
COX-03-08-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1, Appendix A* • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	4-97
COX-03-09-TYPE	• None assigned	
COX-03-10-TYPE	• None assigned	
COX-03-11-TYPE	• None assigned	
COX-03-12-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Sections C* and *D*	4-97
COX-03-13-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10*	4-97
COX-03-14-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10* • Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)	4-97
COX-03-15-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section F*	4-98
COX-03-16-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section F*	4-98

Task Number	Reading Assignment	See Page
COX-03-17-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section G*	4-98
COX-03-18-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*	4-99
COX-03-19-TYPE	• None assigned	
COX-03-20-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10*	4-99
COX-03-21-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*	4-100
COX-03-22-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section H*	4-100

TASK COX-03-01-ANY: State the Forces that Affect Boat Handling

1. A boat has two principle types of stability, _____ and _____.
2. The center of gravity is fixed for stability and does not shift unless weight is _____, _____ or _____.
3. A _____ moment is the force tending to return the boat to an even keel.
4. The _____ characteristic of a boat depends upon the hull shape.
5. When a tidal current is going out, it is called the _____; it will build up a _____ sea when running across a bar.
6. Currents are _____ movements of water.
7. When running against the current maneuverability _____, the closer the current is on the bow.
8. The direction toward which a current flows is called the _____.
9. The speed of a current expressed in knots is called the _____.
10. An eddy is a _____ motion of water in or beside the main current.
11. Waves are generated as a result of the _____ moving over the water's surface.
12. Breaking waves are the most _____ kind of waves encountered in boat operations.
13. The difference between the distance a propeller should advance a vessel in one revolution and the distance it actually travels is called _____.
14. The flow of water caused by the propeller is called _____ current.

TASK COX-03-02-ANY: State the Basic Principles of Boat Handling

1. On a single screw boat, with sternway on and the rudder amidships, the stern will back to _____.
2. On a single screw boat, when commencing forward motion with no way on, the side force will throw the stern to _____.
3. Boats are usually under better control with _____.
4. High freeboard causes a boat to be susceptible to the _____ of the wind.
5. The distance the boat will travel after the engine has been disengaged is called _____.
6. Whenever possible, for control, approach a dock into the wind and on the _____ side of the dock.
7. On a twin screw boat, the starboard screw is _____-handed and the port screw is _____-handed.
8. On a twin screw boat, with the port screw astern and the starboard screw stopped, the stern will go to _____.
9. On a twin screw boat, with the port screw astern and the starboard screw ahead, the boat will pivot in a _____ direction.
10. On a twin screw boat, the effects of a leeway can be overcome by increasing the RPMs of the _____ engine.

TASK COX-03-08-TYPE: Conduct a Pre-Underway Checkoff for the Boat

1. When briefing the crew, the coxswain should explain the _____ of the mission.
2. Before getting underway, the coxswain should ensure that all _____ gear is secured and the boat is secured for sea.
3. All necessary _____ for the mission should be onboard.
4. The engineer should make checks and report the results to the _____.
5. Engine controls should be tested in both _____ and _____, and the reaction time should be noted.

TASK COX-03-12-TYPE: Get the Boat Away from a Pier

1. When clearing with a single screw boat and no wind or current, the coxswain puts the engine ahead with the rudder at amidships, moves ahead slowly, and applies right or left rudder _____.
2. When clearing with a single screw boat while being set against the dock, and after the stern is clear, the coxswain should cast off the _____ spring line and shift the rudder.
3. When clearing with a twin screw boat, port side to, and no wind or current, go ahead on the starboard engine and _____ on the port with _____ full rudder until the stern clears the dock.
4. When clearing with a twin screw boat, starboard side to, while being set against the dock, and after the stern is clear, the _____ spring line is cast off.

TASK COX-03-13-TYPE: Maneuver the Boat in Tight Quarters

1. With a single screw boat moored port side to, after throwing the stern out, the coxswain should pull the throttle into _____ and _____ the rudder to right full.
2. The basic process should be _____ until clear.

TASK COX-03-14-TYPE: Come About in a Narrow Channel

1. The effect of current that causes the boat to veer off from the near bank when traveling in a straight line is called _____ cushion.
2. The force that has the effect of moving the stern into the bank is called bank _____.
3. The combined effect of bank cushion and bank suction may cause a boat to veer off toward the _____ bank.
4. Bank cushion and bank suction are strongest when the bank of a channel is _____.
5. With a head current, the best position from which to begin a turn is the _____ of the channel.

TASK COX-03-15-TYPE: Operate the Boat and Apply Its Handling Characteristics in a Following Sea

1. The average sea runs _____ to _____ knots.
2. If white water is gaining astern, the coxswain must either gain _____ before the water reaches the boat or get the _____ into it with headway.
3. With an MLB, the coxswain should take care to steer _____ any tendency of the stern to slip sideways.

TASK COX-03-16-TYPE: Maneuver in Heavy Weather

1. The _____ is the up and down motion of the bow or stern.
2. The _____ is the side-to-side motion as each side goes up and down.
3. The vertical motion the entire boat makes is the _____.
4. Look and drive for the path of _____ _____.
5. Keep one hand constantly on the _____ _____.
6. Try to avoid the _____ gusts.
7. Maneuver only to keep a _____ aspect to the weather.

TASK COX-03-17-TYPE: Maneuver in Rivers

1. Bank cushion occurs only when operating in _____ _____ to the bank.
2. _____ is the horizontal flow or movement of water in a river.
3. In extremely narrow channels where bank cushion and bank suction are expected, proceed at a very _____ _____.
4. _____, _____, and _____ are factors that affect a boat's turn in a sharp bend or narrow channel.

TASK COX-03-18-TYPE: Identify Heavy Weather Terms

1. In heavy weather, _____ is the key to running the safest operations possible.
2. The factors which determine the characteristics of wind waves are:
   a. _____
   b. _____
   c. _____
3. The _____ period in a wave system is the safest time to transit a bar, inlet, or shoal area in heavy seas/surf.
4. The four methods of estimating wave height are:
   a. Compare with floating structures/vessels
   b. _____
   c. Compare with fixed structures
   d. _____.
5. The _____ is defined as the section of a wave that carries the most potential energy.
6. It is preferable to drive a boat in the _____ if possible, thus avoiding the _____.
7. _____ occur when a wave breaks from the ends toward the middle, or two waves _____ forward of each other.
8. Driving on the _____ can be particularly useful in a narrow surf zone because it allows you to drive very close to a break relatively safely.

TASK COX-03-20-TYPE: Moor the Boat

1. If the wind or current is from astern, a _____ spring line is used instead of a bow spring line.
2. When mooring a single screw boat, with no wind or current, the coxswain should make his approach using an angle of approximately _____.
3. When mooring a single screw boat from leeward, against the current, the coxswain should make his approach using a _____ angle.
4. When mooring a twin screw boat, the coxswain should use as _____ an angle as safely possible.
5. Wind will cause the bow of the boat to _____ off.

TASK COX-03-21-TYPE: Anchor the Boat

1. When selecting an anchorage, shallow water is preferred because a given amount of line will provide better _____ and reduce the _____ of the circle of swing.
2. When approaching the anchorage, if possible, head _____ the wind or current.
3. The scope of the anchor line used should be _____ to_____ times the depth of the water to be anchored in calm water.
4. When letting go, the anchor line should be tended directly from the _____.
5. While anchored, keep a _____ posted at all times.

TASK COX-03-22-TYPE: Weigh the Boat's Anchor

1. When approaching the anchor, the slack in the line should be taken up _____ to prevent fouling the screw(s).
2. When the anchor line is tending _____, the anchor will normally break free from the bottom.
3. If the anchor refuses to break free, _____ the line around the forward bitt and go forward a few feet.
4. If the anchor still won't break free, move slowly in a wide circle to change the _____ of pull.

Section D. Reading Assignments - Division Four

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-04-01-ANY	• None assigned	

Section E. Reading Assignments - Division Five

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-05-01-ANY	• None assigned	
COX-05-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section C*	4-103
COX-05-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*	4-103
COX-05-04-ANY	• None assigned	
COX-05-05-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*	4-103
COX-05-06-ANY	• None assigned	
COX-05-07-TYPE	• None assigned	
COX-05-08-TYPE	• None assigned	
COX-05-09-TYPE	• None assigned	
COX-05-10-TYPE	• None assigned	
COX-05-11-TYPE	• None assigned	
COX-05-12-TYPE	• None assigned	
COX-05-13-TYPE	• None assigned	
COX-05-14-ANY	• None assigned	
COX-05-15-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 14, Section D*	4-104
COX-05-16-ANY	• None assigned	

TASK COX-05-02-ANY: Determine a Compass Course from a True Course

1. The compass reading must be corrected for _____ and _____.
2. Variation is the difference in degrees between the directions to the _____ and true north poles.
3. The amount the compass is deflected by magnetic influences of the boat itself is called _____.
4. Deviation varies for different _____ you steer.
5. To apply compass error, either _____ or _____ your course or direction.
6. Apply _____ to the compass course to get the magnetic course and then apply _____ to the magnetic course to get the true course.
7. When correcting you must add _____ errors and _____ westerly errors.

TASK COX-05-03-ANY: Pilot the Boat Using Dead Reckoning (DR) Techniques

1. Dead reckoning is the process of determining a boat's position by applying its course, speed, and time from its _____ known position.
2. The key elements of dead reckoning are the course steered and the distance traveled without _____ to current, wind, or other external forces.
3. Only courses _____ are used to determine a DR.
4. DR plots should be labeled at least every _____ and at every _____ or _____ change.
5. A new course should be plotted from every _____as it has been determined thus starting a new DR plot.

TASK COX-05-05-ANY: Determine the Location of a Boat Using Radar Ranges and Bearings

1. The line of _____ is common to all methods of piloting.
2. If you have a single LOP, you know you are _____ on that line.
3. An ideal fix is one having _____ or more LOPs.
4. LOPs should always be taken on objects close to the boat as minor errors are magnified as you _____ your distance from the object.
5. Radar fixes, no matter how they are determined, are plotted in the same manner as _____ fixes.
6. Care should be taken when using radar _____ information only.

TASK COX-05-15-ANY: Distance, Speed, and Time

1. _____, _____ and _____ are critical elements in navigational calculations.
2. Distance is measured in _____ _____.
3. Speed is measured in _____.
4. Time is measured in _____.

Section F. Reading Assignments - Division Six

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-06-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section A* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-108
COX-06-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section B* • District SOPs • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-108
COX-06-03-ANY	• None assigned	
COX-06-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Sections E* and *F* • Coast Guard Institute SAR Fundamentals Course 0431 • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-110

Task Number	Reading Assignment	See Page
COX-06-05-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-110
COX-06-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-110
COX-06-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-111

Task Number	Reading Assignment	See Page
COX-06-08-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-111
COX-06-09-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-111
COX-06-10-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 15, Section E* • Coast Guard Institute SAR Fundamentals Course 0431 • *GPS Operator's Handbook* • *Radar Operator's Handbook* • *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series)	4-111

TASK COX-06-01-ANY: Organization and Responsibility

1. The *U.S. Coast Guard Addendum to the United States National Search and Rescue Supplement (NSS) to the International Aeronautical and Maritime Search and Rescue Manual*, COMDTINST M16130.2 (series) establishes _____ primary geographical divisions of responsibility for U.S. SAR, each with its own _____ _____.
2. The three geographical divisions are:
   a. _____
   b. _____
   c. _____
3. The Coast Guard is responsible for _____ SAR.
4. The Air Force is responsible for _____ SAR.
5. Maritime SAR is divided into _____ areas, the _____ maritime area, and the _____ maritime area.
6. The three general objectives that provide direction for the SAR program are to minimize loss of _____, _____ _____, _____ _____ and _____; to minimize _____ _____ and _____ _____ during SAR missions; and to maintain _____ _____ and _____ _____ during SAR missions, and to maintain a _____ _____ position in maritime SAR.
7. The two program goals are to save at least _____ of those people at risk of death and to prevent the loss of at least _____ of the property that is at risk of destruction.

TASK COX-06-02-ANY: Legal Aspects and USCG Policy

1. The CFR states that the CG shall develop, establish, maintain and operate SAR facilities, and _____ render aid to _____ persons and protect and save _____ on and under the high seas.
2. "SAR Agreements" are formal _____ agreements and should resolve _____ coordination problems.
3. _____ _____ is one of the most important tools available to SAR authorities.
4. Because of their high false alert and alarm rates, 121.5/243 MHz first alerts initiate the _____ phase.
5. The CG endorses the _____ as the preferred beacon type.
6. SAR resources can reasonably be dispatched upon receipt of a _____ first alert.
7. Flare incidents must be treated as a _____ and _____ _____ unless available information indicates otherwise.
8. Unresolved red or orange flares require _____ _____.
9. In a _____ _____ case, the reporting source did not deliberately act to deceive.
10. A case where information is conveyed with the intent to deceive is a _____.
11. When the source of a hoax or false alarm has been confirmed, the case can be _____.
12. Only the _____ _____ can suspend or downgrade an unresolved hoax or false alarm case.
13. The Coast Guard's primary concern in a SAR situation is that _____ and _____ _____ be provided.
14. The SMC may use all sources of assistance in a _____ _____ without concern for _____ with private enterprise.
15. Reasonable time on scene by a commercial provider is generally considered to be _____ _____ _____ _____.
16. Coast Guard resources will not _____ _____ with private enterprise.
17. Reserve and _____ personnel are not to be used in any capacity that might give rise to the perception of a _____ _____ _____.

18. A Marine Assistance Request Broadcast (MARB) will be made to solicit the _____ _____ of anyone who can assist the mariner.
19. Coast Guard or auxiliary vessels may be directed to respond if no intent to respond to a MARB is heard within a _____ period of time. A guideline of _____ _____ is recommended.
20. In cases involving towing by the CG or Auxiliary, the vessel being towed will _____ be taken to the nearest _____ _____.
21. Coast Guard units should engage in salvage other than towing only when limited salvage operations can prevent a _____ _____ or _____ _____ of the vessel.
22. Any salvage operations shall be performed at the discretion of the unit _____.
23. The District Commander may modify the policy to provide for refloating a grounded boat which is not in peril of further damage or loss if CG units are _____ of rendering the assistance; the owner _____ the assistance and agrees to the _____ _____ to be made; and CG units and personnel are not _____ _____ by the operation.
24. _____ _____ are primarily responsible for maintaining necessary fire fighting capabilities in U.S. ports and harbor.
25. During marine fire fighting situations, CG units shall adopt a _____ response posture and shall focus their attentions on those traditional CG activities not requiring unit personnel to enter into a _____ _____.
26. Rescue of persons trapped below the surface of the water must fully consider proper _____ _____ and _____.
27. The _____ _____ shall ensure guidance is in place so that experienced supervisors, not the _____ _____, decide how to proceed with rescue attempts.
28. A Coast Guard swimmer is not to go _____ _____ or enter a _____ or _____ object.
29. A unit CO may request the assistance of other _____ divers, certified _____ divers or similarly highly trained _____ _____, such as local police divers, through appropriate channels.
30. A unit CO may consider using _____ personnel with diving qualifications, including _____ diving qualifications, who _____ services, if faced with a life-threatening situation and no other resources are reasonably available. The volunteers may be CG personnel or civilians.

TASK COX-06-04-ANY: Plot the Following Search Patterns: Expanding Square (SS), Sector (VS), Parallel (PS), Creeping Line (CS), Track Line Non-Return (TSN), and Track Line Return (TSR)

1. The Coast Guard is responsible for search and rescue in the _____ region.
2. The _____ is responsible for coordinating and controlling a specific SAR mission at the scene of the incident.
3. The most important items of information to initially record are the nature of distress and its _____.
4. The _____ phase is assigned anytime apprehension exists for the safety of a vessel or the people aboard the vessel.
5. The term _____ refers to the probable location of the distressed craft corrected for drift at any moment of time.
6. As time progresses, datum must be _____ to account for wind and current.
7. The search area must be large enough to ensure that survivors are _____ in it.
8. A search description, using the corner method, gives the latitude and longitude of each _____ _____.
9. A search description, using the _____ _____ method, uses two or more landmarks as boundaries for the search.
10. Sweep width is a function of the environmental conditions in the search area and how those conditions affect _____.
11. Track spacing is the _____ between adjacent search tracks.
12. The _____ search pattern is used when the last known position is established within close limits with a high degree of accuracy.
13. The _____ search pattern is used when datum is established with a high degree of confidence and the search target is difficult to detect.
14. The pattern used when the only information available is the intended track of the target is the _____ pattern.

