



PART II

NSCC ABLE CADET

OBJECTIVE: INTRODUCTION TO THE NAVY

- 1. Navy Traditions and Heroes – The Beginning**
- 2. Navy Traditions and Heroes – Revolution through Tripolitan Wars**
- 3. Self Discipline and The Corps**
- 4. Watch standing/Quarterdeck Procedure**
- 5. Ship Construction and Nomenclature**
- 6. Navy and Coast Guard Ships**
- 7. Navy and Coast Guard Aircraft**
- 8. Marlinespike Seamanship – Knots**
- 9. Fire Prevention**
- 10. Swimming Safety Rules**

PRIVATEERS

The Navy didn't pay well in those days, the average pay was about \$10 to \$20 per month. But many of our ships were "privateers", privately owned merchant vessels authorized by Congress to raid British commerce, in effect, acting as pirates. These ships based their earnings on the size and number of merchant ships they captured; Congress and the captain received large shares of each prize (cargo from captured ships) and the crew divided the rest equally. As a result, privateers were usually more successful than "official" Navy Ships.

U. S. MARINES

The U. S. Marines, too, saw their first action during the American Revolution. On 3 March 1776, Captain Samuel Nicholas landed with 200 Marines and 50 Sailors in the Bahamas in the nation's first amphibious assault. The Americans captured more than 100 cannon and mortars and so much other valuable material that it took nearly two weeks to load it all aboard American ships.

THE TURTLE

The strangest vessel to fight in the American Revolution was the "Turtle", our first attempt as submarines. David Bushnell, the inventor, worked on it for over four years, finishing it just at the beginning of the war. Using a screw propeller (another American first), the craft could travel at 3 knots, remaining underwater for about 30 minutes.

In its first attack on English shipping, the pilot approached the cruiser "HMS EAGLE" in New York harbor and tried to attach a time bomb to the hull. After several attempts to drill through the copper plating, he abandoned the mission, but might have succeeded had he moved "TURTLE" just a few feet forward.

"TURTLE" attempted twice more to sink British ships, but failed each time. In the last attempt, she was sunk in the first antisubmarine warfare on record.



JOHN PAUL JONES

John Paul Jones emigrated to America from Scotland. Long an accomplished seaman, he obtained a commission from Congress, and was given command of "BON HOMME RICHARD", a leaky old merchant vessel that was much slower than the enemy.

During a raid on the English coast, he encountered "SERAPIS", one of Britain's finest warships. The battle was completely unequal. Very early two of Jones' cannons blew up, putting them out of action. Though disabled, he maneuvered alongside "SERAPIS", boarded her, and fought hand-to-hand. At times both sides had to stop fighting long enough to put out fires. At last an American ally, a French

Frigate, appeared on the scene and opened fire – on “BON HOMME RICHARD”, The Captain ordered all prisoners released to man the pumps and save the sinking ship, and half of them deserted to the British vessel. One assured the English skipper that the American ship should sink very soon. An American sailor evened the score slightly by dropping grenades from a yardarm into the British decks, miraculously hitting a pile of cartridges on the gun deck.

By all logic, the Americans didn't stand a chance; the equipment, skill, manpower, and odds were simply too great. Yet after three and one-half hours of hard fighting, the English captain struck his colors. Two days later, from the decks of the captured “SERAPIS”, Jones watched “BON HOMME RICHARD” sink beneath the waves.

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 1
NAVY TRADITIONS AND HEROES – THE BEGINNING

1. play “Hot Seat”.
2. Make a time line. List important events of this time period and illustrate.
3. Show a film check with local recruiter or library.
4. Have Cadets research and then dramatize a scene (example; “Serapis” vs. “Bon Homme Richard”)
5. Set up a news interview with the important people from both sides of the conflict. The cadets can be news reporters.
6. .
7. .
8. .
9. .
10. .

NLCC ABLE CADET
PART II LESSON 1 QUESTIONS
NAVY TRADITIONS AND HEROES – THE BEGINNING

1. The official birth date of the U. S. Navy is:
 - a. 4 July 1776
 - b. 13 October 1775
 - c. 18 April 1775
 - d. 12 June 1775
2. Privately owned ships that raided British commercial ships were called
 - a. Cabot
 - b. Privateers
 - c. Turtle
 - d. Intrepid
3. The strangest vessel of the American Revolution was called:
 - a. “CABOT”
 - b. “INTREPID”
 - c. “TURTLE”
 - d. “PHILADELPHIA”
4. In the final battle between “SERAPIS” and “BON HOMME RICHARD”, victory went to the:
 - a. French
 - b. British
 - c. Americans
 - d. Germans
5. The most successful ships which fought in the American Revolution were:
 - a. frigates
 - b. sloops
 - c. cruisers
 - d. privateers
6. “BON HOMME RICHARD” sank as a result of battle damage.
 - a. true
 - b. false

harassed our ships at sea and confiscated trade goods. Very often British captains would kidnap our sailors, forcing them to serve on their own ships.

In 1794, the United States and Britain settled their differences involving borders, though not freedom of the seas. For the most part, however, England stopped harassing our ships. France, angered by the agreement, increased her attacks. Consequently, we were forced to fight our former allies in an undeclared war, called the “Quasi War”, which lasted into the 1800’s. In most cases our ships were outgunned by the French.

By 1789 the Americans had had enough. Despite fear of foreign involvement, Congress began to rebuild the fleet. Within a few months, the Navy had grown to more than fifty ships and 7500 men, including privateers and ships of the Maritime Cutter Service, ancestor of today’s Coast Guard.

Though outgunned and outmanned by the French, our seamen and gunners fought well. Typical of the action during the Quasi War was the battle between “USS CONSTELLATION” and “LA VENGEANCE”. “CONSTELLATION”, sailing near Guadeloupe in the Caribbean, spotted a large ship on the horizon and closed to identify her. Carrying only 36 guns, the ship approached within hailing range of the 54-gun French frigate. Rather than fight, the French warship sought to escape. Thomas Truxton, Captain of the “CONSTELLATION”, pursued, catching up at nightfall. During the five hour battle which followed, both ships were damaged severely. Breaking away, each sailed for separate ports. “LA VENGEANCE” had been hit more than 200 times, losing nearly all her rigging and with 28 men killed. “CONSTELLATION” lost 14 men and her mainmast.

TRIPOLITAN WARS

Along the coast of North Africa, rulers of the Barbary States had been blackmailing Europe for centuries with piracy. Merchant ships without naval protection could risk capture, or pay large sums of money in tribute to each of the governors. Seamen became prisoners, held for huge ransoms or sold into slavery. At that time there were no alliances like those of today. Each country made its own agreements with the Barbary rulers, often to the disadvantage of its commercial rivals.

Though our merchant shipping in the Mediterranean clearly required protection, Congress deliberated for nearly three months before authorizing construction of six new frigates. At the same time, representatives authorized even more funds to make treaties and ransom captured seamen. When the Dey of Algiers signed one treaty, Congress halted work on three of the frigates.

Because news traveled slowly in our nation’s early years, many months might pass before the government learned of action at sea. When Barbary governments began to increase their demands for tribute and insult the American flag, there was little to do at the moment but comply. In 1801, when Thomas Jefferson was about to reduce the size of the Navy once again, he received word of the increases demand of the Barbary Pirates and dispatched a small squadron to put an end to pirate raids on our shipping. The group did not accomplish much, but did let the pirates know that we would tolerate them no longer. Politics and incompetent leaders plagued the squadron for two years. At last, under Commodore Edward Preble, the group began to see action.

Perhaps the most effective incident of the era occurred when LT Stephen Decatur, in “USS INTREPID”, crept into Tripoli (Libya) harbor and burned “USS PHILADELPHIA” under the guns of a nearby fort. Early in the war the ship had run aground while on patrol offshore and was captured by

the Tripolitans. On 16 February 1804, under cover of darkness, Decatur and 70 volunteers slipped alongside "PHILADELPHIA", boarded, and within 20 minutes had set her afire. Only one American was injured. Decatur was promoted to Captain, at age 25 the youngest man ever to hold that rank in the U. S. Navy, and Congress awarded the crew two months' extra pay.

Commodore Preble continued the fight against Tripoli, attacking by sea and blockading the port. Relieving him in 1804, Captain Samuel Barron continued the war. Finally, with a Marine force which crossed 400 miles of desert, he cut off the city completely, forcing the governor to make new treaties with the United States.

Although fighting continued until 1815, our fleet put a stop to the blackmail by the Barbary States, not only for our own shipping, but for many European nations as well.

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 2
NAVY TRADITION AND HEROES – REVOLUTION THROUGH TRIPOLITAN WARS

1. Show film – History of the U. S. Navy (try to get a copy from a local recruiter or a nearby Navy Reserve Center)
2. Encourage role playing of important incidents, for example, conversations that may have occurred between Navy leaders and the pirates (for directions for Role Playing, see appendix)
3. Debate:
 - Should the U.S. colonists go to war?
 - Should we pay tribute to the Barbary pirates?
4. Build model ship
5. Have cadets make a time line. List important events and illustrate. (See appendix for directions)
6. Make chart or map of all important naval battle locations.
7. Hot Seat (see appendix for directions)
8. .
9. .
10. .

**NLCC ABLE CADET
PART II LESSON 2**

NAVY TRADITIONS AND HEROES—THE REVOLUTION THROUGH TRIPOLITAN WARS

1. After the American Revolution, Congress spent millions to build up the Navy.
 - a. true
 - b. false

2. Led by _____, Americans recaptured and burned “USS PHILADELPHIA” in Tripoli Harbor.
 - a. Thomas Truxton
 - b. Stephen Decatur
 - c. John Paul Jones
 - d. Edward Preble

3. American ships were larger and better equipped than British or French ships in the early 1800’s.
 - a. true
 - b. false

4. American and European governments paid tribute to the:
 - a. Italians
 - b. Dutch
 - c. Barbary States
 - d. Turks

2. Apart from Barbary pirates, our ships were harassed by:
 - a. Italian warships
 - b. British and French warships
 - c. German and Dutch warships
 - d. Greek and Turkish warships

MILITARY DISCIPLINE

In the Armed Forces, people depend more on one another to do the job correctly. Every person is a vital member of the team. The mission can fail when someone does a poor job. Military life requires everyone to strictly observe all rules and regulations. True discipline means that everyone learns exactly what is expected of him. In compensation, military people receive rewards and recognition.

FOLLOWERS

Good leadership begins with good “followership”. As a Navy League Cadet, you begin as a Recruit, then work your way upward through the ranks. As you go forward, you learn that everyone, civilian or military, is responsible to someone else; even the President of the United States answers to the people who elected him.

Good followers always obey orders promptly and cheerfully, no matter how unpleasant or disagreeable the task. They demonstrate loyalty at all times, both up and down the chain of command. As good followers, they seek new and challenging responsibilities. Good followers are reliable and dependable. They report promptly to their assigned duties, and stay with the job until it’s done properly.

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 3
SELF DISCIPLINE AND THE CORPS

1. Have cadets list ways that they can represent the NLCC and their Training Ship in a positive way.
2. Have cadets discuss what they think discipline is. Give examples.
3. What is behaving in a military and seamanlike manner? Give examples.
4. .
5. .
6. .
7. .
8. .
9. .
10. .

NLCC ABLE CADET
PART II LESSON 3 QUESTIONS
SELF DISCIPLINE AND THE CORPS

1. Good leaders learn well from experience.
 - a. true
 - b. false

2. Senior cadets always _____
 - a. act in a military and seamanlike manner
 - b. put the good of the unit before their person likes and dislikes
 - c. demonstrate loyalty, self-control, and honesty
 - d. all of the above

3. Good leaders are not good followers.
 - a. true
 - b. false

4. Good followers are never reliable and dependable.
 - a. true
 - b. false

5. Punishment and reprimand only occur as a last resort.
 - a. true
 - b. false

You may assist one of the unit officers or perform some special task for the unit. This section identifies such special assignments.

CLEANING STATION

The CO assigns each cadet a certain area to keep clean – classroom, head, office. These must be “squared away” before securing from activities.

