CHAPTER 1

GENERAL DATA

1-1 LSM stands for "Landing Ship Medium."

1-2 The LSM is designed primarily for transporting Medium and Heavy Army Tanks, their personnel and equipment and landing them under their own power on beaches.

This vessel has a carrying capacity of five Medium or three Heavy Army Tanks or a pay load maximum of 165 tons. All types of motorized vehicles and artillery can also be carried and unloaded under their own power.

1-3 Principal Dimensions of Hull:-

(a) Length overall	203'-06"
(b) Length between perpendiculars	196'-06"
(c) Extension of vessel forward of F.P.	7'-00"
(d) Extension of vessel aft of A.P.	0'-00"
(e) Breadth extreme outside of plating	34'-00 5/8"
(f) Breadth extreme outside pipe fenders	34'-06 1/16"
(g) Center of propellers forward of A.P.	9'-09"
(h) Centerline of shaft strut bearing forward of A.P. . .	11'-06 11/16"
(i) Centerline of rudders forward of A.P.	6'-01 1/2"
(j) Designed drag	4'-00"
(k) D.W.L. above molded base line	8'-06"
(l) Depth, molded, at M.P. (3" fwd. of fr. 18)	13'-03"
(m) Freeboard Super. Deck at F.P. to D.W.L.	13'-00"
(n) Freeboard at stern to D.W.L.	10'-06"
(o) Draft, full load:- (designed data)	
Forward	4'-03"
Aft	7'-02 3/4"

The above are designed dimensions.

CHAPTER 1

GENERAL DATA

1-3 Principal Dimensions of Hull:- (cont'd.)

(p) Draft, landing:- (designed data)

Forward	3'-02 1/8"
Aft	6'-02 3/8"

(q) Displacement:-

Light	513 tons
Landing, full load	734 tons
Seagoing, full load	912 tons

1-4 Frame Spacing:-

Frames are numbered from 0 at the forward perpendicular to 41, which is at the after perpendicular.

Complete transverse frames do not exist at all of the intermediate numbered locations as the principal framing of this vessel is longitudinal.

Part frames in the forward overhang are designated as "A" and "B".

Frame spacing is 21" from F.P. to fr. 1.
Frame spacing is 24" from fr. 1 to fr. 5.
Frame spacing is 4'-09" from fr. 5 to fr. 6.
Frame spacing is 7'-00" from fr. 6 to fr. 29.
Frame spacing is 21" from fr. 29 to fr. 41.

1-5 Heights above D.W.L. (8'-06" above moulded baseline-designed dimensions)

Main Deck	frame 28	3'-10"
Superstructure Deck	frame 17	11'-10"
Forecastle Deck	frame 5	18'-06"
Bridge Deck	frame 17	18'-10"
Wheelhouse Deck	frame 17	22'-04"
Conning Station Deck	frame 17	29'-04"
#1 and #2 gun platforms		18'-11"
Centerline of 12" searchlight		36'-02 7/8"
To top of main mast (SO8 Radar Antenna)		55'-11"

The above are designed dimensions.

CHAPTER 1

GENERAL DATA

1-6 Main Propelling Engines:-

	Fairbanks Morse	General Motors
Number of engines	2	2
Type of engine	2 cycle	2 cycle
Model	38D8 1/8	16-278A
Total shaft horsepower	2880 at 720 RPM continuous duty	2880 at 720 RPM continuous duty
Total engine horsepower	3600 at 800 RPM emergency	3600 at 800 RPM emergency
Number of cylinders	10	16
Bore	8-1/8"	8-3/4"
Stroke	10"	10-1/2"
Firing order:-		
Port unit	1-8-7-3-5-9-4-2-10-6	1-9-8-16-2-10-6-14-4-12-5-13-3-11-7-15
Starboard unit	1-6-10-2-4-9-5-3-7-8	1-15-7-11-3-13-5-12-4-14-6-10-2-16-8-9
Method of starting	Air	Air
LSM ship numbers	1-125, 126-141, 201-232, 243-269, 310-331	142-200, 233-252, 270-294, 295-309, 332-353

1-7 Propellers:-

NO.	TYPE	MANUFACTURER	NO. BLADES	DIA.	PITCH	SHAFT DIAM.	DES. RPM	DES. SHAFT H.P.
2	Solid		3	4'-07"	2'-08"	0'-05"	600	3400

Direction of Rotation:-

Starboard propeller - clockwise
Port propeller - counter clockwise

March 1, 1944

CHAPTER 1

GENERAL DATA

1-8 Rudders:-

Two double plate spade type.

1-9 Diesel Oil, 95% capacity . . . . . 163.63 tons

1-10 Fresh Water, full load . . . . . 17.75 tons

Reserve Feed Water, full load . . . . . 2.32 tons

1-11 Design Speed:-

Seagoing . . . . . 13 knots
Landing . . . . . 14 knots

1-12 Cruising Radius . . . . . 3500 miles

1-13 Armament:-

Six 20 M/M A.A. guns

1-14 Boats and Rafts:-

One 12' Wherry - capacity 7 men
Five Balsa Floats - capacity each 25 men

1-15 Anchors:-

One 750 pound Bow Anchor
One 2000 pound Stern Anchor

1-16 Fire Plugs:-

Superstructure Deck 8
Main Deck 8

1-17 Radio . . . . . TCS

1-18 Radar . . . . . SO8, Bk, BN

1-19 Underwater Sound:-

One NJ Series Echo Sound Apparatus (not installed at present)

CHAPTER 1

GENERAL DATA

1-20 Complement:-

Ship	4 officers, 48 enlisted men
Troop	2 officers, 52 enlisted men

LSM Class

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

2-1 COMPLEMENT:-

The complement of the LSM is composed of such numbers, ranks, and ratings of officers and men as are necessary to the efficient performance of the ship's functions in time of war.

A complete listing of the ship's complement is given in TABLES 3-1 and 3-2, Chapter 3 - "ALLOCATION OF PERSONNEL."

2-2 DEPARTMENTS:-

For administrative purposes, the activities of the ship are organized into the following departments:-

(a) Commanding Officer
(b) Executive
(c) Navigation
(d) Gunnery
(e) Engineering
(f) Damage Control
(g) Construction
(h) Communications
(i) Commissary and Stores

2-3 DEPARTMENT HEADS:-

Ship's officers will be assigned as heads of the various departments in accordance with TABLE 2-1 below. Due to the limited number of officers on an LSM it is necessary that each officer head one or more departments as indicated.

TABLE 2-1

OFFICER	ADMINISTRATION	ADDITIONAL
Commanding Officer	Commanding. Supervision over entire ship's organization	Morale, Army Liaison, Tactical officer

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

TABLE 2-1 (cont'd.)

2-3

OFFICER	ADMINISTRATION	ADDITIONAL
Executive Officer Acts also as:- Navigator, First-Lieutenant Damage Control	Executive Department (a) General Administration (b) Personnel. Navigation Department (a) Navigating. (b) Deck watch supervision. (c) Lookouts. (d) Education. (e) Officer training. (f) Steering gear and all navigational equipment. (g) Care and upkeep of compartments within the limits of SC - Division. (h) Training of personnel. Construction Department (a) Hull maintenance and upkeep. (b) Gas defense. (c) Cleanliness and sanitation. (d) Care, maintenance and operation of machinery other than that pertaining to Engineering Department. (e) Messing and berthing. (f) Loading and unloading cargo. (g) Issuing and maintenance of cold and foul weather clothing (h) Training of personnel.	Watch Officer, Hull Board, Coding Board, Survey Board, Chief Censor, Welfare.

LSM Class

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

TABLE 2-1 (cont'd.)

OFFICER	ADMINISTRATION	ADDITIONAL
	Damage Control (a) As Damage Control Officer, directs all activities in connection with Damage Control and Stability. (b) Holds frequent drills to promote Damage Control efficiency.	
Gunnery Officer Acts also as:- Communications Officer Commissary and Stores Officer	Gunnery Department (a) Armament operation and maintenance. (b) Drills and exercises to promote efficiency of armament. (c) Upkeep, care, and stowage of all ordnance equipment, stores and ammunition (d) Training of personnel. Communications Department (a) Operation and maintenance of radio, radar, sound and visual signal apparatus. (b) Procurement, correction, custody, distribution and reports of all confidential publications. (c) Intelligence. (d) Censorship. (e) All communications. (f) Mail.	Watch Officer, Hull Board, Coding Board, Censor.

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

TABLE 2-1 (cont'd.)

2-3

OFFICER	ADMINISTRATION	ADDITIONAL
	Communications Department (cont'd.) (g) Cleanliness and maintenance of compartments within limits of Communications Department. (h) Training of personnel. Commissary and Stores (a) Procurement of stores and provisions. (b) Issuing and maintenance of equipage, and provisions. (c) Accounting and Pay Records. (d) Administration of General Mess. (e) Cleanliness and upkeep of compartments within the limits of Commissary and Stores Department. (f) Training of personnel.	
Engineering Officer	Engineering Department (a) Operation and maintenance of machinery and electrical installations. (b) Training and instruction of engineering force.	Watch Officer, Hull Board, Coding Board, Ship's Service.

LSM Class

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

TABLE 2-1 (cont'd.)

OFFICER	ADMINISTRATION	ADDITIONAL
	Engineering Department (cont'd.) (c) Cleanliness and maintenance of compartments within limits of Engineering Department. Damage Control Assists in Damage Control.	

2-4 DUTIES:-

The duties of Department Heads are set forth in Navy Regulations, General Orders, Bureau Manuals, Fleet and Force Regulations and as given herein.

Nothing contained herein, however, shall be construed as relieving those required by regulations, orders, or established customs from making reports to and carrying out the orders of the Commanding Officer.

2-5 DIVISIONS:-

To better coordinate the department activities with the personnel administration, the crew is divided into four divisions as shown in TABLE 2-2 below:-

TABLE 2-2

DIVISION ORGANIZATION

DIVISION	COMPOSITION	DIVISION OFFICER
Deck - "D" 14 men	Seaman Branch	Executive Officer
Engineering - "E" 17 men	Motor Machinist Mates Electrician Mates Firemen	Engineering Officer

CHAPTER 2

ADMINISTRATIVE ORGANIZATION

TABLE 2-2 (cont'd.)

DIVISION ORGANIZATION

2-5

DIVISION	COMPOSITION	DIVISION OFFICER
Ship's - Control - "SC" 10 men	Quartermasters Signalmen Radiomen Radarmen	Gunnery Officer
Commissary & Stores - "S" 7 men	Yeomen Storekeepers Pharmacist Mates Ship's Cooks Steward Mates	Gunnery Officer

2-6 DUTIES:-

The Division Officer is the direct representative of the Executive-Officer for all matters concerning the conduct, health, comfort, pay, small stores, uniforms and inspections of all personnel in his division.

CHAPTER 3

ALLOCATION OF PERSONNEL

3-1 The complement of officers and men allocated to the LSM, with the rank or rating of each, is given in TABLE 3-1 and TABLE 3-2 below:-

TABLE 3-1

OFFICER COMPLEMENT

NO.	RANK	CORPS	DUTIES	ADDITIONAL
1	Lieutenant	Line	Commanding Officer	
1	Lieutenant (jg)	Line	Executive Officer	Navigator and First Lieutenant Damage Control
1	Ensign	Line	Gunnery Officer	Communications, Commissary & Stores
1	Ensign	Line	Engineering Officer	Assists in Damage Control

TABLE 3-2

CREW COMPLEMENT

RATING	NO.		RATING	NO.
		Seaman Branch		
CBM	1		QM1c	1
BM1c	1		QM3c	1
BM2c	1		SM2c	1
Cox	1		SM3c	1
GM2c	1		Sea1c	4
			Sea2c	5
		Total - 18		

CHAPTER 3

ALLOCATION OF PERSONNEL

TABLE 3-2 (cont'd.)

CREW COMPLEMENT

3-1

RATING	NO.		RATING	NO.
		Artificer Branch		
EM1c	1		RM1c	1
EM2c	1		RM2c	1
EM3c	1		RM3c	1
RdM2c	1		RT2c	1
RdM3c	1			
		Total - 9		
		Artificer Branch (E.R.F.)		
CMoMM	1		MoMM3c	3
MoMM1c	2		F1c	3
MoMM2c	3		F2c	2
		Total - 14		
		Special Branch		
Y2c	1		PhM1c	1
SK1c	1			
		Total - 3		
		Commissary Branch		
SC1c	1		SC3c	1
		Total - 2		

LSM Class

CHAPTER 3

ALLOCATION OF PERSONNEL

TABLE 3-2 (cont'd.)

CREW COMPLEMENT

RATING	NO.		RATING	NO.
StM1c	1	Stewards Branch Total - 2	StM2c	1

Total Complement:-

Officers - - - - - - - - - - - - - - 4

Enlisted personnel - - - - - - - - 48

Summary of Pay Grades:-

Grade	Number
1 - - - - - - - - - - - - -	2
2 - - - - - - - - - - - - -	9
3 - - - - - - - - - - - - -	11
4 - - - - - - - - - - - - -	10
5 - - - - - - - - - - - - -	8
6 - - - - - - - - - - - - -	8

3-2 The duties and station assignments of the above personnel are covered in the various chapters following.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-1 CONDITIONS OF READINESS:-

There are three Conditions of Readiness for the LSM with a sub-division to Condition I as indicated below.

CONDITION I - All guns and battle stations are manned and the ship is ready for action. This is "General Quarters."

CONDITION I-M - for landing and retracting in which all of the 20 MM guns are manned and ready and all landing and retracting stations are manned.

CONDITION II - A modified General Quarters in which at least two of the 20 MM guns are manned and ready and there are two watch sections.

CONDITION III - No battle stations are manned and there are three watch sections.

4-2 The Condition of Readiness is set by the Commanding Officer.

CONDITION I - is set by sounding the general alarm and by passing the word "General Quarters."

CONDITION I-M - is set from Condition I.

CONDITION II - is set from Condition I.

CONDITION III - is set by passing the word.

4-3 GENERAL BILLS:-

General Bills are those detailed assignments for conditions in which all hands participate.

Due to the limited number of personnel, all critical evolutions shall be covered under General Bills.

The modern mechanical features of the LSM make it imperative that each member of the ship's company be proficient in the various duties to which he is assigned under the Watch, Quarter and Stations Bills. He should

LSM Class

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-3 GENERAL BILLS:- (cont'd.)

have also a good knowledge of other duties so that in case of casualties to other crew members, he can take over their duties, if required. He should know where to go, what to do, from whom to take orders and how to cooperate with the various other units on board.

General Drills develop teamwork in the ship's company and the Commanding Officer should hold them as frequently as the conditions permit. These drills should follow closely the pattern set up for condition watches. Silence is the first requisite on the well drilled ship. Unnecessary noise of any kind makes for confusion. Those in authority, and this includes the petty officers, are the only ones whose voices should be heard. Every man should go to his station on the double immediately upon the sounding of the general alarm.

During the periods when the above drills are held and during the actual condition, officers shall wear loaded pistols, holsters, service belts with two clips of ammunition; all hands will wear life jackets.

4-4 The General Bills are set forth in detail in the chapters following and cover the conditions indicated below:

(a) General Quarters Bill	Chapter 9
(b) Damage Control Bill	Chapter 10
(c) Watertight Integrity Bill	Chapter 11
(d) Gas Defense Bill	Chapter 12
(e) Darkening Ship Bill	Chapter 13
(f) Fire Bill	Chapter 14
(g) Fire and Rescue Bill	Chapter 15
(h) Collision Bill	Chapter 16
(i) Abandon Ship Bill	Chapter 17
(j) Loading and Unloading Bill	Chapter 18
(k) Man Overboard Bill	Chapter 19
(l) Getting Underway and Anchoring Bill	Chapter 20
(m) Mooring and Unmooring Bill	Chapter 21
(n) Landing and Retracting Bill	Chapter 22
(o) Towing Bill	Chapter 23

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-4 (cont'd.)

(p) Fueling Bill	Chapter 24
(q) Dry Docking Bill	Chapter 25

4-5 OTHER BILLS:-

The following is a list of the other bills, details of which are set forth in the chapters as indicated:

(a) Watch Bill	Chapter 5
(b) Cleaning Bill	Chapter 6
(c) Berthing and Locker Bill	Chapter 7
(d) Messing Bill	Chapter 8

4-6 Watch, Quarter and Station Bills will be posted in the wardroom and in the crew's quarters and they will be kept currently corrected.

4-7 ROUTINES - GENERAL:-

The operation and administration of a ship is more efficiently and smoothly conducted when a definite routine for all activities is closely followed. In order that all ships of the LSM type conform to the same pattern, the routines listed below will be followed.

When steaming in the company of other ships, the orders issued by the Officer in Tactical Command will be followed concerning the use of navigation lights, anchor lights, hoisting the ensign, testing guns, airing bedding, and in general all external maneuvers. If the Commanding Officer desires to carry out any external maneuvers at times other than specified, permission should first be obtained from the Officer in Tactical Command.

4-8 ROUTINE IN PORT:-

0400	Call ship's cooks.
Sunrise	Turn out anchor lights, light ship.
0600	Reveille - call all hands.
0630	Turn to, sweep down, clear compartments.
0730	Breakfast.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-8 ROUTINE IN PORT:- (cont'd.)

0800	Colors, quarters for muster, physical drill.
0815	Air bedding (if weather favorable) weekly.
0830	Turn to.
1115	Knock off; sweep down.
1130	Dinner.
1200	Noon reports.
1300	Turn to.
1600	Knock off; sweep down.
1630	Liberty for off-duty section if conditions permit.
1730	Supper.
Sunset	Evening colors; turn on anchor lights; darken ship if conditions warrant or if ordered by higher authority.
1930	Eight o'clock reports to Executive Officer.
2000	Eight o'clock reports to Commanding Officer.
2100	Taps.

4-9 ROUTINE AT SEA:-

0340	Call the watch section.
0400	Relieve the watch; call ship's cooks.
Sunrise	Turn out navigational lights; light ship.
0600	Reveille - call all hands.
0630	Turn to; sweep down and clean compartments.
0730	Breakfast.
0800	Relieve the watch; quarters for muster.
0830	Turn to.
1100	Secure from drills; continue ship's work.
1115	Knock off; sweep down.
1130	Dinner.
1200	Noon reports.
1230	Relieve the watch.
1300	Turn to.
1600	Knock off; sweep down.
1730	Supper.
1800	Relieve the watch.
Sunset	Turn on navigational lights; evening colors.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-9 ROUTINE AT SEA:- (cont'd.)

1930	Eight o'clock reports to Executive Officer.
2000	Relieve the watch; eight o'clock reports to Commanding Officer.
2340	Call the watch.
2400	Relieve the watch.

4-10 SPECIAL ROUTINES:-

(a) General Quarters; test all equipment...	Daily
(b) Night General Quarters	Weekly
(c) Night fire drill	Weekly
(d) Test magazine sprinkling system (Friday)	Weekly
(e) General field day (Friday)	Weekly
(f) Below decks inspection	Weekly
(g) Personnel inspection (Saturday)	Weekly
(h) Damage Control drill	Weekly
(i) Publish Articles for Government of Navy	1st Saturday each month

(j) Noon reports:-

(1) In port the Senior Quartermaster, acting for the Executive Officer (Navigator), will report to the Officer of the Deck, prior to noon, that all chronometers have been checked and wound.

(2) At sea, the Senior Quartermaster, acting for the Executive Officer (Navigator), will report to the Officer of the Deck, prior to noon, that all chronometers have been checked and wound and the noon position of the ship.

(3) The Senior Petty Officer of the Engineering Division, acting for Engineering Officer, will report to the Officer of the Deck, in port, or at sea, prior to noon, the amount of fuel and water on board.

LSM Class

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-10 SPECIAL ROUTINES:- (cont'd.)

(j) Noon reports:- (cont'd.)
(4) The Officer of the Deck, in port, or at sea, will give the above reports to the Commanding Officer promptly at noon.

(k) Eight o'clock reports:-
At 1930, the eight o'clock reports will be made to the Executive Officer. These reports, in turn will be given to the Commanding Officer at 2000. They will include a report of each department of the ship and will be rendered by the head of the respective department.

Those reporting shall lay aft on the tank deck between frames 24 and 26 from forward to aft in the following order:

CONSTRUCTION DEPARTMENT - Reports department secured; Condition "BAKER" set and checked; ship inspected for any exposed lights.

POLICE PETTY OFFICER - Reports eight o'clock lights and galley fires out; prisoners-at-large mustered and accounted for, etc.

ENGINEERING DEPARTMENT - In port, reports department secured; Condition "BAKER" set and checked. At sea, reports department inspected and any unsatisfactory conditions; Condition "BAKER" set and checked.

GUNNERY DEPARTMENT - Reports department secured; Condition "BAKER" set and checked.

COMMISSARY & STORES DEPARTMENT - Reports department secured; all storerooms inspected and closed.

Note: Definition of Condition "BAKER" on page 11-3.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-11 DRILLS AND EXERCISES:-

Drills and exercises should be held as frequently as conditions permit and will include the following:

(a) General drills in "All Hands" evolutions.
(b) Gunnery drills.
(c) Visual and Radio communications; Radar.
(d) Practical seamanship.
(e) Gas defense.
(f) Damage Control.
(g) Emergency operating tackle.
(h) Fire fighting.
(i) Use of rescue breathing apparatus.
(j) First aid and health.
(k) Plane and ship identification - lookouts, all bridge personnel and gunners should receive frequent instruction.
(l) Practical work for advancement in rating.

4-12 QUARTERS FOR MUSTER:-

The Tank Well Deck will be used for muster, parades and physical drills. At such times when the Tank Well Deck is not usable, the Superstructure Deck will be used.

When the Tank Well Deck is used, the Commanding Officer will take station amidships, facing forward at frame 14. The Yeoman will take station two paces to the rear and left of the Commanding Officer.

The Deck Division under the Executive Officer will take position on the starboard side, facing inboard, between frames 12 and 13.

The Engineering Division under the Engineering Officer will take position on the port side, facing inboard, between frames 12 and 13.

The Ship's Control Division and the Commissary and Stores Division will form as one division under the Gunnery Officer and will take position athwartships, port to starboard, facing aft at frame 11.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-12 QUARTERS FOR MUSTER:- (cont'd.)

Divisions will form in two ranks with two foot interval between front and rear. Division Officers will take station at the center and two paces forward of their respective divisions, facing them. The senior petty officer of each division will take position on the right, front rank, of his division.

The divisions having been assembled in the above manner, the senior petty officer of each division will call the roll and then make his report to his Division Officer. When all divisions have completed mustering, the Division Officers will fall in, three paces in front of the Commanding Officer, in order of seniority from port to starboard. The Commanding Officer will then call for the division reports and each Division Officer, in turn, from port to starboard, will come to a salute and report his division. As for example: "Deck Division, one absentee, one man on sick list." Details of this report will later be given to the Yeoman. After the Division Officers have made their reports, the Commanding Officer will order "Posts" upon which the Division Officers will return to their respective division stations. Orders for the day will then be read after which the divisions will be dismissed.

When deploying for physical drill, the divisions will move forward, taking distance sufficient to permit each man to freely carry out the various movements called for in the drill.

When it becomes necessary to use the Superstructure Deck for muster, the Deck Division and Ship's Control - Commissary Stores Division will use the starboard side and the Engineering Division will use the port side, in the same relative positions as prescribed for muster on the Tank Well Deck.

In foul weather, muster will be held in the after crew and after troop quarters.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-13 INSPECTIONS:-

(a) Captain's Inspection

When Captain's Inspection is ordered, each Division Officer will inform his respective division of the time and the prescribed uniform to be worn.

Parade formation of the divisions will follow the same pattern as used for the usual morning muster. After the reports have been made and the Division Officers have returned to their respective divisions, the Commanding Officer shall order, "Prepare for Inspection." Division Officers will then prepare their divisions for inspection. Each Division Officer will in turn inform the Commanding Officer "Personnel of division ---- ready for inspection." The Commanding Officer in company with the Division Officers, Chief Police Petty Officer and the Yeoman will then proceed to inspect the personnel of each division.

When the Commanding Officer has completed the inspection of personnel, he will then proceed to the inspection of the ship, accompanied by the above mentioned inspection group.

The Commanding Officer will make a formal inspection of the personnel and ship on such days as he may choose. Conditions permitting, however, this should be done every Saturday morning.

(b) All parts of the ship shall be open to the inspection of the Executive Officer and he shall make such inspections as the Commanding Officer may direct.

(c) The Engineering Officer will inspect daily his department and at such other times as may be necessary. Each day, prior to 1930 he will inspect his department with particular attention being directed to dangers from fire and seepage of sea water, and that all duties relating to rules and routines of his department are being carried out.

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-13 INSPECTIONS:- (cont'd.)

(d) The Executive Officer (First Lieutenant) will inspect weekly all compartments above and below the main deck as required in the Hull Report. He will submit the Hull Report to the Commanding Officer on Friday of each week. He should also make frequent inspections of the bow doors and ramp and shall immediately report any weaknesses to the Commanding Officer.

(e) The Gunnery Officer (Communications Officer) will inspect his department at frequent intervals and report to the Commanding Officer any conditions that may impair its efficient operation.

(f) The Gunnery Officer will see that daily reports of temperatures of magazines, weekly reports of sprinkling system and inspection of ammunition stowage spaces, are thoroughly and properly made. An entry of this data should be made in the log and submitted to the Commanding Officer. He will inspect frequently all compartments, guns and material under his jurisdiction. For further guidance, attention is called to Navy Regulations, Articles 961-971 and Article 1333.

(g) The Gunnery Officer (Commissary and Stores Officer) will inspect frequently all compartments and equipment under his jurisdiction. He will also inspect all provisions for the General Mess coming aboard, for quantity and quality.

(h) The Officer of the Deck will make the following inspections:

(1) Crew's rations for quantity and quality.

(2) Liberty parties for proper uniform and personal appearance.

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CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-13 INSPECTIONS:- (cont'd.)

(h) (cont'd.)

(3) All running and anchor lights, frequently when turned on.

(4) When moored, to see that all mooring lines are in satisfactory condition.