TASK COX-06-05-ANY: Execute a Single Unit Expanding Square Search (SS) Pattern

1. The _____ _____ _____ is used when the last known position of a search object has a high degree of accuracy, the search area is small, and a concentrated search is desirable.
2. In the SS Pattern, the first leg is normally in the direction of the search object's drift and all turns are made _____ degrees to starboard.

TASK COX-06-06-ANY: Execute a Single Unit Sector Search (VS) Pattern

1. The VS Pattern is used by a _____ boat.
2. The first leg begins in the _____ direction that the search object is drifting toward.

TASK COX-06-07-ANY: Execute a Single Unit Parallel Search (PS) Pattern

1. The PS search pattern is used when the search area is _____ and there is equal probability of the target being anywhere in the _____ _____.
2. The search legs are _____ to the search area's _____ _____.

TASK COX-06-08-ANY: Execute a Single Unit Creeping Line Search (CS) Pattern

1. The CS pattern is used when the _____ _____ of the search object has been determined to be more likely at one end of the search area than at the other end.
2. CS patterns are the same as parallel patterns with the exception that the _____ are run parallel to the short side.

TASK COX-06-09-ANY: Execute a Single Unit Track Line Non-Return Search (TSN) Pattern

1. A TSN search is used when the only information is the search targets _____ or _____ _____.
2. The TSN is usually the first search action since the _____ may be near its _____ and will be easily seen.

TASK COX-06-10-ANY: Execute a Single Unit Track Line Return Search (TSR) Pattern

1. TSR is used to search when the only information available on the missing vessel is the _____ _____ of the search object.
2. In darkness or extremely low visibility, surface search vessels should periodically stop their engines at a selected point in the search area and conduct a _____ _____.

Section G. Reading Assignments - Division Seven

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-07-01-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*	4-113
COX-07-02-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*	4-113
COX-07-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*	4-113
COX-07-04-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 16, Section A*	4-114
COX-07-05-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section E*	4-114
COX-07-06-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 10, Section E*	4-114
COX-07-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section H*	4-71
COX-07-08-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18, Section I*	4-115
COX-07-09-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*	4-116
COX-07-10-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*	4-116
COX-07-11-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*	4-117
COX-07-12-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 19, Sections A* and *B*	4-117
COX-07-13-TYPE	• None assigned	

TASK COX-07-01-TYPE: Recover a Person From the Water Using the Direct Pickup Method

1. The first person to realize someone has fallen overboard should spread the _____.
2. After "Man Overboard" is called, the coxswain should depress the MOB button on the _____ receiver.
3. A _____ _____ with a strobe light should be dropped over the side.
4. The coxswain should normally turn the boat in the _____ the man fell overboard.
5. Another option, particularly in a restricted waterway, is to stop, _____ and _____, then return to the person in water (PIW).
6. If weather conditions permit, a _____ should position himself at the cabin window.
7. A _____/_____ crew member will be assigned to prepare to retrieve the person from the water.
8. There are two basic approaches: a _____ approach and a _____ approach.
9. Generally, the coxswain will maneuver the boat to the _____ side of the PIW so that the boat will be set _____ the PIW.
10. The coxswain should slow the boat as the approach is made so that it will be nearly _____ when the person overboard comes abeam.
11. The determining conditions for selecting a recovery method is whether the PIW is conscious, _____, or _____.
12. In heavy weather or surf conditions, the approach should be made heading _____ the seas.

TASK COX-07-02-TYPE: Recover a Life-Like Dummy (Oscar) in 2- to 4-Foot Seas

1. After "Man Overboard" is called, the coxswain should then push the memory button on the _____ or _____ receiver.
2. A _____ _____ with a strobe light should be thrown over the side towards the person in the water.
3. A _____ should be positioned on or near the bow of the boat.
4. There are two basic approaches: a _____ approach and a _____ approach.
5. Another option, particularly in a restricted waterway, is to stop, _____ and _____, then return to the PIW.

TASK COX-07-03-TYPE: Maneuver the Boat Alongside Another Boat, with No Way-On, and Transfer Personnel

1. When determining approach, consider prevailing _____ and _____, location, _____ sizes and _____ density. Discuss your intentions with the other _____ _____.
2. If going alongside a disabled vessel or one that is underway but dead-in-the-water, compare _____ _____ _____.
3. When approaching a larger vessel with a low drift rate, approach from _____.
4. If approaching a _____vessel, determine if your vessel makes a wind shadow that will _____ the other vessel's drift.

TASK COX-07-04-TYPE: Maneuver the Boat Alongside Another Boat, with Way-On, and Transfer Personnel

1. Conditions permitting, match your _____ to the other vessel, then start closing in from the side.
2. Close at a _____ to _____-degree angle to the vessel's heading.
3. Make contact with the _____ section of your boat.
4. Minimize _____ alongside.
5. Never _____ _____ when clearing alongside, parallel to another vessel that is making way.

TASK COX-07-05-TYPE: Maneuver the Boat Alongside a Ship and Transfer Personnel

1. A _____ _____ may be used in coming alongside a larger vessel underway. The sea painter is a line used to _____ a boat clear of a ship's side and occasionally to hold a boat alongside a ship in order to _____ or _____ personnel.
2. The sea painter leads from the _____ vessels deck, well forward of where the boat will come alongside.
3. Never secure the sea painter to the boat's _____ or to the side of the boat away from the ship. If secured to the outboard side of the boat, _____ could result.
4. Riding a sea painter helps maintain _____ and control of the boat.

TASK COX-07-06-TYPE: Combat a Boat Fire from the Boat

1. As a boat crew member, your primary responsibility in emergency assistance is_____ _____ not _____. Boat crews must be aware of their limited roles in emergency assistance, particularly when responding to _____ _____.
2. Boat crew members must work together as a _____ to minimize any _____ or immediate jeopardy for both _____ casualties and themselves.
3. Fire is the greatest single potential for _____ on a boat. The possibility of fire can never be completely _____ and is always a threat to watch for and guard against.
4. Coxswains must always stay well clear of _____ _____ rising from a fire because they greatly reduce visibility and can pose a _____ hazard.
5. Coast Guard personnel shall not engage in _____ fire fighting operations except to save a _____ or in the early stages of a fire, where they may avert a _____threat without undue risk.

TASK COX-07-07-ANY: Use a Portable Pump to Dewater a Sinking or Swamped Boat

1. A coxswain should always brief crew members on what _____ to follow before beginning to dewater a disabled vessel.
2. _____ of the crew is the first priority.
3. Once a source of flooding has been determined, crewmembers may take steps to _____ _____ _____into the boat.
4. The distressed vessel should not be boarded if it seems _____ and could possibly _____.
5. How to dewater a vessel depends on _____that exist at the scene.
6. Dewatering with a drop pump is done with the pump placed on the _____ boat.
7. When secured in its watertight container, a _____ _____ can easily be passed from one boat to another.
8. Dewatering pumps will not be used to pump_____ _____.

TASK COX-07-08-TYPE: Use an Eductor to Dewater a Sinking or Swamped Boat

1. Dewatering with an eductor can be performed only when _____ _____ permit your boat to safely come alongside a disabled vessel and remain close to it.
2. An eductor is used in conjunction with the _____ _____ on your boat.
3. The eductor is submerged, either _____ or_____, in the flooded area to be dewatered.
4. Boat crew must always make certain that a _____ _____ leads over the side and a _____ _____ is placed in the flooded areas of a disabled boat.

TASK COX-07-09-ANY: Attend a Static Display Given by a CG Helicopter Air Crew

1. Helicopters are flexible_____ _____, capable of recovering victims from a wide variety of distress situations on land or water.
2. Maximum endurance of the HH-65A Dolphin with a crew of two pilots and one crew member is approximately_____ _____.
3. The HH-65A Dolphin can carry a maximum of _____ passengers or survivors in addition to its crew of three.
4. The HH-65A Dolphin will not land on the water except in an _____. It will float if it is not badly _____and the flotation bags are _____.
5. Maximum endurance of the HH-60J Jayhawk with a crew of two pilots and two crew members is approximately _____ _____.
6. The HH-60J Jayhawk will not land in the water except in an emergency. Even with_____ _____, it will stay afloat only long enough for the crew to exit. It is not _____.
7. The multi-jointed (MJ) _____ _____is the primary device for hoisting survivors from land or sea during helicopter rescue operations.
8. The _____ _____is used to transfer an injured or unconscious person in any weather conditions.
9. The _____ _____ is used only to rescue persons familiar with its proper use.
10. Use of a _____ _____minimizes the time a pilot must maintain a precise stable hover without having a reference point.

TASK COX-07-10-TYPE: Participate in a Basket Hoist Using the Direct Delivery Method

1. Boat-helicopter operations require team effort, alertness, and cooperation among crew members aboard both the _____ and the _____.
2. Ensure all _____ _____ is properly worn, including head, eye, hearing, and hand protection.
3. Stow or secure all _____ _____ on deck.
4. Lower and secure all antennas, booms, rigging, and _____ _____.
5. Designate one boat crewmember to give _____ _____ to the hoist operator.
6. Brief the crew and _____ to be _____ regarding the type of hoist to be expected.
7. Always allow the rescue device to contact the boat, water, or _____ _____ _____, before touching it.

TASK COX-07-11-TYPE: Participate in a Basket Hoist Using the Trail Line Delivery Method

1. The rescue device will be lowered from the _____ side of the aircraft.
2. The pilot will normally direct the coxswain to assume a certain course and speed with a relative wind speed of _____ to _____ knots and 35 to 45 degrees off the _____ bow.
3. Boat crew members will tend the trail line by _____ method, exerting enough strain to guide the rescue device to the _____ _____ on the deck.
4. A second crew member should act as backup and _____ the _____.
5. Once the trail line is cast off, the coxswain will maneuver to _____ and away from the helicopter.
6. If either the coxswain or pilot feels the operation is unsafe, then a _____ should be conducted.

TASK COX-07-12-TYPE: Participate in a Rescue Swimmer Transfer Using the Rescue Strop

1. The strop will only be used to transfer trained, uninjured _____ personnel in fair weather.
2. When the person to be hoisted positions the collar under the armpits, a _____ _____ must ensure the safety strap s are fastened.

Section H. Reading Assignments - Division Eight

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Numbe r	Reading Assignment	See Page
COX-08-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Appendix 17-A*	4-119
COX-08-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section B*	4-119
COX-08-03-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section C*	4-120
COX-08-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17, Section D*	4-120
COX-08-05-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	4-120
COX-08-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	4-121
COX-08-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	4-121
COX-08-08-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	4-121
COX-08-09-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	4-121
COX-08-10-TYPE	• None assigned	

TASK COX-08-01-ANY: State General Towing Safety Precautions

1. All _____ from the disabled boat should be removed if necessary.
2. The coxswain should ensure that all people onboard the boat to be towed have donned their _____.
3. Heaving lines should be thrown _____ the disabled boat.
4. _____ should be established and maintained.
5. Personnel on both boats should be kept clear of the _____.
6. Towlines should be _____ tended before securing and never secured using _____ hitches.
7. The breaking strength of all shackles used should be _____ to or _____ than the breaking strength of the towline.
8. Towlines should always be kept clear of the boat's _____.
9. Boats beyond the capability of the towing vessel should _____ be towed.
10. Boats should never be towed at speeds beyond the _____ of the craft.
11. When towing, sudden _____ and _____ should be avoided.
12. A _____ can be used to prevent yawing of the tow.
13. If practical, someone on the towed craft should man the _____.
14. A constant _____ towing should be maintained.

TASK COX-08-02-ANY: State the Principle Forces that Affect Boat Towing

1. Static forces can be minimized by beginning the tow _____.
2. Speed should be increased slowly and in the _____ direction as the disabled vessel is heading.
3. Dynamic forces are caused by the _____ force resulting from the boat through the water, the _____ and direction of the wind, and the _____ and direction of the seas.
4. Friction is created by the movement of the _____ layer through the water.
5. With a deep draft boat, a high rate of _____ puts severe strain on the deck fittings and the towline.
6. Shock loading can be reduced by decreasing _____ or increasing the _____.

TASK COX-08-03-ANY: Inspect the Towline and Associated Hardware

1. A minimum of _____ turns should always be kept on the towline reel.
2. The towline should be inspected frequently for damage resulting from _____, abrasion, fusing, and snagging.
3. Heavily used towlines will indicate reduced _____ strength and overloading by its becoming _____ or hard.
4. The two types of bridles which should not be routinely used are the cabin and the _____ bridles.
5. To determine wear on wire rope, the coxswain must know (1) the original diameter of the wire rope, (2) the present diameter of the wire rope, and (3) the diameter of a _____ wire in one of the _____ of the wire rope.
6. Bitts, cleats, and chocks should be inspected frequently for _____, _____, and working surface smoothness.

TASK COX-08-04-ANY: Make Preparations for Taking a Vessel in Tow

1. In determining towing speed, the primary factor to be considered is the _____ of the boat and its occupants.
2. To determine the maximum towing speed of a displacement hull boat, use the formula Speed (in knots) = 1.34 times the square root of the _____ at the water line.
3. Safe towing speed is maximum towing speed decreased by at least ____%.
4. The recommended towing speed for planing hulls is the _____ as for a displacement hull.
5. All equipment should be assembled and checked for _____.
6. If boat-to-boat communications cannot be established through installed radio equipment, provide a _____ radio to someone on the distressed craft.
7. Persons aboard the distressed craft should be directed to _____ their PFDs.
8. The people on the other board should be _____ on the procedures to be used.

TASK COX-08-05-TYPE: Use a “Heavy Weather” Approach to Take a Vessel in Stern Tow

1. The “heavy weather” approach is used when there is a _____ sea or when the disabled boat’s rate of speed is rapid.
2. The towing boat crosses the disabled boat’s bow on a heading _____ to it.
3. This heading should be _____ the seas and wind whenever possible.

TASK COX-08-06-ANY: Use a Shackle or Skiff Hook Assembly Connection to Take a Vessel in Stern Tow

1. The trailer eyebolt is generally located on the _____, or near the _____ of the boat.
2. To reduce the hazard of injuries to personnel aboard both boats during hookup, a skiff hook assembly, used in conjunction with a_____, is used to make the connection.
3. The skiff hook assembly is only used with small _____ type boats.
4. Shackles should only be used in _____ or _____ weather conditions.
5. After tightening the shackle pin, it should be _____.

TASK COX-08-07-ANY: Take a Boat in Stern Tow Using a Bridle Connection

1. _____ leg bridles are generally used for towing sailboats.
2. A _____ should be assigned to the sailboat to assist in the rigging.
3. The _____ should be visually inspected to ensure it will be able to withstand the stress of towing.
4. The crew member on the sailboat should take one _____ turn around the mast and then the bridle to the _____.

TASK COX-08-08-TYPE: Take a Boat in Alongside Tow from a Stern Tow

1. The alongside tow is used primarily when maximum _____ is required and preferably in _____ waters.
2. The tow strap and the backing line reduce the amount of _____, which can occur between boats.
3. _____ should always be rigged to prevent hull damage.
4. When shortening tow, a rapid decrease in speed can easily result in the towed boat _____ on your boat so as to present an overtaking or ramming situation.
5. Back down slowly to remove the slack from the _____ strap.

TASK COX-08-09-TYPE: Moor a Disabled Vessel in Alongside Tow to a Float or Pier

1. When docking, the coxswain should _____ speed as slowly as possible to maintain control of the towed vessel.
2. Factors such as wind velocity, current, and height of tide should be evaluated when determining the best _____ of approach and the side of the boat to be moored.
3. For control approach, _____ the wind and current and moor on the protected side of the mooring.

Section I. Reading Assignments - Division Nine

Introduction

The reading assignment(s) should be read prior to beginning instruction of each task.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
COX-09-01-ANY	• None Assigned	

Part 5
Heavy Weather Coxswain Qualification

Introduction

This Part contains a collection of tasks, which must be learned, practiced, and performed by the trainee. These tasks represent the minimum elements of skill and knowledge necessary for safe and effective performance of a Coast Guard heavy weather coxswain.

NOTE

This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Chapters:

Chapter	Title	See Page
1	Task Accomplishment Record for Heavy Weather Coxswain	5-3
2	Heavy Weather Coxswain Qualification Tasks	5-5
3	Heavy Weather Coxswain Trainee Study Guide	5-43

Chapter 1.
Task Accomplishment Record for Heavy Weather Coxswain

NOTE Instructor should remove this chapter and place it in the trainee's training record.