WATCH DUTIES

This section identifies the type of watches you stand, both with the unit at home and during special activities.

EMERGENCIES

This section assigns specific jobs to key personnel in such emergencies as fire, accidents, or unusual occurrences.

WATCHES

Most Navy watches last four hours, but may be adjusted according to the number of people available. Normally, the watch day begins at 0800.

0800 1200 – Forenoon Watch
1200-1600 – Afternoon Watch
1600-1800 – First Dog Watch
1800-2000 – Second Dog Watch
2000-2400 – Evening Watch
0000-0400 – Mid-Watch
0400-0800 – Morning Watch

Note the “Dog” watches last two hours each. This provides relief for meals and ensures that personnel do not stand the same watch each day. Also note that 2400 ends the day; 0000 starts the new day.

NAVY TIME

The Navy uses the 24-hour time system. Navy time is always spoken in four digits, i.e. 0830 is “zero eight thirty”; 1900 is “nineteen hundred”. Never say “nineteen hundred hours”. A. M. and P. M. do not exist in Navy terminology. Midnight is 2400 or 0000, depending on whether it starts or ends the day. To determine the hour after 1200 (Noon), simply add 12 to the number on the clock.

The ship’s bell may also be used to indicate time in each four- hour watch. The bell is struck once for each half hour, pausing between each two bells, with a maximum of eight bells. At 0830, for instance, one bell is sounded; at 0900, two bells; at 0930, three bells; and so on until eight bells are struck at 1200, beginning again with one bell at 1230. The use of this system is usually restricted to the hours between reveille and taps.

WATCH DUTIES (IN PORT)

CDO

Command Duty Officer is a senior unit officer, assigned to a duty section, who supervises all watches, duties, and emergencies. Depending on the number of officers, midshipmen, and instructors on board, the CDO may or may not stand watches.

OOD

The Officer of the Deck stands watches on or near the Quarterdeck and supervises the watch team. He greets all visitors, ensures that unit routine is carried out, and acts as the CO's representative for official business.

POOW

The Petty Officer of the Watch stands watch on the Quarterdeck, assists in supervising the watch team, and maintains the Quarterdeck Watch Log.

MSGR

The Messenger answers all telephone calls, receives and delivers messages as necessary, and maintains the cleanliness of the Quarterdeck.

SECURITY

The Quarterdeck Log is a complete record of all unit activities and events. Each POOW records everything that takes place during the watch. It is an official record and can be used later to reconstruct a situation, if required. In maintaining the Quarterdeck Log, there are several important points to note:

- All entries must be printed, and must be clear, brief, and accurate.
- The time of entry must precede each event recorded
- At midnight, the watch begins all entries on a new page, even if only one entry is recorded on the previous page. The initial midnight entry describes the unit's current situation: location activity, number of personnel on board, brief special instructions, etc.
- If the POOW makes an error, he simply draws a single line through the entire entry, then records the correct information on the line immediately below. Errors are never erased!! When the correction is entered, the POOW initials the entry.

REPORTING OFFICER		DATE		SECTION		DIVISION		COMP												
		7/14/		FIRST		FIRST		A-303-L												
BLKT	NAME	NO.	LEA	RAE	CLASS	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION	STATION
1101	Kang, R.R.	19			BAC	BAC														
1102	Johnson, R.A.	1			BAC	BAC														
1103	Johnson, R.A.	2			BAC	BAC														
1104	Smith, J.S.	6			BAC	BAC														
1105	Kash, R.R.	9			SN	SN														
1106	Brown, R.R.	4			SM	SM														
1107	Allen, R.R.	8			SN	SN														
1108					SN	SN														
1109	Cook, L.C.	7			SN	SN														
1110	Evans, R.R.	11			SN	SN														
1111	Fox, R.R.	13			SN	SA														
1112	Davis, R.R.	5			SN	SA														

Fig. II-3-1 Watch, Quarter and Station Bill

THE GENERAL ORDERS

1. TO TAKE CHARGE OF THIS POST AND ALL GOVERNMENT PROPERTY IN VIEW.
2. TO WALK MY POST IN A MILITARY MANNER, KEEPING ALWAYS ON THE ALERT, AND OBSERVING EVERYTHING THAT TAKES PLACE WITHIN SIGHT OF HEARING.
3. TO REPORT ALL VIOLATIONS OF ORDERS I AM INSTRUCTED TO ENFORCE.
4. TO REPEAT ALL CALLS FROM POSTS MORE DISTANT FROM THE GUARD HOUSE THAN MY OWN.
5. TO QUIT MY POST ONLY WHEN PROPERLY RELIEVED.
6. TO RECEIVE, OBEY, AND PASS ON TO THE SENTRY WHO RELIEVES ME ALL ORDERS FROM THE COMMANDING OFFICER, COMMAND DUTY OFFICER, OFFICER OF THE DECK, AND OFFICERS AND PETTY OFFICERS OF THE WATCH ONLY.
7. TO TALK TO NO ONE EXCEPT IN THE LINE OF DUTY.
8. TO GIVE THE ALARM IN CASE OF FIRE OR DISORDER.
9. TO CALL THE OFFICER OF THE DECK IN ANY CASE NOT COVERED BY INSTRUCTIONS.
10. TO SALUTE ALL OFFICERS AND ALL COLORS AND STANDARDS NOT CASED.
11. TO BE EXPECIALLY WATCHFUL AT NIGHT, AND, DURING THE TIME FOR CHALLENGING, TO CHALLENGE ALL PERSONS ON OR NEAR MY POST AND TO ALLOW NO ONE TO PASS WITHUT PROPER AUTHORITY.

**SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 4
WATCHSTANDING/QUARTERDECK PROCEDURE**

1. Speak “Navy” time at drills
2. Use ship’s bell to sound time at drills
3. Learn the Eleven General Orders of a Sentry (use flash cards for practice)
4. Shadow a watch to learn the procedures at your local drill site
5. .
6. .
7. .
8. .
9. .
10. .

NLCC ABLE CADET
PART II LESSON 4 QUESTIONS
WATCHSTANDING/QUARTERDECK PROCEDURE

1. The _____ is an official record of all unit activities and events
 - a. Watch, Quarter and Station Bill
 - b. Plan of the Day
 - c. Quarterdeck Log
 - d. SOP Manual
2. The _____ keeps the Quarterdeck neat and clean
 - a. Officer of the Deck
 - b. Fire and Security Watch
 - c. Petty Officer of the Watch
 - d. Messenger of the Watch
3. Normally, the watch day begins at _____.
 - a. 0000
 - b. 1200
 - c. 1600
 - d. 0800
4. To find your duty section assignment, you should check the _____.
 - a. Quarterdeck Log
 - b. Plan of the Day
 - c. Watch, Quarter, and Station Bill
 - d. Special Duty Roster
5. The senior watch officer for each duty section is usually the _____.
 - a. Petty Officer of the Watch
 - b. Command Duty Officer
 - c. Officer of the Deck
 - d. Commanding Officer
6. _____ patrol assigned areas continuously.
 - a. Petty Officers of the Watch
 - b. Fire and Security Watches
 - c. Messengers of the Watch
 - d. Officers of the Deck
7. In the Quarterdeck Log, the _____ briefly describes the units current situation.
 - a. 0000 entry
 - b. 0800 entry
 - c. 1200 entry
 - d. 1600 entry
8. Errors in the Quarterdeck Log may be crossed out, but never erased.
 - a. True
 - b. False
9. When writing in the Quarterdeck Log, you _____ all entries.
 - a. describe
 - b. print
 - c. erase
 - d. cancel
10. All Navy watches except the _____ last for four hours.
 - a. Forenoon watch
 - b. Mid Watch
 - c. Dog Watch
 - d. Morning Watch
11. Navy time 0930 corresponds to _____.
 - a. 9:30 p.m.
 - b. 9:30 a.m.
 - c. 2130 p.m.
 - d. 3:30 a.m.
12. The unit Commanding Officer must change Watch, Quarter and Station Bill from time to time due to _____.
 - a. personnel advancements
 - b. new enrollments
 - c. transfers from the unit
 - d. all of the above

The ribs of a ship are its **FRAMES**, numbered from bow to stern, and from the keel to the topmost complete deck.

Vertical walls are **BULKHEADS**; those which extend a few feet above the topside (outdoor) decks are **BULWARKS** or **SPLINTER SHIELDS**.

DECKS are the horizontal surfaces you walk on. The lowest inner portion of the hull, and sometimes the bottommost deck, are **FLOORS**. The ceiling, or underside of the deck over your head, is the **OVERHEAD**.

STANCHIONS are vertical beams mounted between decks to vertical beams mounted between decks to provide greater strength and support.

The combination of decks and bulkheads divides the ship into **COMPARTMENTS**, many of which are **WATERTIGHT**, or sealed tightly to prevent flooding.

DOORS lead from one compartment to another on the same deck or level; **HATCHES** allow passage through decks to the compartment above or below. Doors and hatches may have special fittings so that they may be closed tightly, making compartments watertight (Fig. II-4-2)

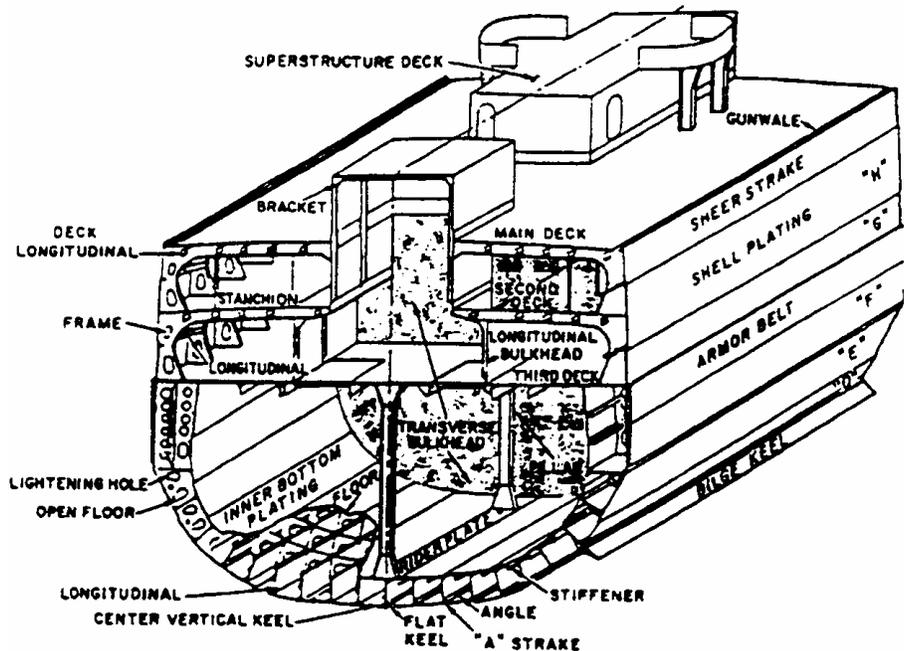


Fig. II-4-1 Hull structure of a cruiser

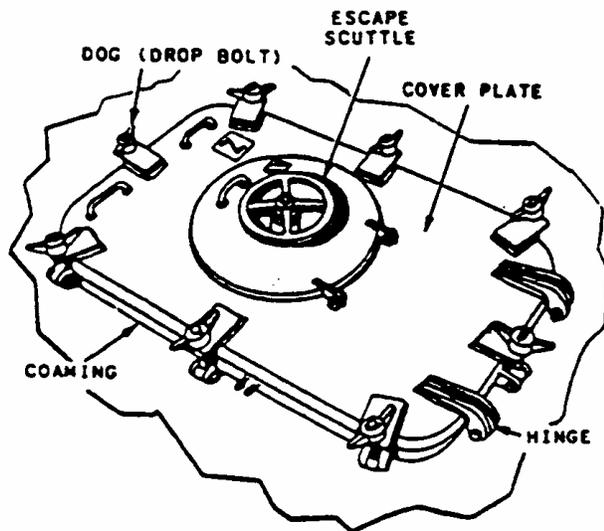
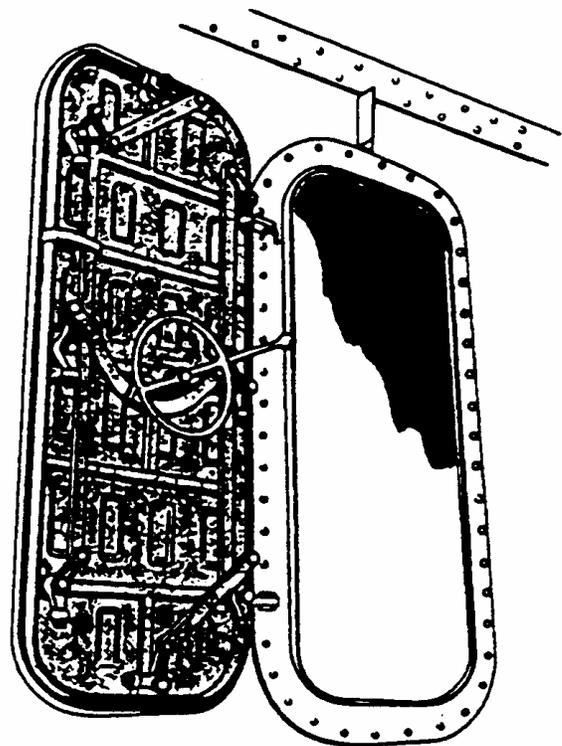


Fig. II-4-2 Shown above is a bolted hatch with escape scuttle. Shown at right is a quick-acting watertight door.