(5) When anchored, to see that anchor is not dragging.

(6) Security Watch for attention to duty and that watch is familiar with firearm instructions.

(i) The Officer of the Deck will see that the following inspections are made:

(1) Chief Police Petty Officer inspects the crews quarters to see that they are clear of clothing, loose gear and clean; that bunks are made up prior to breakfast each morning.

(2) During Darken Ship, the Boatswain's Mate of the Watch inspects the ship hourly for unauthorized lights.

(3) Deck Watch makes regular inspections of gasoline storage containers for leaks.

(4) Deck Chief Petty Officer inspects sprinkling and flood control valves; hatches and doors leading to magazine spaces; all compartments on main deck and hold.

(5) Sounding of void tanks between 2000 and 0800 every two hours.

(j) Division Officers will hold bag and locker inspection when so ordered by the Executive Officer.

LSM Class

CHAPTER 4

WATCH, QUARTER AND STATION BILLS - GENERAL

4-13 INSPECTIONS:- (cont'd.)

(k) When troops are aboard, the Executive Officer (First Lieutenant) and Chief Police Petty Officer, accompanied by the Troop Commander, will inspect daily all compartments occupied by troops. The Commanding Officer shall require that this inspection be made at least once each month.

LSM Class

CHAPTER 5

WATCH BILL

5-1 GENERAL:-

The Watch Bill designates the watch stations and the personnel assignments for the Port and Sea Watches when the ship is in Condition II or Condition III.

5-2 CONDITION II:-

When Condition II is set there will be two Watch Sections with two guns, No. 2, No. 4, or No. 6, and No. 1, No. 3, or No. 5 manned and ready.

TABLE 5-1 below, shows the ship's organization, by divisions and sections for watch purposes under Condition II. Billet number assignments are in accordance with paragraph 5-5.

TABLE 5-1

DECK DIVISION "D"

FIRST SECTION		SECOND SECTION	
Rate	Billet Number	Rate	Billet Number
CBM	D-11	BM1c	D-31
Cox	D-12	BM2c	D-21
Sealc	D-13	GM2c	D-32
Sealc	D-14	Sealc	D-22
Sea2c	D-15	Sealc	D-33
Sea2c	D-34	Sea2c	D-23
Sea2c	D-35	Sea2c	D-24

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WATCH BILL

5-2 CONDITION II

TABLE 5-1 (cont'd.)

ENGINEERING DIVISION "E"

FIRST SECTION		SECOND SECTION	
Rate	Billet Number	Rate	Billet Number
MoMM1c	E-11	CMoMM	E-21
MoMM1c	E-31	MoMM2c	E-22
MoMM2c	E-12	MoMM2c	E-32
EM2c	E-13	EM1c	E-23
EM3c	E-33	MoMM3c	E-24
MoMM3c	E-14	MoMM3c	E-34
F1c	E-15	F1c	E-25
F1c	E-35	F2c	E-26
F2c	E-16		

SHIP'S CONTROL DIVISION "SC"

RM1c	SC-11	RM2c	SC-21
RM3c	SC-33	RdM3c	SC-24
RdM2c	SC-13	RT2c	SC-32
QM1c	SC-31	QM3c	SC-22
SM2c	SC-12	SM3c	SC-23

CHAPTER 5

WATCH BILL

5-2 CONDITION II

TABLE 5-1 (cont'd.)

COMMISSARY & STORES DIVISION "S"

FIRST SECTION		SECOND SECTION	
Rate	Billet Number	Rate	Billet Number
Y2c	S-11	SK1c	S-21
SC1c	S-32	SC3c	S-22
StM2c	S-12	StM1c	S-33
		PhM1c	S-31

5-3 PORT WATCH:- (Condition II)

The above division of the crew into two sections will be used for standing watch in port when the ship is in Condition II. Each section will stand a four hour watch in rotation except the dog watch (1600 to 2000) which will be a two hour watch for each section.

Port Watch assignments will be made in accordance with TABLE 5-2 below:

TABLE 5-2

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
ALL	OFFICER		Gangway	Officer-of-the-Deck.
D	CBM	BM1c	DECK General	Police Petty Officer & Security.
D	Cox	BM2c	Gangway	Gangway watch.
D	S2c	S2c	Gangway	Messenger (Reveille to 2000).

CHAPTER 5

WATCH BILL

5-3 PORT WATCH:- (Condition II)

TABLE 5-2 (cont'd.)

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
			DECK	
SC	QM1c	QM3c	Bridge & Chart Room	Quartermaster watch.
SC	SM2c	SM3c	Signal Bridge	Signal watch.
SC	RM1c	RM2c	Radio Room	Radio watch.
SC	RM3c	RT2c	Radio Room	Standby operator - repairs.
SC	RdM2c	RdM3c	Radar Room	Radar watch.
			ENGINE ROOM	
E	MoMM1c	CMoMM	Engine Room	In charge.
E	MoMM2c	MoMM2c	Engine Room	Cleanliness & repair.
E	MoMM3c	MoMM3c	Engine Room	Cleanliness & repair.
E	EM2c	EM1c	Engine Room & General	Distribution board, generators; maintenance of electrical equipment.
			SPECIAL DETAILS	
S	Y2c	SK1c	Ship's Office	Regular.
S	SC1c	SC3c	Galley	Regular.
S	StM2c	StM1c	Wardroom	Regular.
D	S2c	S2c	Galley	Mess cook.
E	F1c	--	Galley	Mess cook.

CHAPTER 5

WATCH BILL

5-3 PORT WATCH:- (Condition II)

TABLE 5-2 (cont'd.)

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
			SPECIAL DETAILS	
S		PhM1c	Hospital Room	Regular.
			GUN CREWS	
D	S1c	GM2c	Gun Nos. 1,3, or 5	Gunner.
E	F1c	F2c	Gun Nos. 1,3, or 5	Range setter, loader and talker.
D	S1c	S1c	Gun Nos. 2,4, or 6	Gunner.
E	F2c	F1c	Gun Nos. 2,4, or 6	Range setter, loader and talker.
			REPAIR PARTY	
E	MoMM1c	MoMM2c	Ramp Control Room	Damage Control
E	EM3c	MoMM3c	Ramp Control Room	Damage Control.
D	S2c	S1c	Forward	Damage Control.

5-4 SEA WATCH:- (Condition II)

Sea Watches will be stood on the two section plan as used for Port Watch discussed above. Each section will stand a four hour watch in rotation except for the dog watch (1600 to 2000) which will be a two hour watch for each section.

Sea Watch assignments will be made in accordance with TABLE 5-3 following:

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5-4 SEA WATCH: - (Condition II)

TABLE 5-3

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
ALL	OFFICER		Pilot House or Conn.	Officer of the Deck.
			BRIDGE	
D	CBM	BM1c	Bridge	B.M. of the Watch.
D	S2c	S1c	Pilot House	Steersman.
SC	RM3c	RT2c	Pilot House	Annunciators.
SC	QM1c	QM3c	Bridge	Quartermaster watch.
SC	SM2c	SM3c	Signal Bridge	Signal watch.
D	S2c	S2c	Bridge	Lookout & telephones.
SC	RM1c	RM2c	Radio Room	Radio watch.
SC	RdM2c	RdM3c	Radar Room	Radar watch.
			ENGINE ROOM	
E	MoMM1c	CMoMM	Engine Room	In charge & starboard throttle.
E	MoMM2c	MoMM2c	Engine Room	Port throttle.
E	MoMM3c	MoMM3c	Engine Room	Oiler; also makes hourly inspections of steering engine & spring bearings.
E	EM2c	EM1c	Engine Room & General	Distribution board & generators; maintenance of electrical equipment.

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WATCH BILL

5-4 SEA WATCH:- (Condition II)

TABLE 5-3 (cont'd.)

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
			SPECIAL DETAILS	
S	Y2c	SK1c	Ship's Office	Regular.
S	SC1c	SC3c	Galley	Regular.
S	StM2c	StM1c	Wardroom	Regular.
S	S2c	S2c	Galley	Mess cook.
E	F1c	--	Galley	Mess cook.
S		PhM1c	Hospital Room	Regular.
			GUN CREWS	
D	S1c	GM2c	Gun Nos. 1,3, or 5	Gunner.
E	F1c	F2c	Gun Nos. 1,3, or 5	Range setter, loader and talker.
D	S1c	S1c	Gun Nos. 2,4, or 6	Gunner.
E	F2c	F1c	Gun Nos. 2,4, or 6	Range setter, loader and talker.
			REPAIR PARTY	
D	Cox	BM2c	Forward	Damage Control. (In Charge)
E	MoMM1c	MoMM2c	Ramp Control Room	Damage Control.

CHAPTER 5

WATCH BILL

5-4 SEA WATCH:- (Condition II)

TABLE 5-3 (cont'd.)

DIVISION	RATE SEC. I	RATE SEC. II	STATION	DUTIES
			REPAIR PARTY	
E	EM3c	MoMM3c	Ramp Control Room	Damage Control.

5-5 CONDITION III:-

When Condition III is set, there will be three watch sections and no battle stations will be manned.

TABLE 5-4 below, shows the ship's organization by divisions and sections for watch purposes under Condition III. As indicated on this table each man is assigned a number, the letter of which designates his division, the first figure his section, the second figure his billet number. Except for berth and locker assignments, (see Chapter 7 - "Berthing and Locker Bill"), his assignment to all stations on board ship will be in accordance with this billet number.

TABLE 5-4

DECK DIVISION "D"

FIRST SECTION		SECOND SECTION		THIRD SECTION	
Rate	Billet Number	Rate	Billet Number	Rate	Billet Number
CBM	D-11	BM2c	D-21	BM1c	D-31
Cox	D-12	Sealc	D-22	GM2c	D-32
Sealc	D-13	Sea2c	D-23	Sealc	D-33

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WATCH BILL

5-5 CONDITION III:-

TABLE 5-4 (cont'd.)

DECK DIVISION "D"

FIRST SECTION		SECOND SECTION		THIRD SECTION	
Rate	Billet Number	Rate	Billet Number	Rate	Billet Number
Sealc	D-14	Sea2c	D-24	Sea2c	D-34
Sea2c	D-15		D-25	Sea2c	D-35
	D-16		D-26		D-36
	D-17		D-27		D-37
	D-18		D-28		D-38
		ENGINEERING DIVISION "E"			
MoMM1c	E-11	CMoMM	E-21	MoMM1c	E-31
MoMM2c	E-12	MoMM2c	E-22	MoMM2c	E-32
EM2c	E-13	EM1c	E-23	EM3c	E-33
MoMM3c	E-14	MoMM3c	E-24	MoMM3c	E-34
F1c	E-15	F1c	E-25	F1c	E-35
F2c	E-16	F2c	E-26		E-36
	E-17		E-27		E-37
	E-18		E-28		E-38
		SHIP'S CONTROL DIVISION "SC"			
RM1c	SC-11	RM2c	SC-21	SM2c	SC-31
QM1c	SC-12	QM3c	SC-22	RT2c	SC-32

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5-5 CONDITION III:-

TABLE 5-4 (cont'd.)

SHIP'S CONTROL DIVISION "SC"

FIRST SECTION		SECOND SECTION		THIRD SECTION	
Rate	Billet Number	Rate	Billet Number	Rate	Billet Number
RdM2c	SC-13	SM3c	SC-23	RM3c	SC-33
	SC-14	RdM3c	SC-24		SC-34
		COMMISSARY & STORES DIVISION "S"			
Y2c	S-11	SK1c	S-21	PhM1c	S-31
StM2c	S-12	SC3c	S-22	SC1c	S-32
	S-13		S-23	StM1c	S-33
	S-14		S-24		S-34
Total	16		16		16

5-6 PORT WATCH:- (Condition III)

The above division of the crew into three sections will be used for standing watch in port. There will be a Duty Section on duty and a Relief Section on call at all times. A days duty in port will extend from noon of one day to noon of the next day. TABLE 5-5 below is suggested as an example for the rotation of Duty and Relief Sections.

One ship's officer will be designated as the Duty Officer for each 24 hour day. He will be the Officer of the Deck and this duty will extend from noon of one day to noon of the next day.

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5-6 PORT WATCH:- (Condition III)

TABLE 5-5

FIRST WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	1	3	2	1	3	2	3
Relief Section	3	2	1	3	1	3	2

SECOND WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	2	1	3	2	1	3	1
Relief Section	1	3	2	1	2	1	3

THIRD WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	3	2	1	3	2	1	2
Relief Section	2	1	3	2	3	2	1

The Port Watch assignments, in so far as it is possible, will be detailed from the Duty Section. If conditions arise where additional watch assignments are required they will be detailed from the Relief Section.

Normally the Port Watch assignments will be made in accordance with TABLE 5-6 following:-

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5-6 PORT WATCH:- (Condition III)

TABLE 5-5

FIRST WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	1	3	2	1	3	2	3
Relief Section	3	2	1	3	1	3	2
SECOND WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	2	1	3	2	1	3	1
Relief Section	1	3	2	1	2	1	3
THIRD WEEK							
DAY	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
Duty Section	3	2	1	3	2	1	2
Relief Section	2	1	3	2	3	2	1

The Port Watch assignments, in so far as it is possible, will be detailed from the Duty Section. If conditions arise where additional watch assignments are required they will be detailed from the Relief Section.

Normally the Port Watch assignments will be made in accordance with TABLE 5-6 following:-

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5-6 PORT WATCH:- (Condition III)

TABLE 5-6

DIV.	RATE SEC. I	RATE SEC.II	RATE SEC.III	STATION	DUTIES	DURATION
ALL	OFFICER			Gangway	Officer of the Deck.	Day(1200-1200).
				DECK		
D	CBM	BM2c	BM1c	General	Police Petty Officer.	Day(1200-1200).
D	Cox	S1c	S1c	Gangway	Gangway watch.	4 hour watches. (1200-1200).
D or SC	S1c	QM3c	GM2c	Gangway	Gangway watch.	
D	S1c	S2c	S2c	Gangway	Messenger.	4 hour watches. (reveille to 2000)
D&E	F2c	F2c	S2c	General	Security watch.	4 hour watches. (2000 to reveille)
SC	QM1c	SM3c	SM2c	Signal Bridge	Signal watch.	Day(1200-1200).
SC	RM1c	RM2c	RM3c	Radio Room	Radio watch.	Day(1200-1200).
SC	RdM2c	RdM3c	RT2c	Radar Room	Radar watch.	Day(1200-1200).
				ENGINE ROOM		
E	MoMM1c	CMoMM	MoMM1c	Engine Room	In charge.	Day(1200-1200).

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WATCH BILL

5-6 PORT WATCH:- (Condition III)

TABLE 5-6 (cont'd.)

DIV.	RATE SEC. I	SEC.II	SEC.III	STATION	DUTIES	DURATION
			ENGINE ROOM			
E E	MoMM2c MoMM3c	MoMM2c MoMM3c	MoMM2c MoMM3c	Engine Room Engine Room	Cleanliness & repair. Cleanliness & repair.	4 hour watches. (1200-1200).
E	EM2c	EM1c	EM3c	Engine Room and general	Distribution board, generators, maintenance of electrical equipment.	Day(1200-1200).
			SPECIAL DETAILS			
S	Y2c	SK1c		Ship's Office	Regular.	Day(1200-1200).
S		SC3c	SC1c	Galley	Regular.	Day(1200-1200).
S	StM2c		StM1c	Wardroom	Regular.	Day(1200-1200).
D&E	S2c	S2c	F1c	Galley & Messing Compartments	Méss cooks.	Day(1200-1200).
S			PhM1c	Hospital Room	Regular.	Day(1200-1200).
E	F1c		-	General & Engine Room	Cleaning & Maintenance.	Day(1200-1200).

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WATCH BILL

5-6 PORT WATCH:- (Condition III)

The Port Watch duty list will be made up weekly by the Executive Officer and copies posted on the crew's bulletin boards.

5-7 SEA WATCH:- (Condition III)

Sea Watches will be stood on the three section plan as used for the Port Watch discussed above. The Sea Watch assigns only the personnel necessary for the operation and maneuvering of the ship when steaming in Condition III where the probability of an enemy attack is remote and the protection afforded by accompanying forces eliminates the necessity of manning guns. Under this condition, sea watch assignments normally will be made as shown in TABLE 5-7 below:-

TABLE 5-7

DIV.	RATE SEC. I	RATE SEC.II	RATE SEC.III	STATION	DUTIES
ALL	OFFICER			Pilot House or Conn. Sta.	Officer of the Deck.
				BRIDGE	
D	CBM	BM2c	BM1c	Bridge	B.M. of the Watch.
D	Cox	S1c	S1c	Pilot House	Steersman 2 hrs.-- Annunciators 2 hrs.
D&SC	S1c	QM3c	S2c	Pilot House	Steersman 2 hrs.-- Annunciators 2 hrs.
SC	QM1c	SM3c	SM2c	Chart House & Signal Bridge	Quartermaster & Signalmen.
D	S1c	S2c	GM2c	Signal Bridge	Lookout & telephones.
E&D	F2c	F2c	S2c	Forecastle	Lookout.

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WATCH BILL

5-7 SEA WATCH:- (Condition III)

TABLE 5-7 (cont'd.)

DIV.	RATE SEC. I	RATE SEC.II	RATE SEC.III	STATION	DUTIES
			BRIDGE		
SC	RM1c	RM2c	RM3c	Radio Room	Radio watch.
SC	RdM2c	RdM3c	RT2c	Radar Room	Radar watch.
			ENGINE ROOM		
E	MoMM1c	CMoMM	MoMM1c	Engine Room	In charge & stbd. throttle.
E	MoMM2c	MoMM2c	MoMM2c	Engine Room	Port throttle.
E	MoMM3c	MoMM3c	MoMM3c	Engine Room	Oiler; also makes hourly inspections of steering engine & spring bearings.
E	EM2c	EM3c	EM1c	Engine Room	Distribution board generators, etc.
			SPECIAL DETAILS		
S	Y2c	SK1c		Ship's Office	Regular.
S		SC3c	SC1c	Galley	Regular.
S	StM2c		StM1c	Wardroom	Regular.
D&E	S2c	S2c	F1c	Galley	Mess cooks.
S			PhM1c	Hospital Room	Regular.
E	F1c	F1c	-	General & Engine Room	Cleaning & maintenance.

CHAPTER 5

WATCH BILL

5-8 DUTIES OF THE WATCH SECTION IN PORT:-

The Officer of the Deck will be up and in uniform from 15 minutes before reveille to 2200. At all other times he will be aboard ship and immediately available. He will be at the gangway for the arrival and departure of all boats, inspection of liberty parties and stores and at such other times as conditions may warrant. When not at the gangway, the Officer of the Deck shall keep the Gangway Watch informed as to his whereabouts. Attention is directed to Naval Regulations, Arts. - 1061 - 1080, as to the responsibilities and duties of the Officer of the Deck.

The Police Petty Officer: is the senior deck petty officer of the section. He is the Officer of the Deck's representative. He will prepare the watch list for his section and submit it to the Executive Officer for approval.

Gangway Watch: shall be in the vicinity of the gangway at all times except when an emergency arises making it necessary that he be elsewhere. He shall represent the Officer of the Deck in his absence.

Messenger: shall be at the gangway except when delivering messages.

Radio Watch: on duty in radio room.

Radar Watch: on duty in radar room.

Signal Bridge Watch: on duty on the signal bridge. When signal watches are secured, available for gangway watches.

Engine Room Watch: on duty in the engine room. In CONDITION III, senior MoMM has the days duty and is in charge of the engine room watch; the other MoMM's and F1c and F2c stand 4 hour watches.

Electrician's Mate: Engine room and maintenance of all electrical equipment on board.

CHAPTER 5

WATCH BILL

5-8 DUTIES OF THE WATCH SECTION IN PORT:-

Commissary: this duty is performed by the ship's cooks. All cooks on board shall assist in the preparation of food. The cooks with the duty will be responsible for the early preparations necessary for all meals.

Stewards Mate: on call by the officer's wardroom from reveille until 2200 each day.

Security Watch: the location of this watch will depend upon the existing conditions. If the ship is beached with the ramp down and used as the gangway, the watch will be maintained at the stern. If the ship is alongside a dock or anchored, the watch will be maintained on the forecastle. Whenever the 20MM guns are manned in port, this watch may be secured.

5-9 DUTIES OF THE WATCH SECTION AT SEA:-

(a) The Steering Engine Room will not be manned under normal conditions. When a casualty occurs to the steering apparatus, the relief steersman should be dispatched there immediately. The Boatswain Mate also should be ordered to proceed there with four hands from the sections off watch to assist in hand steering.

(b) Radio, Radar and Visual signal assignments will depend on the conditions prevailing. These stations may or may not be manned.

(c) The data for the ship's log will be obtained and recorded by the Quartermaster or Signalman of the watch under supervision of the Officer of the Deck.

(d) The Throttleman will take station in the immediate vicinity of the engine control station. He will be in general charge of the Engineering Watch and responsible for the operation and control of all machinery in the engine room. He will operate the engine

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WATCH BILL

5-9 DUTIES OF THE WATCH SECTION AT SEA:-

(d) (cont'd.) controls and see that all machinery and equipment is operated in accordance with existing orders. In case of casualty, he will notify immediately the Officer of the Deck and the Engineering Officer.

(e) The Oiler will be responsible to the Throttleman for the proper operation of all engine room auxiliaries and servicing of all machinery.

(f) The Distribution Board Operator will be responsible to the Throttleman for the operation of the ship's light and power system, and for the maintenance and repair of all electrical equipment on board.

(g) The Gunnery Officer (Communications Officer) will prepare a list of the recognition signals for each day, twenty four hours in advance. A copy of the list effective for that day will be kept posted in the chart house and in a conspicuous place on the bridge.

(h) The MoMM3c, assigned as oiler in the engine room, shall be a roving patrol making hourly inspections of steering engine and spring bearings, reporting conditions to engine room watch.

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CLEANING BILL

6-1 GENERAL:-

A clean ship is a smart ship. Cleanliness is proverbial in our Navy and this should be instilled into each man.

Every member of the crew must lend a hand in keeping the ship clean at all times. This is not only necessary for appearances sake but also for ship's maintenance and upkeep, and the health, comfort, and morale of the personnel on board.

6-2 RESPONSIBILITY:-

The Executive Officer (First Lieutenant) is responsible for the cleanliness, good order and trim appearance of the ship as a whole. He is responsible for the condition of the double bottoms except those belonging to the Engineering Department, and all doors, valves, and pipes located therein. He will supervise all hull inspections regardless of whose responsibility they are and advise the responsible Department Head of the work necessary for hull preservation. He is also responsible for the cleanliness and preservation of the ship's sides.

All Department Heads are responsible for the cleanliness of those compartments and spaces coming under their cognizance; also for the care and preservation of all equipment coming under their jurisdiction, regardless of its location.

6-3 GENERAL CLEANING DETAILS:-

In order to maintain the cleanliness of the ship, the various departments are detailed cleaning assignments in accordance with TABLE 6-1 following:

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CLEANING BILL

TABLE 6-1

(a) CONSTRUCTION DEPARTMENT

COMPARTMENT NO.	DESCRIPTION	FRAME	DECK
A-201V, A-202V, A-203V	Void Spaces	0-5, 5-7, 7-9	Hold
C-205V	Void Spaces	27-29	Hold
A-204E	Chain Locker	8-9	Hold
A-205W, A-206W, A-207W	Ballast Tanks	9-11	Hold
C-206E	Steering Gear Flat Stowage spaces only	11-14	Hold
Passage	Space between Bow Doors and Ramp	0-5	Main
A-101EV	Void Space	5-7	Main
A-102AE	Ramp Mach. compt.	5-7	Main
A-101EV	Bow Doors Mach. compt.	7-9	Main
A-102AE	Bo'sn's. stores	7-9	Main
A-104EL	Windlass Mach. compt.	9-11	Main
Weather	Tank Well & Stern Anchor Gear	5-41	Main
A-103-1/2L	Passage	14-17	Main
B-1 (P/S)	Passage	19-24	Main
C-101AT	Passage	27-31	Main
Weather	Boat, Boat Davit, Life Rafts	-	Super-structure

CLEANING BILL

TABLE 6-1 (cont'd.)

(a) CONSTRUCTION DEPARTMENT

COMPARTMENT NO.	DESCRIPTION	FRAME	DECK
Weather	Superstructure Deck	All	Super-struc-ture
-----	Sea Chests (P/S)	18-19	Main & Inner Bottom
(b) ENGINEERING DEPARTMENT			
A-211-5AC	Gyro Room	17-18	Hold
A-211-2AE	Refrigeration Mach. only	17-19	Hold
A-214F, A-212F	D.O. Settling Tank	18-19	Hold
A-213Lub	Lub. Oil Storage Tank	18-19	Hold
A-215Lub	Lub. Oil Storage Tank	18-19	Hold
B-1	Engine Room	19-25	Hold
C-201EL (P/S)	Aux. Mach. Spaces	24-25	Hold
C-203F	Diesel Oil Tank	27-29	Hold
C-204A	Mach. Spare Parts	27-29	Hold
C-901W, C-902W	Fresh Water Tank	25-27	Inner Bottom
B-906F	Clean Diesel Oil Tank	24-25	Inner Bottom
B-907W	Res. Feed Water Tank	24-25	Inner Bottom
B-908F +	Impure Oil leakage Tank	22-23	Inner Bottom

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CLEANING BILL

TABLE 6-1 (cont'd.)

6-3 (b) ENGINEERING DEPARTMENT

COMPARTMENT NO.	DESCRIPTION	FRAME	DECK
B-902Lub,* B-903Lub *	Main Engine Lub. Oil Sump Tanks	21-23	Inner Bottom
B-904Lub,+ B-905Lub +	Hydr. Coupling Sump Tanks	23-1/2-24	Inner Bottom
B-901V	Sludge Tank	22	Inner Bottom
A-908F, A-909F, A-910F	Diesel Oil Tanks	11-19	Inner Bottom
A-902F, A-903F, A-904F	Diesel Oil Tanks	11-19	Inner Bottom
A-905F, A-906F, A-907F	Diesel Oil Tanks	11-19	Inner Bottom
C-102-1/2AE	General Workshop	24-27	Main
C-102A	Engineering Stores	27-29	Main
C-101-1/2E	Boiler Room	24-27	Main

\+ For Fairbanks-Morse engines only.
* For Fairbanks-Morse engines; for General Motors engines location changed to frs. 23-24 P/S.