TRAINEE NAME: _____ RATE: _____

INSTRUCTOR NAME: _____ RATE: _____

POSITION/QUALIFICATION CODE TO BE TRAINED FOR: _____

NOTE Instructors should line through those tasks not applicable to this qualification.

Task	Date Started	Date Completed	Instructor's Initials
HW-01-01-ANY			
HW-01-02-ANY			
HW-01-03-TYPE			
HW-01-04-ANY			
HW-01-05-ANY			
HW-01-06-ANY			
HW-01-07-ANY			
HW-02-01-ANY			
HW-02-02-ANY			
HW-02-03-TYPE			
HW-02-04-ANY			
HW-03-01-ANY			
HW-03-02-TYPE			
HW-03-03-TYPE			
HW-03-04-TYPE			

Task	Date Started	Date Completed	Instructor's Initials
HW-03-05-TYPE			
HW-03-06-TYPE			
HW-03-07-TYPE			
HW-03-08-TYPE			
HW-03-09-TYPE			
HW-03-10-TYPE			
HW-03-11-TYPE			
HW-03-12-TYPE			
HW-03-13-ANY			
HW-03-14-ANY			
HW-04-01-ANY			
HW-04-02-TYPE			
HW-04-03-TYPE			
HW-04-04-TYPE			
HW-04-05-TYPE			
HW-04-06-TYPE			
HW-04-07-TYPE			
HW-04-08-TYPE			
HW-04-09-TYPE			
HW-04-10-ANY			

Chapter 2.
Heavy Weather Coxswain Qualification Tasks

Introduction

The following are the instructions for this Chapter:

- This Chapter is to be kept by the instructor or in the trainee's training record. Its purpose is to provide guidance on the trainee's progress through the qualification tasks.
- The instructor should present the tasks to the trainee in a logical order using the instructions provided in *Part 1*.
- Tasks should be signed, dated and placed in the trainee's training record when the instructor is satisfied that the trainee can consistently perform a task in accordance with all standards and conditions.

Prerequisites

A prospective Heavy Weather Coxswain must:

- Be assigned to an operational unit with a surf capable boat attached, and
- Be a certified coxswain on the boat type for which they are seeking this higher level of qualification.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Heavy Weather and Surf Knowledge	5-6
B	Emergency Procedures or Response in Heavy Weather/Surf	5-12
C	Heavy Weather Operations	5-16
D	Surf Operations (up to 8 feet)	5-32

Section A. Heavy Weather and Surf Knowledge

Introduction

The following are objectives of Division One:

- **Demonstrate** knowledge of heavy weather and surf conditions and operating boats under these conditions.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
HW-01-01-ANY	Identify the Types of Breaking Seas, their Characteristics and Causes	5-6
HW-01-02-ANY	Explain the Geographical Causes of Local Surf Conditions	5-7
HW-01-03-TYPE	Explain the Forces Effecting a Surf Capable Boat Operating in Heavy Weather and Surf	5-8
HW-01-04-ANY	Explain the Relationship Between Navigation and Piloting as it Pertains to Operations in Heavy Seas or Surf	5-9
HW-01-05-ANY	Explain the Procedures and Safety Concerns Related to Recovery of Personnel from the Water in Heavy Seas or Surf	5-9
HW-01-06-ANY	Explain the Heavy Weather Towing Approach and Key Elements Related to Towing in Heavy Weather	5-10
HW-01-07-ANY	Explain the Procedure for Passing the Pump or Other Gear in Heavy Seas	5-11

TASK HW-01-01-ANY — **Identify the Types of Breaking Seas, their Characteristics and Causes**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 12, Section B, and Heavy Weather Addendum, Section A*

b. Bowditch

c. Chapman Piloting

Conditions

Task performed at any time or place with the aid of visual reference. Trainee must accomplish task without prompting.

Standards

The trainee must identify, without error, the types of breaking seas while observing actual conditions or referring to photo examples.

Performance Criteria	Completed (Initials)
1. State differences between deep-water waves and near shore breaking waves.	_____
2. Identify and describe types of breakers (plunging, spilling, surging).	_____
3. State causes of each type of breaker.	_____

Performance Criteria	Completed (Initials)
4. State effects of bottom contour, jetties, islands, and obstructions.	_____
5. State effects of winds on sea conditions.	_____
6. Explain the effects of current and tidal conditions on breaking seas.	_____
7. State the definition for the following terms: a. Closeout b. Window c. Saddle d. Shoulder e. Low/high side	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-02-ANY **Explain the Geographical Causes of Local Surf Conditions**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section A*

Conditions Task performed at any time or place with use of visual reference. Trainee must accomplish task without prompting.

Standards The trainee must state, without error, the local surf conditions, causes, areas to be avoided, and preferred training areas.

Performance Criteria	Completed (Initials)
1. State description of local surf conditions.	_____
2. State causes of each type.	_____
3. State affects of local contour, jetties, islands and obstructions.	_____
4. State effects of winds.	_____
5. State effects of local tides and currents.	_____
6. State local surf areas to be avoided.	_____
7. State characteristics (depths, shoaling areas, local names) for typical surf zones in operating area.	_____
8. State effects of local weather systems and patterns.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-03-TYPE	**Explain the Forces Effecting a Surf Capable Boat Operating in Heavy Weather and Surf**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must state, without error, the forces effecting a surf capable boat operating in heavy weather and surf.

Performance Criteria	Completed (Initials)	Boat Type
1. State how various wind velocities effect boat operations with the bow, stern and beam to the element.	_____ _____ _____	_____ _____ _____
2. State how different types of sea/swell patterns effect boat operations with the bow, stern and beam to the element.	_____ _____ _____	_____ _____ _____
3. State effects of aerated water on rudders and propellers.	_____ _____ _____	_____ _____ _____
4. State effects of shallow water on maneuverability.	_____ _____ _____	_____ _____ _____
5. State how each type of breaker effects boat operations with the bow, stern, and beam to the element.	_____ _____ _____	_____ _____ _____
6. State effects of meeting surf with all power ranges and the effects of excessive speed when meeting a breaker.	_____ _____ _____	_____ _____ _____
7. State effects of meeting a breaker at varying angles to the boat (i.e. bow to, stern to, quartering, square).	_____ _____ _____	_____ _____ _____
8. Describe wave avoidance techniques.	_____ _____ _____	_____ _____ _____
9. State cause of rollover or knockdown.	_____ _____ _____	_____ _____ _____
10. State cause of pitchpoling.	_____ _____ _____	_____ _____ _____
11. State cause of broaching.	_____ _____ _____	_____ _____ _____
12. State effects of changes in center of gravity.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-04-ANY	**Explain the Relationship Between Navigation and Piloting as it Pertains to Operations in Heavy Seas or Surf**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E* b. *Coast Guard Navigation Standards Manual*, COMDTINST M3530.2 (series)
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must explain, without error, the difficulties encountered when piloting/navigating in heavy seas and/or surf. The trainee must explain the methods used to overcome these difficulties that would allow the coxswain to be assured of the boat's position and safety.

Performance Criteria	Completed (Initials)
1. State the definition for navigation and piloting.	_____
2. State the safe surf working areas by use of ranges, points of reference, or radar ranges and fathometer.	_____
3. State the use of shore-side (tower/beach) lookouts to keep track of the MLB's position.	_____
4. Explain the importance of frequent operational status communications and when a 15-minute position check would be more appropriate than 30 minutes.	_____
5. State the advantages and disadvantages of using the enclosed bridge versus the open bridge in heavy weather.	_____
6. State the effects of aerated water on the accuracy of the fathometer.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-05-ANY	**Explain the Procedures and Safety Concerns Related to Recovery of Personnel from the Water in Heavy Seas or Surf**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must state, without error, the proper procedure for recovery of personnel from the water in heavy weather or surf.

Performance Criteria	Completed (Initials)
1. State the importance of ensuring that proper PPE is used.	_____
2. State the importance of setting up down-swell and using the appropriate steering station.	_____
3. State when to have personnel man the well-deck/recess port.	_____
4. State the appropriate methods for protecting the crew during the recovery phase.	_____
5. State the standard coxswain/crew communications expected during the recovery phase.	_____

Performance Criteria	Completed (Initials)
6. State first-aid procedures and where to place recovered personnel.	_____
7. State the differences between recovery techniques used for a conscious vice unconscious person.	_____
8. Discuss the use of life rings, throw bags, and boat hooks.	_____
9. State the risks inherent in recovering personnel from the water and methods used to minimize them.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-06-ANY	**Explain the Heavy Weather Towing Approach and Key Elements Related to Towing in Heavy Weather**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must state, without error, the heavy weather approach.

Performance Criteria	Completed (Initials)
1. State the importance of setting up down-swell/down-current and using the appropriate steering station.	_____
2. State the importance of being aware of the effect that the wind and seas have on the MLB in relation to the disabled vessel (set and drift).	_____
3. State the definition of optimum position, danger area, and maneuvering zone.	_____
4. State the procedures for maintaining safe distance while station keeping (opening and closing).	_____
5. State the importance of crew control and assigning duties.	_____
6. State the standard coxswain/crew communications expected during each of the following phases: a. Set-up b. Approach c. Hook-up d. Paying out e. In tow	_____
7. State the different tow rigs available and the advantages of each.	_____
8. State the causes of shock loading and how to correct them.	_____
9. State the purpose, deployment procedures and proper use of the drogue as it relates to towing in heavy seas.	_____
10. State the risks or safety concerns inherent in taking a vessel in stern tow and methods used to minimize them.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-01-07-ANY **Explain the Procedure for Passing the Pump or Other Gear in Heavy Seas**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*

Conditions Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.

Standards The trainee must state, without error, the proper procedure for passing a pump or other gear in heavy seas.

Performance Criteria	Completed (Initials)
1. State the importance of using a proper heavy weather approach to the lowest part of the disabled vessel.	_____
2. State proper equipment setup to pass gear in heavy weather including use of tending lines, extra flotation, or messengers.	_____
3. State the importance of station keeping until all gear is delivered.	_____
4. State the risks inherent in passing equipment in heavy seas and methods used to minimize them.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section B. Emergency Procedures or Response in Heavy Weather/Surf

Introduction

The following are objectives of Division Two:

- **Demonstrate** an understanding of the PPE and safety equipment to be used for heavy weather/surf operations.
- **Demonstrate** an understanding of the emergency procedures for operating in heavy weather/surf.

NOTE

Instructors must ensure that trainees reassess risk at appropriate intervals during evolutions, communicate to the crew, and use the results in decision-making.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
HW-02-01-ANY	Identify PPE and Safety Equipment for Heavy Weather and Surf Operations	5-12
HW-02-02-ANY	Explain Boat Preparations and Safety Precautions for Operating in Heavy Seas/Surf	5-13
HW-02-03-TYPE	Explain the Procedures to be Taken for a Rollover or Knockdown	5-14
HW-02-04-ANY	Explain the Procedures for Personal Survival if Lost Overboard in a Heavy Weather or Surf Environment	5-15

TASK HW-02-01-ANY — **Identify PPE and Safety Equipment for Heavy Weather and Surf Operations**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6*

b. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)

Conditions

Task performed on the boat at any time. Trainee must accomplish task without prompting or use of a reference.

Standards

The trainee must state, without error, the safety precautions and safety equipment for heavy weather and surf operations.

Performance Criteria	Completed (Initials)
1. State current policies and references for use of PPE and safety equipment on boats.	_____
2. State use of safety belts and seat belts.	_____
3. State the attachment points for the safety belts.	_____
4. State use of helmets.	_____
5. State use of dry suits, anti-exposure coveralls, hypothermia undergarments, gloves, and other protective garments including requirements for wear of each. Include explanation on the dangers of improper attire, such as cotton clothing, non-waterproof gloves, caps, comfort rings, etc.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-02-02-ANY	**Explain Boat Preparations and Safety Precautions for Operating in Heavy Seas/Surf**
References	a. *Boat Crew Utilization Guidelines*, COMDTINST 5312.16 (series) b. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must state, without error, preparations and safety precautions for operating a boat in heavy seas or surf.

Performance Criteria	**Completed (Initials)**
1. State areas of attention related to conducting safety rounds on the boat prior to heavy weather or surf operations (i.e. watertight integrity, typical missile hazards, equipment stowage, systems checks).	_____
2. State disabling casualties or restrictive discrepancies that would effect decisions to operate in heavy weather or surf.	_____
3. Explain the need for a backup radio and alternatives for communication.	_____
4. State when it is necessary to increase the frequency of ops and position checks (i.e. every 15 minutes).	_____
5. State maximum training conditions.	_____
6. State maximum operational conditions.	_____
7. State affects of fatigue and hypothermia on crew.	_____
8. State procedures for reducing body stress.	_____
9. Explain the boat crew fatigue standards.	_____
10. State concept of offshore crew management (extended sortie, underway rest/relief alternatives).	_____
11. Explain coxswain/surfman level decision criteria related to prosecution of the mission sortie (i.e. Go-No Go points).	_____
12. State procedures for conducting underway rounds during or after operations in heavy weather or surf.	_____
13. Explain how risk assessments are conducted and used to manage inherent risks.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-02-03-TYPE **Explain the Procedures to be Taken for a Rollover or Knockdown**

References a. Specific Boat Type Operator's Handbook, COMDTINST M16114 (series)

Conditions Task performed at any time onboard boat. Trainee must accomplish task without prompting or use of a reference.

Standards In response to the instructor, the trainee must, without error, state the crew procedures when a boat rolls or is caught by the force of a breaker.

Performance Criteria	Completed (Initials)	Boat Type
1. State the actions of crew in the event a breaker strikes the boat.	_____ _____ _____	_____ _____ _____
2. State force to be expected and effects on crew and boat.	_____ _____ _____	_____ _____ _____
3. State expected length of time for rollover or knockdown.	_____ _____ _____	_____ _____ _____
4. State immediate coxswain/surfman actions including assessment of crew condition and control of the boat.	_____ _____ _____	_____ _____ _____
5. State post rollover/knockdown casualty control procedures.	_____ _____ _____	_____ _____ _____
6. State likely conditions of antennas, mast, electronics, windows, and superstructure.	_____ _____ _____	_____ _____ _____
7. State likely condition of engine room and other compartments.	_____ _____ _____	_____ _____ _____
8. State potential damage control efforts or assistance that may be required as a result of a rollover or knockdown.	_____ _____ _____	_____ _____ _____
9. State the effect flooding in various compartments will have on boat stability and maneuvering.	_____ _____ _____	_____ _____ _____
10. State precedence for securing of electrical system breakers if necessary.	_____ _____ _____	_____ _____ _____
11. State essential information to be reported to operational command and alternatives for communicating status.	_____ _____ _____	_____ _____ _____
12. State deciding factors (i.e. reassessed risk) to determine whether to proceed with mission or return.	_____ _____ _____	_____ _____ _____
13. State potential actions to be performed by the backup safety boat (when available).	_____ _____ _____	_____ _____ _____
14. State immediate dockside procedures.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-02-04-ANY	**Explain the Procedures for Personal Survival if Lost Overboard in a Heavy Weather or Surf Environment**
Reference	a. *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series)
Conditions	Task performed at any time or place. Trainee must accomplish task without prompting or use of a reference.
Standards	The trainee must state, without error, procedures for personal survival if lost overboard in local area heavy weather or surf conditions.

Performance Criteria	**Completed (Initials)**
1. Discuss local area hazards (i.e. cold water, warm water, ice), rescue response (from where), signaling, and survival choices (i.e. swim to beach, stay with boat).	_____
2. Explain the techniques for swimming in beach surf areas and hazards that may be encountered (i.e. wave force, rip currents, long shore currents, shoals, debris).	_____
3. Explain reasons for use of a beach (shore-side) rescue party including limitations and alternatives to Coast Guard response.	_____
4. Explain emergency procedures (as established locally) and emergency signals to be used by rescue swimmers.	_____
5. Discuss notification of other units or agencies, as appropriate, to ensure timely support resources are available. (potential cross-training opportunity)	_____

Instructor _____ **Date** _____

Comments _____

_____

Section C. Heavy Weather Operations

Introduction

The following are objectives of Division Three:

- **Demonstrate** ability to properly plan for heavy weather operations.
- **Demonstrate** ability to operate boat(s) in heavy weather conditions, during various missions.