DECKS (FIG. II-4-3)

Decks divide the ship into layers which correspond to the floors of a building and which provide extra strength and protection for compartments. Outdoor decks are WEATHER DECKS or TOPSIDE DECKS. Complete decks extend completely fore and aft from side to side. In all ships except aircraft carrier types, the uppermost complete deck is the MAIN DECK. On carriers and amphibious assault ships the FLIGHT DECK is uppermost; the HANGER DECK where aircraft are stored and serviced, is the main deck.

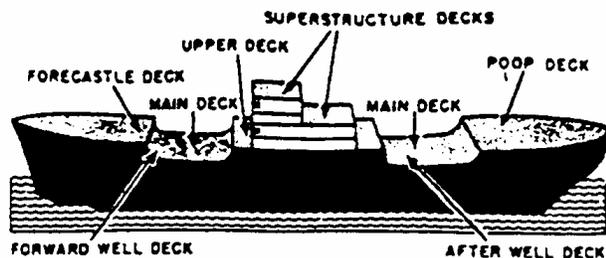


Fig. II-4-3 The weather deck

PARTIAL DECKS do not run completely fore and aft, or from side to side. They are located throughout the ship, both topside and below. Partial decks above the main deck are SUPERSTRUCTURE decks. A superstructure deck at the bow is the FORECASTLE; at the stern it's the POOP DECK. On cargo ships, partial decks above the main deck amidships are UPPER DECKS; exposed portions of the main deck are WELL DECKS. On carrier types, partial decks between the hangar and flight decks are GALLERY DECKS. Portions of weather decks along the edge of flight decks are CATWALKS.

FLATS, though horizontal, are not decks, but may be gratings or plating which provide walking or working surfaces. Most flats are in engineering spaces.

LEVEL is a general term that describes any deck height above the main deck.

The QUARTERDECK is not an actual deck, but an area set aside by the commanding officer for official business. In port it is the watch station for the Officer of the deck.

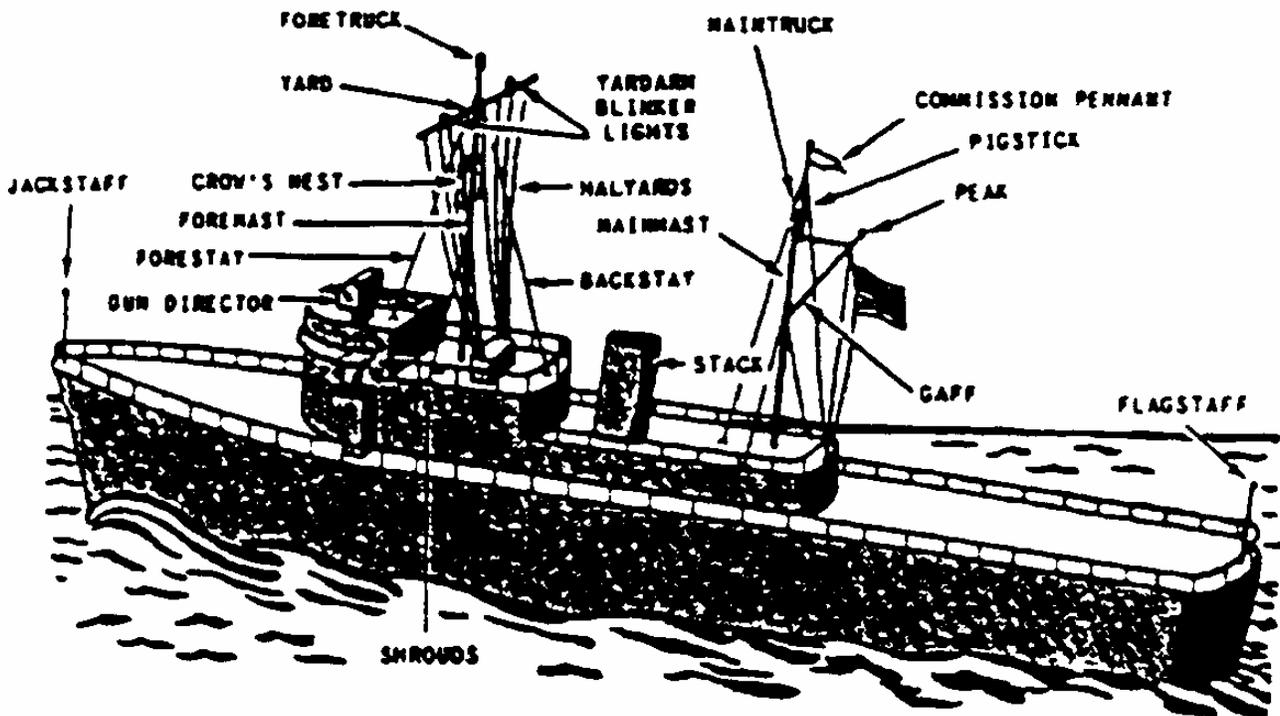


Fig. II-4-4 Top hamper indicating masts

MASTS (Fig. II-4-4)

Although most ships no longer use sails, all are equipped with one or two masts. The mast farthest aft is the MAINMAST. The most forward is the FOREMAST. Here different types of antennae – radio, radar, electronic warfare – are mounted to provide all around coverage against enemy attack. Several lines may extend from the YARDARMS (crosspieces) to the signal bridge for flag hoist signaling. Navigation lights are mounted at specific locations, and when underway, all ships proudly display the National Ensign from the GAFF, mounted on the after side of the mainmast.

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 5
SHIP CONSTRUCTION AND NOMENCLATURE

1. When presenting the lesson, have an overhead transparency made of the ship. Use different colored pens and color in each part of the ship as you discuss it.
2. Build a model.
3. Tour a ship – Have a member of the crew acting as a tour guide name various parts of the ship listed in this lesson.
4. Play pin the tail on the ship – enlarge diagrams and use post-it notes to locate various parts of the ship. Kinko's or other quick printers can make large posters for units (see appendix)
5. Use a blank drawing of ship. Have cadets label parts of the ship.
6. Make a floor plan of ship's deck in the drill area. Practice going to locations.
7. See glossary for vocabulary.
8. .
9. .
10. .

**NLCC ABLE CADET
PART II LESSON 5 QUESTIONS
SHIP NOMENCLATURE**

1. Facing the front end of the ship everything on your right is _____
 - a. port
 - b. starboard
 - c. outboard
 - d. above

2. From bow to stern runs an imaginary line called the center line.
 - a. true
 - b. false

3. The ribs of the ship are its _____
 - a. keel
 - b. frames
 - c. overheads
 - d. bulkheads

4. All compartments on a ship are water tight.
 - a. true
 - b. false

5. The Quarterdeck is an actual deck on a ship set aside by Commanding Officer for official business.
 - a. true
 - b. false

Service Craft Generally, small ships and vessels which perform specialized tasks which cannot be done by larger ships.

Each general type of ship (carrier, destroyer, etc.) may include several classes. Applied to ships, a “class” is like a model of an automobile. Classes usually take the name of the first ship in a series: Forrestal Class Carrier, Spruance Class Destroyer. Pictures of the different types of ships appear in the Bluejackets’ Manual and the Coast Guardsman’s Manual.

Every ship is designated according to type. These designations, with their letter abbreviations, are discussed later in this lesson.

When a ship designator ends with the letter “G”, the ship carries guided missiles; when the designator ends with the letter “N”, the ship is nuclear powered. (CGN – Nuclear Powered Guided Missile Cruiser)

COMBATANTS

There are four classifications of combatant ships: (1) Warships; (2) Amphibious Warfare Ships; (3) Patrol and Mine Warfare Ships; (4) Submarines.

(Teaching suggestion – have overhead transparencies made of the figures for each ship and use them as you present the lesson).

WARSHIPS

AIRCRAFT CARRIERS (CV, CVN)

Carriers launch aircraft to attack the enemy and defend the ship. Carrying nearly 100 aircraft, CVs form the center of modern battle groups. Within twenty-four hours, carriers can travel anywhere within a two-million square mile area, making it difficult for the enemy to find them. All carriers have aircraft repair and maintenance facilities on board, and when manned to full capability carry more than 6000 personnel (Fig. II-5-1).

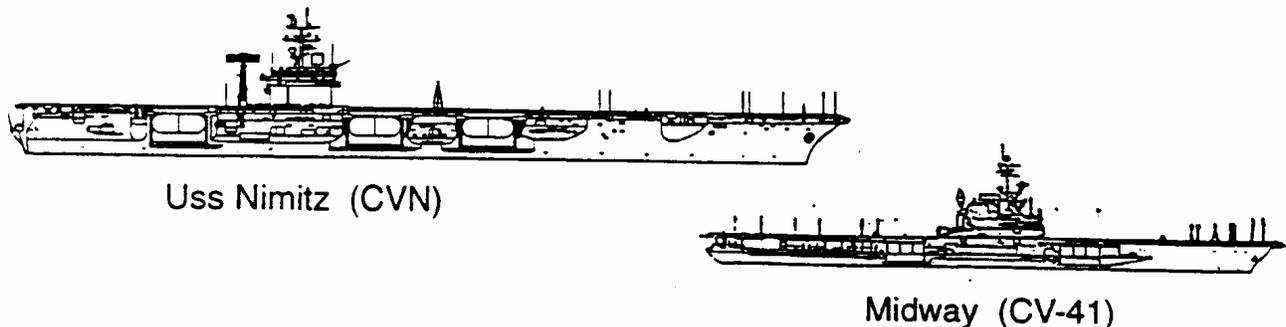


Fig. II-5-1 Examples of CVN and CV aircraft carriers

CRUISERS (CG, CGN)

Medium size, general utility ships which carry missiles, guns, and anti-submarine weapons. They defend carrier battle groups, attack submarines, and act independently as pickets. On the average, cruisers carry about 600 personnel (Fig. II-5-2).