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CLEANING BILL

TABLE 6-1 (cont'd.)

(c) NAVIGATION DEPARTMENT

6-3

COMPARTMENT NO.	DESCRIPTION	FRAME	DECK
C-206E	Steering Gear Flat	29-41	Hold
A-901V	Oscillator Tank	11-12	Inner Bottom
Weather	Conn. Station, Signal Mast, Bow & Stern Anchor Lights & Masts		Top of Wheel-house
A-0301C	Wheelhouse	16-1/2-17-1/2 (S)	Wheel-house
A-0201V	Bridge Deck	16-1/2-17-1/2 (S)	Bridge
(d) GUNNERY DEPARTMENT			
A-209M	20 M/M Magazine	13-14	Hold
C-202M	20 M/M Magazine	26-1/2-27	Hold
C-101AT	Ordnance Stores	27-29	Main
(e) COMMUNICATION			
A-0101CL	Radio & Radar Room	16-1/2-19	Super-structure
(f) COMMISSARY & STORES DEPARTMENT			
A-211-3A A-211-1A	Refrigerators	17-18	Hold
A-211-2AE	Dry Provisions	17-19	Hold

LSM Class

CHAPTER 6

CLEANING BILL

TABLE 6-1 (cont'd.)

6-3 (f) COMMISSARY & STORES DEPARTMENT

COMPARTMENT NO.	DESCRIPTION	FRAME	DECK
A-211-5AC	General Stores	18-19	Hold
A-104-1/2EL A-104EL	Galley, Galley Stores, Hospital Space	11-19	Main
A-210L, A-103-1/2L	Officer's Quarters, Head & Washroom	14-17	Hold & Main

6-4 SPECIAL CLEANING DETAILS:-

(a) Crew Berthing & Messing Compartments

The Deck Force and the Engineering Force will detail one man each as compartment cleaners for the crews berthing and messing spaces. During the period these men serve on this detail, they will not be given any other cleaning assignments. This detail, however, is in addition to their regular assignments in the Watch, Quarter and Station Bills.

(b) Crew Head and Washroom

The Deck Force and the Engineering Force will detail one man each as cleaners for the crew head and washroom. During the period these men serve on this detail, they will not be given any other cleaning assignment. This detail, however, is in addition to their regular assignments in the Watch, Quarter and Station Bills.

(c) Officer's Quarters & Officer's Head

These compartments will be the regular cleaning stations of the steward's mates.

CHAPTER 6

CLEANING BILL

6-4 SPECIAL CLEANING DETAILS:-

(d) Troop Compartments

When troops are aboard, a non-commissioned officer, appointed by the Senior Troop Commander, will be in charge of each troop compartment and will be responsible for their cleanliness and orderliness.

When troops are not aboard, the after troop compartment, C-201EL, will be in material condition "ABLE" in so far as this is possible and does not affect the going or coming of the engineering force.

(e) Each man will be responsible for the cleanliness and orderliness of his own bunk and locker.

(f) Ladders belong to the departments responsible for the spaces into which they descend.

(g) A hatch or a door belongs to the space into which it swings; knife edges and exterior of coamings are the same space.

(h) The inside of uptakes, ventilators and machinery hatches leading to engineering spaces belong to the Engineering Department; the outside belongs to the department responsible for that part of the ship.

(i) Gear lockers, switch and telephone boxes, ready service lockers, etc., exteriors belong to the department responsible for that part of the ship where located; the interiors belong to the department having equipment or machinery therein.

(j) Store rooms belong to the department storing equipment therein. Where more than one department have stores in a compartment, each one will be responsible for the cleanliness and neat stowage of their respective equipment and the space used therefor.

(k) All weather decks, guns, and other equipment in place thereon, belong to the Deck Force.

LSM Class

CHAPTER 6

CLEANING BILL

6-4 SPECIAL CLEANING DETAILS:-

(1) Fire hose belongs to the division in whose space it is located.

6-5 CLEANING GEAR:-

Cleaning gear lockers are located in several places about the ship. All cleaning gear and material such as soap, soap powder, buckets, brushes, brooms, etc., after being used will be stored neatly in these lockers.

Swabs, after being used, should never be kept below decks but should be stowed in racks provided on the top side.

CHAPTER 7

BERTHING AND LOCKER BILL
(PLATE I)

7-1 GENERAL:-

The LSM has permanent berthing and locker facilities for the four officers and forty eight men comprising the ship's complement and permanent berthing facilities for two officers and fifty-two men comprising the landing force.

7-2 OFFICERS:-

The Commanding Officer's cabin is located within compartment A-210L, on the Hold Deck, starboard side, between frames 14 and 15.

Quarters for three ship's officers and two troop officers are provided in compartment A-210L, located on the Hold Deck, starboard side, between frames 15 and 17.

There are six berths in this compartment with provisions for swinging and stowing two hammocks. Four wardrobe lockers and two four-drawer chests are also provided. In addition, there is an emergency berth for officers in the chart house on the Superstructure Deck. Assignments of berths and locker space will be made by the Executive Officer acting under the direction of the Commanding Officer.

The officers washroom and toilet, compartment A-103-1/2L, is located on the starboard side, Main Deck, between frames 16 and 17.

7-3 CREW:-

Two compartments have been assigned for the crew's berths and lockers.

Compartment A-208L, is located on the Hold Deck, starboard side, between frames 11 and 14. This compartment has a total of 20 berths and 20 lockers.

Compartment A-210L, is located on the Hold Deck, port side, between frames 14 and 17. This compartment has a total of 28 berths and 28 lockers.

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CHAPTER 7

BERTHING AND LOCKER BILL

7-3 CREW:-

Each berth has been assigned a number and this number has the prefix "C" designating it as a crew berth.

In compartment A-208L, the numbers start with the most inboard, most forward tier, bottom to top, and follow in a clockwise direction, C-1 to C-20. Lockers have been assigned the same numbers as the berths, C-1 to C-20. Each man has been given a locker as close to his berth as arrangements permit.

In compartment A-210L, the numbers start with the most inboard, most forward tier, bottom to top, and follow in a counter-clockwise direction, C-21 to C-48. Lockers have been assigned the same numbers as the berths, C-21 to C-48. Each man has been given a locker as close to his berth as arrangements permit.

PLATE I shows the location and numbers of all the berths and lockers assigned to the crew.

7-4 BERTHING AND LOCKER ASSIGNMENTS - CREW:-

TABLE 7-1 shows the assignments of berth and locker numbers for each member of the crew by watch section. In the assignment of these numbers careful consideration has been given to the following:

(a) Watch section grouping to minimize the casualties to one division.
(b) Preferential treatment for petty officers.
(c) Proximity of berth to locker.

After a man has been assigned a berth and locker, he will under no circumstance use another berth or locker unless authorized to do so by the Executive Officer.

TABLE 7-2 shows the assignments of berth and locker numbers by billet numbers.

TABLE 7-3 shows the assignments of berth and locker numbers in numerical order.

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CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-1

BERTHING AND LOCKER ASSIGNMENTS - CREW

7-4

FIRST SECTION	BERTH & LOCKER NO.	SECOND SECTION	BERTH & LOCKER NO.	THIRD SECTION	BERTH & LOCKER NO.
		DECK DIVISION - D			
CBM	C-2	BM2c	C-47	BM1c	C-22
Cox	C-11			Seal c	C-45
Seal c	C-7	Seal c	C-24	Sea2c	C-9
Seal c	C-4	Sea2c	C-37	Sea2c	C-29
Sea2c	C-13	Sea2c	C-33	GM2c	C-23
		ENGINEERING DIVISION - E			
MoMM1c	C-18	CMoMM	C-46	MoMM1c	C-16
MoMM2c	C-14	MoMM2c	C-43	MoMM2c	C-34
EM2c	C-10	EM1c	C-40	EM3c	C-26
MoMM3c	C-3	MoMM3c	C-31	MoMM3c	C-32
F1c	C-20	F1c	C-36	F1c	C-5
F2c	C-1	F2c	C-28		
		SHIP'S CONTROL DIVISION - SC			
RM1c	C-19	RM2c	C-35	SM2c	C-42
QM1c	C-6	QM3c	C-39	RT1c	C-38
RdM2c	C-17	RdM3c	C-41	RM3c	C-27
		SM3c	C-44		

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-1 (cont'd.)

BERTHING AND LOCKER ASSIGNMENTS - CREW

FIRST SECTION	BERTH & LOCKER NO.	SECOND SECTION	BERTH & LOCKER NO.	THIRD SECTION	BERTH & LOCKER NO.
	COMMISSARY & STORES DIVISION - S				
				PhM1c	C-25
Y2c	C-15	SK1c	C-30		
StM2c	C-21	SC3c	C-48	SC1c	C-8
				StM1c	C-12

TABLE 7-2

ASSIGNMENT OF BERTHS & LOCKERS BY BILLET NUMBERS

BILLET NO.	LOCKER NO.	BERTH NO.	NAME	RATE
D-11	C-2	C-2		CBM
D-12	C-11	C-11		Cox
D-13	C-7	C-7		Sealc
D-14	C-4	C-4		Sealc
D-15	C-13	C-13		Sea2c
D-21	C-47	C-47		BM2c
D-22	C-24	C-24		Sealc
D-23	C-37	C-37		Sea2c
D-24	C-33	C-33		Sea2c

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-2 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS BY BILLET NUMBERS

BILLET NO.	LOCKER NO.	BERTH NO.	NAME	RATE
D-31	C-22	C-22		BM1c
D-32	C-23	C-23		GM2c
D-33	C-45	C-45		Seal c
D-34	C-9	C-9		Sea2c
D-35	C-29	C-29		Sea2c
E-11	C-18	C-18		MoMM1c
E-12	C-14	C-14		MoMM2c
E-13	C-10	C-10		EM2c
E-14	C-3	C-3		MoMM3c
E-15	C-20	C-20		F1c
E-16	C-1	C-1		F2c
E-21	C-46	C-46		CMoMM
E-22	C-43	C-43		MoMM2c
E-23	C-40	C-40		EM1c
E-24	C-31	C-31		MoMM3c
E-25	C-36	C-36		F1c
E-26	C-28	C-28		F2c

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-2 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS BY BILLET NUMBERS

BILLET NO.	LOCKER NO.	BERTH NO.	NAME	RATE
E-31	C-16	C-16		MoMM1c
E-32	C-34	C-34		MoMM2c
E-33	C-26	C-26		EM3c
E-34	C-32	C-32		MoMM3c
E-35	C-5	C-5		F1c
SC-11	C-19	C-19		RM1c
SC-12	C-6	C-6		QM1c
SC-13	C-17	C-17		RdM2c
SC-21	C-35	C-35		RM2c
SC-22	C-39	C-39		QM3c
SC-23	C-41	C-41		SM3c
SC-24	C-44	C-44		RdM3c
SC-31	C-42	C-42		SM2c
SC-32	C-38	C-38		RT2c
SC-33	C-27	C-27		RM3c

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-2 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS BY BILLET NUMBERS

BILLET NO.	LOCKER NO.	BERTH NO.	NAME	RATE
S-11	C-15	C-15		Y2c
S-12	C-21	C-21		StM2c
S-21	C-30	C-30		SK1c
S-22	C-48	C-48		SC3c
S-31	C-25	C-25		PhM1c
S-32	C-8	C-8		SC1c
S-33	C-12	C-12		StM1c

TABLE 7-3

ASSIGNMENT OF BERTHS & LOCKERS IN NUMERICAL ORDER

BERTH NO.	LOCKER NO.	BILLET NO.	NAME	RATE
C-1	C-1	E-16		F2c
C-2	C-2	D-11		CBM
C-3	C-3	E-14		MoMM3c
C-4	C-4	D-14		Sealc
C-5	C-5	E-35		F1c
C-6	C-6	SC-12		QM1c

LSM Class

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-3 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS IN NUMERICAL ORDER

BERTH NO.	LOCKER NO.	BILLET NO.	NAME	RATE
C-7	C-7	D-13		Seal c
C-8	C-8	S-32		SC1c
C-9	C-9	D-34		Sea2c
C-10	C-10	E-13		EM2c
C-11	C-11	D-12		Cox
C-12	C-12	S-33		StM1c
C-13	C-13	D-15		Sea2c
C-14	C-14	E-12		MoMM2c
C-15	C-15	S-11		Y2c
C-16	C-16	E-31		MoMM1c
C-17	C-17	SC-13		RdM2c
C-18	C-18	E-11		MoMM1c
C-19	C-19	SC-11		RM1c
C-20	C-20	E-15		F1c
C-21	C-21	S-12		StM2c
C-22	C-22	D-31		BM1c
C-23	C-23	D-32		GM2c
C-24	C-24	D-22		Seal c
C-25	C-25	S-31		PhM1c

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-3 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS IN NUMERICAL ORDER

BERTH NO.	LOCKER NO.	BILLET NO.	NAME	RATE
C-26	C-26	E-33		EM3c
C-27	C-27	SC-33		RM3c
C-28	C-28	E-26		F2c
C-29	C-29	D-35		Sea2c
C-30	C-30	S-21		SK1c
C-31	C-31	E-24		MoMM3c
C-32	C-32	E-34		MoMM3c
C-33	C-33	D-24		Sea2c
C-34	C-34	E-32		MoMM2c
C-35	C-35	SC-21		RM2c
C-36	C-36	E-25		F1c
C-37	C-37	D-23		Sea2c
C-38	C-38	SC-32		RT2c
C-39	C-39	SC-22		QM3c
C-40	C-40	E-23		EM1c
C-41	C-41	SC-23		SM3c
C-42	C-42	SC-31		SM2c
C-43	C-43	E-22		MoMM2c
C-44	C-44	SC-24		RdM3c

CHAPTER 7

BERTHING AND LOCKER BILL

TABLE 7-3 (cont'd.)

7-4 ASSIGNMENT OF BERTHS & LOCKERS IN NUMERICAL ORDER

BERTH NO.	LOCKER NO.	BILLET NO.	NAME	RATE
C-45	C-45	D-33		Seaic
C-46	C-46	E-21		CMoMM
C-47	C-47	D-21		BM2c
C-48	C-48	S-22		SC3c

7-5 HAMMOCKS - CREW:-

In addition to the 48 permanent berths for the crew, there are billet hooks and stowage space provided for seven hammocks:- three hammocks in the crew's quarters, one hammock and stowage in passage, A-103-1/2L, one hammock in galley, A-104-1/2EL, and two hammocks and stowage for three in hospital space A-104EL. The location of the billet hooks and hammock stowage is shown in PLATE I.

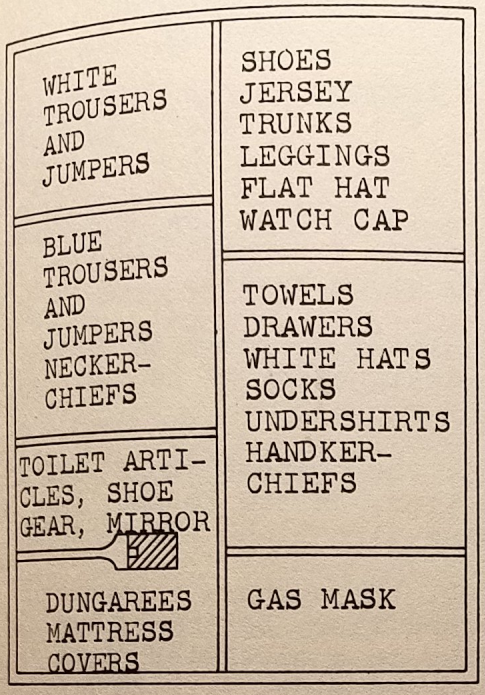
7-6 LOCKERS - CREW:-

A locker is provided for each of the 48 members of the crew for the stowing of personal clothing and gear. These lockers are the B-2 type and should be stowed as shown in the sketch on following page.

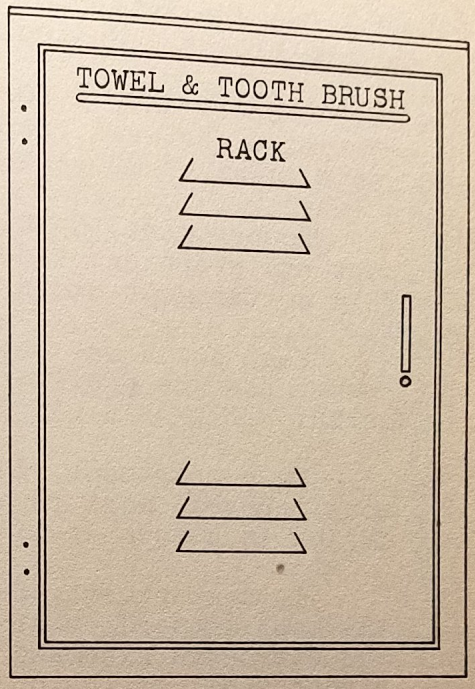
CHAPTER 7

BERTHING AND LOCKER BILL

7-6 LOCKERS - CREW:



INTERIOR VIEW



EXTERIOR VIEW

B-2 LOCKER STOWAGE

7-7 PEACOAT LOCKERS:-

One peacoat locker is provided for each crew berthing compartment for the stowage of all peacoats.

The Police Petty Officer will hold the keys for these lockers and be responsible for the issue of peacoats.

Stowage for special clothing such as foul weather and cold weather gear is also provided aboard ship. The issue and inventory of this gear will be under the supervision of the Gunnery Officer (Commissary and Stores Officer).

CHAPTER 7

BERTHING AND LOCKER BILL

7-8 **TROOP BERTHING:-**

Two compartments have been assigned for the troops berths. No lockers are provided.

Compartment, A-208L is located on the Hold Deck, port side, between frames 11 and 14. This compartment has a total of 22 berths.

Compartment, C-201EL is located on the Hold Deck, port and starboard side, between frames 25 and 27. This compartment has a total of 30 berths.

Each berth has been assigned a number and this number has the prefix "T", designating it as a troop berth.

In compartment, A-208L, the numbers start with the most inboard, most forward tier, bottom to top, and follow in a counter-clockwise direction, T-1 to T-22.

In compartment, C-201EL, the numbers start with the most inboard, most forward tier, bottom to top, on the starboard side and follow in a clockwise direction for all berths on starboard side, T-23 to T-37. On the port side, the numbers start with the most inboard, most forward, bottom to top, and follow in a counter-clockwise direction, T-38 to T-52.

PLATE I shows the location and numbers of all the berths assigned to the troops.

7-9 **BERTHING ASSIGNMENTS - TROOPS:-**

The assignment of berths to the troops will be under the supervision of the Troop Commander. It should follow the plan, however, used in the assignment of berths to the crew.

7-10 **HAMMOCKS - TROOPS:-**

In addition to the 52 permanent berths for the troops, there are billet hooks and stowage space provided for two hammocks in the troops quarters. The location of the billet hooks and hammock stowage is shown in PLATE I.

CHAPTER 7

BERTHING AND LOCKER BILL

7-11 LOCKERS - TROOPS:-

No lockers are provided for the troops as they are not normally aboard long enough to require them.

7-12 WASHROOM AND TOILETS:-

The crew's and troop's washroom, compartment, A-103L, is located on the starboard side, Main Deck, between frames 11 and 14.

The crew's and troop's head, compartment, A-103L, is located on the starboard side, Main Deck, between frames 9 and 11.

PLATE I - "BERTHING AND LOCKER ARRANGEMENT" should be referred to.

CHAPTER 8

MESSING BILL
(PLATE I)

8-1 GENERAL:-

The Gunnery Officer (Commissary and Stores Officer), acting for the Commanding Officer, will have supervision over the General Mess. He will supervise also, the procurement of general provisions, the ration cost, and the proper preparation and serving of all food on board. By noon each Saturday, he will submit to the Commanding Officer, the bill of fare for the coming week. When approved, a copy of this bill of fare will be posted in the galley.

The Gunnery Officer (Commissary & Stores Officer), will sign all orders for provisions and will keep an accurate record of all provisions bought from any source. He will have an inventory taken of all provisions on board on the last day of each fiscal quarter and submit this inventory along with the Ration Record to the Commanding Officer.

The duties of the Commissary Officer are more fully delineated in Article 2640-1(c) Bureau S&A Manual.

Nothing contained in the foregoing, however, should be interpreted to relieve the Commanding Officer of his definite final responsibility relative to accountability for stores and any over-expenditure of ration allowance. (See S&A Manual, Article 2640-1(b).

8-2 PERSONNEL:-

(a) Ship's Cooks

There are two ship's cooks assigned to the LSM.

(b) Mess Cooks

The Deck Forces will assign two non-rated men and the Engineering Force one non-rated man as mess cooks. These men will serve as mess cooks for a period of three months.

(c) Steward's Mates

There are two steward's mates assigned to the LSM.

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MESSING BILL

8-3 DUTIES:-

(a) Ship's Cooks

The ship's cooks, under the Gunnery Officer (Commissary and Stores Officer), are directly responsible for the proper preparation and the orderly issue of all food served on board.

The senior cook will be in charge of the galley and all personnel assigned thereto. He will be responsible for the proper performance of duty of all ship's cooks, mess cooks and other personnel attached to the galley.

He will be responsible for the cleanliness of the galley, issue room, bread locker, commissary stores rooms, cold storage spaces, and all utensils and equipment used in the preparation and serving of food.

Ship's cooks will wear clean white uniforms when on duty. At frequent intervals they will be inspected by the Pharmacist Mate for contagious diseases.

The duties of the senior cook are more fully prescribed in Article 2640-1(d), Bureau S&A Manual.

(b) Mess Cooks

Mess cooks will come under the senior ship's cook. They will not be assigned any other duties while serving as mess cooks except those assigned them under "All Hands" evolutions.

One mess cook will be assigned for general galley duty. He will assist the ship's cooks as needed and act as scullerymen.

One mess cook will be assigned to the forward crew's compartment, A-208L, starboard, and one mess cook to the after crew's compartment, A-210L, port side. These mess cooks will be responsible for:-

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MESSING BILL

8-3 DUTIES:-

(b) (cont'd.)

(1) Setting up and taking down of the mess tables and benches in their respective compartments before and after each meal.

(2) Cleanliness of mess tables and benches and the gear and garnishments provided therefor.

(3) At meal time, they will draw rations from the galley for the men assigned to their mess (See TABLE 8-1). These rations will be carried to the messing compartments in special food carriers provided for this purpose and each man will be served his ration at his mess table.

(4) Upon the completion of each meal, the two mess cooks will clean their tables and benches and carry all soiled trays, bowls, cups and other mess gear to the galley.

(5) They will assist the galley mess cook with the washing and drying of this mess gear after which they will return it to the proper stowage places.

(6) They will provide a GI can for their respective compartments for the disposal of all refuse and garbage incidental to their mess. They will empty and clean these cans after each meal.

All mess cooks will wear clean white uniforms when on duty. They will be inspected by the Pharmacist Mate for contagious diseases at regular intervals.

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CHAPTER 8

MESSING BILL

8-3 DUTIES:-

(c) Steward's Mates

The steward's mates will be assigned to duty in the officer's quarters.

It will be their duty to serve the Officers Mess at meal time and to do all other work connected therewith.

They will also be responsible for making up the berths and the cleanliness of the wardroom country including the officer's washroom and toilet.

All steward's mates will wear white uniforms while on duty. They will be inspected by the Pharmacist Mate at regular intervals for contagious diseases.

8-4 OFFICER'S MESS:-

The ship's officers will be subsisted on board from the General Mess. (See Bureau of Supplies and Accounts Circular letter of 19 August, 1943; Bureau S&A letter L16-8(SBB-2); L16-8(1)/L10-5).

Officer's rations will be drawn from the ship's galley by the steward's mates and served to them in the wardroom.

These rations will be the same in kind, quality and quantity as those served to the crew.

Should the officers wish to establish their own mess apart from the General Mess it shall be done in strict accordance with Naval Regulations, Article 1439.

8-5 CREW'S MESS:-

The crew will mess by Watch Sections, in port and at sea. The section off duty will mess first and will be followed by the Watch Section when it has been relieved. Immediately upon completing his meal, each man will scrape what he has left into the GI can provided for this purpose and clear the messing compartment until the meal has been concluded and the compartment cleaned and in order.

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CHAPTER 8

MESSING BILL

8-5 CREW'S MESS:-

There are facilities for serving, at one sitting, 12 men in compartment A-208L, starboard, and 10 men in compartment A-210L, port.

TABLE 8-1 shows the messing assignment, by Watch Sections, for every man in the crew.

Compartment cleaners will see that messing spaces are cleared before each meal and promptly after each meal in order that tables and benches may be cleaned by the mess cooks and the compartments swept down by the compartment cleaners.

In fair weather and in warm climates and when there are no troops or excessive cargo on board, the Commanding Officer may permit the crew to mess on the topside, Tank Well Deck, between frames 14 and 17, port to starboard.

8-6 TROOP'S MESS:-

When troops are aboard they will ordinarily be subsisted from the ship's General Mess.

The same routine will be followed as used for serving the crew.

Troops will mess in compartment A-208L, port side, where 12 men can be messed at one sitting. The troop commander will prepare a messing assignment list for all troops on board similar to the messing assignments for the crew as given in TABLE 8-1. Troop police officers will be appointed to see that the troops are messed in accordance with this list and that an orderly line is maintained by those waiting to be messed. Troop KP's will also be assigned to serve the troop's mess, to clean the messing tables, benches and compartment and to assist the ship's cooks in the galley as required.

Each man will be responsible for the cleaning of his own mess kit at the proper place provided for this purpose.

LSM class

RAT
CBM
Cox
Sea
Sea
Sea2
Sea2
Sea2
RM1c

CHAPTER 8

MESSING BILL

8-7 MESS TIME:-

Mess gear will be sounded five minutes before each meal is served.