NOTE Instructors must ensure that trainees reassess risk at appropriate intervals during evolutions, communicate to the crew, and use the results in decision-making.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
HW-03-01-ANY	Conduct Pre-Mission Sortie Planning for Heavy Weather Operations	5-17
HW-03-02-TYPE	Conduct Safety Rounds, Vessel Systems Checks, and Crew Brief Related to Heavy Weather Operations	5-17
HW-03-03-TYPE	Operate a Boat in Heavy Seas	5-19
HW-03-04-TYPE	Pilot a Boat in Heavy Seas	5-20
HW-03-05-TYPE	Conduct a Person-in-the-Water (PIW) Recovery in Heavy Seas	5-21
HW-03-06-TYPE	Maintain a Stationary Position (Station Keep) Relative to Another Vessel (or Drifting Object) in Heavy Seas*	5-22
HW-03-07-TYPE	Conduct a Direct Pass of Equipment (Drogue, Pump, Radio, etc.) to Another Vessel in Heavy Seas*	5-23
HW-03-08-TYPE	Take a Boat in Tow in Heavy Seas Using Heavy Weather Approach (Bow-to Seas)*	5-24
HW-03-09-TYPE	Take a Boat in Tow in Heavy Seas Using "Stern-to Seas" Approach*	5-25
HW-03-10-TYPE	Counteract Shockloading During Tow of a Vessel in Heavy Seas and Demonstrate Use of a Drogue*	5-26
HW-03-11-TYPE	Shorten Tow in Heavy Seas*	5-28
HW-03-12-TYPE	Tow a Vessel Inbound Across an Inlet or Bar in Heavy Weather*	5-29
HW-03-13-ANY	Illuminate a Bar, Inlet or Surf Zone at Night Using Pyrotechnics from a Boat and from Shore	5-30
HW-03-14-ANY	Conduct a Post-Mission Standdown and Crew Debrief	5-31

**** Task must be accomplished with another vessel***

TASK HW-03-01-ANY	**Conduct Pre-Mission Sortie Planning for Heavy Weather Operations**
References	a. *Operational Risk Management*, COMDTINST 3500.3 (series) b. *Team Coordination Training*, COMDTINST 1541.1 (series)
Conditions	Task performed prior to getting underway. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must coordinate all mission planning and establish objectives for the sortie. Trainee must lead the shore-side pre-mission safety brief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	Completed (Initials)
1. Identify safe operating area and hazards.	_____
2. Evaluate sea/surf conditions, tides, currents, winds, and anticipated changes that may occur during the sortie.	_____
3. Brief crew on sortie objectives and the area where operations will be conducted.	_____
4. Brief crew on communications plan encompassing boat-to-boat, boat-to-shore, shore-to-boat. Include discussion of backup radio use and location.	_____
5. Brief crew on principle use of tower watch/beach party in providing critical information to the participating boats.	_____
6. Solicit and evaluate safety concerns including knockdown/rollover brief and proper use of PPE.	_____
7. Conduct risk assessment for sortie using appropriate risk management tools (SPE, GAR or other) from TCT/ORM and include discussion of risk as part of crew briefs.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-02-TYPE	**Conduct Safety Rounds, Vessel Systems Checks, and Crew Brief Related to Heavy Weather Operations**
References	a. *Boat Crew Seamanship Manual*, M16114.5 (series), *Chapter 1*
Conditions	Task performed on boat prior to leaving protected waters and upon return to protected waters. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must complete a visual safety round prior to getting underway. Trainee must check operation of the boat key systems and brief crew prior to leaving protected waters. Trainee must coordinate safety rounds of the boat after returning to protected waters.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct visual inspection through all compartments prior to getting underway (i.e. stowage, missile hazards, watertight integrity, leaks or signs of system problems).	_____ _____ _____	_____ _____ _____
2. Monitor conditions and hazards in operating area.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Check engines and controls for full power ahead and astern (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____
4. Check steering system for full, even rudder control port and starboard (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____
5. Ensure engineer made round of engine room prior to leaving protected waters.	_____ _____ _____	_____ _____ _____
6. Assign crew positions and check PPE and all safety equipment.	_____ _____ _____	_____ _____ _____
7. Brief crew on methods to be used in moving about the deck, if necessary, and who will authorize movement.	_____ _____ _____	_____ _____ _____
8. Brief crew on natural ranges, points of reference, radar ranges, and depth of water to be used.	_____ _____ _____	_____ _____ _____
9. Brief crew on knockdown/rollover procedures.	_____ _____ _____	_____ _____ _____
10. Brief crew on procedure in the event the coxswain becomes incapacitated.	_____ _____ _____	_____ _____ _____
11. Brief crew on procedure to remain together and use appropriate signaling device in the event that they have fallen overboard.	_____ _____ _____	_____ _____ _____
12. Check communications with backup safety boat and/or shore party.	_____ _____ _____	_____ _____ _____
13. Coordinate safety rounds of boat after safely returning to protected waters.	_____ _____ _____	_____ _____ _____
14. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
15. Maintain situational awareness and total control of the boat.	_____ _____ _____	_____ _____ _____
16. Brief crew on risk assessment results.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-03-TYPE **Operate a Boat in Heavy Seas**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1*, and *Heavy Weather Addendum, Section B*

Conditions

Task performed while underway in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference. Trainee must also demonstrate vessel control in high wind conditions with gusts greater than 30 knots. During single engine operations for the simulated engine casualty, the second engine will remain on line.

Standards

Task must be accomplished without excessive risk to the boat or crew. Boat must operate with bow to, stern to, and beam to seas while both making way and maintaining stationary position.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Test engine and steering controls prior to departing protected waters.	_____ _____ _____	_____ _____ _____
3. Observe sea conditions and evaluate.	_____ _____ _____	_____ _____ _____
4. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
5. Avoid breaking waves, if possible.	_____ _____ _____	_____ _____ _____
6. Use proper power to meet seas when required.	_____ _____ _____	_____ _____ _____
7. Maintain proper communications between coxswain and crew.	_____ _____ _____	_____ _____ _____
8. Maintain full control of boat while transiting with bow to seas.	_____ _____ _____	_____ _____ _____
9. Maintain full control of boat while transiting with stern to seas.	_____ _____ _____	_____ _____ _____
10. Adjust speed and/or angle to the seas to allow a stable, comfortable ride for conditions.	_____ _____ _____	_____ _____ _____
11. Maintain full control of boat while station keeping.	_____ _____ _____	_____ _____ _____
12. Maintain full control of boat while maneuvering in winds gusting to greater than 30 knots.	_____ _____ _____	_____ _____ _____
13. Maintain full control of boat while backing (minimum of 500 yards without yawing more than 10 degrees off heading).	_____ _____ _____	_____ _____ _____
14. Maintain full control while operating/maneuvering with one engine, during a simulated engine casualty.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-04-TYPE **Pilot a Boat in Heavy Seas**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section C*

b. *Coast Guard Navigation Standards Manual*, COMDTINST M3530.3 (series)

Conditions Task performed while underway in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Boat preparations must be accomplished prior to getting underway or leaving protected waters. Boat must be piloted at least eight miles with all installed navigation equipment used competently by the trainee.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Conduct pre-launch preparations including plotting of dead reckoning positions, track lines, ranges, and waypoints.	_____ _____ _____	_____ _____ _____
3. Inspect boat ensuring all loose gear is stowed and watertight integrity is maintained.	_____ _____ _____	_____ _____ _____
4. Assign crew positions and check PPE and all safety equipment.	_____ _____ _____	_____ _____ _____
5. Observe sea conditions and evaluate safest course against planned dead reckoning plot.	_____ _____ _____	_____ _____ _____
6. Identify safe operating area and hazards and pilot boat with adjustments for surrounding dangers.	_____ _____ _____	_____ _____ _____
7. Consistently determine speed over ground and actual course made good.	_____ _____ _____	_____ _____ _____
8. Demonstrate awareness of the effects of current, swell, and wind on the boats heading.	_____ _____ _____	_____ _____ _____
9. Adjust heading and/or speed to compensate for set and drift as needed to maintain safe transit.	_____ _____ _____	_____ _____ _____
10. Integrate information from all available electronics to consistently determine position.	_____ _____ _____	_____ _____ _____
11. Demonstrate advantages and shortcomings of all available electronics.	_____ _____ _____	_____ _____ _____
12. Promote continuous communication and use of crew as integral part of piloting effort.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
13. Maintain situational awareness and crew control throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-05-TYPE **Conduct a Person-in-the-Water (PIW) Recovery in Heavy Seas**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section D*

Conditions
Task performed while underway in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference. A life-like dummy (Oscar) will be used if performed during a training sortie.

Standards
Task must be accomplished without excessive risk to the boat or crew. The direct pickup method must be used. Task must be accomplished without injury or excessive risk to the person (life-like dummy) in the water.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Station pointer on open steering station or nearby coxswain to effectively communicate.	_____ _____ _____	_____ _____ _____
3. Throw life ring if appropriate to assist PIW.	_____ _____ _____	_____ _____ _____
4. Maneuver boat down sea into position for final approach.	_____ _____ _____	_____ _____ _____
5. Make ready appropriate standard retrieval equipment.	_____ _____ _____	_____ _____ _____
6. Position crew for recovery ensuring safe movement and clear communications.	_____ _____ _____	_____ _____ _____
7. Conduct recovery from recess port or well-deck only.	_____ _____ _____	_____ _____ _____
8. Maneuver boat into safe position for recovery with regard to crew and PIW.	_____ _____ _____	_____ _____ _____
9. Properly use sea and wind conditions in adjusting approach during pickup.	_____ _____ _____	_____ _____ _____
10. Complete safe recovery of PIW.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
11. Move PIW from recess port or well-deck to position of safety and protection from elements.	_____ _____ _____	_____ _____ _____
12. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
13. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-06-TYPE **Maintain a Stationary Position (Station Keep) Relative to Another Vessel (or Drifting Object) in Heavy Seas**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section B*

Conditions

Task performed while underway in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference. Use of another vessel is preferred as a relative target, but a suitable drifting object may be substituted.

Standards

Task must be accomplished without excessive risk to the boat or crew. Boat must maintain stationary position for at least five minutes with limited movement relative to the other vessel (object). Boat must maintain bow/stern to the seas attitude at all times except when lateral movement is necessary. The task must be accomplished without endangering the other vessel (object) and without getting close enough for the vessels to collide.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Use proper helm and throttle control to establish a safe position near the other vessel.	_____ _____ _____	_____ _____ _____
4. Use swells and/or wind to assist in maneuvering and holding position.	_____ _____ _____	_____ _____ _____
5. Use appropriate steering station.	_____ _____ _____	_____ _____ _____
6. Maintain position within 75 feet of the other vessel or drifting object for 5 minutes with bow/stern to seas.	_____ _____ _____	_____ _____ _____
7. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
8. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-07-TYPE **Conduct a Direct Pass of Equipment (Drogue, Pump, Radio, etc.) to Another Vessel in Heavy Seas**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 18*

Conditions Task performed while underway for training in daytime in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. The task must be accomplished without endangering the other vessel or crew. The boat must maintain a safe standoff distance while conducting the direct pass. Control of the equipment must be maintained without loss.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Evaluate condition of disabled boat.	_____ _____ _____	_____ _____ _____
3. Establish communications with disabled boat.	_____ _____ _____	_____ _____ _____
4. Set up to pass standard equipment using messenger, tending, or recovery lines as appropriate.	_____ _____ _____	_____ _____ _____
5. Evaluate relative rates of drift.	_____ _____ _____	_____ _____ _____
6. Identify safest transfer point on MLB and receiving point on disabled boat.	_____ _____ _____	_____ _____ _____
7. Make proper approach to disabled boat.	_____ _____ _____	_____ _____ _____
8. Maintain relative position with drifting vessel.	_____ _____ _____	_____ _____ _____
9. Ensure crew maintains control of gear during pass to disabled boat.	_____ _____ _____	_____ _____ _____
10. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
11. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-08-TYPE **Take a Boat in Tow in Heavy Seas Using Heavy Weather Approach (Bow-to Seas)**

References
a. *47' MLB Operator's Handbook*, COMDTINST M16114.25 (series), *Chapter 6*
b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*

Conditions Task performed while underway in 8- to 15-foot seas. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Boat must take another boat in stern tow and maintain tow for at least fifteen minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Observe sea conditions and evaluate.	_____ _____ _____	_____ _____ _____
3. Establish communications with disabled boat.	_____ _____ _____	_____ _____ _____
4. Evaluate condition of disabled vessel.	_____ _____ _____	_____ _____ _____
5. Describe evolution and safety procedures to disable vessel.	_____ _____ _____	_____ _____ _____
6. Locate towing appendages and evaluate for strength.	_____ _____ _____	_____ _____ _____
7. Use appropriate towing equipment for vessel type, vessel size, and sea conditions.	_____ _____ _____	_____ _____ _____
8. Evaluate relative rates of drift while station keeping near disabled vessel.	_____ _____ _____	_____ _____ _____
9. Make heavy weather approach to disabled vessel while keeping bow square to seas.	_____ _____ _____	_____ _____ _____
10. Safely pass towline while station keeping in optimum position relative to vessel.	_____ _____ _____	_____ _____ _____
11. Transition into stern tow after towline is safely made fast to the vessel and the crew has control at the tow bitt.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
12. Smoothly and slowly pay out towline without shockloading.	_____ _____ _____	_____ _____ _____
13. Choose angle to the seas (during pay out) to provide safest working conditions for crew and least strain on towing equipment and appendages.	_____ _____ _____	_____ _____ _____
14. Adjust length of tow, speed, and final course to give disabled vessel the safest/best ride.	_____ _____ _____	_____ _____ _____
15. Maintain consistent communications with disabled vessel to verify status.	_____ _____ _____	_____ _____ _____
16. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
17. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____
18. Tow disabled boat for minimum of fifteen minutes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-09-TYPE **Take a Boat in Tow in Heavy Seas Using "Stern-to Seas" Approach**

References
a. *47' MLB Operator's Handbook*, COMDTINST M16114.25 (series), *Chapter 6*
b. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*

Conditions Task performed while underway in 8- to 12-foot seas. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Boat must take another boat in stern tow and maintain tow for at least fifteen minutes.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Observe sea conditions and evaluate.	_____ _____ _____	_____ _____ _____
3. Establish communications with disabled vessel.	_____ _____ _____	_____ _____ _____
4. Evaluate condition of disabled boat.	_____ _____ _____	_____ _____ _____
5. Describe evolution and safety procedures to disable vessel.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
6. Locate towing appendages and evaluate for strength.	_____ _____ _____	_____ _____ _____
7. Use appropriate towing equipment for vessel type, vessel size, and sea conditions.	_____ _____ _____	_____ _____ _____
8. Evaluate relative rates of drift while station keeping near disabled vessel.	_____ _____ _____	_____ _____ _____
9. Make heavy weather approach to disabled boat while keeping stern square to seas.	_____ _____ _____	_____ _____ _____
10. Safely pass towline while station keeping in optimum position relative to vessel.	_____ _____ _____	_____ _____ _____
11. Transition into stern tow after towline is safely made fast to the vessel and the crew has control at the tow bitt.	_____ _____ _____	_____ _____ _____
12. Smoothly and slowly pay out towline without shockloading.	_____ _____ _____	_____ _____ _____
13. Choose angle to the seas (during pay out) to provide safest working conditions for crew and least strain on towing equipment and appendages.	_____ _____ _____	_____ _____ _____
14. Adjust length of tow, speed, and final course to give disabled vessel the safest/best ride.	_____ _____ _____	_____ _____ _____
15. Maintain consistent communications with disabled vessel to verify status.	_____ _____ _____	_____ _____ _____
16. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
17. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____
18. Tow disabled boat for fifteen minutes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-10-TYPE	**Counteract Shockloading During Tow of a Vessel in Heavy Seas and Demonstrate Use of a Drogue**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task performed while underway in 8- to 15-foot seas in open waters. Task performed after safely taking a vessel in stern tow.

Standards Task must be accomplished without excessive risk to the boat or crew. Task will be performed utilizing standard equipment and procedures. Vessel must be towed for at least 15 minutes without excessive strain on the towing appendages or shockloading of the towline.