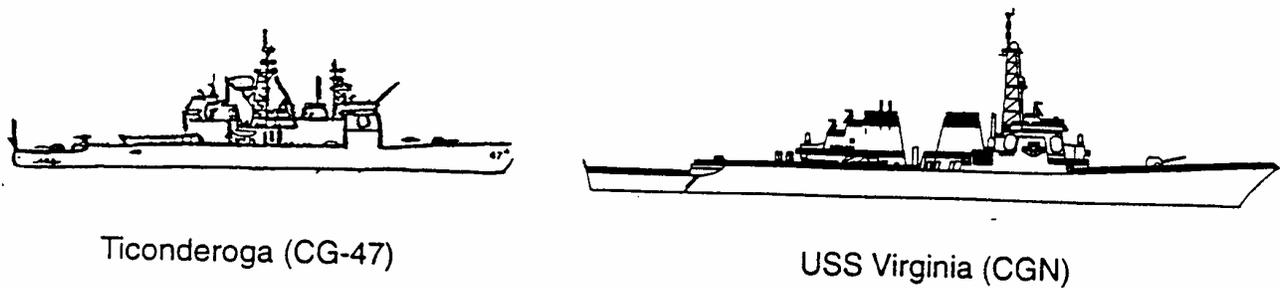


Fig. II-5-2 Examples of CG and CGN Cruisers

DESTROYERS (DD, DDG, FF, FFG)

Small to medium size ships which conduct a large variety of operations. Some classes carry missiles, but all carry guns and anti-submarine weapons. Destroyers carry 450 to 600 personnel, depending on their size and missions. Because they perform the same types of tasks, the smaller frigates are included in the Destroyer classification (Fig. II-5-3)

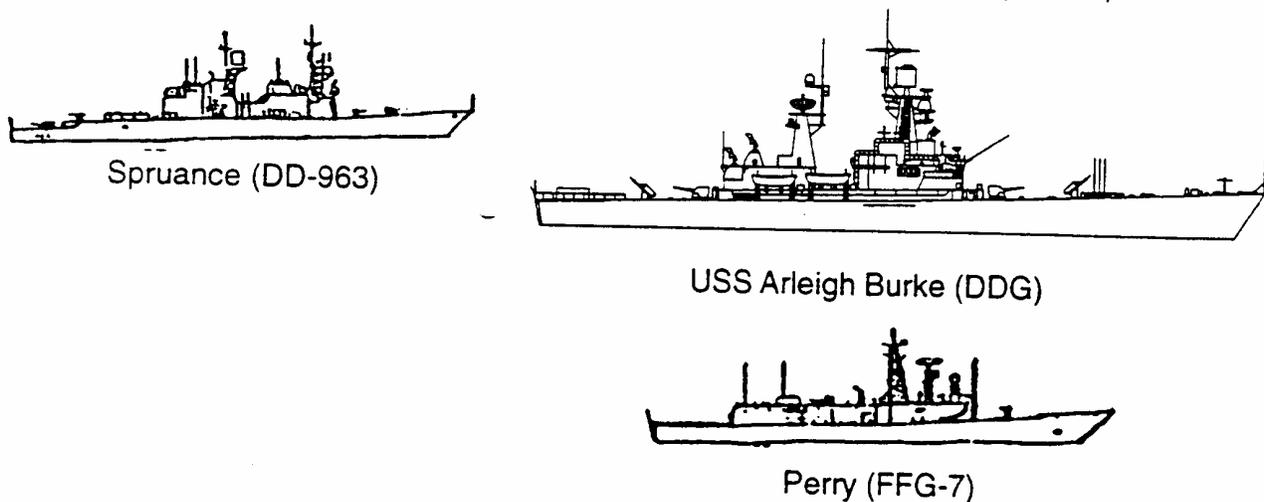


Fig. II-5-3 Examples of DD, DDG, FF and FFG Destroyers

AMPHIBIOUS WARFARE SHIPS

Amphibious Warfare ships transport troops and supplies to enemy shores, landing them by boat and helicopter directly onto the beach. More types of ships participate in amphibious warfare than in any other kind.

AMPHIBIOUS COMMAND SHIPS (LCC)

Command ships for amphibious assaults. They carry extensive communications and control equipment, and provide quarters for embarked commanders and their staffs. LCCs carry about 800 personnel (Fig. II-5-4)

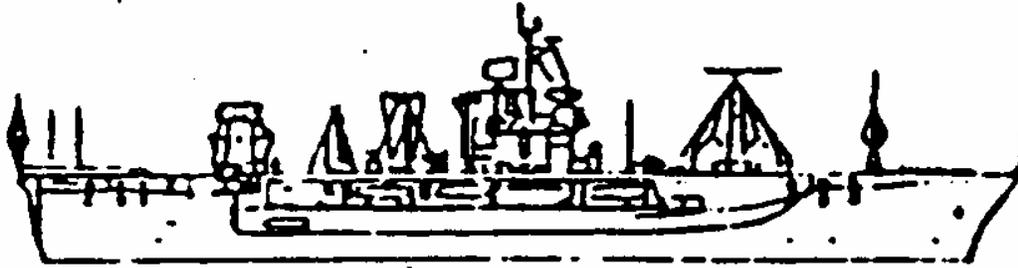


Fig. II-5-4 Blue Ridge (LCC-19)

GENERAL PURPOSE ASSULT SHIPS (LPH, LHA, LHD)

Large ships which resemble aircraft carriers. They operate helicopters to land troops and equipment behind enemy lines during an assault on hostile shores. Some operate Marine Corps Harrier aircraft which provide air defense as well as attack enemy positions ashore. Assault ships carry 600 to 1000 personnel (not including U.S. Marines), depending on size (Fig. II-5-5).

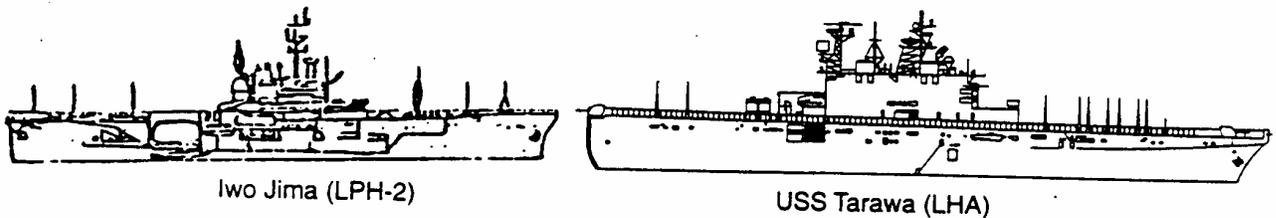


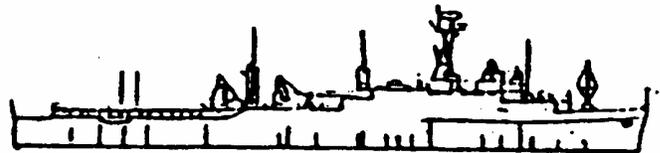
Fig. II-5-5 Examples of LPH and LHA General Purpose Assault Ships

DOCK LANDING SHIPS (LPD, LSD)

Special ships which can flood large well decks launch fully loaded assault boats. Larger types operate helicopters from a small flight deck aft. Dock landing ships carry 350 to 400 personnel.



Austin (LPD-4)



Anchorage (LSD-36)

Fig. II-5-6 Examples of LPD and LSD Dock Landing Ships

AUXILIARIES

TANK LANDING SHIPS (LST)

Specialized ships which land troops and vehicles directly onto the beach via a large ramp at the bow attached to floating pontoon causeway which it carries in sections to the assault area. LSTs carry 250 personnel (Fig. II-5-7)



Fig. II-5-7 Newport (LST-1179)
Tank Landing Ship

TENDERS/REPAIR SHIPS (AD, AS, AR)

Tenders and Repair Ships provide repair and assistance to submarines and other vessels where shipyard facilities are limited or unavailable. Certain types have facilities to manufacture spare parts on board. Most are equipped with extensive medical and dental facilities to provide services to smaller ships. Tenders and Repair Ships carry about 1300 personnel (Fig. II-5-11)

AMPHIBIOUS CARGO SHIPS (LKA)

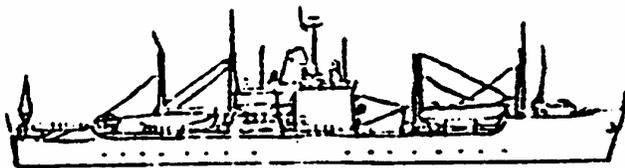


Fig. II-5-8 Charleston (LKA-113)
Amphibious Cargo Ship

AMPHIBIOUS CARGO SHIPS (LKA)

Large freighters which transport and deliver combat cargo to the assault area, specially loaded so that the most important equipment can be unloaded and delivered first. LKAs carry 350 personnel (Fig. II-5-8)

MINEWARFARE/PATROL CRAFT

MINEHUNTER/MINESWEEPER (MCM, MHC, MSO)

Ships designed and equipped to locate and destroy mines, clearing approaches and harbors of any mines that could endanger amphibious operations. Many have wooden hulls to avoid attracting magnetic mines. Mine warfare vessels carry 70 to

Fig II-5-9

missing

100 personnel (Fig. II-5-9)

PATROL CRAFT (PG, PGH)

Fig II-5-10

Missing

Small, high-speed craft which operate near hostile coastlines to prevent delivery of arms and supplies to the enemy using small caliber guns or missiles. Certain types travel at extremely high speeds using hydrofoils. Patrol craft carry about 25 personnel (Fig. II-5-10)

SUBMARINES

Except for a small number of training vessels, all submarines are nuclear powered. As such they can remain underwater for long periods of time, surfacing only to take on stores, and in some cases change crews completely.

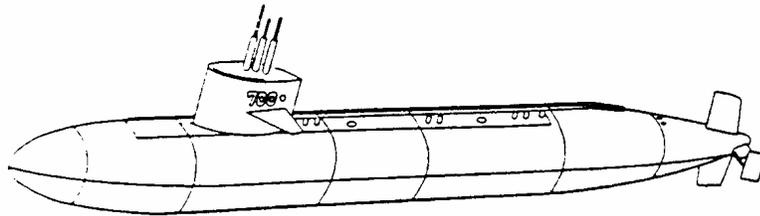


Fig. II-5-14 USS Los Angeles (SSN)

ATTACK SUBMARINES (SSN)

Submarines that seek out and destroy enemy ships and submarines with torpedoes, or carry out surveillance missions. The number of personnel is 100 to 135 (fig. II-5-14)

FLEET BALLISTIC MISSILE SUBMARINES (SSBN)

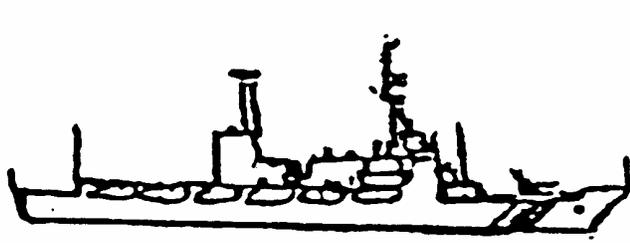
Large submarines equipped with long-range missiles to discourage other nations from attacking the U.S. Approximately 150 personnel are assigned.

U. S. COAST GUARD

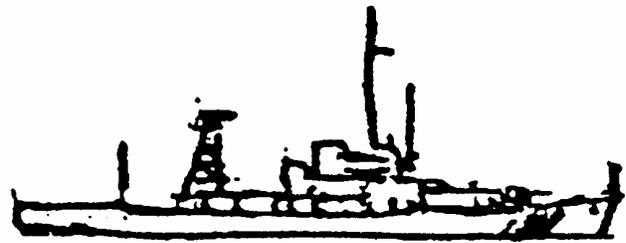
The U. S. Coast Guard in peacetime is part of the Department of Transportation; during wartime it transfers to the U. S. Navy. Its duties include Search and Rescue; Law Enforcement; Ice and Fisheries Patrol, Aids to Navigation; and Survey. Unlike the Navy, Coast Guard vessels are almost always in operation.

CUTTERS (WHEC, WMEC) (Fig. II-5-15)

Armed warships similar to Navy destroyers that patrol our coasts on law enforcement duties.



Hamilton (WHEC)



Campbell (WMEC)

Fig. II-5-15 Examples of WHEC and WMEC Cutters

PATROL BOATS (WPB)



Fig. II-5-16 Reliance (WPB)

Smaller vessels that patrol the coasts on law enforcement or search and rescue duties (Fig. II-5-16)

BUOY TENDERS/CONSTRUCTION VESSELS (WLB, WLIC)

Specialized vessels that maintain aids to navigation or perform special construction and repair duties.