Under normal conditions, the General Mess will be served beginning at the following times:

Breakfast	0730
Dinner	1130
Supper	1730 (at sea)

TABLE 8-1

8-8 MESSING ASSIGNMENTS

FIRST SECTION		MESSING COMPARTMENT	SECOND SECTION	
RATE	BILLET NO.		RATE	BILLET NO.
CBM	D-11	Compartment A-208L	BM1c	D-31
Cox	D-12	Compartment A-210L	BM2c	D-21
Sealc	D-13	Compartment A-208L	GM2c	D-32
Sealc	D-14	Compartment A-210L	Sealc	D-22
Sea2c	D-15	Compartment A-208L	Sealc	D-33
Sea2c	D-34	Compartment A-208L - Mess Cook	Sea2c	D-23
Sea2c	D-35	Compartment A-210L - Mess Cook	Sea2c	D-24
RM1c	SC-11	Compartment A-208L	RM2c	SC-21

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CHAPTER 8

MESSING BILL

TABLE 8-1 (cont'd.)

MESSING ASSIGNMENTS

FIRST SECTION		MESSING COMPARTMENT	SECOND SECTION	
RATE	BILLET NO.		RATE	BILLET NO.
RM3c	SC-33	Compartment A-210L	RdM3c	SC-24
RdM2c	SC-13	Compartment A-208L	RT2c	SC-32
QM1c	SC-31	Compartment A-210L	QM3c	SC-22
SM2c	SC-12	Compartment A-208L	SM3c	SC-23
Y2c	S-11	Compartment A-208L	SK1c	S-21
SC1c	S-32	Galley	SC3c	S-22
StM2c	S-12	Wardroom	StM1c	S-33
MoMM1c	E-11	Compartment A-208L	PhM1c	S-31
MoMM1c	E-12	Compartment A-210L	CMoMM	E-21
MoMM2c	E-31	Compartment A-208L	MoMM2c	E-22
EM2c	E-13	Compartment A-208L	MoMM2c	E-32
EM3c	E-23	Compartment A-210L	EM1c	E-33
MoMM3c	E-14	Compartment A-210L	MoMM3c	E-24

CHAPTER 8

MESSING BILL

TABLE 8-1 (cont'd.)

MESSING ASSIGNMENTS

8-8

FIRST SECTION		MESSING COMPARTMENT	SECOND SECTION	
RATE	BILLET NO.		RATE	BILLET NO.
F1c	E-15	Galley - Mess Cook	MoMM3c	E-34
F1c	E-35	Compartment A-208L	F1c	E-25
F2c	E-16	Compartment A-210L	F2c	E-26

For further information concerning Messing Bill, see PLATE I.

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CHAPTER 9

GENERAL QUARTERS BILL
(PLATE V)

9-1 General Quarters intends to obtain the maximum battle efficiency by utilizing the entire ship's company. It is always held immediately following Condition I being set by the Commanding Officer. It is obvious that such a condition can not be continued for a prolonged period. Therefore, when not actually engaged with the enemy, it may become necessary to assume Condition II or III.

9-2 BATTLE STATIONS:-

The assignment of battle stations will be made in accordance with TABLE 9-1 and TABLE 9-2 below. It may become necessary or be deemed advisable to re-arrange these assignments in order to better utilize the qualifications of each member of the ship's company and to fit the varying conditions of service.

TABLE 9-1

BATTLE STATIONS - OFFICERS

DEPARTMENT	STATION	DUTIES
1. Commanding Officer	Conning Station.	Conning & general supervision & direction.
2. Executive Officer (a) Navigator (b) First Lieutenant (c) Damage Control	Forward.	In charge forward; directs Forward Repair Party.
3. Gunnery Officer (a) Communications (b) Commissary & Stores	Bridge.	Fire Control.
4. Engineering Officer Assists in Damage Control	Engine Room & after part of ship.	In charge engine room, also directs After Repair Party.

CHAPTER 9

GENERAL QUARTERS BILL

TABLE 9-2

BATTLE STATIONS - CREW

DIVISION	RATE	STATION	DUTIES
		SHIP CONTROL	
SC	QM1c	Pilot House	Steersman.
S	Y2c	Pilot House	Annunciators.
SC	RM1c	Radio Room	Operator.
SC	RT2c	Radio Room	Radio repair.
SC	RdM2c	Radar	Operator.
SC	RdM3c	Radar	Operator.
SC	SM2c	Bridge	Visual signals.
SC	SM3c	Bridge	Records signals, log & notes; relief steersman.
SC	RM2c	Bridge	Phones (1JV).
S	SK1c	Bridge or Gun Control Station	Relief annunciators & phones (Gun-15JY).
SC	QM3c	Steering Eng. Room	Standby steering engine (1JV Phone).
		GUN CREW NO. 1	
D	BM2c	Gun No. 1	Gunner.
S	SC1c	Gun No. 1	Range setter & talker.
E	MoMM3c	Gun No. 1	Loader.

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CHAPTER 9

GENERAL QUARTERS BILL

TABLE 9-2 (cont'd.)

BATTLE STATIONS - CREW

9-2

DIVISION	RATE	STATION	DUTIES
		GUN CREW NO. 2	
D	Cox	Gun No. 2	Gunner.
S	StM1c	Gun No. 2	Range setter & talker.
E	F2c	Gun No. 2	Loader.
		GUN CREW NO. 3	
D	GM2c	Gun No. 3	Gunner.
S	StM2c	Gun No. 3	Range setter & talker.
E	F2c	Gun No. 3	Loader.
		GUN CREW NO. 4	
D	Sea1c	Gun No. 4	Gunner.
S	SC3c	Gun No. 4	Range setter & talker.
E	MoMM3c	Gun No. 4	Loader.
		GUN CREW NO. 5	
D	Sea1c	Gun No. 5	Gunner.
D	Sea2c	Gun No. 5	Range setter & talker.
E	F1c	Gun No. 5	Loader.
		GUN CREW NO. 6	
D	Sea1c	Gun No. 6	Gunner.

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CHAPTER 9

GENERAL QUARTERS BILL

TABLE 9-2 (cont'd.)

BATTLE STATIONS - CREW

9-2

DIVISION	RATE	STATION	DUTIES
		GUN CREW NO. 6	
D	Sea2c	Gun No. 6	Range setter & talker.
E	F1c	Gun No. 6	Loader.
		ENGINEERING	
E	CMoMM	Engine Room	Petty officer in charge & stbd. throttle.
E	MoMM1c	Engine Room	Port throttle.
E	MoMM3c	Engine Room	Oiler, also makes hourly inspections of steering engine & spring bearings.
E	EM1c	Engine Room	Distribution board & generators.
		FORWARD REPAIR PARTY	
D	CBM	Forward	In charge.
E	MoMM1c	Port Control Room	Ramp controls.
E	MoMM2c	Stbd. Control Room	Bow Door controls.
E	EM2c	Port Control Room	Ramp controls.
E	F1c	Port Control Room	Telephone & Damage Control.
D	Sea1c	Main Deck Forward	Damage Control.
D	Sea2c	Main Deck Forward	Damage Control.
SC	RM3c	Stbd. Control Room	Telephones.

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CHAPTER 9

GENERAL QUARTERS BILL

TABLE 9-2 (cont'd.)

BATTLE STATIONS - CREW

9-2

DIVISION	RATE	STATION	DUTIES
		AFTER REPAIR PARTY	
			In charge.
D	BM1c	Aft	Damage Control.
E	MoMM2c	Stern Anchor Engine	Damage Control.
E	MoMM2c	Aft	Telephone & Damage Control.
E	EM3c	Stern Anchor Engine	Damage Control.
D	Sea2c	Stern Anchor	Damage Control.
D	Sea2c	Stern Anchor	
		FIRST AID STATION	
S	PhM1c	Battle Dressing Sta.	First Aid.

9-3 REPAIR PARTIES:-

The Executive Officer (First Lieutenant) is in charge of both repair parties. Telephone communications will be maintained between the repair parties, the bridge and the engine room.

Damage Control procedure will be as outlined in Chapter 10, "DAMAGE CONTROL BILL", and will be under the direction of the Executive Officer who is the Damage Control Officer.

Both repair parties will also act as the ammunition passing detail between the magazines and the guns as required.

Also see Chapter 28 - "ORDNANCE AND ORDNANCE OUTFIT", and PLATE V.

CHAPTER 10

DAMAGE CONTROL BILL
(PLATE II)

10-1 GENERAL:-

(a) As defined by the Manual of Interior Control, 1929, Damage Control comprises the entire system of maintaining watertight integrity, control of stability, repairs to damage, gas defense, and caring for injured personnel, including material, personnel, operations, methods and organization. The most important requirements under this definition are, first, the preservation of the buoyancy and stability of the ship, and second, maintenance of zero or minimum list and a satisfactory trim. In action it is essential that warships remain not only afloat, but that they remain in action with as little list and as favorable a trim as possible, in order that their offensive and defensive qualities may be utilized to the best advantage. The most highly trained gunnery and engineering personnel and the most highly perfected gunnery and engineering material are of no avail if the hulls on which they are carried into action sink, or assume lists which prevent the guns of a ship from bearing on the enemy or if the hulls assume a trim which necessitates reducing speed and dropping out of the battle formation.

(b) The safety of a ship depends partly on the buoyancy and partly on the stability, but in most warships much more on the latter than on the former. A ship must be considered lost if she capsizes, even though she continues to float. The reserve buoyancy, which is the surplus of buoyancy due to the portion of the watertight hull above the waterline, forms a margin of safety against bodily sinkage which, in warships, usually amounts to from 50 to 100 percent of the displacement, and generally stability is destroyed long before this margin is absorbed by sinkage. The utility of this margin of safety is dependent on the maintenance of watertightness, and if watertightness of the hull above the waterline is impaired by damage, the reserve buoyancy may be reduced to a dangerous extent. The tendency to capsize will generally be also greatly increased by such damage.

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CHAPTER 10

DAMAGE CONTROL BILL

10-1 GENERAL:-

(c) The first requisite for maintenance of buoyancy and stability in a damaged condition lies in preventing the spread of water to other portions of the ship; in other words, localizing the damage. To accomplish this, it is necessary that all watertight appliances, such as doors, hatches, manholes, ventilation duct covers, valves in damaged pipe lines, etc. in the vicinity of the damage be closed, either by the functioning of a Damage Control organization, which insures that they are closed to the maximum extent before the damage occurs, or by quick action afterward. It must be remembered, however, that even this is not sufficient if the material condition of bulkheads and decks and watertight appliances is such that they are not completely watertight, due to deterioration, the existence of unnoticed holes, etc. The maintenance of watertight integrity through frequent inspections and efficient material upkeep is of the highest importance in either peace or war, and, for the reasons mentioned above, is equally important above and below the waterline. The problem of gas defense increases the importance of watertightness, since watertightness is, of course, gas tightness as well.

(d) The ability to control the effects of damage received depends on two equally important factors:

(1) The material features of the vessel incorporated in its design to limit the extent of damage and to permit control of damage.

(2) The effectiveness of the ship's organization in making the best use of these material features.

The purpose of this bill is to furnish for the use of the ship's organization, information in compact and usable form relating to Damage Control, particularly the features of buoyancy, stability, list and trim.

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DAMAGE CONTROL BILL

10-2 EFFECTS OF FLOODED COMPARTMENTS:-

(a) When water enters the hull as a result of damage, one or more of the following changes in the position of the hull in the water takes place:

(1) Mean draft increases.
(2) The trim changes.
(3) A list develops.

(b) If the boundaries of the damaged compartments are watertight and the leak is not checked, the draft, trim and list will cease changing when equilibrium is reached in one of the following ways:

(1) The damaged compartments fill completely.
(2) The damaged compartments fill up to the external waterline.
(3) The damaged compartments fill until the pressure of the entrapped air is equal to the water pressure outside at the same level.

(c) If the boundaries are not watertight, water will continue to infiltrate until watertight boundaries are reached. Consequently, maintaining the watertight integrity of all internal bulkheads and decks is of first importance in accomplishing the aim of Damage Control. Unless the leak can be quickly stopped, the safety of the damaged vessel depends on the watertight subdivision. If watertight bulkheads and decks remained watertight at all times, the subdivision of large modern warships is generally sufficient to prevent a single source of damage from seriously menacing either the buoyancy or the stability of the vessel; but since practically all bulkheads and decks are extensively pierced by doors, hatches, piping ventilation ducts, wiring, etc., it is always probable that the water may spread further; this has happened on numerous occasions after collisions. It is also possible that bulkheads and decks may yield under water pressure and begin to leak, but a serious collapse need not be feared unless the bulkhead or deck is already weakened by damage.

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DAMAGE CONTROL BILL

10-2 EFFECTS OF FLOODED COMPARTMENTS:-

(d) Increase of mean draft as a result of damage will almost invariably be accompanied by a list or change of trim or both since it is unlikely that only compartments in the center of the ship would be flooded. The speed and maneuverability are certain to be adversely affected. The effect on initial stability, i.e., on metacentric height, depends on the method by which equilibrium is reached. If the damaged compartments fill completely, the metacentric height always increases, and initial stability is correspondingly increased. If the damaged compartments do not fill completely, leaving a free water surface, the initial stability may either increase or decrease, depending on several factors. In most cases the change will not be great in either direction. Generally, however, the range of stability and the maximum righting arm will be decreased, and of course, the reserve buoyancy is always reduced. Consequently, increase in mean draft beyond the normal always reduces the seaworthiness of the vessel. The reduction in freeboard may affect the efficiency of the guns if a heavy sea is running.

(e) List and change of trim, in addition to affecting speed and maneuverability, may affect the offensive power of the battery by making it impossible for guns to elevate or depress sufficiently, and by making it difficult or impossible to handle ammunition and serve the guns. The adverse effects of a heavy list are manifold, not least important of which is the effect on morale.

10-3 MEASURES AFTER DAMAGE OCCURS:-

(a) When damage occurs, resulting in bilging one or more compartments, immediate efforts must be directed towards insuring that the damage is localized, that is, that the water is confined within limits as small as possible. All watertight appliances not already closed in the vicinity of the damage must be closed. Watertight appliances already closed must be examined, for loose dogs, nuts, bolts, etc. After every effort

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DAMAGE CONTROL BILL

10-3 MEASURES AFTER DAMAGE OCCURS:-

(a) (cont'd.)
has been made to make the watertight sub-division in the vicinity of the damage perfectly watertight, the exact location of the leak, and its extent, should be determined if it is possible to do so. It may be necessary to enter flooded compartments, for which purpose diving equipment should be available. Compartments adjacent to the bilged compartments may be leaking slowly, but not seriously damaged, and they should be kept pumped down. Bulkheads subjected to water pressure on one side must be kept under constant observation, particularly to determine whether or not excessive deflections are taking place. The deflection of a plane bulkhead or deck may be approximately determined by stretching a cord across its surface. Shoring may be necessary, not only of bulkheads or decks, but of doors, hatches, etc. For this purpose shoring timber and wedges should be available; mess tables, or benches may be used if necessary. Small leaks may be plugged or caulked. Wooden plugs for plugging rivet holes, and flashlights should be kept available in all parts of the ship ready for immediate use. The material which should be stowed in the Damage Control lockers is listed in the vessel's allowance list.

(b) Once the water is definitely confined within watertight boundaries, there are generally three measures which may be taken to reduce or eliminate its adverse effect on the fighting efficiency of the ship.

(1) Pumping the water overboard, in cases where the leak can be stopped or checked by such means as collision mats, etc., or where the leak is so small that the drainage pumps can handle the water.

(2) Shifting solid or liquid weights already on board, such as fuel, water, stores, or ammunition, in such manner as to counteract the effect of the bilged compartments on list and trim.

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DAMAGE CONTROL BILL

10-3 MEASURES AFTER DAMAGE OCCURS:-

(b) (cont'd.)

(3) Counter-flooding, that is, flooding compartments or tanks diagonally opposite the damage with salt water to produce heeling and trimming moments which will reduce the list and change of trim.

(c) Of course, the preferable method of reducing the effect of bilged compartments is pumping the water overboard. Only infrequently will it be practicable to do this, particularly in cases of shell or torpedo damage in battle. Even where it is possible to check the leak to the point where the pumping arrangements can take care of the water, this would generally take considerable time, and the exigencies of the moment may make it necessary to use other means to remove the list or change of trim as quickly as possible in order to continue to efficiently fight the ship without delay.

(d) Shifting of weights already on board may take the form of pumping fuel oil, pumping water or moving solid weights such as stores. Pumping liquids, particularly fuel oil, is very slow, due to limited pumping facilities, and considerable time would probably be required to correct any considerable list or trim by this means. Shifting solid weights will generally not be practicable. When time permits, however, shifting weights already on board has the advantage that reserve buoyancy is not reduced by the corrective measure. A variation in this method, possibly useful at high speeds when large quantities of fuel oil are being consumed, consists in taking fuel oil suction only from tanks on the low side, thereby reducing the list as fuel is consumed.

(e) Counter-flooding should be resorted to only as an emergency measure when the tactical situation demands that the ship be brought upright immediately. When counter-flooding is resorted to, the vessel not only suffers a loss of reserve buoyancy and possibly of stability due to the damage sustained, but it

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DAMAGE CONTROL BILL

10-3 MEASURES AFTER DAMAGE OCCURS:-

(e) (cont'd.)
suffers an additional loss of reserve buoyancy and possibly of stability due to the counter-flooding itself. Mean draft is likewise doubly increased with attendant increase in adverse effects on the vessel. The fundamental principle which governs in correcting the list or trim by counter-flooding is that such corrections should be accomplished with the minimum added weight. When counter-flooding is resorted to, and the list and trim are brought to the desired values, immediate efforts should be directed towards shifting weights already on board before the damage, securing listing and trimming moments equivalent to those furnished by the intentionally flooded compartments so that the added weight of water may be eliminated or reduced by pumping overboard again as quickly as possible.

10-4 SHORING:-

(a) There are three rather widespread misconceptions regarding the strength and shoring of structure. They are:

(1) That test pressures, sometimes arbitrarily limited by instructions regarding testing, represent the maximum pressure which the structure is capable of withstanding.

(2) That watertight structure cannot withstand the pressure which would be put upon it as a result of flooding. This lack of confidence in the strength of watertight structure is a corollary of (1) and is evidenced by the general practice of "shoring" all bulkheads surrounding supposedly flooded spaces in the damage control practices.

(3) That the erection of effective shoring is a simple matter which can be accomplished satisfactorily by fitting one or two wooden braces between the bulkhead and the deck.

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DAMAGE CONTROL BILL

10-4 SHORING:-

(b) The following paragraphs have been prepared for the purpose of correcting the misconceptions noted above:

The maximum pressure which the structure is capable of withstanding is far greater than the test pressure specified. To prevent unsightly permanent deformation of the structure, test pressures are purposely kept low. Deformation resulting from greater pressures, occurring as a result of damage, are acceptable, however, and it must be recognized that, in most cases of flooding due to damage, deformation will occur.

The various bulkheads are designed to withstand heads of water depending on their location in the vessel. Bulkheads in good condition may be relied upon to withstand any static pressure to which they may be subjected due to hull damage.

(c) Failure of bulkheads, however, may occur from the following causes:

(1) If the bulkhead is old and particularly if it has been subjected to considerable corrosion, it may have been weakened by deterioration.

(2) The explosion causing hull damage may weaken the bulkhead and probably will weaken all bulkheads close to it which are not extensively damaged.

(3) The bulkhead may, subsequent to the damage, be subjected to pressures greater than the static head due to flooding by the dynamic action of the ship's movement, either in a sea-way or due to her speed.

(d) Unless one or more of the conditions enumerated above exist, there is no necessity for shoring bulkheads. Shoring is not required as a matter of routine in case of hull damage. In cases where it

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DAMAGE CONTROL BILL

10-4 SHORING:-

(d) (cont'd.)

is necessary, the extent of shoring sufficient to be of any value will be such that the operation will be a major one. Two or three shores placed at random will generally be of no value. Effective shoring will, in most cases consist of a fairly complete net-work of reinforcement to the critical area.

It is apparent that no hard and fast rules can be given as to when the shoring is necessary, nor can any set methods of shoring be established.

Whether or not shoring is required is a matter of judgment, with consideration being given to the known state of preservation of the bulkhead before the damage, the probability of its having been weakened by the explosion, the load on the bulkhead as evidenced by its appearance and action, and existing or probably dynamic forces working on the critical area. For riveted bulkheads, it should be safe to assume that until leakage occurs around rivets or through seams, the bulkhead needs no shoring. However, under some circumstances, even this limit might not be safe; that is, leakage and collapse might occur simultaneously.

(e) The methods and extent of shoring are likewise matters of judgment. The following principles, however, should be followed:

(1) Bulkheads should be shored to decks either through obstructions on the decks, such as stanchions, hatch coamings, etc., or through the beams overhead.

(2) Pressures should be distributed over as wide an area as possible to avoid local failure.

(3) Every effort should be made to avoid damaging the caulking around bulkheads.

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DAMAGE CONTROL BILL

10-4 SHORING:-

(e) (cont'd.)

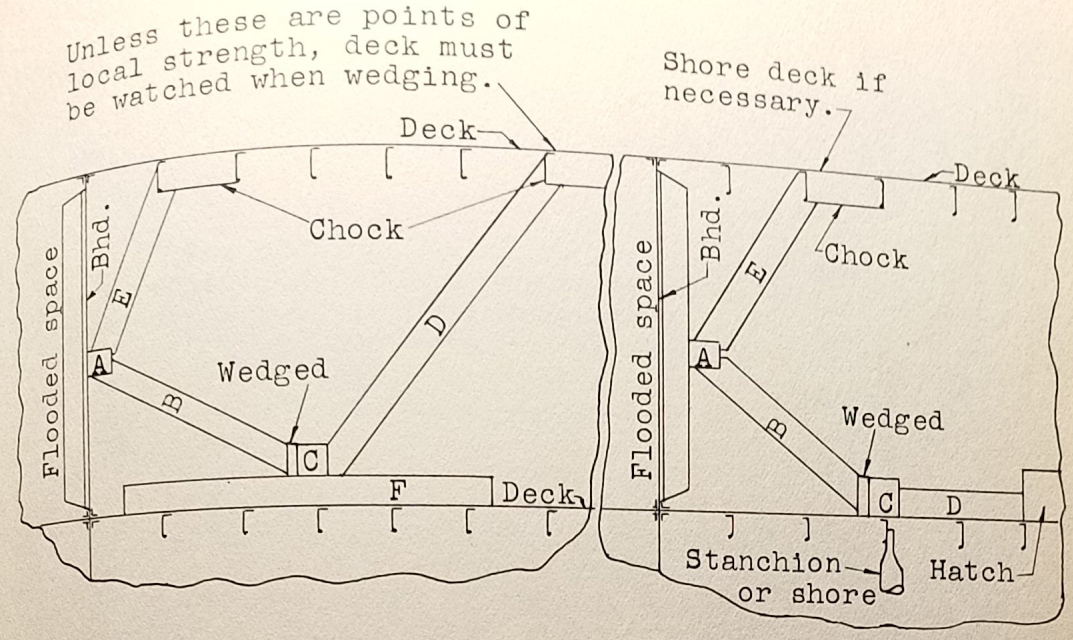
(4) In wedging up, sufficient pressure should be exerted to relieve the load, but care should be taken that flanges of bulkhead stiffeners, deck beams, etc., are not caused to buckle from excessive pressure.

(f) Where necessary, decks may be shored to decks overhead. The shoring should extend to headers, under the overhead deck beams which are so arranged as to distribute the load over a large area or to carry it to some point of local strength, such as a bulkhead overhead. The same procedure should be followed in shoring one bulkhead to another.

In common with other features of Damage Control, the possible necessity for shoring bulkheads must be recognized and general provision for accomplishing this operation must be made beforehand. The actual operation must, however, be governed by conditions which exist when and if shoring is found necessary.

(g) Figures 1 and 2 are sketches which are intended to illustrate how bulkheads may be shored through obstructions on the decks or to the deck beams overhead. They are not intended to apply to any particular bulkhead nor to any particular ship. They are for guidance in case shoring is found necessary.

(h) It should be noted that all effective members, except those used to distribute pressures over wide areas, are direct compression members. The material at hand, assumed to be wood, should be arranged so that the length of direct compression members is between fifteen and thirty times the dimensions of the least side, or diameter. Thus a 4" x 4" timber could be ten feet long, but were it only five feet long it could take a fifty percent greater load.



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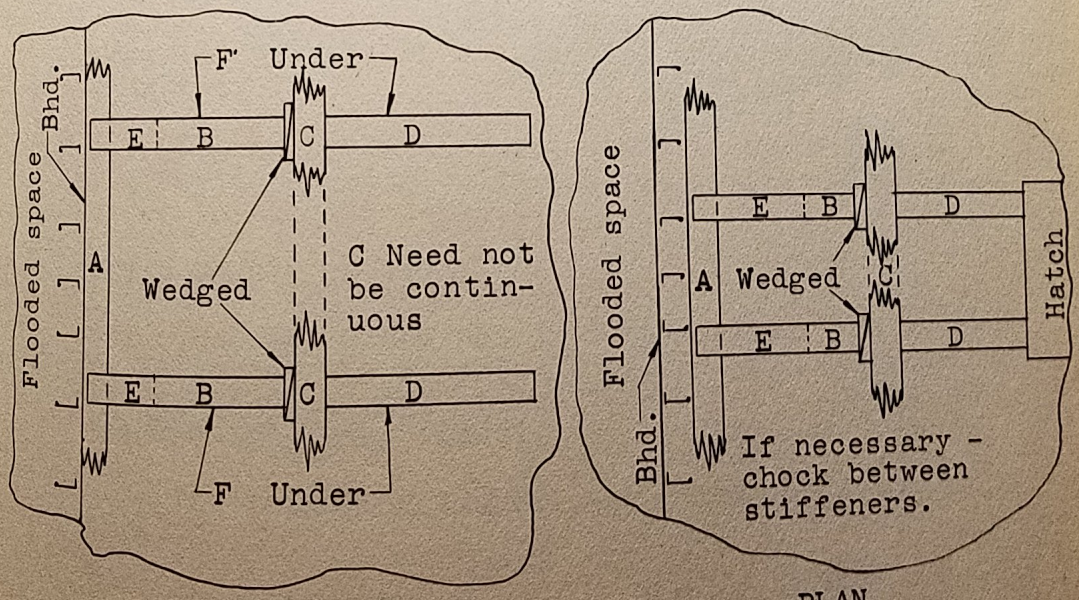

PLAN UNDER DECK PLAN

SHORING BULKHEAD TO DECK OVERHEAD
Figure 1

SHORING BULKHEAD TO OBSTRUCTION ON DECK
Figure 2

March 1, 1944

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DAMAGE CONTROL BILL

10-4 SHORING:-

(i) For shoring, which is a temporary emergency expedient, materials may be stressed almost to the breaking point. Having determined the necessity for shoring, and the type and arrangement, the extent of shoring is largely a question of trial-error; in other words, add more shores until the bulkhead is held securely.