Performance Criteria	Completed (Initials)	Boat Type
1. Evaluate conditions with relation to sea state, towed vessel, towing rig, intended destination, and expected changes or hazards.	_____ _____ _____	_____ _____ _____
2. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
3. Brief towed vessel on procedures and intended actions.	_____ _____ _____	_____ _____ _____
4. Demonstrate proper method to counteract shockloading based on conditions (i.e. course change, adjust speed, use of a drogue, adjust scope of towline).	_____ _____ _____	_____ _____ _____
5. State the appropriate method for passing a drogue and the best time to accomplish it.	_____ _____ _____	_____ _____ _____
6. State safety precautions to be observed when selecting and using a drogue.	_____ _____ _____	_____ _____ _____
7. Explain where a drogue should be secured when towing in a heavy following sea.	_____ _____ _____	_____ _____ _____
8. Explain how a vessel is affected when being towed with a drogue.	_____ _____ _____	_____ _____ _____
9. State how to judge the proper scope of drogue line to be used in various sea states.	_____ _____ _____	_____ _____ _____
10. State when to have towed vessel recover drogue and what actions will be taken.	_____ _____ _____	_____ _____ _____
11. Demonstrate use of a drogue.	_____ _____ _____	_____ _____ _____
12. Maintain consistent communications with disabled vessel to verify status.	_____ _____ _____	_____ _____ _____
13. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
14. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____
15. Tow disabled vessel for fifteen minutes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-11-TYPE	**Shorten Tow in Heavy Seas**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*
Conditions	Task performed while underway in 8- to 15-foot seas in open waters.
Standards	Task must be accomplished without excessive risk to the boat or crew. Task must be accomplished without allowing either the towed vessel or the MLB to be set over the towline at any time.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Brief towed vessel on procedures and intended actions.	_____	_____
3. Select appropriate heading approximately quartering the seas based on wind conditions.	_____	_____
4. Slow both vessels to a stop (no headway).	_____	_____
5. Square into the seas with towed vessel down swell.	_____	_____
6. Set up to recover towline off the windward quarter.	_____	_____
7. Ensure tow bitt is broke and line is tended by crew off the quarter.	_____	_____
8. Back square to the seas with appropriate power until desired amount of towline is recovered.	_____	_____
9. Ensure bight of towline does not get forward of the coxswain.	_____	_____
10. Safely take excess towline aboard to length established by coxswain.	_____	_____
11. Make tow bitt and tend towline as necessary.	_____	_____
12. Maneuver to transition back into stern tow.	_____	_____
13. Explain precautions when towing across a bar/inlet at short tow.	_____	_____
14. Maintain consistent communications with disabled vessel to verify status.	_____	_____
15. Ensure clear communications and coordination among crew.	_____	_____
16. Maintain situational awareness and total control of the boat throughout evolution.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-12-TYPE **Tow a Vessel Inbound Across an Inlet or Bar in Heavy Weather**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*

Conditions Task performed while underway in heavy weather. Maximum sea state will be at command discretion based on area of operation but not to exceed 15 feet (swells or wind generated chop, no surf). Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Task must be accomplished with minimum shock loading of the towline. The MLB must maintain control over the towed vessel throughout the transit.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Brief towed vessel of crossing and safety procedures prior to evolution.	_____ _____ _____	_____ _____ _____
3. Explain precautions when towing across a bar/inlet at short tow.	_____ _____ _____	_____ _____ _____
4. Discuss risk control alternatives (i.e. safety backup boat, tower manned, beach party).	_____ _____ _____	_____ _____ _____
5. Discuss safety concerns (i.e. loss of tow, taking on water, MOB, break on the stern, tow overtaking towline).	_____ _____ _____	_____ _____ _____
6. State and demonstrate appropriate procedures and standard equipment to counteract shockloading when towing a vessel across a bar or inlet.	_____ _____ _____	_____ _____ _____
7. Successfully transit bar/inlet with tow.	_____ _____ _____	_____ _____ _____
8. Maintain consistent communications with disabled vessel to verify status.	_____ _____ _____	_____ _____ _____
9. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
10. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-13-ANY **Illuminate a Bar, Inlet or Surf Zone at Night Using Pyrotechnics from a Boat and from Shore**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 6*

Conditions Task performed while underway during a period of darkness in 8- to 15-foot seas. The MLB (or surf capable boat) may be inside or outside the bar/inlet at the commencement of the operation. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. The trainee must coordinate the necessary resources to illuminate an area adequately for nighttime MLB (or surf capable boat) operations.

Performance Criteria	Completed (Initials)
1. Conduct unit pre-mission brief including safety procedures, risk management issues, position assignments, individual roles and responsibilities.	_____
2. Explain the reasons and techniques that may be used for illuminating an area such as a bar, inlet, or surf zone at night in order to improve safety of operations.	_____
3. Identify safe operating area and hazards.	_____
4. Determine whether backup safety boat or helo support was necessary to ensure safety.	_____
5. Coordinate resources to ensure all equipment and personnel were on scene prior to commencement of operations.	_____
6. Establish communications between all resources involved including shore-side party.	_____
7. Brief crew and assign duties.	_____
8. Maintain a stable platform during launch of pyrotechnics for illumination.	_____
9. Keep bow or stern square to the seas as appropriate for conditions.	_____
10. Coordinate illumination of the operating area to allow clear observations from boat and/or shore.	_____
11. Determine if conditions were safe for transit into or through the bar, inlet or surf zone.	_____
12. Provide clear, accurate assessment of sea conditions in area and report to unit.	_____
13. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____
14. Ensure clear communications and coordination among crew and other resources.	_____
15. Maintain situational awareness and total control of the boat.	_____
16. Conduct unit post-mission debrief including lessons learned and recommendations to command related to improvement in unit response strategy for near shore operations.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-03-14-ANY	**Conduct a Post-Mission Standdown and Crew Debrief**
References	a. *Operational Risk Management*, COMDTINST 3500.3 (series) b. *Team Coordination Training*, COMDTINST 1541.1 (series)
Conditions	Task performed after underway for heavy weather operations. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must lead the shore-side post-mission safety debrief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	**Completed (Initials)**
1. Stand down all unit resources involved with heavy weather operations and ensure safe return to unit.	_____
2. Ascertain condition of participating crews.	_____
3. Ascertain condition of unit boats and ensure they remained fully mission capable (any disabling or restrictive discrepancies report to command).	_____
4. Ascertain condition of any other resources utilized (i.e. tower, vehicles, radios, safety gear) and ensure their continued readiness.	_____
5. Coordinate and lead unit post-mission debrief in appropriate setting.	_____
6. Debrief crew, encouraging input from juniors first (least experienced), seniors last (most experienced).	_____
7. Review objectives, communications, lessons learned, safety issues observed, ideas for improvement, and reinforcement of good seamanship practices and teamwork.	_____
8. Provide lessons learned and recommendations to command related to improvement in unit response strategy for near shore operations.	_____
9. Determine if the lessons learned or the actions during the mission warrant further reporting via the boat mishap reporting system.	_____
10. Discuss crew's ability to react to changes in risk levels encountered during debrief.	_____

Instructor _____ **Date** _____

Comments _____

_____

Section D. Surf Operations (up to 8 feet)

Introduction

The tasks in this section are not required for certification as heavy weather coxswain. Unit commands that have surf (up to 8 feet) in their respective areas of responsibility shall use these tasks to prepare coxswains and heavy weather coxswains for missions in or near these areas. Coxswains and heavy weather coxswains shall not attempt operations in surf unless they have demonstrated the proper skills through satisfactory accomplishment of these tasks.

These are the objectives for this section:

- **Demonstrate** ability to properly plan for surf operations.
- **Demonstrate** ability to operate boat(s) in surf conditions up to 8 feet, during various missions.

NOTE Instructors must ensure that trainees reassess risk at appropriate intervals during evolutions, communicate to the crew, and use the results in decision-making.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
HW-04-01-ANY	Conduct Pre-Mission Sortie Planning for Surf Operations	5-33
HW-04-02-TYPE	Conduct Safety Rounds, Vessel Systems Checks, and Crew Brief Related to Surf Operations	5-33
HW-04-03-TYPE	Determine the Position of a Boat in Surf up to 8 Feet	5-34
HW-04-04-TYPE	Maintain Stationary Position (“Station Keep”) Using Both the Bow-To and Stern-To Methods in Surf up to 8 Feet	5-36
HW-04-05-TYPE	Transit Outbound on an Inlet or Bar Through Surf up to 8 Feet	5-36
HW-04-06-TYPE	Transit Inbound on an Inlet or Bar Through Surf up to 8 Feet	5-38
HW-04-07-TYPE	Lateral Across a Surf Zone Beam to Surf up to 8 Feet	5-39
HW-04-08-TYPE	Enter and Depart a Beach (Shoal Area) Surf Zone in Surf up to 8 Feet	5-40
HW-04-09-TYPE	Conduct a Person-in-the-Water (PIW) Recovery in Surf up to 8 Feet	5-41
HW-04-10-ANY	Conduct a Post-Mission Standdown and Crew Debrief	5-42

TASK HW-04-01-ANY	**Conduct Pre-Mission Sortie Planning for Surf Operations**
References	a. *Operational Risk Management*, COMDTINST 3500.3 (series) b. *Team Coordination Training*, COMDTINST 1541.1 (series)
Conditions	Task performed prior to getting underway. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must coordinate all mission planning and establish objectives for the sortie. Trainee must lead the shore-side pre-mission safety brief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	Completed (Initials)
1. Identify safe operating area and hazards.	_____
2. Evaluate surf conditions, tides, currents, winds, and anticipate changes that may occur during the sortie.	_____
3. Brief crew on sortie objectives and the area where operations will be conducted.	_____
4. Brief crew on communications plan encompassing boat-to-boat, boat-to-shore, shore-to-boat, reporting necessary to safety. Include discussion of backup radio use and location.	_____
5. Brief crew on principle use of tower watch/beach party in providing critical information to the participating boats.	_____
6. Solicit and evaluate safety concerns including knockdown/rollover brief and proper use of PPE.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-02-TYPE	**Conduct Safety Rounds, Vessel Systems Checks, and Crew Brief Related to Surf Operations**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1* and *Heavy Weather Addendum, Section E*
Conditions	Task performed on boat prior to entering and immediately after exiting a surf zone. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must complete a visual safety round prior to getting underway. Trainee must check operation of the boat key systems and brief crew prior to entering surf zone. Trainee must coordinate safety rounds of the boat after exiting the surf zone.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct visual inspection through all compartments prior to getting underway (i.e. stowage, missile hazards, watertight integrity, leaks or signs of system problems).	_____ _____ _____	_____ _____ _____
2. Monitor conditions and hazards in operating area.	_____ _____ _____	_____ _____ _____
3. Check engines and controls for full power ahead and astern (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
4. Check steering system for full, even rudder control port and starboard (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____
5. Ensure engineer made round of engine room prior to entering the surf zone.	_____ _____ _____	_____ _____ _____
6. Assign crew positions and check PPE and all safety equipment.	_____ _____ _____	_____ _____ _____
7. Brief crew on methods to be used in moving about the deck if necessary and who will authorize movement.	_____ _____ _____	_____ _____ _____
8. Brief crew on natural ranges, points of reference, radar ranges, and depth of water to be used.	_____ _____ _____	_____ _____ _____
9. Brief crew on knockdown/rollover procedures.	_____ _____ _____	_____ _____ _____
10. Brief crew on procedure in the event the surfman becomes incapacitated.	_____ _____ _____	_____ _____ _____
11. Brief crew on procedure to remain together and use appropriate signaling device in the event that they have fallen overboard.	_____ _____ _____	_____ _____ _____
12. Check communications with backup safety boat and/or shore party.	_____ _____ _____	_____ _____ _____
13. Coordinate safety rounds of boat after safely exiting the surf zone.	_____ _____ _____	_____ _____ _____
14. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
15. Maintain situational awareness and total control of the boat.	_____ _____ _____	_____ _____ _____
16. Brief crew on risk assessment results.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-03-TYPE	**Determine the Position of a Boat in Surf up to 8 Feet**
References	a. *Coast Guard Navigation Standards Manual*, COMDTINST M3530.2 (series)
Conditions	Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.

Standards

Task must be accomplished without excessive risk to the boat or crew. Using local knowledge, available electronics and seaman's eye, trainee must determine boat's position relative to the closest hazards with an accuracy of 100 yards. Trainee must maintain a safe distance from known hazards at all times. Task must be accomplished while station keeping in the surf zone.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Ensure safety rounds and checks were complete.	_____	_____
3. Assign crew positions and check PPE and all safety equipment.	_____	_____
4. Brief crew on natural ranges, points of reference, radar ranges, and depth of water to be used.	_____	_____
5. Identify safe operating area and hazards and pilot boat with adjustments for surrounding dangers.	_____	_____
6. Observe sea and surf conditions and evaluate safest course through surf zone.	_____	_____
7. Demonstrate awareness of the effects of current, swell, and wind on the boat's heading and movements.	_____	_____
8. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____	_____
9. Choose safe position in which to station keep with relation to depth of water, hazards, and useful ranges.	_____	_____
10. Determine boat's position in relation to known hazards using available electronics.	_____	_____
11. Demonstrate advantages and shortcomings of all available electronics.	_____	_____
12. Determine boat's position using fixed geographical references and seaman's eye.	_____	_____
13. Use other available resources to assist in determining position (i.e. tower, beach party, other boats, aircraft, watchstander).	_____	_____
14. Pass accurate position to operational command and verify by shore-side plotting.	_____	_____
15. Promote continuous communication and use of crew as integral part of piloting effort.	_____	_____
16. Maintain situational awareness and total control of the boat.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-04-TYPE **Maintain Stationary Position ("Station Keep") Using Both the Bow-To and Stern-To Methods in Surf up to 8 Feet**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*

Conditions Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Boat must maintain stationary position for at least five minutes with limited movement. Boat must maintain square bow-to/stern-to attitude at all times except when lateral movement is necessary. When necessary, boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Identify safe operating area and hazards.	_____	_____
3. Maintain square bow-to/stern-to aspect while station keeping in surf.	_____	_____
4. Use proper amount of power to meet breakers and hold position.	_____	_____
5. Use proper helm, throttle commands to achieve a bow/stern position to the seas.	_____	_____
6. Use small swells and surf to maneuver and hold position.	_____	_____
7. Ensure clear communications and coordination among crew and other resources.	_____	_____
8. Maintain situational awareness and total control of the boat throughout evolution.	_____	_____
9. Maintain position for 5 minutes.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-05-TYPE **Transit Outbound on an Inlet or Bar Through Surf up to 8 Feet**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*

Conditions Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. If possible, transit through the surf zone should be accomplished without meeting a breaker. When necessary, boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Provide accurate bar report to operational command concerning existing conditions.	_____ _____ _____	_____ _____ _____
4. Time series to transit through surf zone on the lull.	_____ _____ _____	_____ _____ _____
5. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____ _____ _____	_____ _____ _____
6. Use appropriate, safe speed without launching.	_____ _____ _____	_____ _____ _____
7. Meet breakers with appropriate power.	_____ _____ _____	_____ _____ _____
8. Identify the high/low sides and maneuver toward the low side.	_____ _____ _____	_____ _____ _____
9. Use safety backup boat or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
10. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
11. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-06-TYPE	**Transit Inbound on an Inlet or Bar Through Surf up to 8 Feet**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*
Conditions	Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.
Standards	Task must be accomplished without excessive risk to the boat or crew. Maximum effort should be taken to keep the boat from being overtaken by a breaker. Boat must be maneuvered in adequate time to avoid a breaker on the stern.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Provide accurate bar report to operational command concerning existing conditions.	_____ _____ _____	_____ _____ _____
4. Time series to transit through surf zone on the lull.	_____ _____ _____	_____ _____ _____
5. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____ _____ _____	_____ _____ _____
6. Use appropriate, safe speed to avoid overtaking the crest of a swell or breaker.	_____ _____ _____	_____ _____ _____
7. Evaluate overtaking surf and avoid taking a breaker on the stern.	_____ _____ _____	_____ _____ _____
8. Use proper technique and timing to turn and meet breakers squarely when needed.	_____ _____ _____	_____ _____ _____
9. Meet breakers with appropriate power.	_____ _____ _____	_____ _____ _____
10. Use proper techniques to avoid getting caught on the face of a swell and avoid being caught on a hard chine.	_____ _____ _____	_____ _____ _____
11. Identify the high/low sides and maneuver toward the low side.	_____ _____ _____	_____ _____ _____
12. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
13. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
14. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-07-TYPE **Lateral Across a Surf Zone Beam to Surf up to 8 Feet**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*

Conditions Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Boat must not be overtaken by a breaker on the beam. When necessary, boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Identify and used natural ranges, reference points or radar ranges.	_____ _____ _____	_____ _____ _____
4. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____ _____ _____	_____ _____ _____
5. Use appropriate, safe speed.	_____ _____ _____	_____ _____ _____
6. Evaluate approaching surf, avoid or meet squarely as appropriate.	_____ _____ _____	_____ _____ _____
7. Time series and transit on the lull.	_____ _____ _____	_____ _____ _____
8. Use safety backup boat or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
9. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
10. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-08-TYPE **Enter and Depart a Beach (Shoal Area) Surf Zone in Surf up to 8 Feet**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*

Conditions

Task performed while underway for in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference.