ICE BREAKERS (WAGB)

Specialized vessels which patrol the Arctic and Antarctic, reporting ice conditions and keeping shipping lanes and channels clear (Fig II-5-17)

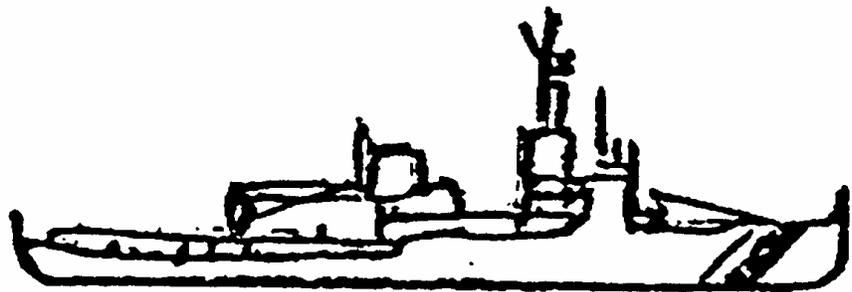


Fig. II-5-17 Polar Star (WAGB)

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 5
NAVY AND COAST GUARD SHIPS

1. Form a unit library – Suggested titles
 - a) Janes’s Fighting Ships
 - b) From Navy League – Annual Special Edition of SEA POWER)
(Ask sponsoring council to provide annual edition to your training ship)
2. Make flash cards of ships discussed in the lesson, and have cadets use them to practice identification of ships
3. Arrange visits by the unit to various kinds of ships. Ask members of the crew to take small groups and point out various parts of the ships.
4. Make ship models.
5. Post pictures of various types of ships, then play sardines – have leader call names of ship types – cadets move to appropriate picture.
6. Post pictures of silhouettes of ships in drill hall, use various games to have cadets identify each ship.
7. Play board game, CONVOY – (See appendix for game board and directions)
8. .
9. .
10. .

**NLCC ABLE CADET
PART II LESSON 6 QUESTIONS
NAVY AND COAST GUARD SHIPS**

1. The designator CVN stands for _____.
 - a. aircraft carriers
 - b. aircraft carriers nuclear
 - c. destroyers

2. Destroyers carry 450 to 600 personnel.
 - a. true
 - b. false

3. A WHEC is _____.
 - a. a cruiser
 - b. a bouy tender
 - c. a Coast Guard cutter
 - d. an ice breaker

4. Submarines are currently on active duty with the United States Navy.
 - a. true
 - b. false

5. Auxiliary vessels are:
 - a. AD
 - b. AS
 - c. AR
 - d. All of the above

VERTICAL STABILIZER	The stationary vertical part of the tail assembly.
RUDDER	Mounted on the edge of the vertical stabilizer – the moveable part which controls movement from side to side (yaw) and determines the direction of flight.
LANDING GEAR	Normally, the aircraft’s wheels; under certain conditions the aircraft may have pontoons or skis mounted.
POWERPLANT	The aircraft’s engine; may be gasoline or jet engine.
MAIN ROTOR	On helicopters, the large, horizontal propeller which provides lift and acts as a moving (rotating) wing. The rotor may be tilted to control the direction of flight.
TAIL ROTOR	A small, vertically mounted propeller at the end of the tail boom which counters the tendency of the helicopter to “twist” in the opposite direction of the main rotor movements. Some helicopters have a second large horizontal rotor which moves in the opposite direction of the main rotor, countering the twist effect.

AIRCRAFT DESIGNATIONS

Like ships, aircraft carry designators which identify their basic type.

A – ATTACK	Attack and destroy enemy targets at sea and ashore.
C – CARGO	Transport material and personnel.
E – SPECIAL ELECTRONICS	Perform early warning and specialized duties with electronic equipment.
F – FIGHTER	Defend U. S. ships and bases against attack enemy aircraft
S – PATROL	Serve as long-range scouts for submarines and enemy shipping.
S – ANTI-SUBMARINE	Use special equipment to locate and destroy enemy submarines.

ATTACK AIRCRAFT

A-6 INTRUDER (Fig. II-6-1)	A two-seat, medium attack plane which carries nearly eight tons of weapons and can operate in all weather conditions.
-------------------------------	---

CARGO AIRCRAFT

C-2 GREYHOUND	A twin-engine cargo plane which provides cargo and passenger service to Carrier battle groups.
---------------	--

- C-9 SKYTRAIN (Fig. II-6-2) The same commercial short-range aircraft operated by civilian airlines world-wide. It carries up to 90 passengers and can be converted as necessary to transport cargo.
- C-130 HERCULES (Fig. II-6-3) A four-engine turbo prop cargo and passenger carrier which can be converted easily for special missions. This plane is used by all U. S. Armed Forces as well as by several allied nations.

EARLY WARNING AIRCRAFT

- E-2 HAWKEYE (Fig. II-6-4) A specially equipped carrier based plane with a large rotating radar antenna mounted overhead which provides radar coverage and fighter control for carrier battle groups.

FIGHTER AIRCRAFT

- F-14 TOMCAT (Fig. II-6-5) a twin-engine, two-seat fighter which can destroy enemy aircraft more than fifty miles away. Though basically for carrier defense, the Tomcat can attack all types of enemy targets.
- F/A-18 HORNET (Fig. II-6-6) A single-seat fighter which combines the capabilities of both fighter and attack aircraft in a single plane.

PATROL AIRCRAFT

- P-3 ORION (Fig. II-6-7) A four-engine, land-based plane designed for antisubmarine patrol and attack. The P-3 can remain on station for 16 hours.

ANTISUBMARINE AIRCRAFT

- S-3 VIKING (Fig. II-6-8) A twin-engine, carrier based plane which conducts search and destroy missions for carrier battle groups.

HELICOPTERS

Helicopters are the most versatile aircraft in the Navy and Coast Guard. Their chief advantage is that they can hover in one spot for long periods. Among their many uses are:

- General Utility Everything from transport of cargo and passengers to ice patrol in the Arctic and Antarctic regions. In general, their most frequent mission is search and rescue.
- Antisubmarine Warfare Using special electronic equipment, they locate and attack enemy submarines. They can work independently or in teams with destroyers and other ASW ships.
- Minesweeping Towing large sleds, they locate and destroy mines with little danger to themselves.

Vertical Envelopment Landing troops behind enemy lines in an amphibious assault.

Vertical replenishment Transferring cargo and personnel between ships at sea, reducing the number of ships and time required to fully replenish a carrier battle group.

HELICOPTER TYPES

H-2 SEASPRITE A general utility aircraft used in many types of operations; cargo/passenger transport, search and rescue, amphibious assaults.
(Fig. II-6-9)

H-3 SEA KING Specially equipped or modified to conduct antisubmarine warfare, missile defense, minesweeping, or vertical replenishment as required.
(Fig. II-6-10)

H-53 SEA STALLION A large, single rotor helicopter which provides long-range transport services for fleet operations.
(Fig. II-6-11)

U. S. COAST GUARD AIRCRAFT

C-131 CONVAIR Twin-engine aircraft used for long-range patrols or search and rescue missions.

HH-3 PELICAN A twin-engine, medium-range helicopter used primarily for search and rescue.

HH-65 DOLPHIN A medium-range helicopter designed primarily for search and rescue, equipped with more electronics to reduce the pilot's workload.