(j) Material which is too small in cross sectional dimensions to be of value may be used to form built-up sections of reasonable dimensions. Thus two 2" x 4" members could be nailed, lashed, or clamped together to form 4" x 4" piece. A built-up piece would not be quite as strong as a single piece of the same dimensions, however.

It is also worthy of note that materials for shoring need not always be wood. If necessary, stanchions, pipe, and similar material could be cut from their proper places and used to support the failing bulkhead.

Although the discussion above refers particularly to shoring bulkheads, it applies with equal force to shoring decks.

10-5 OCEAN CONDITION DATA:-

(a) The data given below corresponds to the Ocean Condition of the vessel. The condition is described as the displacement of the vessel fully loaded and trimmed for ocean travel.

The following figures are based on estimated data:

Displacement	912.3 tons
Draft forward	4'-3"
Draft aft	7'-2-3/4"
Transverse metacentric height (GM)	10.34
Moment to alter heel one degree.	164.6 ft. tons
Moment to alter trim one inch .	198.3 ft. tons
Tons per inch immersion	14.31

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10-5 OCEAN CONDITION DATA:-

(b) The table below shows the effect on the transverse metacentric height (GM) of adding 50 tons additional weight at various heights. Weights up to two or three times this amount will have approximately proportional effects on the metacentric height (GM).

CG of Added Weight Above Baseline	Location	Change in GM
5'-3"	Top of Inner Bottom	- .43
13'-3"	Main Deck	- .84

10-6 THE EFFECTS OF FLOODED COMPARTMENTS ON LIST, TRIM, DRAFT AND STABILITY:-

(a) Water taken aboard as a result of damage will affect not only the list, trim and draft of the ship but also the stability as well. It is not difficult to predict with fair accuracy the resulting list, trim and draft after specific damage, but the prediction of remaining stability is a much more complex problem, and with the infinite number of possible damages which may occur in a ship with a large number of compartments it is practically impossible to present in usable form information which will indicate what the stability characteristics of the ship may be after damage. Damage Control operations which may affect the stability characteristics should be conducted only by one who has a thorough knowledge of the subject of stability in order to avoid making dangerous or even fatal mistakes. Consequently, in order to use safely and intelligently the information given here and in the Flooding Effect Diagram, PLATE II, the Executive Officer (Damage Control Officer) and other officers concerned should be thoroughly familiar with the contents of the pamphlet "The Stability of Ships and Principles of Damage Control," published by the Bureau of Ships, particularly Chapters II, III and IV.

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DAMAGE CONTROL BILL

10-6 ### THE EFFECTS OF FLOODED COMPARTMENTS ON LIST, TRIM, DRAFT AND STABILITY:-

(b) List, Draft and Trim:-

In order to show in a compact manner the effects of compartments flooded as a result of damage, on the draft, trim and list, and as a guide in conducting counter-flooding operations or in shifting liquid already on board to reduce list and change of trim resulting from damage, the Flooding Effect Diagram, PLATE II is furnished. This consists of deck plans for the hold and the inner bottom, showing the watertight compartmentation of the ship on those decks. In each compartment a number appears in each corner as follows:

(1) Upper left corner - weight of salt water in tons which will completely fill the compartment.

(2) Upper right corner - list in degrees resulting from complete flooding of the compartment with salt water.

(3) Lower left corner - change in draft aft in inches resulting from complete flooding of the compartment with salt water.

(4) Lower right corner - change in draft forward in inches resulting from complete flooding of the compartment with salt water.

The data on capacity in tons are based on complete flooding with salt water, density 35 cu. ft. per ton, with assumed permeability factors as follows:

Storerooms, living spaces, magazines, voids, tanks	95%
Machinery spaces	85%

In estimating the changes of list, draft and trim resulting from flooding a number of compartments, it may be assumed in each case that the total change is

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10-6 (b) (cont'd.)

the sum of the individual changes as shown on the diagram. This is not strictly true, but is sufficiently accurate for the purpose, in view of the other limitations on the accuracy of the figures described below.

The data are calculated on the basis of flooding empty compartments with salt water. The permeability factors used are intended to allow only for structure and fixed articles in the compartments. Consequently if appreciable space is occupied by portable articles such as stores in storerooms or ammunition in magazines, the capacity figures given on the diagram should be correspondingly reduced. If oil is shifted from one tank to another to correct list or trim, the figures for capacity shown on the diagram will be reduced in the ratio of thirty-five to thirty-seven, assuming the density of fuel oil to be thirty-seven cubic feet per ton. Furthermore, the tanks being emptied will probably be not more than ninety-five per cent full.

The figures for list and draft forward and aft are dependent on the capacity figures, and therefore are subject to the same limitations as to accuracy. Furthermore, they are calculated for the ship at "normal" displacement and therefore are exactly correct only for that condition. Even if the vessel entered an action in approximately the "ocean" condition, water taken aboard as a result of damage would change the stability features from those obtaining in that condition, and thus the accuracy of the list and draft data would be still further reduced if they are used for counter-flooding or for shifting liquids already on board to compensate for damage.

Consequently, in view of the above limitations on accuracy, the list figures are given only to the nearest half-degree and the change in draft figures to the nearest inch. The figures should be considered as comparative rather than exact. An example, is worked out on the diagram for shifting liquid already on board. It is worth noting that

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DAMAGE CONTROL BILL

10-6 (b) (cont'd.)

when liquid already on board is used for flooding compartments diagonally opposite, the effect on list and trim is approximately double that obtained by flooding the same compartments from the sea with the same weight of liquid, since the emptied compartments also exert an effect on list and trim.

(c) Stability:-

As stated above, the data on the diagram is calculated for the ship in "ocean" condition, which means that the transverse righting moments are based on the transverse metacentric height (GM) in the "ocean" condition, which for this vessel is 10.34 feet. If this GM has been reduced as a result of damage or otherwise, flooded compartments will produce greater lists than those indicated on the diagram. The list produced by a given inclining moment is inversely proportional to the GM, for small angles and this fact may be utilized to form a rough idea of the GM remaining after damage, or at any other time.

A somewhat more accurate but still very rough method of determining the metacentric height of the vessel at any time when the ship is rolling, may be used by observing the period of roll with a stop watch. The relation connecting the period with the GM is as follows:

$$T = \frac{.22 \times \text{Beam}}{\sqrt{GM}} \quad \text{or,} \quad GM = \frac{K}{T^2} \quad \text{when } K = (.22 \times \text{Beam})^2$$

Where K is constant, which for this vessel is estimated to be about 56 and T is the time of a half-roll, that is the time in seconds between a maximum on one side to a maximum on the other. The value of the constant K may be more accurately established by observing the period of roll at a time when the GM is approximately known, such as when the ship is about in "ocean" condition, when the GM is 10.34 feet. By placing the time of roll so obtained and the GM in the formula, the value of K may be obtained.

CHAPTER 10

DAMAGE CONTROL BILL

10-6 (c) (cont'd.)

In observing T, it is best to get the total time of a number of successive half-rolls, such as ten, rather than of a single half-roll, and then divide the total time by the number, in order to average out inaccuracies.

This method is only valid theoretically for free and unrestricted rolling, that is, the natural roll of the ship without outside influences tending to change the time of roll. Consequently, the time should preferably be taken during fairly calm weather, when the roll is not appreciably affected by deep waves.

It must be remembered that these methods of determining the GM give only approximate results, and they should be used only with thorough understanding of the principles involved so that their limitations may be understood. The importance of a thorough knowledge of the general subject of stability in conducting pumping or flooding operations which may affect the stability can not be too strongly emphasized.

For further information concerning Damage Control Bill see PLATE II.

CHAPTER 11

WATERTIGHT INTEGRITY BILL
(PLATES III)

11-1 GENERAL:-

Watertight Integrity is a phase of Damage Control.

The Watertight Integrity Bill provides for an orderly procedure to be followed in the routine and emergency closures of all watertight openings on the ship. It lists the watertight openings to be closed under the material conditions of readiness and assigns the personnel responsible for these closures.

11-2 MATERIAL CONDITIONS OF READINESS:-

The LSM is a two condition ship. Material Condition "BAKER" and Material Condition "ABLE."

(a) Material Condition "BAKER"

Condition "BAKER" is the first of two progressive steps in the closure of a two-condition ship. It is the condition required at all times at sea during war when accessibility and living requirements preclude maintaining watertight integrity at a maximum. It is also to be maintained in port when danger from mines, bombs, or torpedoes may exist.

(b) Material Condition "ABLE"

Condition "ABLE" is the final of two progressive steps in the closure of a two-condition ship. It is the condition set whenever "General Quarters" is sounded.

11-3 CLASSIFICATION OF FITTINGS:-

The Classification of Fittings is the system used for marking doors, hatches, fittings, systems, covers, valves, etc., that are closed in the different material conditions. This is done by labeling fittings with letters "X", "Y", "Z", or "W".

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-3 CLASSIFICATION OF FITTINGS:-

(a) Class "X" - Assigned to doors, hatches, fittings, and valves that should be closed at all times, except during such periods as repairs, issuance of stores, cleaning, etc., necessitate that they be open. If practicable, no fittings in spaces closed by "X" doors or hatches should be classified other than "X". If other classification of such fittings is necessary, their existence should be clearly marked on the door or hatch affected. Class "X" is normally assigned to the following:

1. Entrance to Magazines.
2. Double Bottoms.
3. Voids.
4. Cofferdams.
5. Peak Tanks.
6. Oil and Water Tanks.
7. Storerooms.
8. Scuttles and Manholes.
9. Alternate hatches of those in vertical series as practicable to eliminate unobstructed passage through successive decks.
10. Other doors and hatches on and below the Main Deck not required for operations or continual use.

(b) Class "Y" - Assigned to doors, hatches, fittings systems, and valves necessary for Condition "BAKER" and to permit the setting of Condition "ABLE" expeditiously. Class "Y" is normally assigned to the following:

1. One of two accesses to living compartments and machinery spaces.
2. Entrance to interior spaces in which activities will be secured during war cruising.
3. One half the doors and hatches on the Main and Superstructure Decks.

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-3 CLASSIFICATION OF FITTINGS:-

(c) Class "Z" - Assigned to doors, hatches, fittings, systems and valves that normally are required open for the operation of the ship, for access to battle stations and for habitability but which must be closed in action or during emergency.

(d) Class "W" - Assigned to doors, hatches, systems, and valves which must be open during action in order to fight the ship. They must be kept to a minimum. No armored hatches may be marked "W".

Whenever watertight openings are closed, they should be properly secured. Dogs fitted with nuts must be dogged wrench tight and evenly all round; similarly, hand dogs must be evenly set up, hand-tight. Men assigned to closing compartments must be sure that no personnel are in the compartments before securing them.

There are no closures on the ventilating system. It is therefore unnecessary to shut down blowers except in case of fire or gas attack.

11-4 CONDITIONS OF CLOSURE:

(a) Condition "BAKER"

The fittings and systems closed or secured under Condition "BAKER" comprise all of those marked "X" and "Y"; those marked "Z" and "W" are left open.

(b) Condition "ABLE"

The fittings and systems closed or secured under Condition "ABLE" comprise all those marked "X", "Y" and "Z"; those marked "W" are left open.

11-5 PROCEDURE FOR SETTING MATERIAL CONDITIONS OF READINESS:-

(a) Condition "BAKER" - Boatswain's Mate passes word "Set Material Condition 'BAKER'."

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-5 PROCEDURE FOR SETTING MATERIAL CONDITIONS OF READINESS:-

(b) Condition "ABLE" - is set immediately and without further orders when manning General Quarters stations.

11-6 STATION ASSIGNMENTS:-

(a) Group Closures

In order to facilitate and expedite the going from one material condition of readiness to the other, the ship is divided into a series of Ten Group Closures. This system provides for the closure of all "X", "Y" and "Z" fittings in a progressive manner and the personnel assigned to each group will be responsible for the proper closures within that group and for the material condition set.

Group Closures for all "X", "Y" and "Z" fittings and the "W" fittings that are to remain open in action, are given in TABLE 11-1 below:

TABLE 11-1

GROUP CLOSURES

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP ONE					
1	Valve	Ballast Trans. A-207W	S	Hold	11-12	A-208L	X
2	Valve	F.M. cut-out 2-12	S	Hold	12-13	A-208L	W
3	Valve	Ballast Trans. or D.O. Suct. A-903F	S	Hold	13-14	A-208L	X

ORDER OF CLOSURE
4
5
6
7
8
9
10
11

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP ONE					
4	Valve	Ballast Trans. A-205W	P	Hold	11-12	A-208L	X
5	Valve	D.Gen. S.W. Suct. fr. Ballast Tk. A-205W	P	Hold	11-12	A-208L	X
6	Valve	Ballast Trans. A-206W	P	Hold	12-13	A-208L	X
7	Valve	Ballast Trans. or D.O. Suct. A-902F	P	Hold	12-13	A-208L	X
8	Valve	Ballast Trans. or D.O. Suct. A-904F	P	Hold	13-14	A-208L	X
9	Door	D-2-13	P	Hold	13	A-208L to A-209M	X
10	Valve	F.M. cut-out 1-9	S	Main	8-9	A-101EV	W
11	Door	D-1-9-1	S	Main	9	A-103L to A-101EV	X

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP ONE					
12	Valve	Sounding A-205W	S	Main	9-10	A-103L	X
13	Valve	Sounding A-207W	S	Main	9-10	A-103L	X
14	Door	D-1-14-1	S	Main	14	A-103-1/2L	X
15	Hatch	H-01-13-1	S	Super.	13	Weather to A-103L	Z
16	Plate	Sounding A-203V	S	Super.	7-8	Weather	X
		GROUP TWO					
1	Valve	Bilge Drain void space C-201V	P	Main	7-8	A-102AE	X
2	Valve	Bilge Drain void space C-202V	P	Main	7-8	A-102AE	X
3	Valve	F.M. Disch. to Eductor	P	Main	7-8	A-102AE	X
4	Valve	Eductor Ovb'd. Disch. Chain lkr. & Fw'd. Bilge Dr.	P	Main	7-8	A-102AE	X

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TWO					
5	Valve	Chain Locker Drain A-204F	P	Main	7-8	A-102AE	X
6	Valve	Bilge Drain void space A-203V	P	Main	7-8	A-102AE	X
7	Manhole	M-1-8-2	P	Main	8	A-102AE	Z
8	Door	D-1-9-2	P	Main	9	A-104EL to A-102AE	X
9	Valve	Sounding A-206W	P	Main	9-10	A-104EL	X
10	Door	D-1-13	P	Main	13-14	A-104EL	Z
11	Valve	F.M. cut-out 1-15-2	P	Main	14-15	A-104-1/2EL	W
12	Valve	F.M. cut-out 1-15-8	P	Main	14-15	A-104-1/2EL	X
13	Door	D-1-14-2	P	Main	14	A-104-1/2EL	X
14	Hatch	H-01-13-2	P	Super.	13	Weather to A-104EL	Z
15	Cap	D.O.Filling A-904F	P	Super.	13-14	Weather	X

LSM CLASS

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION P/S	LOCATION DECK	LOCATION FRAME NO.	LOCATION COMPARTMENT	CLOSURE CLASSIFICATION
		GROUP TWO					
16	Cap	D.O.Filling A-902F	P	Super.	13-14	Weather	X
17	Cap	D.O.Filling A-906F	P	Super.	15-16	Weather	X
		GROUP THREE					
1	Manhole	M-02-3	P	Foc'sl	3	Weather to A-102AE	X
2	Plate	Sounding A-201V	P	Super.	5-6	Weather	X
3	Plate	Sounding A-202V	P	Tank Well	6-7	Weather	X
4	Plate	Sounding A-902F	P	Tank Well	11-12	Weather	X
5	Plate	Sounding A-904F	P	Tank Well	11-12	Weather	X
6	Plate	Sounding A-903F	S	Tank Well	11-12	Weather	X
7	Cap	D.O.Filling A-903F	S	Super.	13-14	Weather	X
8	Cap	D.O.Filling A-907F	S	Super.	15-16	Weather	X
9	Cap	D.O.Filling A-905F	S	Super.	15-16	Weather	X

LSM Class

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP THREE					
10	Cap	D.O.Filling A-909F	S	Super.	19-20	Weather	X
		GROUP FOUR					
1	Valve	F.M. cut-out 2-18-1	S	Hold	18-19	A-211-5AC	W
2	Valve	Sounding A-905F	S	Main	14-15	A-103-1/2L	X
3	Valve	F.M. cut-out 1-15-5	S	Main	15-16	A-103-1/2L	X
4	Door	D-1-19-1	S	Main	19	B-1	X
5	Door	D-1-17-3	S	Main	17	Tank Well to A-103-1/2L	Z
6	Plate	Sounding A-909F	S	Tank Well	17-18	Weather	X
7	Plate	Sounding A-907F	S	Tank Well	14-15	Weather	X
8	Plate	Sounding A-906F	P	Tank Well	14-15	Weather	X
9	Plate	Sounding A-908F	P	Tank Well	17-18	Weather	X
10	Plate	Sounding A-910F	P	Tank Well	17-18	Weather	X

LSM CLASS

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP FOUR					
11	Cap	D.O.Filling A-908F	P	Super.	17-18	Weather	X
12	Cap	D.O.Filling A-910F	P	Super.	17-18	Weather	X
13	Cap	D.O. Deck Filling	P	Super.	19-20	Weather	X
		GROUP FIVE					
1	Valve	F.M. cut-out 2-14-2	P	Hold	14-15	A-210L	W
2	Valve	F.M. cut-out 2-15-2	P	Hold	15-16	A-210L	W
3	Valve	Ballast Trans. or D.O. Suct. A-907F	P	Hold	16-17	A-210L	X
4	Valve	Ballast Trans. or D.O. Suct. A-905F	P	Hold	16-17	A-210L	X
5	Valve	Ballast Trans. or D.O. Suct. A-906F	P	Hold	16-17	A-210L	X
6	Valve	F.M. cut-out 2-15-1	S	Hold	15-16	A-210L	W

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP FIVE					
7	Valve	F.M. cut-out 2-14-1	S	Hold	14-15	A-210L	W
8	Valve	F.M. cut-out 2-18-2	P	Hold	18-19	A-211-2AE	W
9	Door	D-2-17-1	S	Hold	17	A-211-1A to A-211-3A	X
10	Door	D-2-17-2	P	Hold	17	A-211-2AE to A-211-1A	X
11	Door	D-1-18	P	Main	18	Tank Well to A-104-1/2EL	Z
12	Door	D-1-19-2	P	Main	19	B-1	X
		GROUP SIX					
1	Valve	F.M. cut-out 2-24-1	S	Hold	24-25	C-201EL	W
2	Valve	F.M. cut-out 2-24-3	S	Hold	25-26	C-201EL	W
3	Valve	Sounding C-902W	S	Hold	26-27	C-201EL	X
4	Door	D-2-26	S	Hold	26	C-201EL to C-207M	X

LSM Class

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP SIX					
5	Hatch	H-1-26-1	S	Main	26-27	C-101-1/2E to C-201EL	Z
6	Manhole	M-1-26-1	S	Main	26-27	C-101-1/2E to C-201EL	Z
7	Valve	F.M. cut-out 1-25-1	S	Main	26-27	C-101-1/2E	W
8	Hatch	H-01-26-1	S	Super.	26	C-101-1/2E	Z
9	Plate	Sounding C-205V	S	Super.	27-28	Weather	X
10	Cap	D.O.Filling C-203F	S	Super.	27-28	Weather	X
		GROUP SEVEN					
1	Valve	F.W. Tk. C-901W cut-out 2-25-24	P	Hold	24-25	C-201EL	Z
2	Valve	F.W. Tk. C-902W cut-out 2-25-2	P	Hold	25-26	C-201EL	Z
3	Valve	F.M. cut-out 2-24-2	P	Hold	25-26	C-201EL	W
4	Valve	F.M. cut-out 2-25	P	Hold	25-26	C-201EL	W

LSM Class

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP SEVEN					
5	Valve	Sounding C-901W	P	Hold	26-27	C-201EL	X
6	Hatch	H-1-26-2	P	Main	26-27	C-102-1/2AE to C-201EL	Z
7	Manhole	M-1-26-2	P	Main	26-27	C-102-1/2AE to C-201EL	Z
8	Valve	F.M. cut-out 1-25-2	P	Main	25-26	C-102-1/2AE	W
9	Valve	F.M. cut-out 1-23-6	P	Main	23-24	B-1	W
10	Door	D-1-24-2	P	Main	24	B-1 to C-102-1/2AE	X
11	Door	D-1-29	P	Main	29	C-102AE to Weather	Y
12	Door	D-1-27-2	P	Main	27	C-102-1/2AE to C-102A	Y
13	Hatch	H-01-26-2	P	Super.	26	Weather to C-102-1/2AE	Z
		GROUP EIGHT					
1	Valve	F.M. cut-out 1-23-5	S	Main	23-24	B-1	W

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP EIGHT					
2	Door	D-1-24-1	S	Main	24	B-1 to C-101-1/2E	X
3	Door	D-1-27-1	S	Main	27	C-101-1/2E to C-101AT	X
4	Door	D-1-27-3	S	Main	27	Tank Well to C-101AT	Y
5	Plate	Sounding C-203F	P	Tank Well	27-28	Weather	X
		GROUP NINE					
1	Door	D-01-19	S	Super.	19	A-101CL to Weather	Y
2	Door	D-02-17-1	S	Bridge	17	A-0101CL to Weather	Z
3	Door	D-03-17	S	Wheel House	17	A-0301C to Weather	Z
		GROUP TEN					
1	Valve	F.M. cut-out 2-20-1	S	Hold	19-20	B-1	W

11-6

ORDER OF CLOSURE	
2	
3	
4	
5	
6	
7	
8	
9	
10	

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
2	Valve	F.M. cut-out 2-20-3	S	Hold	19-20	B-1	W
3	Valve	F. & F. Pump No. 1 Sea Suct.	S	Hold	19-20	B-1	W
4	Valve	S.W. to Foam Gen. No. 1	S	Hold	19-20	B-1	X
5	Valve	S.W. to Bilge Eductor	S	Hold	19-20	B-1	X
6	Valve	Bilge Drain Eng. Rm.	S	Hold	19-20	B-1	X
7	Valve	Fire Main to Sani-tary Syst.	S	Hold	19-20	B-1	Z
8	Valve	Fire Main to Sani-tary Syst. By-Pass	S	Hold	19-20	B-1	Z
9	Valve	Diesel Oil A-909F Suct.	S	Hold	19-20	B-1	X
10	Valve	D.O. or Ball.A-907F Suct.	S	Hold	19-20	B-1	X

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CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
11	Valve	D.O. or Ball.A-905F Suct.	S	Hold	19-20	B-1	X
12	Valve	D.O. or Ball.A-903F Suct.	S	Hold	19-20	B-1	X
13	Valve	Diesel Oil A-908F Suct.	S	Hold	19-20	B-1	X
14	Valve	Diesel Oil A-909F Filling	S	Hold	19-20	B-1	X
15	Valve	D.O. or Ball.A-907F Filling	S	Hold	19-20	B-1	X
16	Valve	D.O. or Ball.A-905F Filling	S	Hold	19-20	B-1	X
17	Valve	D.O. or Ball.A-903F Filling	S	Hold	19-20	B-1	X
18	Valve	Diesel Oil A-908F Filling	S	Hold	19-20	B-1	X
19	Valve	F.O. Suct. & Trans. Ovb'd. Disch.	S	Hold	19-20	B-1	X

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
20	Valve	Sea Suction	S	Hold	19-20	B-1	X
21	Valve	Main Injection Tube	S	Hold	19-20	B-1	X
22	Valve	Eductor Ovb'd. Disch. Mn. Bilge Drain Stb'd.	S	Hold	23-24	B-1	X
23	Valve	Bilge Drain Eng. Rm.	S	Hold	23-24	B-1	X
24	Valve	Bilge Drain Aux. Mach. space C-201EL	S	Hold	24-25	B-1	X
25	Valve	Bilge Drain Eng. Rm.	S	Hold	24-25	B-1	X
26	Valve	Bilge Drain void space C-205V	S	Hold	24-25	B-1	X
27	Valve	F.M. cut-out 2-20-2	P	Hold	19-20	B-1	W
28	Valve	F.M. cut-out 2-20-4	P	Hold	19-20	B-1	W
29	Valve	F. & F. Pump No. 2 Sea Suct.	P	Hold	19-20	B-1	W

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
30	Valve	S.W. to Foam Gen. No. 2	P	Hold	19-20	B-1	X
31	Valve	S.W. to Bilge Eductor	P	Hold	19-20	B-1	X
32	Valve	Bilge Drain Eng. Rm.	P	Hold	19-20	B-1	X
33	Valve	Diesel Oil C-203F Suct.	P	Hold	19-20	B-1	X
34	Valve	Diesel Oil A-910F Suct.	P	Hold	19-20	B-1	X
35	Valve	D.O. or Ball.A-906F Suct.	P	Hold	19-20	B-1	X
36	Valve	D.O. or Ball.A-914F Suct.	P	Hold	19-20	B-1	X
37	Valve	D.O. or Ball.A-902F Suct.	P	Hold	19-20	B-1	X
38	Valve	Diesel Oil C-203F Filling	P	Hold	19-20	B-1	X

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
39	Valve	Diesel Oil A-910F Filling	P	Hold	19-20	B-1	X
40	Valve	D.O. or Ball.A-906F Filling	P	Hold	19-20	B-1	X
41	Valve	D.O. or Ball.A-904F Filling	P	Hold	19-20	B-1	X
42	Valve	D.O. or Ball.A-902F Filling	P	Hold	19-20	B-1	X
43	Valve	D. Gen. No. 1 & 2 S.W. Suct. Clean Ball. Tk. A-205W	P	Hold	19-20	B-1	X
44	Valve	Sea Suction	P	Hold	19-20	B-1	X
45	Valve	Clean Ball. Ovb'd. Disch.	P	Hold	19-20	B-1	X
46	Valve	Emerg.Bilge Suction	P	Hold	19-20	B-1	X
47	Valve	D.O. Trans. Pump Disch. to Serv. Tanks	P	Hold	22-23	B-1	X

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CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-1 (cont'd.)