Standards

Task must be accomplished without excessive risk to the boat or crew. Boat must not be overtaken by a breaker on the beam. When necessary, boat must meet breakers squarely and with enough power to get the boat through/over the wave. Boat must station keep shoreward of the surf zone (if possible).

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify and evaluate effects of shore currents and rips.	_____ _____ _____	_____ _____ _____
3. Identify and use natural ranges reference points or radar ranges.	_____ _____ _____	_____ _____ _____
4. Time series and make shoreward approach turn during lull.	_____ _____ _____	_____ _____ _____
5. Use appropriate, safe speed without launching or moving over the crest of a swell onto the face.	_____ _____ _____	_____ _____ _____
6. Evaluate approaching surf, avoid or meet as appropriate.	_____ _____ _____	_____ _____ _____
7. Meet breakers with appropriate power.	_____ _____ _____	_____ _____ _____
8. Avoid breaking waves if possible.	_____ _____ _____	_____ _____ _____
9. Maintain bow/stern aspect in surf using appropriate technique or power.	_____ _____ _____	_____ _____ _____
10. Consistently monitor depth and do not allow boat to go aground or touch bottom.	_____ _____ _____	_____ _____ _____
11. Safely hold position inside or shoreward of surf zone (long enough to accomplish a PIW recovery if needed).	_____ _____ _____	_____ _____ _____
12. Use safety backup boat or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
13. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
14. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-09-TYPE **Conduct a Person-in-the-Water (PIW) Recovery in Surf up to 8 Feet**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section D*

Conditions

Task performed while underway in surf up to 8 feet. Trainee must accomplish task without prompting or use of a reference. A life-like dummy (Oscar) will be used.

Standards

Task must be accomplished without excessive risk to the boat or crew. The direct pickup method must be used. Task must be accomplished without injury or excessive risk to the person (life-like dummy) in the water.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Station pointer appropriately to communicate effectively.	_____ _____ _____	_____ _____ _____
3. Throw life ring if appropriate to assist PIW.	_____ _____ _____	_____ _____ _____
4. Use lulls, shoulders, windows, and saddles for maneuvering and turns.	_____ _____ _____	_____ _____ _____
5. Maneuver boat down sea into position for final approach.	_____ _____ _____	_____ _____ _____
6. Make ready appropriate standard retrieval equipment.	_____ _____ _____	_____ _____ _____
7. Position crew for recovery ensuring safe movement and clear communications.	_____ _____ _____	_____ _____ _____
8. Conduct recovery from recess port or well-deck only.	_____ _____ _____	_____ _____ _____
9. Maneuver boat into safe position for recovery with regard to crew and PIW.	_____ _____ _____	_____ _____ _____
10. Use lulls between series of breakers for making final approach.	_____ _____ _____	_____ _____ _____
11. Ensure boat is stopped and kept square while PIW is recovered.	_____ _____ _____	_____ _____ _____
12. Safely recover PIW/Oscar.	_____ _____ _____	_____ _____ _____
13. Use safety backup boat or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
14. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
15. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK HW-04-10-ANY **Conduct a Post-Mission Standdown and Crew Debrief**

References
a. *Operational Risk Management*, COMDTINST 3500.3 (series)
b. *Team Coordination Training*, COMDTINST 1541.1 (series)

Conditions Task performed after underway for surf operations. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must lead the shore-side post-mission safety debrief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	Completed (Initials)
1. Stand down all unit resources involved with surf operations and ensure safe return to unit.	_____
2. Ascertain condition of participating crews.	_____
3. Ascertain condition of unit boats and ensure they remain fully mission capable (any disabling or restrictive discrepancies reported to command).	_____
4. Ascertain condition of any other resources utilized (i.e. tower, vehicles, radios, safety gear) and ensure their continued readiness.	_____
5. Coordinate and lead unit post-mission debrief in appropriate setting.	_____
6. Debrief crew, encouraging input from juniors first (least experienced), seniors last (most experienced).	_____
7. Review objectives, communications, lessons learned, safety issues observed, ideas for improvement, and reinforcement of good seamanship practices or teamwork.	_____
8. Provide lessons learned and recommendations to command related to improvement in unit response strategy for near shore operations.	_____
9. Determine if the lessons learned or the actions during the mission warrant further reporting via the boat mishap reporting system.	_____
10. Discuss crew's ability to react to changes in risk levels encountered during debrief.	_____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 3.
Heavy Weather Coxswain Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee for keeping. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainees answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	5-44
B	Reading Assignments - Division Two	5-47
C	Reading Assignments - Division Three	5-50
D	Reading Assignments - Division Four	5-52

Section A. Reading Assignments - Division One

Introduction

The reading assignments in this section are designed to aid the trainee in developing the knowledge and skills to adequately fulfill the requirement.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
HW-01-01-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 12, Section B* and *Heavy Weather Addendum, Section A*	5-45
HW-01-02-ANY	• None Assigned	
HW-01-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 12, Section B* and *Heavy Weather Addendum, Section E*	5-45
HW-01-04-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.*5 (series), Heavy Weather Addendum*, Section C	5-45
HW-01-05-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section D*	5-46
HW-01-06-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 17*	5-46
HW-01-07-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-46

TASK HW-01-01-ANY: Identify the Types of Breaking Seas, their Characteristics and Causes

1. There are three basic types of breaking waves. They are _____, _____ and _____.
2. By understanding how _____ form and behave, coxswains know what to expect and how to minimize the danger to both boat and crew.
3. _____ gives the curl of breakers its tremendous force.
4. _____ is the unobstructed distance over which the wind blows across the surface of the water.
5. _____ breakers are the most dangerous kind of wave for boat operations.
6. _____ breakers result from waves of low steepness moving over a gentle sloping ocean floor.
7. _____ waves result when there is a sudden lack of water ahead of the wave, such as in a steep rise of the ocean floor.
8. A surging break occurs on very _____ beaches.

TASK HW-01-03-TYPE: Explain the Forces Effecting a Surf Capable Boat Operating in Heavy Weather and Surf

1. An _____ or _____ current running across a bar builds up a more intense sea than the _____ or _____ current.
2. _____ currents run parallel to the shore and inside the breakers.
3. When crossing the current to compensate for the set, a boat may be put into a _____, i.e., the boat may be forced off course by the current or wind.
4. Operation in very shallow water can be complicated by serious effect on a boat's _____.
5. The primary external force for surf operations is the _____ itself.
6. The shifting of _____ or _____ inside a boat can have a great effect on stability and handling.

TASK HW-01-04-ANY: Explain the Relationship Between Navigation and Piloting as it Pertains to Operations in Heavy Seas or Surf

1. The wise coxswain "_____" the boat during fair weather so that he or she can acquire the skills to navigate in poor weather without fear or nervous strain.
2. The primary tool to ensure success in any piloting evolution is _____ _____.
3. Have the right _____ for every mission.
4. One of the most under used methods of piloting is _____ _____.
5. If you have predetermined _____ laid out, you will be able to see at a glance how far left or right of track you are, well before you reach the D.R. position.
6. _____ and _____ ranges are also critical in computing speed over ground using the three-minute rule and its variations.
7. If the urgency of the case puts you on a boat heading to sea in heavy weather, take time to _____ your chart so that it is useable.
8. If a _____ _____ is not below plotting and relaying information to the coxswain, then the coxswain is either below where he cannot _____ the crew, or he is working the radar and cannot _____ the plots.

TASK HW-01-05-ANY: Explain the Procedures and Safety Concerns Related to Recovery of Personnel from the Water in Heavy Seas or Surf

1. The coxswain will _____ _____ a safe distance from the man overboard and _____ _____ until the opportunity to turn presents itself.
2. If needed, the turn to run down swell and approach will be planned differently in _____ _____.
3. Do not allow any crew to go _____ at any time during this evolution.
4. Ideally, the boat should be _____ with the man overboard at arm's length from the recovery area.
5. On a CG standard boat, the crew must stay out of the _____ area until the turn is completed, the bow is back into the swell, and the coxswain gives the command.

TASK HW-01-06-ANY: Explain the Heavy Weather Towing Approach and Key Elements Related to Towing in Heavy Weather

1. A _____is deployed from the stern of the towed vessel to help control the towed vessel's motions.
2. For the drogue towline, use ___ feet of ___-inch double-braided nylon.
3. When deploying a drogue, _____ of the tow is more important than _____.
4. Though optimal to make your approach from down wind and down sea, the _____ and _____ of the distressed vessel may determine the approach.
5. The most common towing technique is to tow the distressed vessel from _____ of the rescue vessel.
6. The _____ _____ is the location that allows the crew of the towing vessel to maximize use of the best deck work area on the vessel for passing and working the tow rig.
7. _____ _____ maintains the position and heading relative to the weather and seas, outside of the danger zone.
8. To moor an alongside tow safely and skillfully, make the approach into _____ and _____ if possible.

TASK HW-01-07-ANY: Explain the Procedure for Passing the Pump or Other Gear in Heavy Seas

1. _____ _____ is necessary to hold position while waiting for a window or a lull, or holding position prior to and during recovery of a person in the water.
2. There are several techniques to deal with breaking seas on the beam. _____ _____ is still the preferred technique.
3. In addition to present surf conditions, consider the _____ of the water before entering the surf.
4. A _____ or _____ is never routine, but always possible in heavy seas.

Section B. Reading Assignments - Division Two

Introduction

The reading assignments in this section are designed to aid the trainee in developing the knowledge and skills to adequately fulfill the requirement.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
HW-02-01-ANY	• *47' Motor Life Boat Operator's Handbook*, COMDTINST M16114.25 (series), *Chapter 4, Section G* • *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E* • *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3, Section A*	5-48
HW-02-02-ANY	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E* • *Boat Crew Utilization*, COMDTINST 5312.16, *Enclosures 1* and *2* • *U.S. Coast Guard Boat Operations and Training (BOAT) Manual, Volume I*, COMDTINST M16114.32 (series)	5-48
HW-02-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-49
HW-02-04-ANY	• *Rescue and Survival Systems Manual*, COMDTINST M10470.10 (series), *Chapter 3*, *Chapter 6*, and *Chapter 7*	5-49
HW-02-05-TYPE	• None Assigned	

TASK HW-02-01-ANY: Identify PPE and Safety Equipment for Heavy Weather and Surf Operations

1. When can the uniform be worn under a PFD?
2. When must a dry suit be worn?
3. First layer hypothermia protective clothing must _____ moisture away from the body.
4. The _____ is responsible for ensuring all required equipment is worn and worn correctly.
5. When seated in a seat, the _____ _____ for the seat must be worn in addition to the _____ safety belt.

TASK HW-02-02-ANY: Explain Boat Preparations and Safety Precautions for Operating in Heavy Seas/Surf

1. Pre-surf checks should include: True or False

a.	Stow all gear	True	False
b.	Engine room	True	False
c.	Steering	True	False
d.	Tow line	True	False
e.	Searchlights	True	False
f.	Throttle and reduction gear	True	False

2. _____ communications (handheld VHF) should be aboard the boat in case the antennas are lost, or the main radio is damaged.
3. While underway, boats will provide position reports and operations normal reports to the Station at _____ intervals not to exceed _____ minutes.
4. Environmental limits for surf training are set at breaking seas less than _____ feet, winds less than _____kts, visibility greater than ____ NM and _____ only.
5. Maximum underway limits are set at _____ hours for seas less than 4 feet, ____ hours for seas greater than 4 feet and _____ hours for heavy weather.
6. Some factors contributing to fatigue are _____ loss, exposure to _____ extremes, and motion sickness.

TASK HW-02-03-TYPE: Explain the Procedures to be Taken for a Rollover or Knockdown

1. A 20-foot breaker can drop _____ tons of water on the boat, and exert a force of up to _____PSI.
2. Immediately upon re-righting, _____ the situation, as you are still in the surf and must take quick action to _____ the next wave correctly or you may roll again.
3. _____ your crew to ensure that no one was lost overboard or seriously injured.
4. Once in _____ _____, the engineer should go below to check for damage.
5. The shifting of fuel or _____ inside a boat can have a great effect on stability and handling.
6. Any situation that places the center of gravity over the center of _____ can result in a roll.
7. The following factors should be considered in determining whether to continue or return after a roll over. Condition of the crew members, overall material and operating condition of engines, condition of electronics, particularly _____, urgency of mission, and availability of backup _____.

TASK HW-02-04-ANY: Explain Procedures for Personal Survival if Lost Overboard in a Heavy Weather or Surf Environment

1. Units may issue either the _____ _____ _____ suit or the _____ _____ _____ _____ _____ to unit personnel. One or the other is required to be issued.
2. Dry suits alone provide inadequate insulation for _____ protection.
3. The primary use for this suit would be for very cold water environments where immediate retrieval of a person overboard is necessary to prevent death:
4. The _____ _____ _____ is used aboard cutters for electronic transmission of a data signal that will aid vessel/crew relocation in the event of capsizing, sinking, or abandoning ship.

Section C. Reading Assignments - Division Three

Introduction

The reading assignments in this section are designed to aid the trainee in developing the knowledge and skills to adequately fulfill the requirement.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
HW-03-01-ANY	• None Assigned	
HW-03-02-TYPE	• None Assigned	
HW-03-03-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section A & Section B*	5-51
HW-03-04-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section C*	5-51
HW-03-05-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section D*	5-51
HW-03-06-TYPE	• None Assigned	
HW-03-07-TYPE	• None Assigned	
HW-03-08-TYPE	• None Assigned	
HW-03-09-TYPE	• None Assigned	
HW-03-10-TYPE	• None Assigned	
HW-03-11-TYPE	• None Assigned	
HW-03-12-TYPE	• None Assigned	
HW-03-13-ANY	• None Assigned	
HW-03-14-ANY	• None Assigned	

TASK HW-03-03-TYPE: Operate a Boat in Heavy Seas

1. The factors that determine the characteristics of wind waves are: _____ _____, _____ and _____.
2. The three basic motions that a boat experiences while operating are _____, _____, and _____.
3. _____ is caused by a wave lifting up one side of the boat, rolling under the boat and dropping that side then lifting the other side and dropping it in turn.
4. _____ is caused when the boat is operating in following seas.
5. _____ occurs when the boat is running bow into the waves.
6. Running stern-to in heavy seas requires _____, as steering corrections must be made the instant you feel the stern of the boat being lifted by the oncoming swell.
7. Wind affects the boat _____ the swell.
8. If you keep your bow _____ to the swell of the most predominate force and use proper amounts of _____ for different situations, the boats can be handled without a lot of difficulty.

TASK HW-03-04-TYPE: Pilot a Boat in Heavy Seas

1. Using _____ or _____ chartlets makes them easy to correct.
2. If you have _____ ranges laid out, you will be able to see at a glance how far left or right of track you are, well before you reach the dead reckoning position.
3. Take the time to develop your _____ piloting kit. Coast Guard standard boats are required to have all the necessary _____ in the chart box as per the type manual, but think of this as _____ gear.

TASK HW-03-05-TYPE: Conduct a Person-in-the-Water (PIW) Recovery in Heavy Seas

1. If needed, the turn to run down swell and approach will be planned differently in _____ _____.
2. The Coxswain will push ahead a _____ distance from the man overboard and _____ _____ until the opportunity to turn presents itself.
3. Do not allow any of the crew to go _____ at any time during this evolution. It puts them in great danger and _____ the crew's ability to communicate.
4. Once down swell, turn _____ and avoid getting caught broadside to the surf/swell.
5. Ideally, the boat should be stopped with the man overboard at _____ _____ from the recovery area.

Section D. Reading Assignments - Division Four

Introduction

The reading assignments in this section are designed to aid the trainee in developing the knowledge and skills to adequately fulfill the requirement.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
HW-04-01-ANY	• None Assigned	
HW-04-02-TYPE	• None Assigned	
HW-04-03-TYPE	• None Assigned	
HW-04-04-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-53
HW-04-05-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-53
HW-04-06-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-53
HW-04-07-TYPE	• *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum, Section E*	5-53
HW-04-08-TYPE	• None Assigned	
HW-04-09-TYPE	• None Assigned	
HW-04-10-ANY	• None Assigned	

TASK HW-04-04 TYPE: Maintain Stationary Position ("Station Keep") Using Both the Bow-To and Stern-To Methods in Surf up to 8 Feet

1. Never allow the boat to be caught _____ a breaking wave. Either allow it to break before it reaches you, or get to the top _____ it falls on you.
2. Use only enough _____ to maintain position and counteract the force of the oncoming wave.
3. Keep the bow as _____to the seas as possible.
4. Environmental factors such as surf, wind, or currents can make station-keeping _____, and good backing skill and proper application of _____ are essential.