NAVY AND COAST GUARD AIRCRAFT

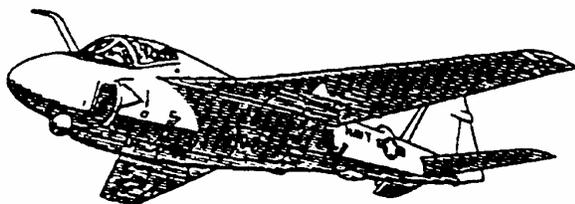


Fig. II-6-1 A-6 Intruder

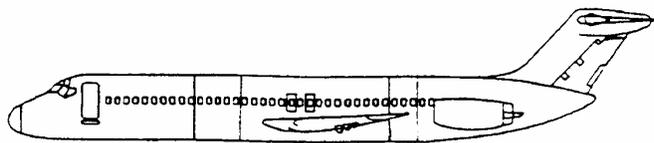


Fig. II-6-2 C-9 Skytrain

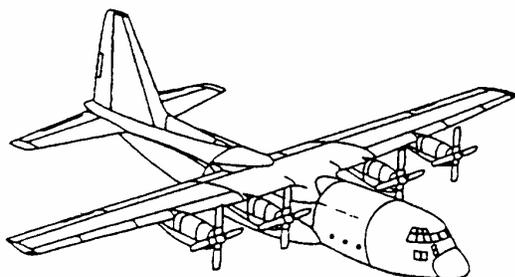


Fig. II-6-3 C-130 Hercules

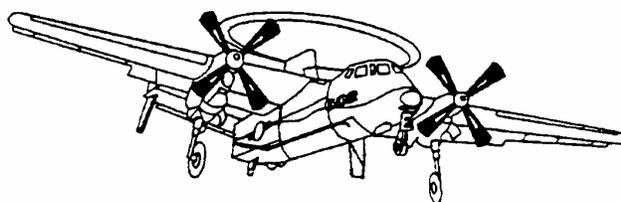


Fig. II-6-4 E-2 Hawkeye

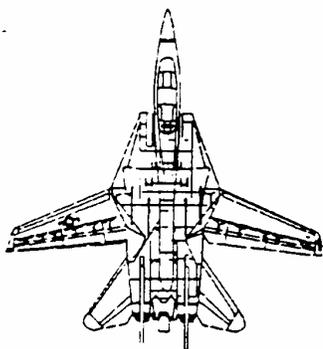


Fig. II-6-5 F-14 Tomcat

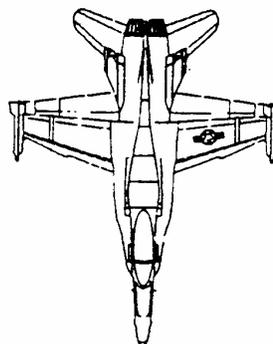


Fig. II-6-6 F/A-18 Hornet

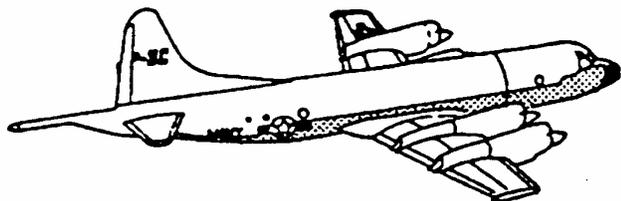


Fig. II-6-7 P-3 Orion

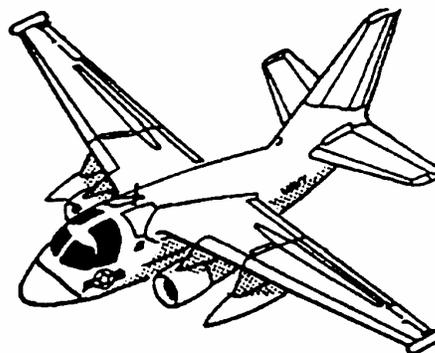


Fig. II-6-8 S-3 Viking

NAVY AND COAST GUARD AIRCRAFT

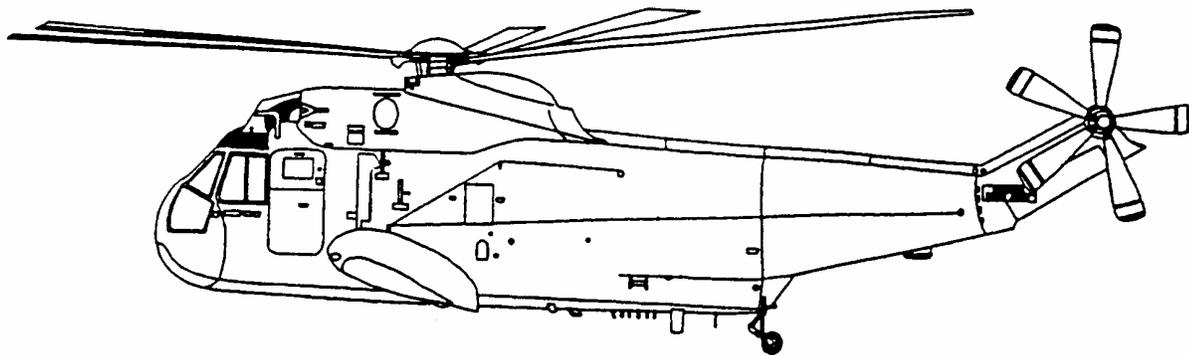


Fig. II-6-9 H-2 Seasprite

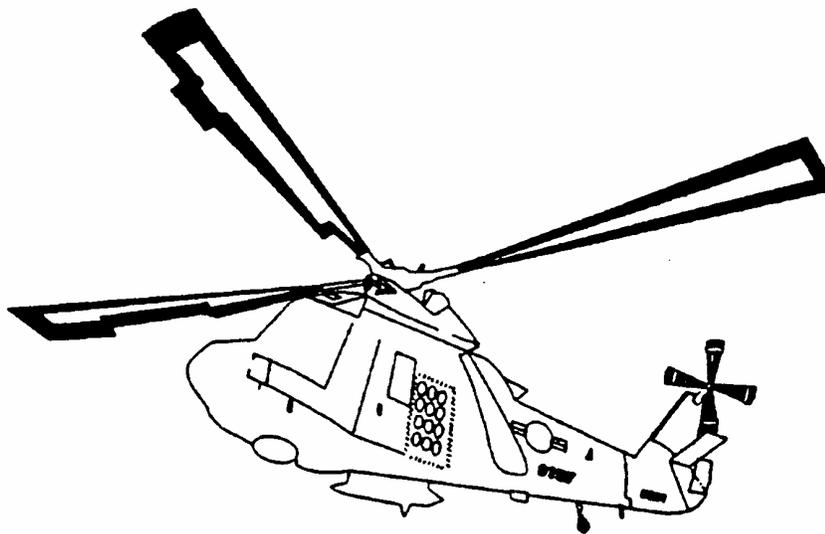


FIG. II-6-10 H-3 Sea King

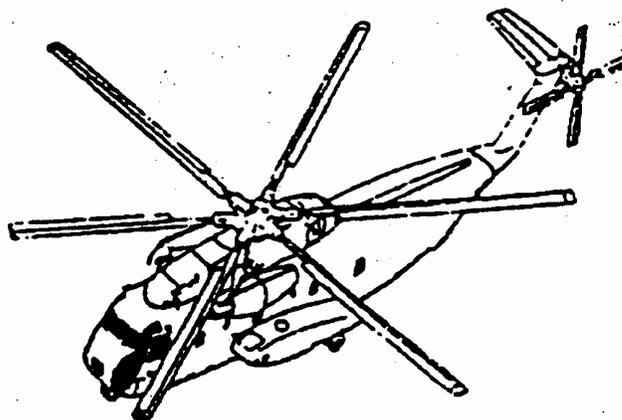


Fig.II-6-11 H-53 Sea Stallion

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 7
NAVY AND COAST GUARD AIRCRAFT

1. Add to the unit library – Janes all the World’s Aircraft
2. Have cadets make flash cards of different types of aircraft. Have cadets practice with cards to be able to identify various kinds of planes.
3. Play board game – SQUADRON CHASE – (see appendix for game board and directions)
4. Build model airplanes.
5. Visit air museum if possible.
6. Use a blank drawing of aircraft. Have cadets name various parts of the aircraft.
7. .
8. .
9. .
10. .

NLCC ABLE CADET
PART II LESSON 7 QUESTIONS
NAVY AND COAST GUARD AIRCRAFT

1. The _____ has been used by all our Armed Forces and many of our allies.
 - a. C-130 Hercules
 - b. C-2 Greyhound
 - c. A-6 Intruder
 - d. F/A-18 Hornet

2. The most versatile aircraft is the _____.
 - a. fighter
 - b. helicopter
 - c. patrol aircraft
 - d. transport aircraft

3. All rotary wing aircraft have the letter _____ in their basic designators.
 - a. V
 - b. X
 - c. H
 - d. T

4. The _____ performs airborne early warning missions.
 - a. S-3 Viking
 - b. H-3 Sea King
 - c. E-2 Hawkeye
 - d. A-7 Corsair II

5. Though carrier aircraft usually fold their wings, they are classified as fixed-wing aircraft.
 - a. true
 - b. false

5. Scrub line, the lubricant will be washed away and caustics in strong soap may harm the fibers.
6. Put a strain on a line with a kink in it.
7. Try to lubricate line. The lubricant you add could do more harm than good.

ALWAYS

1. Dry line before stowing it.
2. Protect line from weather when possible.
3. Use chafing gear (canvas, short lengths of old fire hose, etc) where line (or wire) runs over sharp edges or rough surfaces.
4. Slack off taut lines when it rains. Wet lines shrink, and if the line is taut the resulting strain may be enough to break some of the fibers.
5. Coil right-laid line to the right (clockwise).
6. Inspect a line before using it. Overworked or overstrained line will have a bristly surface. Mildew can be seen, and it has a peculiar, unpleasant odor. Untwist the line so that the inner parts of the strands can be seen. If they have a dull grayish look the line is unsafe.
7. Give the line the care it deserves. Some day your safety may depend on it.

LINE TERMINOLOGY

The following terms may make it easier to follow directions when working with line (Fig. II-7-1)

BITTER END	The very end of a piece of line that is not secured (tied) to a deck fitting.
STANDING PART	The longer part of a line that doesn't move when working with it.
BIGHT	An open loop formed in a line.
TURN	A closed loop formed in a line
ROUND TURN	A closed loop in which the standing part turns completely around and travels in the opposite direction.
EYE	A closed loop in a line which is tied or spliced; usually large enough to pass a running part through.
RUNNING PART	Part of a line that moves through an eye or over a block and tackle system.
WHIPPING	Line or tape fastened around the bitter end to keep the line from unraveling.

BASIC KNOTS

The eight basic knots most useful to seamen are:

1. OVERHAND KNOT A simple knot formed by passing the bitter end of a line over the standing part and through the bight.
2. FIGURE EIGHT A knot which resembles the number "8". Used to prevent the bitter end of a line from unreeving or passing through a pulley or block.
3. SQUARD KNOT A knot formed from an overhand knot by crossing the ends and bringing one end up through the bight alongside its own part. Joins two lines of equal sizes together and has many other uses (Fig. II-7-2)

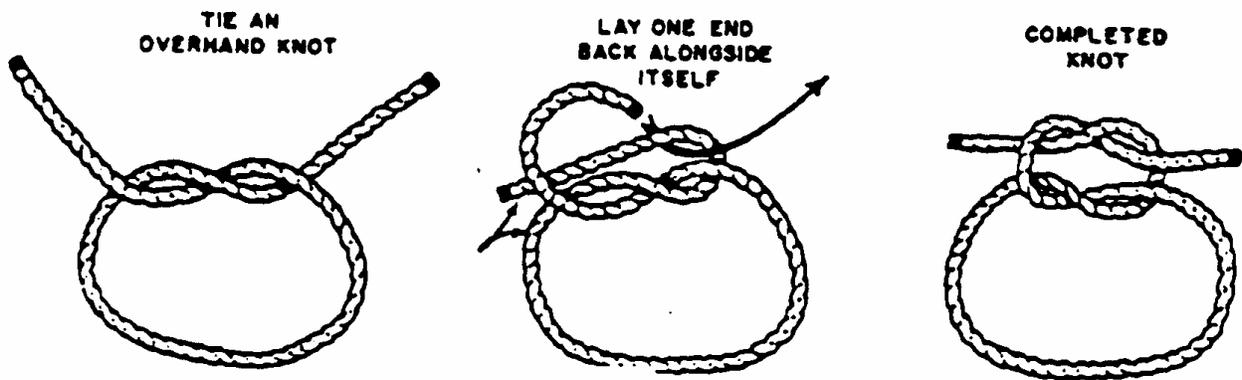


Fig. II-7-2 Square Knot

4. SHEET (BECKET) A knot formed by passing the end of a line through the bight of another, around parts, and under its own part. Joining two lines of unequal sizes (Fig. II-7-3).

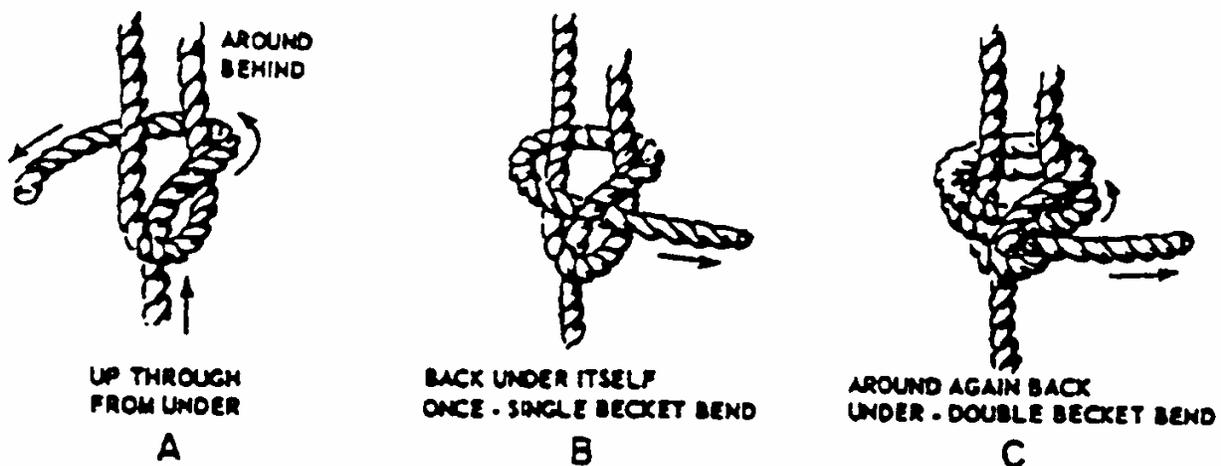


Fig. II-7-3 Sheet (Becket) Bends

5. CLOVE HITCH

A common knot used to secure a line to a spar or stanchion. Formed by passing the line around the spar, across its standing part, around once again, and under its own part (Fig. II-7-4)



Fig. II-7-4 Clove Hitch

6. SLIP KNOT

A simple knot formed by tying an overhand knot around the standing part of a line. Secures a line temporarily to a spar but will work loose very easily.

7. BOWLINE

A knot for making an eye in the end of a line. Formed by making a turn in a line, passing the bitter end upward through the loop. The bowline will not slip but may jam under a strain (Fig. II-7-5).

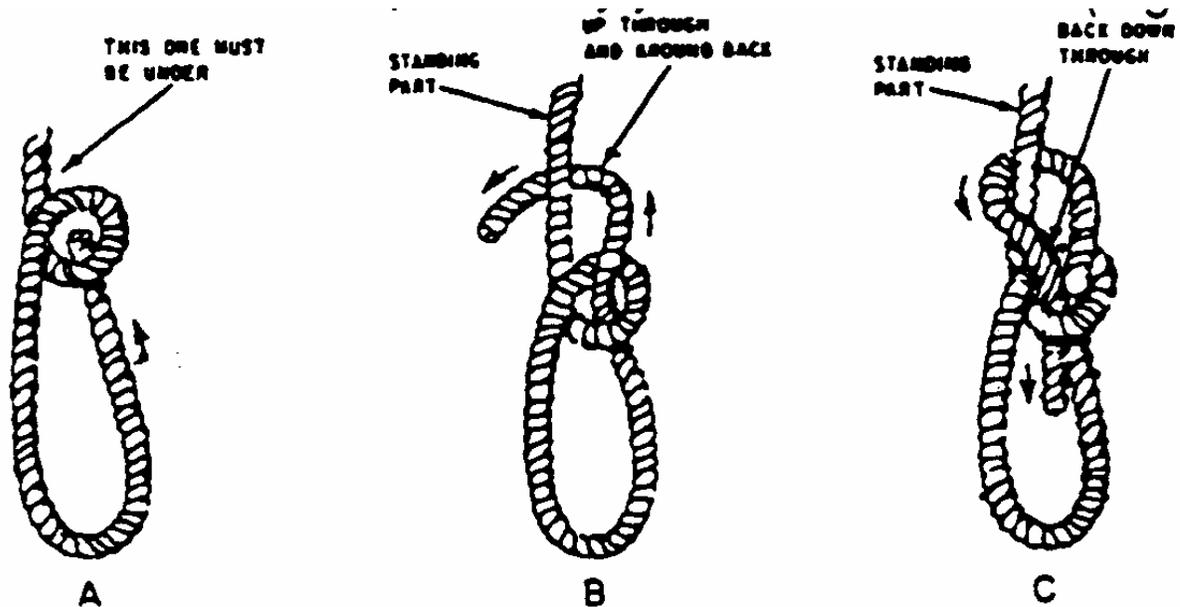


Fig II-7-5 Bowline

8. SHEEPSHANK

A simple knot used to shorten a line temporarily. Formed by making two bights in a line and passing a half-hitch around each bight. The sheepshank will slip under a strain.