GROUP CLOSURES

11-6

ORDER OF CLOSURE	TYPE OF FITTING	INSCRIPTION	LOCATION				CLOSURE CLASSIFICATION
			P/S	DECK	FRAME NO.	COMPARTMENT	
		GROUP TEN					
48	Valve	Clean D.O. A-906F Filling	P	Hold	23-24	B-1	X
49	Valve	Eductor Ovb'd. Disch. Mn. Bilge Drain port	P	Hold	23-24	B-1	X
50	Valve	Bilge Drain Eng. Rm.	P	Hold	23-24	B-1	X
51	Valve	Bilge Drain Aux. Mach. space A-201EL	P	Hold	24-25	B-1	X
52	Valve	Bilge Drain Aux. Mach. spare parts C-204A	P	Hold	24-25	B-1	X
53	Valve	Diesel Oil Trans. C-203F	P	Hold	24-25	B-1	X

(b) Condition "BAKER"

When in port and while cruising, the ship normally will remain in Condition "BAKER." In this condition of material readiness all "X" and "Y" fittings will be closed; all "Z" and "W" fittings will be open.

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-6 STATION ASSIGNMENTS:-

(b) (cont'd.)

Each watch section, in port and at sea, will have a complete closure detail for closing all "X" and "Y" fittings. In port, this detail will be furnished by the section on watch; at sea, the detail will be furnished by the sections off watch. Group Closures (see TABLE 11-1) with personnel assignments for these groups is given in TABLE 11-2 below:

TABLE 11-2

PERSONNEL ASSIGNMENTS

FIRST SECTION		CLOSURE GROUP	SECOND SECTION	
RATE	DUTIES		RATE	DUTIES
GBM	Inspecting Petty Officer	Groups 1,2, 3,4,5,6,7 & 8	BM1c	Inspecting Petty Officer
Sealc Sea2c	Closes all "X" fittings within Group One; "Z" & "W" fittings open	Group One	Sealc Sea2c	Closes all "X" fittings within Group One; "Z" & "W" fittings open
Sealc	Closes all "X" fittings within Group Two; "Z" & "W" fittings open	Group Two	Sealc	Closes all "X" fittings within Group Two; "Z" & "W" fittings open
Sea2c	Closes all "X" fittings within Group Three	Group Three	Sea2c	Closes all "X" fittings within Group Three
StM2c	Closes all "X" fittings within Group Four; "Z" & "W" fittings open	Group Four	StM1c	Closes all "X" fittings within Group Four; "Z" & "W" fittings open

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WATERTIGHT INTEGRITY BILL

TABLE 11-2 (cont'd.)

PERSONNEL ASSIGNMENTS

11-6

FIRST SECTION		CLOSURE GROUP	SECOND SECTION	
RATE	DUTIES		RATE	DUTIES
Y2c	Closes all "X" fittings within Group Five; "Z" & "W" fittings open	Group Five	SK1c	Closes all "X" fittings within Group Five; "Z" & "W" fittings open
MoMM3c EM3c	Closes all "X" fittings within Group Six; "Z" & "W" fittings open	Group Six	EM1c MoMM3c	Closes all "X" fittings within Group Six; "Z" & "W" fittings open
F1c F1c	Closes all "X" & "Y" fittings within Group Seven; "Z" & "W" fittings open	Group Seven	MoMM3c F1c	Closes all "X" & "Y" fittings within Group Seven; "Z" & "W" fittings open
F2c	Closes all "X" & "Y" fittings within Group Eight; "Z" fittings open	Group Eight	F2c	Closes all "X" & "Y" fittings within Group Eight; "Z" fittings open
QM1c	Inspecting Petty Officer	Group Nine	QM3c	Inspecting Petty Officer
SM2c	Closes "Y" fittings; "Z" fittings open	Group Nine	SM3c	Closes "Y" fittings; "Z" fittings open
MoMM1c	Inspecting Petty Officer	Group Ten	CMoMM	Inspecting Petty Officer

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-2 (cont'd.)

PERSONNEL ASSIGNMENTS

11-6

FIRST SECTION		CLOSURE GROUP	SECOND SECTION	
RATE	DUTIES		RATE	DUTIES
Eng. Room Watch	Closes all "X" fittings within Group Ten; "Z" & "W" fittings open	Group Ten	Eng. Room Watch	Closes all "X" fittings within Group Ten; "Z" & "W" fittings open

No "X" fitting will be opened without first securing the permission of the Commanding Officer. Exception to this are those watertight compartments which must be entered frequently for operational reasons. These compartments may be entered without permission, when necessary, provided that when a man enters or leaves one of them he must immediately close and secure the door or hatch used. No "X" or "Y" fitting will be opened between the hours of 2000 or 0800 except for passage of the watch or for authorized personnel making routine inspections. A list of these compartments, with the doors and hatches to be used when entering or leaving them is given in TABLE 11-3 below:

TABLE 11-3

LOCATION

P/S	FITTING	FITTING NUMBER	DECK	COMPARTMENT	CLOSURE CLASSIFICATION
S	Door	D-2-17-1	Hold	A-211-1A to A-211-3A	X
P	Door	D-2-17-2	Hold	A-211-2AE to A-211-1A	X
P	Manhole	M-1-8-2	Main	A-102AE to A-204E	X
S	Door	D-1-9-1	Main	A-103L to A-101EV	X

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CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-3 (cont'd.)

LOCATION

11-6

P/S	FITTING	FITTING NUMBER	DECK	COMPARTMENT	CLOSURE CLASSI-FICATION
P	Door	D-1-9-2	Main	A-104EL to A-102AE	X
S	Door	D-1-14-1	Main	A-103-1/2L to A-103L	X
P	Door	D-1-14-2	Main	A-104-1/2EL to A-104EL	X
S	Door	D-1-19-1	Main	A-103-1/2L to B-1	X
P	Door	D-1-19-2	Main	A-104-1/2EL to B-1	X
S	Door	D-1-27-1	Main	C-101-1/2E to C-101AT	X
P	Door	D-1-27-2	Main	C-102-1/2A to C-102A	X
P	Manhole	M-02-3	Focs'l	Weather to A-102AE	X

(c) Condition "ABLE"

The ship, during General Quarters and in Land and Retracting operations, will always be in Material Condition "ABLE". In this condition, all "X", "Y", and "Z" fittings will be closed; all "W" fittings will be open.

In port and at sea, the forward and after repair parties will furnish the closure details for Groups One to Eight inclusive. All closures in Group Nine will be made by personnel having battle stations on the bridge. The personnel assignments for the closures in all groups is given in TABLE 11-4 following:

When secure from General Quarters is sounded, the same personnel will proceed to open all the "Z" fittings in their respective groups.

RATE
CBM
Sea1c Sea2c
RM3c
MoMM3c
F1c
MoMM2c
BM1c
EM3c
Sea2c
Sea2c

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WATERTIGHT INTEGRITY BILL

TABLE 11-4

PERSONNEL ASSIGNMENTS

11-6

RATE	DUTIES	CLOSURE GROUP
	FORWARD REPAIR PARTY	
CBM	Inspecting Petty Officer	Groups 1,2,3, 4 & 5
Sea1c Sea2c	Closes all "X" & "Z" fittings within Group One; all "W" fittings open	Group One
RM3c	Closes all "X" & "Z" fittings within Group Two; "W" fittings open	Group Two
MoMM3c	Closes all "X" fittings within Group Three	Group Three
F1c	Closes all "X" & "Z" fittings within Group Four; "W" fittings open	Group Four
MoMM2c	Closes all "X" & "Z" fittings within Group Five; "W" fittings open	Group Five
	AFTER REPAIR PARTY	
BM1c	Inspecting Petty Officer	Groups 6,7, & 8
EM3c	Closes all "X" & "Z" fittings within Group Six; "W" fittings open	Group Six
Sea2c	Closes all "X", "Y" & "Z" fittings within Group Seven; "W" fittings open	Group Seven
Sea2c	Closes all "X", "Y" & "Z" fittings within Group Eight; "W" fittings open	Group Eight

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WATERTIGHT INTEGRITY BILL

TABLE 11-4 (cont'd.)

PERSONNEL ASSIGNMENTS

11-6

RATE	DUTIES	CLOSURE GROUP
	BRIDGE PARTY	
QM1c	Inspecting Petty Officer	Group Nine
SM3c	Closes all "Y" & "Z" fittings within Group Nine	Group Nine
	ENGINE ROOM WATCH	
CMoMM	Inspecting Petty Officer	Group Ten
Engine Room Watch	Close all "X" & "Z" fittings within Group Ten; "W" fittings open	Group Ten

11-7 WATERTIGHT CLOSURES:

A complete listing of all "X", "Y" and "Z" fittings, also "W" fittings, is given in TABLES 11-5 and 11-6 below:

TABLE 11-5

DOORS

LOCATION				CLOSURE CLASSI-FICATION	GROUP ASSIGN-MENT
P/S	DOOR	DECK	COMPARTMENT		
P	D-2-13	Hold	A-208L to A-209M	X	Group 1
S	D-2-17-1	Hold	A-211-1A to A-211-3A	X	Group 5
P	D-2-17-2	Hold	A-211-2AE to A-211-1A	X	Group 5
S	D-2-26	Hold	C-201EL to C-202M	X	Group 6
S	D-1-9-1	Main	A-103L to A-101EV	X	Group 1
P	D-1-9-2	Main	A-104EL to A-102AE	X	Group 2

P/S	DO
P	D-1-
S	D-1-
P	D-1-
S	D-1-
P	D-1-
S	D-1-
P	D-1-
P	D-1-
S	D-1-
S	D-1-
P	D-1-
P	D-1-
S	D-1-
S	D-01
S	D-02 1
S	D-03

NOTE: A c

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-5 (cont'd.)

DOORS

11-7

LOCATION				CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P/S	DOOR	DECK	COMPARTMENT		
P	D-1-13	Main	A-104EL to Tank Well	Z	Group 2
S	D-1-14-1	Main	A-103-1/2L to A-103L	X	Group 1
P	D-1-14-2	Main	A-104-1/2EL to A-104EL	X	Group 2
S	D-1-17-3	Main	Tank Well to A-103-1/2L	Z	Group 4
P	D-1-18	Main	Tank Well to A-104-1/2EL	Z	Group 5
S	D-1-19-1	Main	A-103-1/2L to B-1	X	Group 4
P	D-1-19-2	Main	A-104-1/2EL to B-1	X	Group 5
P	D-1-27-2	Main	C-101-1/2E to C-102A	Y	Group 7
S	D-1-27-1	Main	C-102-1/2A to C-101AT	X	Group 8
S	D-1-27-3	Main	Tank Well to C-101AT	Y	Group 8
P	D-1-29	Main	C-102A to Weather	Y	Group 7
P	D-1-24-2	Main	B-1 to C-102-1/2A	X	Group 7
S	D-1-24-1	Main	B-1 to C-101-1/2E	X	Group 8
S	D-01-19	Super.	A-0101CL to Weather	Y	Group 9
S	D-02-17-1	Bridge	A-0101CL to Weather	Z	Group 9
S	D-03-17	Wheel-house	A-0301C to Weather	Z	Group 9

NOTE: All other doors are non-watertight and have no closure classification.

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WATERTIGHT INTEGRITY BILL

TABLE 11-5 (cont'd.)

HATCHES

LOCATION				CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P/S	DOOR NO.	DECK	COMPARTMENT		
S	H-01-13-1	Super.	Weather to A-103L	Z	Group 1
P	H-01-13-2	Super.	Weather to A-104EL	Z	Group 2
S	H-01-26-1	Super.	Weather to C-101-1/2E	Z	Group 6
P	H-01-26-2	Super.	Weather to C-102-1/2AE	Z	Group 7
S	H-1-26-1	Main	C-101-1/2E to C-201EL	Z	Group 6
P	H-1-26-2	Main	C-102-1/2A to C-201EL	Z	Group 7
NOTE: All other hatches are open coamings.					
			MANHOLES		
P	M-1-8-2	Main	A-102AE to A-204E	Z	Group 2
P	M-02-3	Focs'l	Weather to A-102AE	X	Group 3
S	M-1-26-1	Main	C-101-1/2E to C-201EL	Z	Group 6
P	M-1-26-2	Main	C-102-1/2A to C-201EL	Z	Group 7

NOTE: The above manholes are quick acting hinged type. All other manholes are bolted and will be opened only on the authority of the Commanding Officer. When opened, their closure will be reported also to Commanding Officer. They should never be opened between the hours of 2000 and 0800.

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Sounding A-202V	Super.	6-7	Weather	Sounding Tube to Void Space A-202V	X	Group 3
S	Sounding A-203V	Super.	7-8	Weather	Sounding Tube to Void Space A-203V	X	Group 1
S	Sounding C-205V	Super.	27-28	Weather	Sounding Tube to Void Space A-205V	X	Group 6
P	Sounding A-201V	Main	5-6	Tank Well	Sounding Tube to Void Space A-201V	X	Group 3
S	Sounding A-205W	Main	9-10	A-103L	Sounding Tube to Ballast Tank A-205W	X	Group 1
P	Sounding A-206W	Main	9-10	A-104EL	Sounding Tube to Ballast Tank A-206W	X	Group 2

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	Sounding A-207W	Main	9-10	A-103L	Sounding Tube to Ballast Tank A-207W	X	Group 1
P	Sounding A-902F	Main	11-12	Tank Well	Sounding Tube to D.O. or Ballast Tank A-902F	X	Group 3
S	Sounding A-903F	Main	11-12	Tank Well	Sounding Tube to D.O. or Ballast Tank A-903F	X	Group 3
P	Sounding A-904F	Main	11-12	Tank Well	Sounding Tube to D.O. or Ballast Tank A-904F	X	Group 3
S	Sounding A-905F	Main	14-15	A-103-1/2L	Sounding Tube to D.O. or Ballast Tank A-905F	X	Group 4

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Sounding A-906F	Main	14-15	Tank Well	Sounding Tube to D.O. or Ballast Tank A-906F	X	Group 4
S	Sounding A-907F	Main	14-15	Tank Well	Sounding Tube to D.O. or Ballast Tank A-907F	X	Group
P	Sounding A-908F	Main	17-18	Tank Well	Sounding Tube to D.O. Tank A-908F	X	Group 4
S	Sounding A-909F	Main	17-18	Tank Well	Sounding Tube to D.O. Tank A-909F	X	Group 4
P	Sounding A-910F	Main	17-18	Tank Well	Sounding Tube to D.O. Tank A-910F	X	Group 4
P	Sounding C-203F	Main	27-28	Tank Well	Sounding Tube to D.O. Tank C-203F	X	Group 8

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	F.M. Cut-out 1-9	Main	8-9	A-101EV	Fire Main Cut-out for F.S. C-8-5 & C-9-5	W	Group 1
P	F.M. Cut-out 1-15	Main	14-15	A-104-1/2EL	Fire Main Cut-out for F.S. C-14P & C-15P	W	Group 2
S	F.M. Cut-out 1-25-1	Hold	25-26	C-101E	Fire Main Cut-out for F.S. C-24S & C-25S	W	Group 6
P	Sounding C-901W	Hold	26-27	C-201EL	Sounding Tube to F.W. Tank C-901W	X	Group 7
S	Sounding C-902W	Hold	26-27	C-201EL	Sounding Tube to F.W. Tank C-902W	X	Group 6
S	F.M. Cut-out 2-12	Hold	12-13	A-208L	Fire Main Cut-out in Main	W	Group 1
P	F.M. Cut-out 2-14-2	Hold	14-15	A-210L	Fire Main Cut-out in Main	W	Group 5

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	F.M. Cut-out 2-15-2	Hold	14-15	A-210L	Fire Main Cut-out for F.S. C-14P, C-15P & B-14P	W	Group 5
S	F.M. Cut-out 2-14-1	Hold	14-15	A-210L	Fire Main Cut-out for F.S. B-14S	W	Group 5
S	F.M. Cut-out 2-15-1	Hold	15-16	A-210L	Fire Main Cut-out in Main	W	Group 5
P	F.M. Cut-out 2-18-2	Hold	17-18	A-211-2AE	Fire Main Cut-out in Main	W	Group 5
S	F.M. Cut-out 2-18-1	Hold	18-19	A-211-5AC	Fire Main Cut-out in Main	W	Group 4
S	F.M. Cut-out 2-24-1	Hold	25-26	C-201EL	Fire Main Cut-out in Main	W	Group 6
P	F.M. Cut-out 2-24-2	Hold	24-25	C-201EL	Fire Main Cut-out for F.S. B-23P	W	Group 7

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	F.M. Cut-out 2-24-3	Hold	24-25	C-201EL	Fire Main Cut-out for F.S. B-23S, C-24S & C-25S	W	Group 6
P	F.M. Cut-out 2-25	Hold	25-26	C-201EL	Fire Main Cut-out in Main	W	Group 7
P	F.M. Cut-out 1-25-2	Main	25-26	C-102-1/2AE	Fire Main Cut-out for F.S. C-25P & C-26P	W	Group 7
S	F.M. Cut-out 2-20-1	Hold	19-20	B-1	Fire Main Cut-out in Main	W	Group 10
S	F.M. Cut-out 2-20-3	Hold	19-20	B-1	Fire Main Cut-out in Main	W	Group 10
P	F.M. Cut-out 2-20-2	Hold	19-20	B-1	Fire Main Cut-out in Main	W	Group 10
P	F.M. Cut-out 2-20-4	Hold	19-20	B-1	Fire Main Cut-out in Main	W	Group 10

11-7

P/S	INSCR
S	F. & Pump Sea S
P	F. & Pump Sea S
S	S.W. Foam No. 1
P	S.W. Foam No. 2
S	S.W. Bilge Educto
P	S.W. Bilge Educto
S	Bilge Engine
P	Bilge Engine
S	Eductor Ovb'd. charge Bilge D Stb'd.

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	F. & F. Pump No. 1 Sea Suction	Hold	19-20	B-1	Fire Main Sea Suction	W	Group 10
P	F. & F. Pump No. 2 Sea Suction	Hold	19-20	B-1	Fire Main Sea Suction	W	Group 10
S	S.W. to Foam Gen. No. 1	Hold	19-20	B-1	Foam Gen. No. 1 Cut-out	X	Group 10
P	S.W. to Foam Gen. No. 2	Hold	19-20	B-1	Foam Gen. No. 2 Cut-out	X	Group 10
S	S.W. to Bilge Eductor	Hold	19-20	B-1	Main Drain Cut-out	X	Group 10
P	S.W. to Bilge Eductor	Hold	19-20	B-1	Main Drain Cut-out	X	Group 10
S	Bilge Drain Engine Rm.	Hold	19-20	B-1	Bilge Drain Cut-out	X	Group 10
P	Bilge Drain Engine Rm.	Hold	19-20	B-1	Bilge Drain Cut-out	X	Group 10
S	Eductor Ovb'd. Discharge Main Bilge Drain Stb'd.	Hold	23-24	B-1	Bilge Drain Overboard Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Eductor Ovb'd. Discharge Main Bilge Drain Port	Hold	23-24	B-1	Bilge Drain Overboard Cut-out	X	Group 10
S	Bilge Drain Engine Rm.	Hold	23-24	B-1	Bilge Drain Cut-out	X	Group 10
P	Bilge Drain Engine Rm.	Hold	23-24	B-1	Bilge Drain Cut-out	X	Group 10
S	Bilge Drain Aux. Mach. Space C-201EL	Hold	24-25	B-1	Bilge Drain Cut-out	X	Group 10
P	Bilge Drain Aux. Mach. Space C-201EL	Hold	24-25	B-1	Bilge Drain Cut-out	X	Group 10
S	Bilge Drain Engine Rm.	Hold	24-25	B-1	Bilge Drain Cut-out	X	Group 10
S	Bilge Drain Void Space C-205V	Hold	24-25	B-1	Bilge Drain Cut-out	X	Group 10
P	Bilge Drain Aux. Mach. Spare Parts C-204A	Hold	24-25	B-1	Bilge Drain Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Bilge Drain Void Space A-201V	Main	7-8	A-102 AE	Bilge Drain Cut-out	X	Group 2
P	Bilge Drain Void Space A-202V	Main	7-8	A-102 AE	Bilge Drain Cut-out	X	2
P	F.M. Discharge to Eductor	Main	7-8	A-102 AE	Drain Eductor Forward Cut-out	X	Group 2
P	Eductor Ovb'd. Discharge Chain Lkr. & Fwd. Bilge Drain	Main	7-8	A-102 AE	Bilge Drain Overboard Cut-out	X	Group 2
P	Chain Lkr. Drain A-204E	Main	7-8	A-102 AE	Chain Locker Drain Cut-out	X	Group 2
P	Bilge Drain Void Space A-203V	Main	7-8	A-102 AE	Bilge Drain Cut-out	X	Group 2
S	Fire Main to Sanitary System	Hold	19-20	B-1	Flushing System Cut-out	Z	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	Fire Main to Sanitary System By-Pass	Hold	19-20	B-1	Flushing System By-Pass Cut-out	Z	Group 10
P	F.W. Tank C-901W Cut-out 2-25-4	Hold	24-25	C-201 EL	F.W. Tank C-901W Suction Cut-out	Z	Group 7
P	F.W. Tank C-902W Cut-out 2-25-2	Hold	25-26	C-201 EL	F.W. Tank C-902W Suction Cut-out	Z	Group 7
S	Diesel Oil A-909F Suction	Hold	19-20	B-1	Diesel Oil A-909F Suction Cut-out	X	Group 10
S	D.O. or Ballast A-907F Suction	Hold	19-20	B-1	D.O. or Ballast A-907F Suction Cut-out	X	Group 10
S	D.O. or Ballast A-905F Suction	Hold	19-20	B-1	D.O. or Ballast A-905F Suction Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	D.O. or Ballast A-903F Suction	Hold	19-20	B-1	D.O. or Ballast A-903F Suction Cut-out	X	Group 10
S	Diesel Oil A-908F Suction	Hold	19-20	B-1	Diesel Oil A-908F Suction Cut-out	X	Group 10
S	Diesel Oil A-909F Filling	Hold	19-20	B-1	Diesel Oil A-909F Filling Cut-out	X	Group 10
S	D.O. or Ballast A-907F Filling	Hold	19-20	B-1	D.O. or Ballast A-907F Filling Cut-out	X	Group 10
S	D.O. or Ballast A-905F Filling	Hold	19-20	B-1	D.O. or Ballast A-905F Filling Cut-out	X	Group 10
S	D.O. or Ballast A-903F Filling	Hold	19-20	B-1	D.O. or Ballast A-903F Filling Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	Diesel Oil A-908F Filling	Hold	19-20	B-1	Diesel Oil A-908F Filling Cut-out	X	Group 10
P	Diesel Oil C-203F Suction	Hold	19-20	B-1	Diesel Oil C-203F Suction Cut-out	X	Group 10
P	Diesel Oil A-910F Suction	Hold	19-20	B-1	Diesel Oil A-910F Suction Cut-out	X	Group 10
P	D.O. or Ballast A-906F Suction	Hold	19-20	B-1	D.O. or Ballast A-906F Suction Cut-out	X	Group 10
P	D.O. or Ballast A-914F Suction	Hold	19-20	B-1	D.O. or Ballast A-914F Suction Cut-out	X	Group 10
P	D.O. or Ballast A-902F Suction	Hold	19-20	B-1	D.O. or Ballast A-902F Suction Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSI-FICA-TION	GROUP ASSIGN-MENT
P	Diesel Oil C-203F Filling	Hold	19-20	B-1	Diesel Oil C-203F Filling Cut-out	X	Group 10
P	Diesel Oil A-910F Filling	Hold	19-20	B-1	Diesel Oil A-910F Filling Cut-out	X	Group 10
P	D.O. or Ballast A-906F Filling	Hold	19-20	B-1	D.O. or Ballast A-906F Filling Cut-out	X	Group 10
P	D.O. or Ballast A-904F Filling	Hold	19-20	B-1	D.O. or Ballast A-904F Filling Cut-out	X	Group 10
P	D.O. or Ballast A-902F Filling	Hold	19-20	B-1	D.O. or Ballast A-902F Filling Cut-out	X	Group 10
P	D.O. Trans. Pump Disch. to Service Tanks	Hold	22-23	B-1	D.O. Trans. to Service Tanks Cut-out	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Clean D.O. B-906F Filling	Hold	23-24	B-1	Clean Diesel Oil A-906F Filling Cut-out	X	Group 10
P	Diesel Oil C-203F Transfer	Hold	24-25	B-1	Diesel Oil C-203F Transfer Cut-out	X	Group 10
S	F.O. Suction & Transfer Overboard Discharge	Hold	19-20	B-1	F.O. Suction & Transfer Overboard Discharge Cut-out	X	Group 10
S	Ballast Transfer A-207W	Hold	11-12	A-208L	Ballast Transfer or D.O. Transfer A-207W Cut-out	X	Group 1
S	Ballast Transfer or D.O. Suct. A-903F	Hold	13-14	A-208L	Ballast Transfer or D.O. Suction A-903F Cut-out	X	Group 1

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	Ballast Transfer or D.O. Suct. A-907F	Hold	16-17	A-210L	Ballast Transfer or D.O. Suction A-907F Cut-out	X	Group 5
S	Sea Suction	Hold	19-20	B-1	Sea Suction Cut-out	X	Group 10
S	Main Injection Tube	Hold	19-20	B-1	Main Injection Tube Cut-out	X	Group 10
P	Ballast Transfer A-205W	Hold	11-12	A-208L	Ballast Transfer A-205W Cut-out	X	Group 1
P	Ballast Transfer A-206W	Hold	11-12	A-208L	Ballast Transfer A-206W Cut-out	X	Group 1
P	Ballast Transfer or D.O. Suct. A-902F	Hold	12-13	A-208L	Ballast Transfer or D.O. Suction A-902F Cut-out	X	Group 1

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CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Ballast Transfer or D.O. Suct. A-904F	Hold	13-14	A-208L	Ballast Transfer or D.O. Suction A-904F Cut-out	X	Group 1
P	Ballast Transfer or D.O. Suct. A-905F	Hold	16-17	A-210L	Ballast Transfer or D.O. Suction A-905F Cut-out	X	Group 5
P	Ballast Transfer or D.O. Suct. A-906F	Hold	16-17	A-210L	Ballast Transfer or D.O. Suction A-906F Cut-out	X	Group 5
P	Diesel Gen. S.W. Suct. from Ballast Tank A-205W	Hold	11-12	A-208L	Diesel Generator S.W.Suct. from Ballast Tank A-205W Cut-out	X	Group 1
P	Diesel Gen. Nos. 1 & 2 S.W. Suct.- Clean Ballast Tank A-205W	Hold	19-20	B-1	Diesel Gen. No.1 & No. 2 Suction - Clean Ballast Tank A-205W	X	Group 10

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
P	Sea Suction	Hold	19-20	B-1	Sea Suction Cut-out	X	Group 10
P	Clean Ballast Ovb'd. Discharge	Hold	19-20	B-1	Clean Ballast Overboard Discharge Cut-out	X	Group 10
P	Emergency Bilge Suction	Hold	19-20	B-1	Emergency Bilge Suction Cut-out	X	Group 10
P	D.O. Filling A-904F	Super.	13-14	Weather	D.O. Filling A-904F	X	Group 2
P	D.O. Filling A-902F	Super.	13-14	Weather	D.O. Filling A-902F	X	Group 2
S	D.O. Filling A-903F	Super.	13-14	Weather	D.O. Filling A-903F	X	Group 3
P	D.O. Filling A-906F	Super.	15-16	Weather	D.O. Filling A-906F	X	Group 2
S	D.O. Filling A-907F	Super.	15-16	Weather	D.O. Filling A-907F	X	Group 3

CHAPTER 11

WATERTIGHT INTEGRITY BILL

TABLE 11-6 (cont'd.)