TASK HW-04-05-TYPE: Transit Outbound on an Inlet or Bar Through Surf up to 8 Feet

1. The operator should practice wave avoidance by picking a course through the _____ and _____, if available, minimizing risk to the boat and crew.
2. Any breakers that cannot be avoided should be taken _____. Slow down and allow your _____ to carry you through. Do not meet breakers at _____ speed or you may plow into the face, or launch off the back, risking injuries or boat damage.

TASK HW-04-06-TYPE: Transit Inbound on an Inlet or Bar Through Surf up to 8 Feet

1. It is preferable to transit the surf during any _____ period that may exist.
2. The operator should attempt to work through the surf zone by driving through _____ and _____, thus avoiding the majority of the breakers.
3. If operating in an area of limiting maneuverability, such as a narrow inlet or bar, the operator may have to rely strictly on _____ the waves and make the transit during _____ periods.
4. Reducing speed after the wave has already picked up the boat will likely result in a loss of _____ and/or _____. _____ must be reduced before the wave arrives.
5. _____ a breaker is an advanced emergency procedure which can easily result in personnel injures or boat damage. It is a last resort maneuver for _____ operators.

TASK HW-04-07-TYPE: Lateral Across a Surf Zone Beam to Surf up to 8 Feet

1. In the absence of lulls, great care and patience must be exercised, because you will be dealing with nearly constant _____ surf, and the boat is very _____ in the position.
2. Speed may be _____ to allow waves to pass ahead of the boat, or _____ to avoid a breaker.
3. Good _____, and ability to read several waves back are critical.
4. Any significant waves that cannot be avoided must be taken _____.

Part 6
Surfman Qualification

Introduction

This Part contains a collection of tasks, which must be learned, practiced, and performed by the trainee. These tasks represent the minimum elements of skill and knowledge necessary for safe and effective performance of a Coast Guard surfman.

NOTE

This Manual is not meant to be ordered for purposes of obtaining individual qualification tasks. Qualification tasks should be reproduced locally and provided for trainees.

In this Part

This Part contains the following Chapters:

Part	Title	See Page
1	Task Accomplishment Record for Surfman	6-3
2	Surfman Qualification Tasks	6-5
3	Surfman Trainee Study Guide	6-17

Chapter 1.
Task Accomplishment Record for Surfman

NOTE Instructor should remove this chapter and place it in the trainee's training record.

TRAINEE NAME: _____ RATE: _____

INSTRUCTOR NAME: _____ RATE: _____

POSITION/QUALIFICATION CODE TO BE TRAINED FOR: _____

NOTE Instructors should line through those tasks not applicable to this qualification.

Task	Date Started	Date Completed	Instructor's Initials
SRF-01-01-ANY			
SRF-01-02-TYPE			
SRF-01-03-TYPE			
SRF-01-04-TYPE			
SRF-01-05-TYPE			
SRF-01-06-TYPE			
SRF-01-07-TYPE			
SRF-01-08-TYPE			
SRF-01-09-TYPE			
SRF-01-10-ANY			

Chapter 2.
Surfman Qualification Tasks

Introduction

The following are the instructions for this Chapter:

- The purpose of this Chapter is to provide guidance on the trainee's progress through the qualification tasks.
- The instructor should present the tasks to the trainee in a logical order using the instructions provided in *Part 1*.
- Tasks should be signed, dated, and placed in the trainee's training record when the instructor is satisfied that the trainee can consistently perform a task in accordance with all standards and conditions.

Prerequisites

A prospective Surfman must:

- Be assigned to an operational unit with a surf capable boat attached;
- Be at an operational unit that has been designated as a surf station by Commandant (G-OCS);
- Be a certified heavy weather coxswain on the boat type for which they are seeking this higher level of qualification; and
- Have completed the surf tasks in the heavy weather coxswain guide (related to operations in surf up to 8 feet) or accomplish those skill-based tasks as a step toward completing similar tasks in the higher risk environment of larger surf as required for the surfman standards.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Surf Operations (greater than 8 feet)	6-6

Section A. Surf Operations (greater than 8 feet)

Introduction

The following are objectives of Division One:

- **Demonstrate** ability to properly plan for surf operations.
- **Demonstrate** ability to operate boat(s) in surf conditions, during various missions.

NOTE

Instructors must ensure that trainees reassess risk at appropriate intervals during evolutions, communicate to the crew, and use the results in decision-making.

In this Section

This Section contains the following tasks:

Task Number	Task	See Page
SRF-01-01-ANY	Conduct Pre-Mission Sortie Planning for Surf Operations	6-7
SRF-01-02-TYPE	Conduct Safety Rounds, Vessel Systems Checks, and a Crew Brief Related to Surf Operations	6-7
SRF-01-03-TYPE	Determine the Position of a Boat in 8- to 15-Foot Surf	6-8
SRF-01-04-TYPE	Maintain Stationary Position (Station Keep) in 8- to 15-Foot Surf Using the Bow-To Method	6-10
SRF-01-05-TYPE	Transit Outbound an Inlet or Bar Through 8- to 15-Foot Surf	6-10
SRF-01-06-TYPE	Transit Inbound an Inlet or Bar Through 8- to 15-Foot Surf	6-11
SRF-01-07-TYPE	Lateral Across a Surf Zone Beam to 8- to 15-Foot Surf	6-13
SRF-01-08-TYPE	Depart a Surf Zone Using Only a Single Engine in Surf less than 12 Feet	6-13
SRF-01-09-TYPE	Conduct a Person-in-the-Water (PIW) Recovery in 8- to 15-Foot Surf	6-14
SRF-01-10-ANY	Conduct a Post-Mission Standdown and Crew Debrief	6-16

TASK SRF-01-01-ANY	**Conduct Pre-Mission Sortie Planning for Surf Operations**
References	a. *Operational Risk Management*, COMDTINST 3500.3 (series) b. *Team Coordination Training*, COMDTINST 1541.1 (series)
Conditions	Task performed prior to getting underway. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must coordinate all mission planning and establish objectives for the sortie. Trainee must lead the shore-side pre-mission safety brief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	Completed (Initials)
1. Identify safe operating area and hazards.	_____
2. Evaluate surf conditions, tides, currents, winds, and anticipated changes that may occur during the sortie.	_____
3. Brief crew on sortie objectives and the area where operations will be conducted.	_____
4. Brief crew on communications plan encompassing boat-to-boat, boat-to-shore, shore-to-boat reporting necessary to safety. Include discussion of backup radio use and location.	_____
5. Brief crew on principle use of tower watch/beach party in providing critical information to the participating boats.	_____
6. Solicit and evaluate safety concerns including knockdown/rollover brief and proper use of PPE.	_____
7. Conduct risk assessment for sortie using appropriate risk assessment tools (SPE, GAR or other) from TCT/ORM and include discussion of risk as part of crew briefs.	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-02-TYPE	**Conduct Safety Rounds, Vessel Systems Checks, and a Crew Brief Related to Surf Operations**
References	a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Chapter 1*
Conditions	Task performed on boat prior to entering and immediately after exiting a surf zone. Trainee must accomplish task without prompting or use of a reference.
Standards	Trainee must complete a visual safety round prior to getting underway. Trainee must check operation of the boat key systems and brief crew prior to entering surf zone. Trainee must coordinate safety rounds of the boat after exiting the surf zone.

Performance Criteria	Completed (Initials)	Boat Type
1. Conduct visual inspection through all compartments prior to getting underway (i.e. stowage, missile hazards, watertight integrity, leaks or signs of system problems).	_____ _____ _____	_____ _____ _____
2. Monitor conditions and hazards in operating area.	_____ _____ _____	_____ _____ _____

Performance Criteria	Completed (Initials)	Boat Type
3. Check engines and controls for full power ahead and astern (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____
4. Check steering system for full, even rudder control port and starboard (both open bridge stations on 47' MLB).	_____ _____ _____	_____ _____ _____
5. Ensure engineer made round of engine room prior to entering the surf zone.	_____ _____ _____	_____ _____ _____
6. Assign crew positions and check PPE and all safety equipment.	_____ _____ _____	_____ _____ _____
7. Brief crew on methods to be used in moving about the deck if necessary and who will authorize movement.	_____ _____ _____	_____ _____ _____
8. Brief crew on natural ranges, point of reference and radar ranges to be used and depth of water.	_____ _____ _____	_____ _____ _____
9. Brief crew on knockdown/rollover procedures.	_____ _____ _____	_____ _____ _____
10. Brief crew on procedure in the event the surfman becomes incapacitated.	_____ _____ _____	_____ _____ _____
11. Brief crew on procedure to remain together and use appropriate signaling device in the event that they have fallen overboard.	_____ _____ _____	_____ _____ _____
12. Check communications with backup safety boat and/or shore party.	_____ _____ _____	_____ _____ _____
13. Coordinate safety rounds of boat after safely exiting the surf zone.	_____ _____ _____	_____ _____ _____
14. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
15. Maintain situational awareness and total control of the boat.	_____ _____ _____	_____ _____ _____
16. Brief crew on risk assessment results.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-03-TYPE	**Determine the Position of a Boat in 8- to 15-Foot Surf**
References	a. *Coast Guard Navigation Standards Manual*, COMDTINST M3530.3 (series)
Conditions	Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference.

Standards

Task must be accomplished without excessive risk to the boat or crew. Using local knowledge, available electronics and seaman's eye, trainee must determine boat's position relative to the closest hazards with an accuracy of 100 yards. Trainee must maintain a safe distance from known hazards at all times. Task must be accomplished while station keeping in the surf zone.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Ensure safety rounds and checks are complete.	_____	_____
3. Assign crew positions and check PPE and all safety equipment.	_____	_____
4. Brief crew on natural ranges, point of reference and radar ranges to be used and depth of water.	_____	_____
5. Identify safe operating area and hazards and pilot boat with adjustments for surrounding dangers.	_____	_____
6. Observe sea and surf conditions and evaluate safest course through surf zone.	_____	_____
7. Demonstrate awareness of the effects of current, swell, and wind on the boats heading and movements.	_____	_____
8. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____	_____
9. Choose safe position in which to station keep with relation to depth of water, hazards, and useful ranges.	_____	_____
10. Determine boat's position in relation to known hazards using available electronics.	_____	_____
11. Demonstrate advantages and shortcomings of all available electronics.	_____	_____
12. Determine boat's position using fixed geographical references and seaman's eye.	_____	_____
13. Use other available resources to assist in determining position (i.e. tower, beach party, other boats, aircraft, watchstander).	_____	_____
14. Pass accurate position to operational command and verify by shore-side plotting.	_____	_____
15. Promote continuous communication and use of crew as integral part of piloting effort.	_____	_____
16. Maintain situational awareness and total control of the boat.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-04-TYPE **Maintain Stationary Position (Station Keep) in 8- to 15-Foot Surf Using the Bow-To Method**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions

Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference.

Standards

Task must be accomplished without excessive risk to the boat or crew. Boat must maintain stationary position for at least five minutes with limited movement. Boat must maintain square bow-to attitude at all times except when lateral movement is necessary. Boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Maintain square bow to aspect while station keeping in surf.	_____ _____ _____	_____ _____ _____
4. Use proper amount of power to meet breakers and hold position.	_____ _____ _____	_____ _____ _____
5. Use proper helm throttle commands to achieve a bow-to position to the seas.	_____ _____ _____	_____ _____ _____
6. Use swells and surf to maneuver and hold position.	_____ _____ _____	_____ _____ _____
7. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
8. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____
9. Maintain position for 5 minutes.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-05-TYPE **Transit Outbound an Inlet or Bar Through 8- to 15-Foot Surf**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions

Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. If possible, transit through the surf zone should be accomplished without meeting a breaker. Boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Identify safe operating area and hazards.	_____	_____
3. Provide accurate bar report to operational command concerning existing conditions.	_____	_____
4. Time series to transit through surf zone on the lull.	_____	_____
5. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____	_____
6. Use appropriate, safe speed without launching the MLB.	_____	_____
7. Meet breakers with appropriate power.	_____	_____
8. Identify the high/low sides and maneuver toward the low side.	_____	_____
9. Use safety backup boat (if applicable) or shore side safety watch to provide additional information as appropriate.	_____	_____
10. Ensure clear communications and coordination among crew and other resources.	_____	_____
11. Maintain situational awareness and total control of the boat throughout evolution.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-06-TYPE **Transit Inbound an Inlet or Bar Through 8- to 15-Foot Surf**

References a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference.

Standards Task must be accomplished without excessive risk to the boat or crew. Maximum effort should be taken to keep the boat from being overtaken by a breaker. Boat must be maneuvered in adequate time to avoid a breaker on the stern, if possible.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
3. Provide accurate bar report to operational command concerning existing conditions.	_____ _____ _____	_____ _____ _____
4. Time series to transit through surf zone on the lull.	_____ _____ _____	_____ _____ _____
5. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____ _____ _____	_____ _____ _____
6. Use appropriate, safe speed careful to avoid overtaking the crest of a swell or breaker.	_____ _____ _____	_____ _____ _____
7. Evaluate overtaking surf to avoid taking a breaker on the stern unless intended.	_____ _____ _____	_____ _____ _____
8. Use proper technique and timing to turn and meet breakers squarely bow-to when needed.	_____ _____ _____	_____ _____ _____
9. Maintain control when taking a breaker on the stern if it is unavoidable.	_____ _____ _____	_____ _____ _____
10. Meet breakers with appropriate power.	_____ _____ _____	_____ _____ _____
11. Use proper techniques to avoid getting caught on the face of a swell and avoid being caught on a hard chine.	_____ _____ _____	_____ _____ _____
12. Follow proper recovery procedures if knocked down or rolled by a swell or breaker.	_____ _____ _____	_____ _____ _____
13. Identify the high/low sides and maneuver toward the low side.	_____ _____ _____	_____ _____ _____
14. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
15. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
16. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-07-TYPE **Lateral Across a Surf Zone Beam to 8- to 15-Foot Surf**

References
a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions
Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference.

Standards
Task must be accomplished without excessive risk to the boat or crew. Boat must not be overtaken by a breaker on the beam. When necessary, boat must meet breakers squarely and with enough power to get the boat through/over the wave.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____	_____
2. Identify safe operating area and hazards.	_____	_____
3. Identify and use natural ranges, reference points or radar ranges.	_____	_____
4. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____	_____
5. Use appropriate, safe speed.	_____	_____
6. Evaluate approaching surf, avoid or meet squarely as appropriate.	_____	_____
7. Time series and transit on the lull.	_____	_____
8. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____	_____
9. Ensure clear communications and coordination among crew and other resources.	_____	_____
10. Maintain situational awareness and total control of the boat throughout evolution.	_____	_____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-08-TYPE **Depart a Surf Zone Using Only a Single Engine in Surf less than 12 Feet**

References
a. None

Conditions
Task performed while underway for training in daytime in surf less than 12 feet. Trainee must accomplish task without prompting or use of a reference. During single engine operations for the simulated engine casualty, the second engine will remain on line.

Standards Task must be accomplished without excessive risk to the boat or crew. Trainee must safely maneuver out of the surf zone on the designated single engine without resorting to use of both engines for control.

CAUTION ! Coxswain will apply power to both engines in the event of a possible knockdown/rollover situation.

Performance Criteria	Completed (Initials)	Boat Type
1. Identify safe operating area and hazards.	_____ _____ _____	_____ _____ _____
2. Brief crew, Station, tower/beach party, and safety backup boat (if applicable) of situation.	_____ _____ _____	_____ _____ _____
3. Maintain square bow/stern aspect while station keeping in surf.	_____ _____ _____	_____ _____ _____
4. Time series and exit the surf zone during a lull.	_____ _____ _____	_____ _____ _____
5. Avoid breaking waves (when possible) using windows, saddles, and shoulders.	_____ _____ _____	_____ _____ _____
6. Safely exit the surf zone.	_____ _____ _____	_____ _____ _____
7. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
8. Ensure clear communications and coordination among crew and other resources.	_____ _____ _____	_____ _____ _____
9. Maintain situational awareness and total control of the boat.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-09-TYPE **Conduct a Person-in-the-Water (PIW) Recovery in 8- to 15-Foot Surf**

References

a. *Boat Crew Seamanship Manual*, COMDTINST M16114.5 (series), *Heavy Weather Addendum*

Conditions Task performed while underway in 8- to 15-foot surf. Trainee must accomplish task without prompting or use of a reference. A life-like dummy (Oscar) will be used if performed during a training sortie.