As you move through your NLCC career you will have many opportunities to use the information in this lesson. Over the next weeks and months we will practice knot tying. You will have the opportunity to become proficient in tying the eight different knots most useful to a seaman.

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 8
MARLINSPIKE SEAMANSHIP – KNOTS

1. Demonstrate knot tying.
2. Invite a Boatswain's Mate to drill.
3. Bring in lengths of line for cadets to practice knot tying.
4. Give cadets lengths of line to take home and practice knot tying.
5. Create a "Knot Board"
6. In developing this lesson, demonstrate one or two (no more) at a time. Give cadets opportunity to practice knot tying at each drill. Add to the different kinds of knots as cadets master the previous ones.
7. .
8. .
9. .
10. .

**NLCC ABLE CADET
PART II LESSON 8 QUESTIONS
MARLINSPIKE SEAMANSHIP – KNOTS**

1. The long portion of a line which does not move when you work with it as the:
 - a. standing part
 - b. bitter end
 - c. running part
 - d. eye

2. To join two lines of unequal size, you tie a _____ knot/hitch/bend.
 - a. becket
 - b. clove
 - c. slip
 - d. figure eight

3. A. _____ keeps the bitter end of a line from running through a block or pulley.
 - a. square knot
 - b. figure eight knot
 - c. clove hitch
 - d. bowline

4. To keep a line from unraveling, you should apply a/an
 - a. splice
 - b. eye
 - c. whipping
 - d. turn

5. To shorten a line temporarily, you tie a/an:
 - a. overhand knot
 - b. becket bend
 - c. clove hitch
 - d. sheepshank

CLASS A FIRES

1. Empty trash cans regularly; make certain that papers are not strewn around carelessly.
2. Properly dispose of rags and paper that are used for painting or work on machinery.
3. When working with wood, don't leave scraps lying near heated surfaces such as engraving tools or space heaters. Sweep up all sawdust.
4. Check ashtrays and make sure that smokers extinguish all smoking materials.

CLASS B FIRES

1. Make certain that there is proper ventilation in areas where flammable liquids are stored. These liquids give off vapors that can ignite easily or explode if even a small spark occurs.
2. Never burn other materials or use sparking tools near flammable liquids.
3. Check the temperature of storage areas; most flammable liquid can ignite spontaneously even at low temperatures.
4. Do not take anything that might ignite a fire (matches, lighters) into a storage area for flammable liquids.
5. Make sure that liquids are stored in the proper containers (not glass) and that they are closed tightly.

CLASS C FIRES

1. Inspect all electrical equipment and appliances for loose or frayed wires that can cause short circuits and start fires.
2. If an electrical appliance or tool becomes excessively hot or starts smoking, turn it off at once and take it to a repair shop.
3. If electrical equipment begins to spark, turn it off and arrange for repairs.
4. Use only grounded (three-prong) plugs with electrical equipment; check sockets for sparking or overheating.
5. Never paint electrical wiring nor clean it with oil, greases or solvents. This causes the coating to erode and dissolve, inviting short circuits.
6. Never use a piece of electrical equipment without first reading the instructions and safety precautions.

GOOD HOUSEKEEPING

Look around your own room at home. Is everything in its proper place, or just thrown about carelessly? Can you always find what you are looking for? Are clothes hanging neatly in your closet so that you can easily choose those you wish to wear?

What about your drill area? Do you help to keep it shipshape and attractive so that others will wish to join?

There are many reasons for good housekeeping practices at home, at work, and at play. Not only is your area neat and clean, it helps to prevent fires.

Good housekeeping requires only a few minutes each day. If you haven't already done so, you can begin at once to observe the following general practices:

1. Pick up your things and stow them neatly in their places. If you've been using flammable liquids such as model glue or paints, make certain that they are closed tightly.
2. Sweep or vacuum your room each day. Clean under the bed and in the corners. If you have throw rugs, vacuum them or take them outdoors for beating. If you have no carpets or rugs, swab your floor at least once each day.
3. Inspect your entire home from time to time, looking for possible fire hazards. Pay careful attention to electrical wiring and appliances and to working areas: shops, garage. When you see something out of order or out of place, correct it then. If you cannot repair a piece of equipment yourself, let someone know about its condition.
4. As a final measure, make sure that you have emergency numbers – police, fire department, medical – near the telephone.

FIGHTING FIRES

In earlier assignments you studied the four basic types of fires. Because each is different, they require different means to combat them. At times, firefighters can do more damage than the fire itself if uncertain about the proper way to fight it.

FIRE TRIANGLE (FIG. 12-7)

Fire cannot exist unless three conditions are met:

1. There must be fuel which will burn, whether solid or liquid
2. There must be oxygen to keep the fire burning
3. There must be sufficient heat.

If you remove any one of these conditions, the fire goes out.

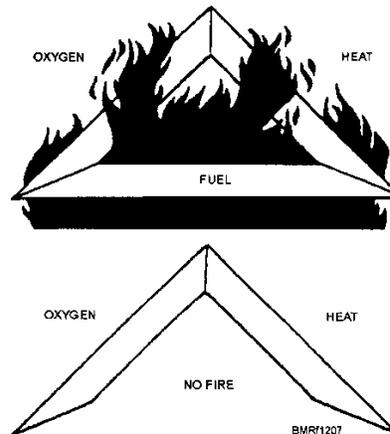


Figure 12-7.—Requirements for combustion.

It isn't easy to remove fuel from a fire: pipelines for liquid fuel may be closed, fire trails may be cut in open spaces, bull dozers can remove burnable material before the fire reaches it. But the remaining fuel must burn itself out. Normally, firefighters try to remove one or both of the other sides of the triangle. Water cools a fire below the burning, or flash, point and carbon dioxide or sand removes or replaces the oxygen.

FIRE TETRAHEDRON

The fire triangle describes the requirements for surface glowing or smoldering, but it doesn't completely describe flaming combustion requirements. A fourth requirement, an uninhibited chain reaction, is needed for flames to exist. This is shown by the fire tetrahedron (fig. 12-8). A tetrahedron is a solid figure with four triangular faces. It is useful for illustrating the flaming combustion process because it provides for the fire triangle, flaming combustion stops when one of the four sides of the fire tetrahedron is removed

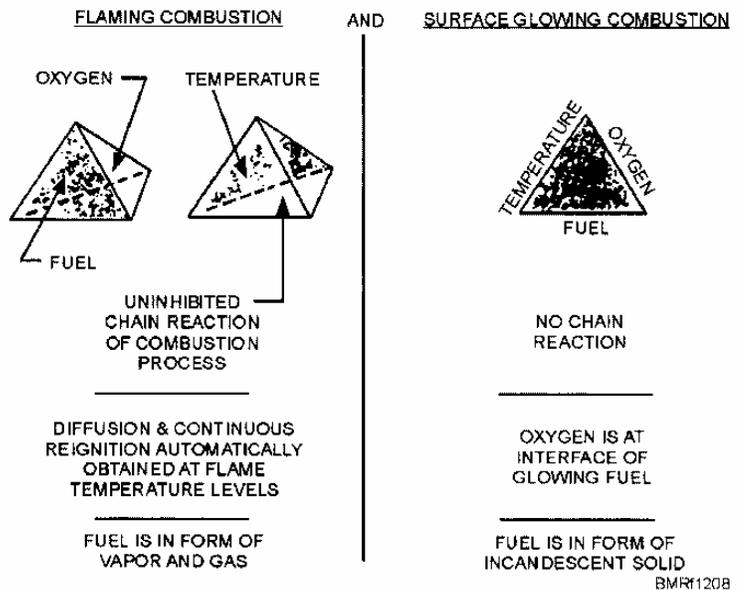


Figure 12-8.—Tetrahedron and fire triangle.

CLASS A: Class A fires consist of burnable material which leaves a carbon ash. They are usually accompanied by white or brown smoke and include paper, wood and explosives. On small Class A fires you can use carbon dioxide (but not on explosives). Use caution as carbon dioxide scatters small bits of burning material in an unconfined space. In most cases, Class A fires are cooled with fog (a fine spray) and the material is broken up by a steady stream of water.

CLASS B: Burnable liquids provide fuel for Class B fires: gasoline, oil paint. This fire burns with extreme heat and emits heavy (sometimes greasy) black smoke. For small fires in confined spaces, carbon dioxide is a good agent. For large fires, fog or a special chemical foam must be used. A solid stream of water only spreads the burning fuel, so should not be used.

CLASS C: Class C fires are those in electrical or electronic equipment. White smoke and sparking often accompany them. Water and chemical foam must **NEVER BE USED TO COMBAT** Class C fires as they conduct electricity and may even intensify it. Use only carbon dioxide or a dry chemical.

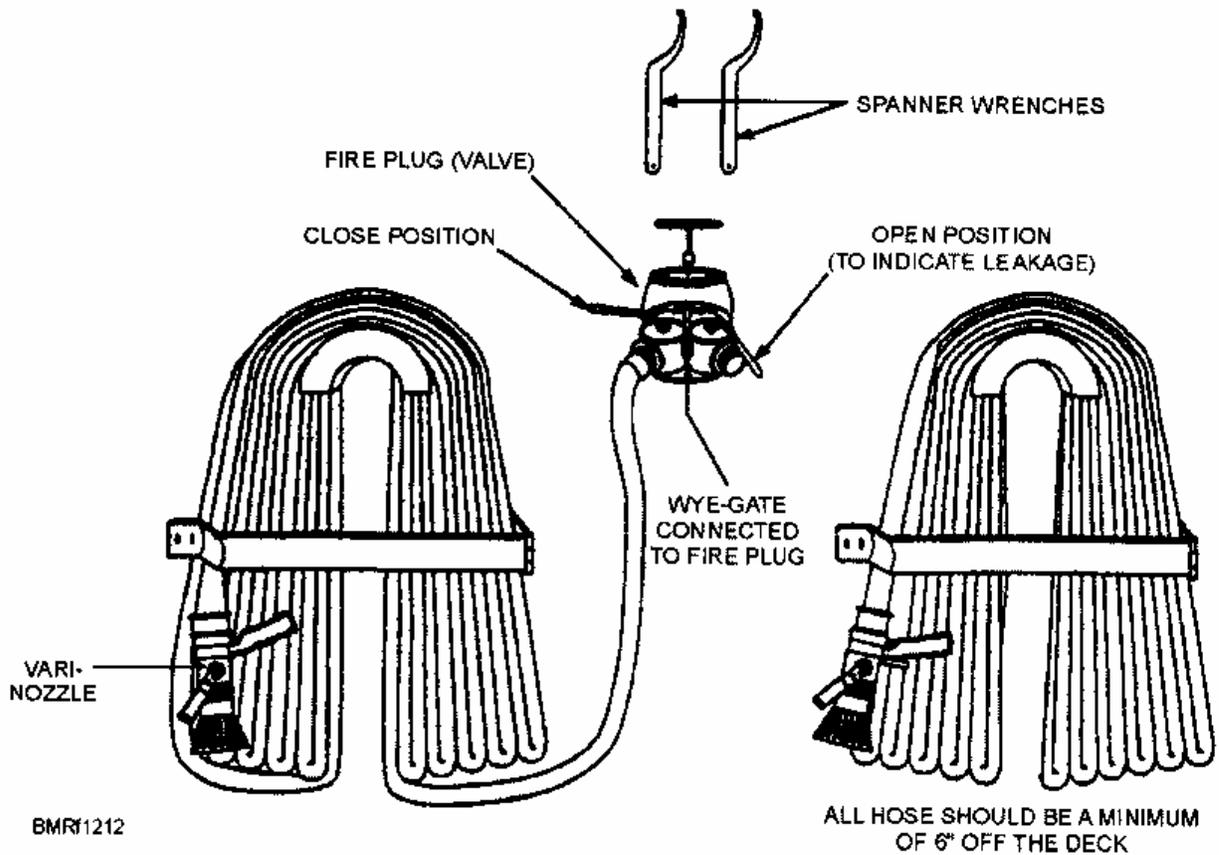
Before attempting to combat a Class C fire, de-energize the equipment, otherwise electrical current may rekindle the fire and shock hazards are always present. Use extreme caution, certain components in electronic equipment store electrical energy and can cause serious or fatal shocks.