PIPING SYSTEMS CLOSURES

11-7

P/S	INSCRIPTION	DECK	FRAME NO.	COMPT.	SERVICE	CLOSURE CLASSIFICATION	GROUP ASSIGNMENT
S	D.O. Filling A-905F	Super.	15-16	Weather	D.O. Filling A-905F	X	Group 3
P	D.O. Filling A-908F	Super.	17-18	Weather	D.O. Filling A-908F	X	Group 4
P	D.O. Filling A-910F	Super.	17-18	Weather	D.O. Filling A-910F	X	Group 4
S	D.O. Filling A-909F	Super.	19-20	Weather	D.O. Filling A-909F	X	Group 3
S	D.O. Filling C-203F	Super.	27-28	Weather	D.O. Filling C-203F	X	Group 6
P	D.O. Deck Filling	Super.	19-20	Weather	D.O. Filling & Discharge	X	Group 4

NOTE: All other systems have no closure classification.

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-8 INSPECTIONS AND REPORTS:-

Inspections and reports as to watertightness will be made in port and at sea as listed below:

(a) Going from Condition "BAKER" to Condition "ABLE"

When General Quarters sounds, the Inspecting Petty Officers designated in TABLE 11-4 will inspect the parts of the ship assigned to their respective groups and see that all "X", "Y" and "Z" fittings are closed and "W" fittings are open. Each will note and correct any discrepancies and report the results of their inspections to the Officer of the Deck (Commanding Officer).

(b) Going from Condition "ABLE" to Condition "BAKER"

When Condition "BAKER" is set following secure from General Quarters, the Inspecting Petty Officers designated in TABLE 11-4 will inspect the parts of the ship assigned to their respective groups and see that all "X" and "Y" fittings are closed and all "Z" and "W" fittings are open. Each will note and correct any discrepancies and report the results of their inspections to the Officer of the Deck.

(c) When Condition "BAKER" is set prior to getting underway, the Inspecting Petty Officers designated in TABLE 11-2 of the section off watch will inspect the parts of the ship assigned to their respective groups and see that all "X" and "Y" fittings are closed and all "Z" and "W" fittings are open. Each will note and correct any discrepancies and report the results of their inspections to the Officer of the Deck.

(d) When the ship is in Material Condition "BAKER", the Inspecting Petty Officers designated in TABLE 11-2 of the Section off Watch will inspect the parts of the ship assigned their respective groups and see that all "X" and "Y"

CHAPTER 11

WATERTIGHT INTEGRITY BILL

11-8 INSPECTIONS AND REPORTS:-

(d) (cont'd.)

fittings are closed and all "Z" and "W" fittings are open. Each will note and correct any discrepancies and report the results of their inspections to the Officer of the Deck, prior to 2000 each evening.

(e) Security inspections will be made once each watch by the petty officer having the security watch. He will note and correct any discrepancies and report the results of his inspection to the Officer of the Deck.

(f) Heads of Departments will include the condition of watertight integrity of their respective departments when they report the readiness of their department for sea and in their 8 o'clock reports to the Commanding Officer.

(g) The need for keeping fittings closed according to their classification and condition set cannot be emphasized too strongly and the responsibility for maintaining watertight integrity must be deeply impressed upon the personnel on board.

12-1

12-2

12-3

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12-4

CHAPTER 12

GAS DEFENSE BILL

12-1 GENERAL:-

The Gas Defense Bill provides a plan and outlines a procedure to be followed to minimize the effects of an attack by chemical agents. It also provides for the care, maintenance and use of individual protective equipment.

12-2 GAS DEFENSE STATIONS:-

Detailed information on Gas Defense and the latest decontamination methods are given in "Chemicals, U.S. Navy, 1942" and "FTP-170-A." Flotilla, Group and Division Commanders have copies of these publications and they should be referred to.

12-3 GAS ATTACK:-

The gas alarm will not be sounded during an engagement with enemy ships or aircraft or at any other time unless the ship has actually been contaminated by a vesicant gas.

If a vesicant gas attack has been received, sound the general alarm immediately and pass the word, "ALL HANDS DON GAS MASKS."

12-4 PROCEDURE:-

The Damage Control parties will take all action required in preparing the ship for attack and in decontamination of the decks and such other parts of the ship as required after gas attack has been made.

The following is an outline of the general procedure to follow in case of gas attacks:-

(a) When ordered, all hands don gas masks.
(b) Close all doors, hatches and airports designated in Gas Defense Bill.
(c) Close off all intakes and exhaust blower vents opening outside by covering with canvas and stuffing with rags.
(d) Lay out and turn on fire hoses and let the water play on the decks.

CHAPTER 12

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(a) When to Decontaminate

Decontamination work should be commenced immediately after a vesicant gas attack has been received or as soon thereafter as possible. It should be understood that when a vesicant gas attack is received at night or when the temperature is relatively low, little vapor may be given off, while later, in the warmth of the sun, a high concentration may result. Areas treated during the cool periods of the day should be inspected after the temperature has risen to determine whether further treatment is required.

(b) Decontamination Detail

The Forward and After Repair Parties will act as the Decontamination Detail.

Before beginning decontamination work, each man will don a gas mask and put on protective clothing. The entire body must be protected and each man should be inspected by the Executive Officer (Damage Control Officer) before commencing operations, to insure that they are properly protected.

A medical and first aid station should be set up in the crew's washroom by the Pharmacist Mate, who should be prepared to apply first aid measures in case of necessity, having the necessary solvents or neutralizing agents close at hand. Men should be taught to assist each other in removing clothes used in decontamination work without touching them to the bare skin or contaminating the clothing beneath. Facilities for disposal or cleaning of contaminated clothing should be provided.

(c) Marking Contaminated Areas

All contaminated areas should be roped off; when it is not possible to decontaminate the area

CHAPTER 12

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(c) (cont'd.)

thoroughly, it should be marked with danger signs and sentries posted to warn unauthorized persons against entering such areas.

(d) Decontamination Materials

Vesicant chemical agents may be destroyed or neutralized by other chemicals. No one chemical, however, is effective in all cases. The following materials may be used for decontamination work aboard ship.

(1) Water

(a) Lewisite is readily decomposed by water, therefore liberal wetting down of areas so contaminated is sufficient to destroy this agent. The reaction product of Lewisite and water is a vesicant solid substance; while it gives off little vapor, the solid causes severe burns on contact with the body. Consequently, even long after decontamination of an area exposed to Lewisite, it is dangerous to sit or lie down in the area. After treatment with water, a Lewisite area should, if practicable, be covered with a layer of sand.

(b) Mustard gas is very slowly hydrolyzed by water. The reaction product is non-vesicant. The action of cold water on mustard gas is so slow that it is practically negligible for decontamination purposes; hot water is more effective. However, where there is sufficient drainage, mustard gas will be washed away by water. As it is heavier than water, it will lie for a long period of time at the bottom of pools and puddles, remaining active, though the water over it will retard the escape of mustard vapor.

12-5 DECONTAMINATION:-

(d) (cont'd.)

(2) Bleaching Powder (Chloride of Lime)

(a) This material is a white powder, not very stable, readily giving up its chlorine when exposed to the air or moisture. Consequently, it should be kept in airtight containers and used as soon as possible after removal therefrom. Bleaching powder reacts quickly with mustard gas, forming a non-vesicant compound. In contact with liquid mustard, it reacts violently, not only causing flame but driving off a high concentration of mustard vapor. If the bleaching powder is mixed with sand or earth, this violent reaction does not occur. When mixed with sand or earth the proportion should be about one part of bleaching powder to three parts of sand or earth. One pound of bleaching powder is required per square yard of gassed area.

(b) In the decontamination of equipment, decks, etc., bleaching powder can be more easily and efficiently applied in liquid form with rags or swabs. When used as a liquid solution, the proportion should be about one part of bleaching powder to one part of water.

(c) For decontamination of skin of human beings, chloride of lime in proportion to one part of powder to two parts of water may be used, but this slurry must be removed within five minutes after application, otherwise it may cause irritation to the skin.

(3) Sodium Sulphide

This chemical is used in a one percent aqueous solution. It reacts more slowly

12-5

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(d) (cont'd.)

(3) Sodium Sulphide (cont'd.)
than bleaching powder but, since no heat is evolved in the process, mustard vapor is not driven off; the solution is more effective if heated before use. It may be used either as a spray or mixed with sand. In the latter case, one part (by weight) of the liquid is used with four parts of sand and the mixture spread on the contaminated areas. Six gallons of sodium sulphide are needed for each square yard of gassed area.

(4) Green Solution

This solution, which has a greenish color, is prepared by dissolving one pound of bicarbonate of soda (baking soda) in one gallon of commercial hypochlorite solution. This mixture is less efficient for destruction of mustard gas than bleaching powder but it is also less corrosive to metals, hence it is applicable to guns, instruments, etc. It should be generously used with a sponge or rag until surface is clean.

(5) Non-Corrosive Decontaminating Agent

An additional material known as Agent-Decontamination-Non-Corrosive, is prepared by dissolving one pound of solid in fifteen pounds of solvent. This agent is much less corrosive than any of the above. It is suitable for use on leather, cotton fabrics, instruments and other items that might be damaged by the corrosive action of other decontamination materials.

(e) Decontamination Methods

(1) In de-mustardizing a shell hit, not only the shell hole but the entire area of contamination about the point of burst should be treated.

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CHAPTER 12

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(e) (cont'd.)

(2) Contamination is generally greatest in and immediately around the shell hole itself. Pools of liquid mustard gas or large visible splashes on the decks or bulkheads are rarely found. In most cases mustard is only perceptible by its odor. As a rule, one pound of bleaching powder for each square yard of contaminated area is the minimum requirement. Sodium sulphide or green solution may be sprayed over a contaminated shell hole or first mixed with sand and spread with a shovel. Bleaching powder, however, is more effective for this purpose.

(3) Metal Equipment

Greasy or oily metal surfaces contaminated with mustard gas should first be cleaned with kerosene or gasoline. These solvents do not destroy mustard, but dissolve it so that most of it may be removed. Rags used for this purpose should be burned or thrown over the side, as they will be grossly contaminated. After such treatment, a very thin coating of mustard will still remain on the surface of the metal so that it will be dangerous to touch. This is difficult to remove and must be treated with neutralizing chemicals. A solution of bleaching powder mixed with water, hot sodium sulphide, or green solution, are suitable materials to use, the latter two being much less corrosive. To avoid serious corrosion in using bleaching powder mixed with water, the application should not be left on for more than an hour at most. After such treatment, the surface should then be washed, dried, polished, and oiled. The non-corrosive decontaminating agent mentioned under (12-5-d(5)) above, is the

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12-5 DECONTAMINATION:-

(e) (cont'd.)

(3) Metal Equipment (cont'd.)
most satisfactory and effective for use on metal equipment.

(4) Clothing and Fabric Equipment

(a) Airing

Clothing contaminated by mustard vapor only, may be decontaminated by hanging up the garments so that they will be exposed to the sun and wind. In warm, sunny weather, two days airing generally will be sufficient. Care should be taken not to hang garments close together, especially not on top of each other. In cool cloudy weather, this method should not be relied upon.

(b) Steaming

A more positive method of destroying mustard gas in clothing is to subject it to steam. If contaminated with mustard vapor only, clothing may be decontaminated by two hours steaming. If splashed with liquid mustard, steaming should be continued from four to six hours. Various kinds of steam disinfectors can be improvised aboard ship. The simplest is merely a G.I. can provided with a false bottom which serves to hold the clothing about a foot from the true bottom. Six or eight inches of water is poured into the bottom of the can, the false bottom inserted, and the garments piled in. The can is then placed over a fire, the top being covered but not so tightly as to prevent escape of steam. The capacity of such a disinfector can be increased by hanging additional clothing in an inverted canvas bag suspended over the

CHAPTER 12

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(e) (cont'd.)

(4) (b) Steaming (cont'd.)
can, the open end of the bag being tied about the sides of the can. Shoes, if only lightly splashed and before mustard has soaked into the leather, may be neutralized by applying bleaching powder or bleaching powder mixed with water. As a safety precaution, it is well for men exposed to mustard gas to shuffle their feet from time to time through a mixture of bleaching powder and sand. Well worn shoe leather absorbs mustard much quicker than new leather.

(5) Compartments and Decks

If a compartment or space, not gas proof has been subjected to vapors from a vesicant agent, the overhead and bulkheads should be sponged or washed with a mixture of bleaching powder and hot water and the decks should receive a thorough scrubbing with the same material. Vertical surfaces should be decontaminated by starting at the upper limit of contamination and working down.

(6) Food and Water

In case canned goods are sprayed with a vesicant agent, the cans should be decontaminated by boiling before they are opened.

Food and water not protected by containers, which have been contaminated by a vesicant agent, are normally discarded. In case there is a shortage of food, special instructions from a medical officer will govern as to its decontamination.

Water contaminated with mustard should be avoided.

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GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(e) (cont'd.)

(6) Food and Water (cont'd.)

Water contaminated by arsenical agents such as Lewisite and Adamsite, or white phosphorous, cannot be purified and should be discarded.

(7) Guns, Weapons, Equipment and Munitions

(a) Guns, machine guns, rifles and other steel weapons will be rendered useless if long exposed to the corrosive action of vesicant chemical agents. Unpainted working parts are especially vulnerable and as a general precaution should be kept well coated with oil or grease. Weapons should invariably be inspected following gas attacks and, as soon thereafter as practicable, cleaned and re-oiled. Gasoline will remove the old lubricant; water and soap, washing soda, or green solution should be used to clean the affected parts before new lubricant is applied.

If sprayed with mustard gas, weapons must be decontaminated before it is safe to handle them. Bleaching powder mixed with water should be used on the base and outside of barrel of guns, but its use on breech mechanism and other such parts should be avoided because of its corrosive effect. Such parts should be treated as instruments. Alcohol or gasoline, hot water and soap, or other non-corrosive material such as mentioned above should be used to remove mustard. Wooden gun stocks contaminated with mustard should be treated repeatedly.

(b) Ammunition

Since brass shell and cartridge cases are particularly susceptible to corrosion by

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CHAPTER 12

GAS DEFENSE BILL

12-5 DECONTAMINATION:-

(e) (cont'd.)

(7) (b) Ammunition (cont'd.)
gases like phosgene, ammunition should be kept in sealed containers. If ammunition becomes badly corroded, it may be necessary to discard it or clean it thoroughly before it is used.

(c) Instruments

Instruments such as those used in fire control should be kept in their containers except when in actual use. If exposed to corrosive gases, they should be cleaned with alcohol (or gasoline, if alcohol is not available) at the earliest opportunity, after which their moving parts should be given a thin coating of light machine oil.

(8) Personnel

All personnel that have been contaminated should remove all clothing before entering compartments or washrooms. Enter washroom and take showers, using plenty of soap and hot water.

(9) All ports, doors and hatches, should be opened as soon as decontamination of top side has been completed and all fans and blowers started.

A portable blower should be placed in all compartments that have been contaminated and have no discharge blower or fans.

CHAPTER 13

DARKENING SHIP BILL

13-1 GENERAL:-

The purpose of Darkening Ship is to avoid it being detected by the enemy during the hours of darkness.

The ship normally will be darkened from sunset to sunrise.

Conditions may arise making it necessary to show certain lights for short intervals, such as running lights, when collision with vessels of our own forces is imminent. Such exceptions, however, will be permitted only on orders from the Commanding Officer.

While the ship is in a darkened condition, smoking on all weather decks and the wearing of white clothing will be prohibited.

Under some conditions, the wake light may be lit during darkened ship but should be specifically ordered by the Officer in Tactical Command.

13-2 DARKENING SHIP PROCEDURE:-

The Executive Officer should notify the Officer of the Deck and all Department Heads, the exact time the ship is to be darkened and for how long.

The Officer of the Deck, one-half hour prior to the time set for darkening ship, will have the word passed by the Boatswain's Mate of the Watch:- "Darken Ship." The Boatswain's Mate of the Watch and other petty officers will see that all battle ports are closed, all lights on the upper decks are screened and all hatch hoods hauled over.

The Electrician's Mate also will inspect all automatic door switches on weather decks to make sure that lights in the compartments are automatically darkened when the doors leading to the compartments are opened.

When all lights have been extinguished or provided for as outlined above, the Boatswain's Mate

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CHAPTER 13

DARKENING SHIP BILL

13-2 DARKENING SHIP PROCEDURE:-

will report to the Officer of the Deck that the ship is darkened and no lights showing.

At regular intervals during the period of darkened ship, the Security Watch will make inspections for exposed lights and report the results of these inspections to the Officer of the Deck.

CHAPTER 14

FIRE BILL
(PLATE XII)

14-1 GENERAL:-

Fire on board ship is one of the greatest hazards of the sea. During the present war, many of our most serious losses in ships and men, have been directly or indirectly due to fire. It may be caused by enemy action, explosions, collision, faulty wiring, negligence on the part of some member of the ship's complement and many other reasons.

The Fire Bill provides for an orderly procedure to be followed when fire has been reported on board. Experience has shown that when a crew is properly organized, thoroughly drilled and provided with modern fire fighting equipment, almost any fire that may occur on board, regardless of its origin, can be brought quickly under control and extinguished.

14-2 FIRE ALARM;-

Time is a most important factor in fighting fire. Any person discovering fire on board will endeavor to extinguish it by any means quickly available. At sea, the Officer of the Deck, and in port, the Gangway Watch, should be notified immediately, giving the exact location.

The Officer of the Deck or the Gangway Watch, will immediately:

(a) Pass the word "FIRE" followed by the location of the fire, such as "Fire in the Steering Engine Room."

(b) Sound the General Alarm; followed by ten rapid strokes on the ship's bell, followed by strokes of the bell to indicate the section of the ship in which the fire is located. The indicating bell strokes will be as follows:

1 Bell Stroke -- fire forward(frs. 0 to 14)
2 Bell Strokes -- fire amidships (frs.14 to 19)
3 Bell Strokes -- fire aft (frs. 19 to 41)

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CHAPTER 14

FIRE BILL

14-2 FIRE ALARM:-

(c) When the fire has been extinguished, the word "SECURE FROM FIRE QUARTERS" will be passed throughout the ship.

14-3 APPARATUS AND EQUIPMENT:-

The fire fighting apparatus and equipment on the LSM is modern and efficient and consists of the following:

(a) Fire and Sprinkling System

(1) On the fire main, there are sixteen outlets or fire plugs with the hose for each fire plug stowed in a rack immediately adjacent to it and connected to it at all times. These fire plugs are located as shown below in TABLE 14-1.

TABLE 14-1

FIRE PLUGS

PLUG NO.	VALVE INSCRIPTION	CUT-OUT VALVE INSCRIPTION	LOCATION			SIZE	LENGTH OF HOSE
			DECK & FRAME	P/S	COMPT.		
1	Fire Plug 01-8-1	Cut-out 1-9	Super.Deck fr. 8	S	Weather	1-1/2"	100'
2	Fire Plug 01-15-2	Cut-out 1-15-2	Super.Deck fr. 15	P	Weather	1-1/2"	100'
3	Fire Plug 01-8-3	Cut-out 1-9	Super.Deck fr. 8	S	Weather	1-1/2"	100'
4	Fire Plug 01-15-4	Cut-out 1-15-2	Super.Deck fr. 15	P	Weather	1-1/2"	100'
5	Fire Plug 01-25-1	Cut-out 1-25-1	Super.Deck fr. 25	S	Weather	1-1/2"	100'

CHAPTER 14

FIRE BILL

14-3 APPARATUS AND EQUIPMENT:-

TABLE 14-1 (cont'd.)

FIRE PLUGS

PLUG NO.	VALVE INSCRIPTION	CUT-OUT VALVE INSCRIPTION	LOCATION			SIZE	LENGTH OF HOSE
			DECK & FRAME	P/S	COMPT.		
6	Fire Plug 01-25-2	Cut-out 1-25-2	Super.Deck fr. 25	P	Weather	1-1/2"	100'
7	Fire Plug 01-25-3	Cut-out 1-25-1	Super.Deck fr. 25	S	Weather	1-1/2"	100'
8	Fire Plug 01-25-4	Cut-out 1-25-2	Super.Deck fr. 25	P	Weather	1-1/2"	100'
9	Fire Plug 1-15-1	Cut-out 2-14-1 & 1-15-5	Main Deck fr. 15	S	A-103-1/2L	1-1/2"	100'
10	Fire Plug 1-15-4	Cut-out 2-15-2 & 1-15-8	Main Deck fr. 15	P	A-104-1/2EL	1-1/2"	100'
11	Fire Plug 1-15-3	Cut-out 2-14-1 & 1-15-5	Main Deck fr. 15	S	A-103-1/2L	1-1/2"	100'
12	Fire Plug 1-15-6	Cut-out 2-15-2 & 1-15-8	Main Deck fr. 15	P	A-104-1/2EL	1-1/2"	100'
13	Fire Plug 1-23-1	Cut-out 1-23-5 & 2-24-1	Main Deck fr. 23	S	C-101-1/2E	1-1/2"	100'
14	Fire Plug 1-23-2	Cut-out 1-23-6 & 2-24-2	Main Deck fr. 23	P	C-102-1/2AE	1-1/2"	100'
15	Fire Plug 1-23-3	Cut-out 1-23-5 & 2-24-1	Main Deck fr. 23	S	C-101-1/2E	1-1/2"	100'

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FIRE BILL

14-3 APPARATUS AND EQUIPMENT:-

TABLE 14-1 (cont'd.)

FIRE PLUGS

PLUG NO.	VALVE INSCRIPTION	CUT-OUT VALVE INSCRIPTION	LOCATION			SIZE	LENGTH OF HOSE
			DECK & FRAME	P/S	COMPT.		
16	Fire Plug 1-23-4	Cut-out 1-23-6 & 2-24-2	Main Deck fr. 23	P	C-102-1/2AE	1-1/2"	100'

(2) The fire main has two shore connections as shown below in TABLE 14-2:-

TABLE 14-2

FIRE MAIN - SHORE CONNECTIONS

LOCATION	SIDE	COMPT.	SIZE	LENGTH OF HOSE
Superstructure Deck, frs. 7-8	S	Weather	2-1/2"	
Superstructure Deck, frs. 24-25	P	Weather	2-1/2"	

(3) The two magazines, A-209M and C-202M, are provided with a sprinkling system working from the fire main. The sprinkling system is controlled by hand operated valves arranged for local and distant control. The valve control for this sprinkler system is given in TABLE 14-3 following:-

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FIRE BILL

14-3 APPARATUS AND EQUIPMENT:-

TABLE 14-3

VALVE CONTROL FOR SPRINKLING SYSTEM

VALVE TYPE	INSCRIPTION	LOCATION			
		P/S	DECK	FRAME NO.	COMPART-MENT
V-F200	Sprinkler Valve 2-12-1	S	Hold	12-13	A-208L
V-F201	Sprinkler Valve 2-26-2	P	Hold	26-27	C-201EL
V-F202	Cut-out Valve 2-12-3	S	Hold	12-13	A-208L
V-F203	Cut-out Valve 2-26-4	P	Hold	26-27	C-201EL
Valve Box	Ammunition Sprinkling A-209M Valve Box	S	Hold	12-13	A-208L
Valve Box	Ammunition Sprinkling C-202M Valve Box	P	Hold	26-27	C-201EL
Handwheel Box	Ammunition Sprinkling A-209M Remote Control Station Cut-out 2-12-3	S	Main	12-13	A-103L
Handwheel Box	Ammunition Sprinkling C-202M Remote Control Station Cut-out 2-26-4	S	Main	26-27	C-101-1/2E

(4) Two Portable Handybilly Pumps, gasoline engine driven, are also provided for emergency use. One of these pumps is located on the Superstructure Deck, port side, just abaft frame 18. The other pump is located on the Main Deck, starboard side, just abaft frame 31.