Standards Task must be accomplished without excessive risk to the boat or crew. The direct pickup method must be used. Task must be accomplished without injury or excessive risk to the person (life-like dummy) in the water.

Performance Criteria	Completed (Initials)	Boat Type
1. Brief crew and assign duties.	_____ _____ _____	_____ _____ _____
2. Station pointer on open steering station or nearby coxswain to effectively communicate.	_____ _____ _____	_____ _____ _____
3. Throw life ring if appropriate to assist PIW.	_____ _____ _____	_____ _____ _____
4. Use lulls, shoulders, windows, and saddles for maneuvering and turns.	_____ _____ _____	_____ _____ _____
5. Maneuver boat down sea into position for final approach.	_____ _____ _____	_____ _____ _____
6. Make retrieval equipment ready as necessary (i.e. boat hook, throw bag).	_____ _____ _____	_____ _____ _____
7. Position crew for recovery ensuring safe movement and clear communications.	_____ _____ _____	_____ _____ _____
8. Conduct recovery from recess port/well-deck only.	_____ _____ _____	_____ _____ _____
9. Maneuver boat into safe position for recovery with regard to crew and PIW.	_____ _____ _____	_____ _____ _____
10. Use lulls between series of breakers for making final approach.	_____ _____ _____	_____ _____ _____
11. Ensure MLB is stopped and kept square while PIW is being recovered.	_____ _____ _____	_____ _____ _____
12. Safely recover PIW/Oscar.	_____ _____ _____	_____ _____ _____
13. Use safety backup boat (if applicable) or shore-side safety watch to provide additional information as appropriate.	_____ _____ _____	_____ _____ _____
14. Ensure clear communications and coordination among crew.	_____ _____ _____	_____ _____ _____
15. Maintain situational awareness and total control of the boat throughout evolution.	_____ _____ _____	_____ _____ _____

Instructor _____ **Date** _____

Comments _____

_____

TASK SRF-01-10-ANY **Conduct a Post-Mission Standdown and Crew Debrief**

References
a. *Operational Risk Management*, COMDTINST 3500.3 (series)
b. *Team Coordination Training*, COMDTINST 1541.1 (series)

Conditions Task performed after underway for surf operations. Trainee must accomplish task without prompting or use of a reference.

Standards Trainee must lead the shore side post-mission safety debrief to include all involved crew (i.e. comms watchstander, boat crews, tower watch, beach party).

Performance Criteria	Completed (Initials)
1. Stand down all unit resources involved with surf operations and ensure safe return to unit.	_____
2. Ascertain condition of participating crews.	_____
3. Ascertain condition of unit boats and ensure they remain fully mission capable (report any disabling or restrictive discrepancies to command).	_____
4. Ascertain condition of any other resources utilized (i.e. tower, vehicles, radios, safety gear) and ensure their continued readiness.	_____
5. Coordinate and lead unit post-mission debrief in appropriate setting.	_____
6. Debrief crew, encouraging input from juniors first (least experienced), seniors last (most experienced).	_____
7. Discuss crew's ability to react to changes in risk levels encountered during debriefs.	_____
8. Review objectives, communications, lessons learned, safety issues observed, ideas for improvement, and reinforcement of good seamanship practices or teamwork.	_____
9. Provide lessons learned and recommendations to command related to improvement in unit response strategy for near shore operations.	_____
10. Determine if the lessons learned or the actions during the mission warrant further reporting via the boat mishap reporting system.	_____

Instructor _____ **Date** _____

Comments _____

_____

Chapter 3.
Surfman Trainee Study Guide

Introduction

This Chapter should be removed and given to the trainee for keeping. Its purpose is to provide guidance for the trainee's reading assignments and is not a part of the training record.

The trainee should read the appropriate reading assignment and answer the related questions prior to beginning training in each new task. The instructor should then discuss the trainee's answers to ensure understanding of the subject matter prior to beginning instruction for each new task.

NOTE

If there is no reading assignment assigned for a specific task, then the task will not have a page number to reference.

In this Chapter

This Chapter contains the following Sections:

Section	Title	See Page
A	Reading Assignments - Division One	6-18

Section A. Reading Assignments - Division One

Introduction

The reading assignments in this section are designed to aid the trainee in developing the knowledge and skills to adequately fulfill the requirement.

In this Section

This Section contains the following reading assignments:

Task Number	Reading Assignment	See Page
SRF-01-01-ANY	• None Assigned	
SRF-01-02-TYPE	• None Assigned	
SRF-01-03-TYPE	• None Assigned	
SRF-01-04-TYPE	• None Assigned	
SRF-01-05-TYPE	• None Assigned	
SRF-01-06-TYPE	• None Assigned	
SRF-01-07-TYPE	• None Assigned	
SRF-01-08-TYPE	• None Assigned	
SRF-01-09-TYPE	• None Assigned	
SRF-01-10-ANY	• None Assigned	

Appendix A.
Glossary

Introduction

This Appendix contains a list of terms that may be useful when reading this Manual.

In this Appendix

This Appendix contains the following information:

Topic	See Page
Glossary	A-3

TERM	DEFINITION
Aids to Navigation Team	An Aids to Navigation Team is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Air Station	An Air Station is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Auxiliary-Operated Station (Small)	An Auxiliary-Operated Station (small) is a Station (small) that relies on auxiliary members for its primary duty section staffing for three or more months a year is considered to be an "auxiliary operated" unit. Auxiliary operated Units may or may not have an active duty command cadre (i.e., OIC).
Boat Crew	Includes the coxswain, boat engineer, crewmen, and all other personnel required onboard a boat acting in an official capacity.
Boat Crew Examination Board (BCEB)	A group of certified boat crew members, consisting of experienced surfmen, heavy weather coxswains, boat coxswains, engineers, and crew members, as applicable, selected by the unit commander and organized to examine and evaluate boat crew candidates. BCEB is designated in writing.
Boat Outfit/Stowage Plans	The configuration requirements for standard boat outfits and equipment stowage plans are set forth in the applicable Specific Boat Type Operator's Handbook, COMDTINST M16114 (series).
Certification	Formal command verification that an individual has met all requirements and is authorized to perform the boat crew duties at a specific level aboard a particular boat type.
Command Cadre	The CO or OIC, the Executive Officer or Executive Petty Officer, the Engineering Petty Officer and senior Boatswain's Mate (at units with COs) are a unit's command cadre.
Crew Rest	Time during which alert crews do not engage in any Station work or operations. Crews are allowed to recreate and sleep.
Crew Underway Time	Begins when the crewmember reports to the designated place to prepare for a specific boat mission. Computation of such time ends when the mission is complete. Crew underway time includes time spent accomplishing pre-mission and post-mission boat checks.

TERM	DEFINITION
Current	A current crewmember is certified and has all recurring training requirements completed and up to date. Currency is maintained by completing the regularly scheduled minimum proficiency requirements of their current crew position.
Cutter	A Cutter, to which a cutter boat is assigned, contains an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander.
Engineering Changes (ECs)	These are the only authorized modifications to a standard boat. No one other than Commandant (G-SEN) is authorized to approve ECs to standard boats. The Specific Boat Type Operator's Handbook, COMDTINST M16114 (series) provides amplifying details on the EC process. **NOTE** Engineering Changes (ECs) were formerly known as BOATALTS.
Fatigue	A condition of impaired mental and physical performance brought about by extended periods of exertion and stress which reduces the individual's capability to respond to external stimuli. Some factors contributing to fatigue are sleep loss, exposure to temperature extremes (hypothermia and heat stress), motion sickness, changes in work and sleep cycles, physical exertion, workload, illness, hunger, and boredom. While an individual or crew may be considered to be fatigued at any time, at a minimum, they are considered to be fatigued when they exceed the underway or alert posture standards in this section.
Fatigue Waiver	A waiver to crew rest or rest-recovery requirements granted by a Group Commander.
Heavy Weather	Heavy weather is defined as sea, swell and wind conditions combining to exceed 8 feet and/or winds exceeding 30 knots. **NOTE** This definition of heavy weather is not intended to define a heavy weather situation for a specific boat type. Heavy weather for each specific boat type may be determined by the coxswain at any time.
Marine Safety Offices (MSO)	An MSO is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a District Commander.
Maritime Safety and Security Teams (MSST)	An MSST is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Night	Night is defined as ½ hour after nautical sunset and ½ hour before nautical sunrise.
Non-Pooled	A Non-Pooled Station (small) is a Station (small) with permanently assigned

TERM	DEFINITION
Station (Small)	personnel. These units will be assigned an Operating Facility (OPFAC) number, unit boat allowance and OIC.
Operational Commander	For the purpose of this instruction, Operational Commanders are defined as commanders of Groups, Activities, Air Stations and Greater Antilles Section, who exercise direct operational control of a subordinate unit with a standard boat or non-standard boat assigned. This definition specifically does not include Station COs/OICs exercising operational control of a Station (small).
Operations	Time spent on pre-mission planning, underway, and post mission reporting or follow-up.
Parent Station	A parent Station is a unit with one or more subordinate Stations (small/s). Its command cadre allowance may be different from that of a typical unit to account for the increased responsibility associated with the assignment of subordinate Stations (small/s).
Pooled Station (Small)	The Pooled Station (small) is essentially a "remote operating location". A Pooled Station (small) appears in the *Operating Facilities (OPFAC) of the U. S. Coast Guard*, COMDTINST M5440.2 (series), but will not have an assigned OPFAC number, assigned unit boat allowance, personnel, or an OIC. The parent unit for this Pooled Station (small) has additional personnel to operate a boat from the physical location of the Station (small).
Port Security Unit (PSU)	A PSU is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Qualification	The satisfactory completion of the appropriate qualification tasks.
Readiness	The ability of a boat to perform the functions and missions for which it was designed.
Ready for Operations Team (RFO Team)	A minimum of three members, the RFO team consists of members designated by the Operational Commander. Teams conduct annual assessment visits to ensure the goals of the Readiness and Standardization Program are achieved.
Recertification Process	The steps a crew member takes to regain command authorization to be assigned boat crew duties when prior certification has lapsed due to permanent change of station (PCS) transfer, failure to meet semi-annual/annual currency requirements, or revocation.
Reserve Augmented Unit	A Reserve Augmented Unit is a unit that relies on reserve personnel for at least one third of its primary duty section staffing for three or more months a year.

TERM	DEFINITION
Rough Bar	A rough bar is a river entrance or inlet where heavy seas or surf conditions exist. Also, in situations when the coxswain or the CO/OIC is unsure, a rough bar is assumed.
Senior Boatswain's Mate	The senior Boatswain's Mate permanently assigned, other than the OIC or XPO. For purposes of Boat Crew Training, this individual is considered a member of the command cadre whose primary function is to lend experience to the unit training program, and assist in the training and mentoring of subordinate personnel.
Sleep Period	A period of time available for an individual to devote to sleeping that is not interrupted by official responsibilities.
Standardization Team (Stan Team)	A three to five member deployable evaluation team that consists of highly trained and experienced professionals specializing in the operational/deck and engineering aspects of each standard boat platform. Each team conducts biennial assessment visits to ensure the goals of the Readiness and Standardization Assessment (outlined in this Manual) are achieved. These teams act as a deployable asset to the centers of excellence (UTBSC/NMLBS/NATON) for each standard boat platform, and in addition to providing field units with technical information, they support the centers by providing guidance and feedback to improve school training and program functions.
Station	A Station is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Station (Small)	A Station (small) is a minimally staffed and resource constrained unit that receives operational direction, command, and support from its parent unit.
Station Aids to Navigation Team (STANT)	A STANT is a Coast Guard shore facility with an OPFAC, command cadre, and permanently assigned dutystanders, unit boat allowance, and equipment, which reports to a Group, Section or Activity command, or District Commander (in the case of D17).
Station Work	Activities that constitute normal unit work which are not directly associated with duty, boat operations, pre-mission planning, or post-mission reporting and follow-up. Ex: boat maintenance, Station cleanup, non-mission administrative tasks.
Structural Configuration Characteristics	This applies to the fit, form, and function of structural vessel parts. Watertight closures, vessel coatings, and mounted equipment locations are managed by structural configuration requirements.
Surf	Surf is defined as the waves or swell of the sea breaking on the shore or a reef.
Task	A separate training step learned in order to perform a particular job skill.

TERM	DEFINITION
Task Code	A four-element code used to identify the applicability of tasks listed in this Manual.
Type	A particular class of boat, such as 41' UTB, 49' BUSL, or 47' MLB.
Unit Commander	A CO or OIC of a unit with a standard or non-standard boat assigned.
Urgent Operations	A mission of sufficient importance that the District Commander elects to execute it with a fatigued boat crew.
Urgent SAR	A mission which involves the probable loss of life unless the Coast Guard intervenes.

Appendix B.
List of Acronyms

Introduction

This Appendix contains a list of acronyms used throughout the manual.

In this Appendix

This Appendix contains the following information:

Topic	See Page
List of Acronyms	B-3

ACRONYM	DEFINITION
AOR	Area of Responsibility
BCEB	Boat Crew Examination Boards
BCM	Boat Crew Member
BDCM	Buoy Deck Crew Member
BDS	Buoy Deck Supervisor
BECCE	Basic Engineering Casualty Control Exercises
BM	Boatswain's Mate
BO	Boom/Crane Operator
BUSL	Buoy Utility Stern Loading
CDV	Course Deviation Variance
CO	Commanding Officer
CO/OIC	Commanding Officer/Officer-in-Charge
COMDTINST	Commandant Instruction
CS	Creeping Line Search
CSP	Commence Search Point
DGPS	Differential Global Positioning System
DR	Dead Reckoning
EBL	Electronic Bearing Line
EC	Engineering Change
ECM	Electronic Control Module
EMT	Emergency Medical Technician
EPIRB	Emergency Position Indicating Radio Beacon
ETA	Estimated Time of Arrival
GAR	Green-Amber-Red
GPS	Global Positioning System
HELP	Heat Escape Lessening Position
HDOP	Horizontal Dilution of Precision
HVAC	Heating, Ventilation, and Air Conditioning
ICW	Intracoastal Waterway
LOP	Line of Position
LORAN-C	Long Range Aid to Navigation
MARB	Marine Assistance Request Broadcast
MLB	Motor Lifeboat
MLC	Maintenance and Logistics Command
MOB	Man Overboard
MSO	Marine Safety Office
MSST	Maritime Safety and Security Team

ACRONYM	DEFINITION
NAVRULS	Navigation Rules
NMEA	National Marine Electronics Association
NMLBS	National Motor Lifeboat School
NSB	Non-Standard Boat
OIC	Officer-in-Charge
OPAREA	Operational Area
OPFAC	Operating Facility
PCS	Permanent Change of Station
PFD	Personal Flotation Device
PIW	Person-in-the-Water
POB	Person Onboard
PPE	Personal Protective Equipment
PPS	Precise Positioning Service
PQS	Personnel Qualification Standard
PS	Parallel Search
PSU	Port Security Unit
PTO	Power Take-Off
RFO	Ready for Operations
SAR	Search and Rescue
SMC	SAR Mission Coordinator
SOG	Speed Over Ground
SOP	Standard Operating Procedures
SPC (HWX)	Heavy Weather Special Purpose Craft
SPE	Severity-Probability-Exposure
SPE/GAR	Severity-Probability-Exposure/Green-Amber-Red
SPS	Standard Positioning Service
SS	Square Search
SSB-HF	Single Side Band-High Frequency
STANT	Station Aids to Navigation Team
SWL	Safe Working Load
TCT	Team Coordination Training
TD	Time Difference
TSN	Track Line Non-Return Search
TSR	Track Line Return Search
U/W	Underway
UPH	Unaccompanied Personnel Housing

ACRONYM	DEFINITION
UTB	Utility Boat
UTBSC	Utility Boat Systems Center
UTM	Utility Boat Medium
VRM	Variable Range Marker
VRO	Variable Ratio Oiler
VS	Sector Search
WLL	Working Load Limit
XPO	Executive Petty Officer
XTE	Cross Track Error

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