CLASS D: Although you are not likely to combat Class D fires, burnable metals such as magnesium are their fuels you should recognize them. The fire is very hot with a bright light. Combating Class D fires is very difficult. Water should be used only as a last resort and should be a low velocity fog. If water contacts magnesium it produces deadly hydrogen gas and becomes very explosive. Should you fight this type of fire, wear dark welders' goggles to protect your eyes from the light.

SHIPBOARD FIRE STATIONS

A fire hose station below is commonly referred to as either a *fire station* or a *fireplug*. The fire hose station is the location of a fireplug and associated equipment. Branches of the fire main system supply water to the fire hose stations throughout the ship. Generally, fire hose stations aboard frigates and larger ships have 1 ½ inch fireplugs and fire hose stations aboard ships larger have 2 ½ inch fireplugs.

Two or more spanner wrenches, used for quick hose and plug connection, and at least one “dog wrench” (a short length of pipe) for doors and hatches are included in the equipment at fire stations.



PORTABLE EXTINGUISHERS

Portable carbon dioxide (CO₂) is used primarily against electrical fires. It may be effective against small Class A or B fires. CO₂ smothers a fire by cutting off the oxygen. The CO₂ cylinder contains 15 pounds of CO₂ when fully charged and has a total weight of about 48 pounds, including hose and horn (Fig. IV-10-3)

When using CO₂, direct the hose toward the base of the fire, moving it rapidly back and forth to smother the flames. Do not use the extinguisher in a closed space (you cut off your own oxygen as well) and do not let it come in contact with your skin.

Dry chemical extinguishers (PKP) are used against Class B fires. They can be used on Class C fires but only when CO₂ is not available for PKP leaves a residue which is difficult to remove. PKP has only a temporary effect, it neither cools the fire nor prevents reflash. PKP should be backed up with foam. When using PKP extinguishers, aim at the base, moving the horn back and forth rapidly and spray in short bursts.

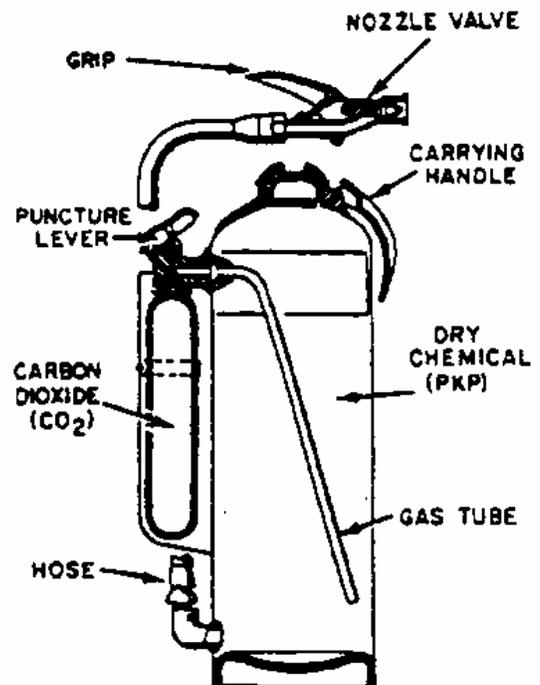


Fig. IV-10-3 A Portable Dry Chemical Extinguisher (PKP)

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 9
FIRE PREVENTION

1. Practice fire drill procedures – duty station, shipboard.
2. Visit the Fire Department – ask for demonstrations of different classes of fires and how to put them out.
3. Invite the Fire Department to your drill for fire fighting and safety demonstrations
4. Get cadets involved in handling the hoses.
5. Make a list of emergency numbers for cadets to take home.
6. Take a fire prevention tour of your drill spaces. List areas that need to be made more safe.
7. Conduct practice (walk through) fire drills and muster – squad leaders must account for their people. Save the Quarterdeck Log!!
8. .
9. .
10. .
11. .

NLCC PETTY OFFICER SECOND CLASS
PART II LESSON 9 QUESTIONS
BASIC FIREFIGHTING

1. The Fire Triangle consists of fuel, heat and _____.
 - a. hydrogen
 - b. oxygen
 - c. carbon dioxide
 - d. carbon monoxide
2. _____ fire occur in electrical equipment
 - a. Class C
 - b. Class A
 - c. Class B
 - d. Class D
3. CO2 portable fire extinguishers should not be used _____.
 - a. against Class B fires
 - b. in closed spaces
 - c. for electrical fires
 - d. against Class A fires
4. Two hoses may be connected to a fire plug by using a/an _____.
 - a. four foot applicator
 - b. dog wrench
 - c. all purpose nozzle
 - d. wye-gate
5. CO2 may be used on small Class A fires except those which involve _____.
 - a. paper
 - b. wood
 - c. cloth
 - d. explosives
6. The most difficult part of the Fire Triangle to eliminate is _____.
 - a. Fuel
 - b. heat
 - c. oxygen
 - d. carbon dioxide
7. When water contacts burning magnesium, it produces _____.
 - a. carbon dioxide.
 - b. Oxygen
 - c. Hydrogen gas
 - d. Carbon monoxide
8. _____ is/are not effective against Class B fires.
 - a. high or low velocity fog
 - b. a solid stream of water
 - c. carbon dioxide
 - d. special chemical foam
9. To provide low velocity fog, insert a/an _____ in the all purpose nozzle.
 - a. applicator
 - b. wye-gate
 - c. dog wrench
 - d. spanner
10. Should you ever combat a Class D fire you must wear _____.
 - a. asbestos clothing
 - b. a gas mask
 - c. welders goggles
 - d. oxygen breathing equipment
11. CO2 and PKP remove _____ from the Fire Triangle.
 - a. oxygen b. fuel
 - c. heat d. residue
12. Dry chemical extinguishers (PKP) may be used on electrical fires when
 - a. backed up with foam
 - b. in closed spaces
 - c. CO2 not available
 - d. Space is dry

Check natural areas for garbage and refuse. When people use a natural area for picnics, they often leave broken glass, rusty cans, or “pop tops” lying around or throw them in the water. Discarded food attracts animals, all kinds of insects, and other vermin.

Note whether livestock are nearby and whether farm or ranch animals use the water. They can pollute the immediate area.

Never dive into a lake, river, or pond until you check the depth with a long pole or branch. Unless the water is absolutely clear, you cannot see hazards that may lie below the surface nor can you determine the depth.

Check water temperature before entering natural swimming areas. In natural environments the water is colder at lower depths than at the surface.

Look for strong currents. If a stream appears to be swift, look for an area that is more calm.

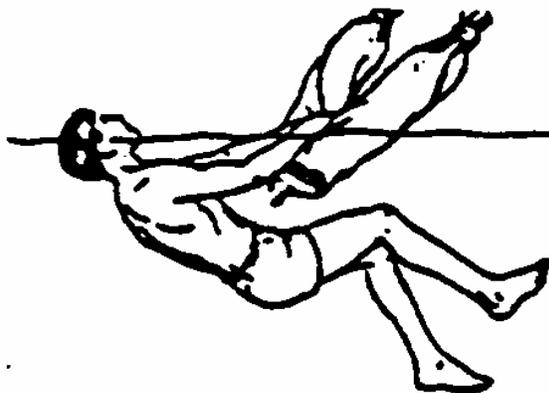
When swimming in the ocean, check first whether the area has an undertow (strong seaward current beneath the surface which often occurs where the bottom slope is steep). If so, find another area that has no undertow.

Even in natural areas, don't skylark or play rough, boisterous games on banks or shores.

Never swim alone in a natural area. Go with a friend who can help in case of trouble.

AIDS FOR STAYING AFLOAT

If you are in the water without a life jacket, several articles of clothing, including your white hat, will provide some flotation when used properly. The most useful article is your trousers, which can be inflated to serve as water wings. To remove your trousers, lean forward in the water and slowly slip them down over your hips and legs. Do not let go of them for they may sink.



Inflate your trousers in this manner: Zip the trousers; float them on the surface with the fly or front turned down. Tie a knot in each leg as close to the cuff as possible. Work the garment around on the surface until the legs are over your shoulders and the knots are behind you, leaving the crotch in front of you. Grasp the waist of the trousers with one hand on each side, then extend your arms straight upward, kicking your feet to get your body as high out of the water as you can. When this position is reached, pull the trousers downward smartly on the surface, trapping a good pocket of air in each leg. The waist can then be gathered under the water and held in one hand (Fig. II-9-1)

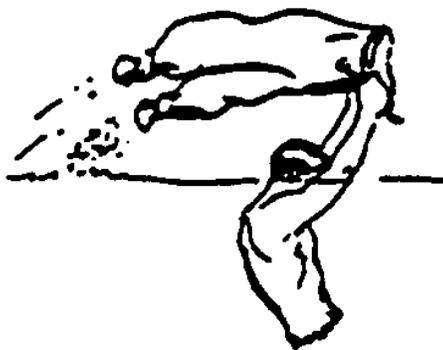


Fig. II-9-1
Using your trousers to stay afloat

The trouser legs must be kept wet to reduce the loss of the trapped air. You can reduce air loss by splashing water on the trouser legs.

Your dungaree shirt can be used as a floatation device (Fig. II-9-2)

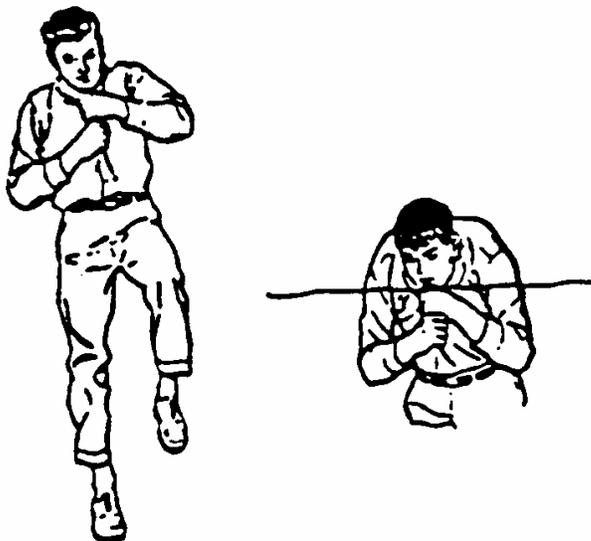


Fig. II-9-2 Using your shirt as a floatation device

SUGGESTED EXTENDED LEARNING/HANDS ON TRAINING
PART II LESSON 10
SWIMMING SAFETY RULES

1. Have a pool party. Practice water safety skills listed in the lesson.
2. Then have a barbecue and awards ceremony – invite parents, sponsors, friends, possible recruits.
3. .
4. .
5. .
6. .
7. .
8. .
9. .
10. .

NLCC ABLE CADET
PART II LESSON 10 QUESTIONS
SWIMMING SAFETY RULES

1. Swimming helps promote physical fitness.
 - a. true
 - b. false

2. To avoid falls and injuries, run on pool decks.
 - a. true
 - b. false

3. Check water temperature before entering natural swimming areas.
 - a. true
 - b. false

4. It is a good idea to never swim alone.
 - a. true
 - b. false

5. It is a good idea to wait about half an hour after eating before going swimming.
 - a. true
 - b. false