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14-3 APPARATUS AND EQUIPMENT:-

(b) CHEMICAL FIRE SYSTEMS

(1) There are three semi-fixed Carbon Dioxide Systems provided. One system is located in the engine room, lower level, starboard side, between frames 23-24 with 75 ft. of hose attached. One system is located on the Superstructure Deck, port side, between frames 15-16 with 75 ft. of hose attached. One system is located on the Superstructure Deck, port side, between frames 23-24 with 75 ft. of hose attached.

Each system consists of two 50 pound cylinders, with cylinder valves arranged for independent release of the carbon-dioxide, and connecting piping to a hose reel having gas tight trunions. Flexible reinforced hose, suitable for handling carbon-dioxide is mounted on a reel and connected to the cylinders. This hose is provided with a discharge nozzle having a suitable gas expander and cut-out valve.

(2) Four Foam Generator Systems are provided. Two systems are located in the engine room, upper level, between frames 19 and 20, port and starboard side respectively. One system is located in the windlass machinery room, compartment A-104EL, Main Deck, port side, between frames 10 and 11. One system is located in the boiler room, compartment C-101-1/2E, Main Deck, starboard side, between frames 26-27.

These foam generator fire extinguishers are of the vertical duplex pressure proportioner type, using a liquid foaming agent.

The foam generators discharge through a 1-1/2" cotton rubber-lined hose with an aerating nozzle. The water supply is taken from the fire main and controlled by a stop valve.

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14-3 APPARATUS AND EQUIPMENT:-

(b) (2) (cont'd.)

The foam generators in the engine room are provided with ten - five gallon charges each. The foam generators in the windlass machinery room and boiler room are provided with twenty - five gallon charges each. Precaution should be taken to protect stowed foam charges against freezing.

(c) PORTABLE FIRE EXTINGUISHERS

Twenty portable CO_2 fire extinguishers of 15-lbs. capacity are provided and located as follows:

1 - Galley	- (A-104-1/2EL)
1 - Crews space	- (A-208L)
1 - Wardroom	- (A-210L)
1 - Crews space	- (A-210L)
1 - Troops space	- (C-201EL)
1 - Pilot house	- (A-0301C)
4 - Engine room	- (B-1)
1 - Chart house	- (A-0101CL)
1 - Ramp mach. compt.	- (A-102AE)
1 - Bow Door mach. compt.	- (A-101EV)
2 - Amidships, Main Deck, at doors, port and starboard	
1 - General work shop, port	- (C-102-1/2AE)
1 - Boiler room, starboard	- (C-101-1/2E)
1 - Aft, Main Deck, at door, starboard side	
1 - Engineering stores	- (C-102A)
1 - Steering engine room	- (C-206E)

14-4 PROCEDURE:-

(a) When the Fire Call is sounded, all hands will proceed to their fire stations on the double.

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14-4 PROCEDURE:-

(b) Heads of Departments will inspect stations for which they are responsible and make reports to the Officer in Charge at the scene of the fire that their stations are manned and ready.

(c) Two hoses will be led to the scene of the fire from an unaffected area and each manned by two men. It should be noted here that all fire hoses are to be connected to their respective fire plugs at all times and ready for instant use.

(d) The engine room watch, both at sea and in port, will carry out the following:

(1) Cut in second fire and bilge pump.
(2) Cut in power winches, anchor and steering engine and if at anchor, make preparations for getting underway. Warm up main engines, but do not turn over screws until ordered.
(3) Cut off power to all ventilators unless otherwise directed.
(4) Secure cut-out valves to flushing system.

14-5 FIRE STATIONS:-

Fire may occur under any of the four conditions of readiness, in port or at sea. To cover all contingencies, each watch section should have a complete fire party.

If the fire occurs at sea, it will be fought by the fire party from the sections off watch. The section on watch will remain at their stations unless otherwise ordered. Any remaining men will fall in at their parades and be mustered by the senior petty officer. This group will normally be under the direction of the Gunnery Officer and will be used as required. In port, the fire will be fought by the section on duty. Any men from the sections off duty that are aboard, however, will go to their regular fire stations.

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FIRE BILL

14-5 FIRE STATIONS:-

(a) Officers:

The ship's officers will have the following stations and duties:

(1) Commanding Officer	- Conn.
(2) Executive Officer	- In charge at the scene. Damage Control.
(3) Engineering Officer	- In charge engine room.
(4) Gunnery Officer	- In charge of reserves at parades.

The preceding assignments can normally be followed when at sea. In port, they will be followed whenever possible. When an officer is absent, his duties will be taken over by the senior petty officer of the department.

(b) Crew Fire Party Assignments

The Fire Party is responsible for fighting the fire and extinguishing it. It will be divided into two groups:

(1) The Fire Detail
(2) The Explosive Detail

The various duties and the personnel assignments are given in TABLE 14-4 below:

TABLE 14-4

1ST SECTION	DUTIES	2ND SECTION
	FIRE DETAIL	
CBM	Petty officer in charge at scene.	BM1c
EM3c	Provides electrical kit; cleans debris from fire area; jettisons any inflammables at scene.	RM2c

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FIRE BILL

14-5 FIRE STATIONS:

TABLE 14-4 (cont'd.)

1ST SECTION	DUTIES	2ND SECTION
	FIRE DETAIL	
MoMM3c	Provides mechanical kit; cleans debris from fire area; jettisons any inflammables at scene.	MoMM3c
F2c	Provides 2-15 lb. CO_2 extinguishers; use as directed.	F2c
F1c	Provides 2-15 lb. CO_2 extinguishers; use as directed.	GM2c
Cox F1c	Lead out hose from fire plug in unaffected area to scene. Hose should be equipped with fog nozzle; use as directed.	BM2c F1c
Sea1c StM2c	Lead out hose from fire plug in unaffected area to scene. Hose should be equipped with fog nozzle; use as directed.	Sea1c StM1c
Sea1c MoMM2c	Rig handybilly pump and lead out hose to scene; use as directed.	Sea1c MoMM3c
Sea2c RdM2c	Rig nearest foam generator system and lead hose to scene; use as directed.	Sea2c MoMM2c
Sea2c Sea2c	Lead out nearest CO_2 hose to scene and use as directed.	Sea2c SC3c
RM3c	Mans telephone at scene.	RdM3c
SM2c	Provides rescue breathing apparatus.	SM3c
SC1c	Provides first aid kit.	PhM1c
MoMM1c	In charge of engine room.	CMoMM
MoMM1c	Engine room pumps.	MoMM2c

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FIRE BILL

14-5 FIRE STATIONS:

TABLE 14-4 (cont'd.)

1ST SECTION	DUTIES	2ND SECTION
	FIRE DETAIL	
EM2c	Engine room switchboard.	EM1c
	EXPLOSIVE DETAIL	
Y2c	Provides Officer of the Deck Keys; stands by to unlock store-rooms & magazines as directed.	SK1c
RM1c	Stands by to operate sprinkler controls.	RT2c
QM1c	Mans telephones on bridge.	QM3c

14-6 FIRE AT GENERAL QUARTERS:

Should a fire break out while the ship is at General Quarters, the operation of the guns must not be interrupted insofar as this is possible.

(a) Officer in Charge

The Executive Officer will be the officer in charge at the scene of the fire.

(b) Fire Party

The fire party personnel will be provided as follows:

(1) The Fire Detail will be taken from the forward and after repair parties with the exception of the engine room personnel which have their regular battle stations.

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14-6 FIRE AT GENERAL QUARTERS:-

(b) Fire Party (cont'd.)

(2) The Explosive Detail is provided from the bridge battle stations assignments.

The various duties and personnel assignment for the Fire Party are given in TABLE 14-5 below:

TABLE 14-5

FIRE DETAIL

RATE	REPAIR PARTY	DUTIES
CBM	Forward Repair Party	Petty officer in charge at scene.
EM2c	After Repair Party	Provides electrical kit; cleans debris from fire area; jettisons any inflammables at scene.
MoMM3c	Forward Repair Party	Provides mechanical kit; cleans debris from fire area; jettisons any inflammables at scene.
F1c	Forward Repair Party	Provides 2-15 lb. CO_2 extinguishers; use as directed.
Sea1c MoMM2c	Forward Repair Party After Repair Party	Lead out hose from fire plug in unaffected area to scene. Hose should be equipped with fog nozzle; use as directed.
Sea2c MoMM2c	Forward Repair Party After Repair Party	Lead out hose from fire plug in unaffected area to scene. Hose should be equipped with fog nozzle; use as directed.
BM1c MoMM1c	After Repair Party Forward Repair Party	Rig handybilly pump and lead out hose to scene; use as directed.

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14-6 FIRE AT GENERAL QUARTERS:

TABLE 14-5 (cont'd.)

FIRE DETAIL

RATE	REPAIR PARTY	DUTIES
Sea2c MoMM2c	After Repair Party Forward Repair Party	Rig foam generator system and lead hose to scene; use as directed.
Sea2c EM3c	After Repair Party	Lead out nearest CO_2 hose to scene; use as directed.
RM3c	Forward Repair Party	Mans telephone at scene.
PhM1c		Provides rescue breathing apparatus; provides first aid kit.
CMoMM EM1c MoMM1c	Regular battle station.	In charge engine room. Engine room pumps. Engine room switchboard.
	EXPLOSIVE DETAIL	
SK1c	Provided from bridge detail.	Provides Officer of the Deck keys; stands by to unlock store-rooms & magazines as directed.
RT2c	Provided from bridge detail.	Stands by to operate sprinkler controls.
RdM3c	Provided from bridge detail.	Mans telephones on bridge.

14-7 FIRE IN TROOP EQUIPMENT:-

Should a fire break out in any of the troop equipment, the same procedure will be followed as outlined in the foregoing paragraph for other fire on board.

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FIRE BILL

14-8 FIRE FIGHTING INSTRUCTIONS:-

Great progress has been made in recent years in the development of fire fighting equipment and the methods to be employed in fighting fires of all classes.

Modern fire fighting equipment, however, to be fully effective, must be operated by personnel who thoroughly understand how to use it. The Executive Officer, acting in his capacity as the Damage Control Officer, must know all phases of fire fighting and be able to outline the procedure necessary to fight any class of fire in any part of the ship and under all conditions. All hands on board should be given frequent instruction and realistic drills in the operation and use of all the fire fighting equipment with which the ship is supplied.

No attempt will be made in this manual to discuss the classes of fires, the methods of extinguishment or the operation of the fire fighting equipment. Complete instructions on these subjects are given in Bureau of Ships "Fire Fighting Manual" 688 with supplement.

14-9 CARE AND MAINTENANCE:-

Fire fighting equipment to be fully effective, must at all times be kept clean and in first class working order. The following information is given concerning the care and maintenance of this equipment:

(a) Fire and Sprinkling System

(1) All fire plugs should be flushed under full firemain pressure weekly in order that incipient marine growth will be blown out before it has had an opportunity to adhere tightly to the fire main. Ships should completely fill and flush their fire mains with fresh water whenever it is available from shore.

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14-9 CARE AND MAINTENANCE:-

(a) (cont'd.)

(2) All fire main discharge plugs should be protected from mechanical damage. Hose threads on fire plugs and hose couplings should be kept clean and free from burred or damaged threads. DO NOT OIL. Clean threads with stiff or wire brush and wash in warm soapy water.

(3) All fire hose attached to fire plugs or connected together should be made up snug with hose spanner but not set too tight.

(4) Fire hose when stored in racks should be dry. Do not paint fire hose except with a Bureau of Yards and Docks approved water dissolvable paint, Specification P5.

(5) Do not permit oils or gasoline to come in contact with or remain on cotton hose. Remove any oily spots as soon as possible, using a warm soapy water and corn broom; Do not scrub, rinse and dry thoroughly before placing in rack.

(6) Do not pump oil or gasoline through fire hose.

(7) Do not permit water to remain standing in fire hose. After each use, thoroughly drain as standing water may form a solution of sulphuric acid which damages the cotton jacket of the hose if contact is made.

(8) Check all fire plugs at regular intervals against leakage.

(9) Do not forcibly remove frozen hose from the deck but carefully chip ice away.

(10) Do not attempt to fold or roll frozen hose, thaw it first.

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14-9 CARE AND MAINTENANCE:

(a) (cont'd.)

(11) Dry and drain hose after every use; do not dry in hot sun, when temperature is above normal.

(12) Flush all hose monthly; change position of folds or rolls.

(13) Do not drop hose couplings on the deck; lay them down.

(14) At every fire drill, check every female coupling for gasket; keep an extra supply of gaskets on hand.

(15) Where possible, self-cleaning strainers should be flushed at each fire drill. These strainers should be attached to fire mains in such a manner that the fire plug will not have to support the entire weight of the strainer.

(b) Handybilly Pumps

(1) After pumping salt water, operate with fresh water for a few minutes in order to flush circulation system of salt water.

(2) After using, dry and wipe the complete unit with oily rag; squirt oil liberally over pump impellers, and replace thread protection caps.

(3) After using, remove each spark plug and squirt small quantity of oil into each cylinder. Turn engine over several times to lubricate cylinder walls thoroughly.

(4) Inspect spark plugs; clean thoroughly and, if necessary, adjust gap of firing points. The correct setting of gap is 0.025 of an inch.

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14-9 CARE AND MAINTENANCE:-

(b) (cont'd.)

(5) Check breaker points, the correct setting is 0.025 of an inch.

(6) Make sure that fly-wheel nut is secure. A loose fly-wheel nut can be the cause of extensive damage if not tightened at once.

(7) Remove and clean screen from gas line nut connection at base of carburetor.

(8) Check oil level of pump gear case; fill it to proper level using SAE-30, if available.

(9) Pack grease cups on pumps with light cup grease and turn down snugly.

(10) Make certain that the starter card is replaced in its holder on the cylinder side cover.

(11) Store pumps in a dry place with uniform temperature, to protect electrical parts from condensation.

(12) To avoid excessive absorptions of moisture by the ignition coils, the engines should be run for a short period each week. They should be tested for starting several times each week.

(13) Do not run engines without pumping, except for short test periods as the engines depend on the water from the pump for cooling.

(14) In general, the operators assigned to these pumps, know what attention they should have before stowing and should be held strictly accountable. Proper care and attention means quick starting and satisfactory operation when the emergency arises.

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FIRE BILL

14-9 CARE AND MAINTENANCE:-

(c) CO_2 Extinguishers

(1) Always store in upright position.

(2) Do not store where temperatures exceed 140° F.

(3) Do not return a partially used extinguisher to its rack or holder. Once used, the disc type release valve will not hold the CO_2 and the ground seat valve permits a partially filled bottle to escape detection.

(4) The proper method of checking CO_2 extinguishers is by weighing. The weight of a fully charged 15-lb. extinguisher should include:-

Weight of empty cylinder (stamped on cylinder)
Weight of horn and hose (usually 2-lbs.)
15-lbs. of CO_2

(5) CO_2 extinguishers should be tested each week. The cylinder valve assembly should be protected against mechanical damage. The charge is under a pressure of 850 lbs. per square inch and if the valve is broken, the release of this pressure may cause serious damage.

(6) Do not wire a fixed installation closed.

(d) Foam Generator System

(1) Pressure proportioners using foam are subject to freezing and should be protected against very cold weather. Cans of foam liquid should always be stored in a warm place and inverted from time to time to prevent any settling of the contents.

CHAPTER 14

FIRE BILL

14-9 CARE AND MAINTENANCE:-

(d) (cont'd.)

(2) Protect against leakage of valve. After using, thoroughly wash and rinse before recharging.

CHAPTER 15

FIRE AND RESCUE BILL

15-1 GENERAL:-

The Fire and Rescue Party may be called upon to assist:

(a) Another vessel on fire - at sea or in port.
(b) In preventing the flames from spreading to other shipping if in port.
(c) Shore stations on fire.
(d) In rescuing personnel from another ship in distress.

As the LSM is not provided with a power boat, the Fire and Rescue Party cannot be sent to another ship when at sea. There may be occasions, however, when it will be possible to go along-side another ship in distress and render assistance. When along-side of a dock or beached, it will be possible to send the Fire and Rescue Party ashore when needed.

15-2 THE CALL:-

The Boatswain's Mate will pass the word - "AWAY FIRE AND RESCUE PARTY" (No. 1 or No. 2).

15-3 STATION ASSIGNMENTS:-

Each of the two watch sections under Condition II will have a complete Fire and Rescue Party. Both at sea and in port, the off-duty section will provide the party when necessary. TABLE 15-1 below gives the station assignments with the duties of each. All men off duty and unassigned will fall in at their parades and will be under the direction of the Gunnery Officer.

TABLE 15-1

FIRE AND RESCUE PARTY

FIRST SECTION	SECOND SECTION	DUTIES
Executive Officer		In charge of Fire & Rescue Party.
CBM	BM1c	Petty Officer in charge.

FIRST SECTION
EM2c
MoMM3
F1c
F2c
Cox
F1c
S1c MoMM2
S1c
SM2c
SC1c
S2c
S2c

CHAPTER 15

FIRE AND RESCUE BILL

TABLE 15-1 (cont'd.)

FIRE AND RESCUE PARTY

15-3

FIRST SECTION	SECOND SECTION	DUTIES
EM2c	EM1c	Provides electrical kit.
MoMM3c	MoMM3c	Provides mechanical kit.
F1c	CM2c	Provides 1-15 lb. CO_2 extinguisher & crowbar.
F2c	F2c	Provides 1-15 lb. CO_2 extinguisher & hand lantern.
Cox	BM2c	Provides 50' hose with fog nozzle.
F1c	F1c	Provides 50' hose with spanner.
S1c MoMM2c	S1c MoMM3c	Provides handybilly pump with suction hose and spanner.
S1c	S1c	Provides rescue breathing apparatus.
SM2c	SM3c	Provides signal flags, flashlight & very pistol.
SC1c	PhM1c	Provides first aid kit and stretcher.
S2c	S2c	Provides two buckets with lanyards and axe.
S2c	MoMM2c	Provides two buckets with lanyards and axe.

15-4 RESCUE OF SURVIVORS:-

(a) When operating with a group or flotilla, survivor rescue will be made as directed by the Senior Officer Present. If operating singly, survivor rescue will be carried out at the discretion of the Commanding Officer.

CHAPTER 15

FIRE AND RESCUE BILL

15-4 RESCUE OF SURVIVORS:-

The rescue of survivors is usually made necessary through enemy submarine or aircraft action. While engaged in the rescue of survivors, therefore, all guns will be fully manned and a sharp lookout maintained.

(b) Following commissioning, the Commanding Officer will have the Chief Boatswain's Mate make four rescue nets - two for each side of the ship. These nets will be made with 1-1/2" line, eight to twelve feet wide and long enough to extend from the top of the Superstructure Deck to four feet below the waterline. The lower end will be fitted with a wood batten. These nets when not in use will be rolled up and lashed securely at the beading of the Superstructure Deck in such a way that they can be released instantly. These rolls should be covered with canvas and given one coat of war paint. The location of these nets will be as follows:

One net between frames 10 and 12 - starboard side.
One net between frames 10 and 12 - port side.
One net between frames 23 and 25 - starboard side.
One net between frames 23 and 25 - port side.

In addition to the nets, the Chief Boatswain's Mate will make eight heaving lines, each 15 fathoms long. These lines will be made from 21 thread line with knots every two feet from the center to the monkey fist. When not in use, these lines will be secured to the rail stanchions on the Superstructure Deck at frames 9, 14, 24 and 31, port and starboard side respectively.

(c) If directed to rescue survivors by the Senior Officer Present or doing so while operating singly, the ship will assume Condition I. The Commanding Officer will maneuver the ship as close to the survivors as safety permits and the repair parties will act as the rescue parties.

CHAPTER 15

FIRE AND RESCUE BILL

15-4 RESCUE OF SURVIVORS:-

To bring rafts along-side, heaving lines will be thrown to them and when lines are secured, the rafts will be pulled along-side by the repair parties. Men swimming in the water can be helped by throwing life rings or lines to them and then pulling them along-side one of the nets.

The Pharmacist Mate will be prepared to administer aid to any survivors that may require it as soon as they have been landed on board.

CHAPTER 16

COLLISION BILL

16-1 GENERAL:-

The conditions of war, where ships usually travel in a darkened state, at night, and often in large convoys, make the dangers from collision an ever present hazard.

The Collision Bill provides for an orderly procedure to be followed when a collision occurs and the personnel necessary to preserve the buoyancy and stability of the ship.

16-2 COLLISION ALARM:-

(a) One long blast of the whistle.
(b) Pass the word giving the location of the damage, as:
"Collision - port bow, frame 8, Main Deck."
(c) Secure will be three blasts on the whistle followed by passing the word, "Secure."

16-3 CONTROL MEASURES:-

On the LSM, when a collision occurs, the following measures are resorted to immediately in order to control the buoyancy and stability of the ship:

(a) Isolation of damaged compartments.
(b) Stopping the influx of water.
(c) Shifting of ballast.

16-4 GENERAL PROVISIONS:-

(a) Close watertight doors and hatches.
(b) Localize flooding by closing necessary valves, bulkheads, fittings and ventilators.
(c) Shore up bulkheads under strain.
(d) Pump out flooded compartments.
(e) Maintain ship on even keel by shifting ballast and fuel oil. If injury is close to waterline, this may raise the hole above the waterline, if damage is not too severe.

LSM Cla

CHAPTER 16

COLLISION BILL

16-5 CLOSING OF WATERTIGHT FITTINGS:-

In the event of a collision, all "X", "Y", and "Z" fittings throughout the ship will be closed and if necessary all the "W" fittings in spaces surrounding the damage will be closed.

The closures will be effected by the Damage Control Party in accordance with the procedure outlined in Chapter 11 - "Watertight Integrity Bill." The closure assignments are indicated in TABLE 16-2 below.

16-6 COLLISION STATIONS:-

(a) Officers

The ship's officers will have stations and duties as shown in TABLE 16-1 below:

TABLE 16-1

COLLISION STATION ASSIGNMENTS

OFFICER	STATION	DUTIES
Commanding Officer	Bridge	Officer of the Deck.
Executive Officer	At Scene	In general charge at scene; Damage Control.
Gunnery Officer	Super. Deck	In charge stand by crew at parades.
Engineering Officer	Engine room & General	Assists in Damage Control.

(b) Crew

The crew will have stations and duties as shown in TABLE 16-2 following:

CHAPTER 16

COLLISION BILL

TABLE 16-2

COLLISION STATION ASSIGNMENTS

16-6

DIVISION	RATE	STATION	DUTIES
		SHIP CONTROL	
SC	QM1c	Pilot House	Steersman.
S	Y2c	Pilot House	Annunciators.
SC	RM1c	Radio Room	Operator.
SC	RT2c	Radio Room	Radio repairs.
SC	RdM2c	Radar Room	Operator.
SC	RdM3c	Radar Room	Operator.
SC	SM2c	Bridge	Visual signals.
SC	*SM3c	Bridge	Records signals, log & notes; Closure Detail Group 9.
SC	RM2c	Bridge	Telephones.
S	SK1c	Bridge	Telephones.
SC	QM3c	Steering Engine Room	Stand by Steering Engine; telephones.
		ENGINEERING	
E	CMoMM	Engine Room	In charge & starboard throttle.
E	MoMM1c	Engine Room	Oiler & port throttle.

* All ratings marked with asterisk form the watertight integrity group closure detail. For group closure see TABLE 11-1, Chapter 11, "Watertight Integrity Bill."

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COLLISION BILL

TABLE 16-2 (cont'd.)

COLLISION STATION ASSIGNMENTS

16-6

DIVISION	RATE	STATION	DUTIES
		ENGINEERING	
E	*MoMM3c	Engine Room	Ballast pumps. Closure Detail Group 10.
E	*MoMM3c	Engine Room	Ballast pumps. Closure Detail Group 10.
E	EM1c	Engine Room	Distribution board & generators.
E	F1c	Engine Room	Telephones.
		DAMAGE CONTROL	
D	CBM	At Scene	Petty Officer in charge.
D	BM1c	At Scene	Provides O.O.D. keys and CO_2 fire extinguisher.
D	*S1c	At Scene	Provides Handybilly, Closure Detail Group 1.
D	*S2c	At Scene	Provides suction hose, Closure Detail Group 1.
D	*S2c	At Scene	Provides 50' of hose with spanner; Closure Detail Group 7.
D	*S2c	At Scene	Provides mattress and bedding; Closure Detail Group 8.
E	MoMM1c	At Scene	Provides mechanical kit.

* All ratings marked with asterisk form the watertight integrity group closure detail. For group closure see TABLE 11-1, Chapter 11, "Watertight Integrity Bill."

CHAPTER 16

COLLISION BILL

TABLE 16-2 (cont'd.)

COLLISION STATION ASSIGNMENTS

16-6

DIVISION	RATE	STATION	DUTIES
		DAMAGE CONTROL	
E	MoMM2c	At Scene	Sounds all adjacent tanks, reports condition to officer in charge.
E	MoMM2c	At Scene	Provides wedges & plugs.
E	*MoMM2c	At Scene	Provides crow-bar & sledge; Closure Detail Group 5.
E	*MoMM3c	At Scene	Provides submersible pump; Closure Detail Group 3.
E	EM2c	At Scene	Provides electrical kit.
E	*EM3c	At Scene	Provides shores; Closure Detail Group 6.
E	*F1c	At Scene	Provides submersible pump; Closure Detail Group 4.
SC	*RM3c	At Scene	Telephones; Closure Detail Group 2.
* All ratings marked with asterisk form the watertight integrity group closure detail. For group closure see TABLE 11-1, Chapter 11, "Watertight Integrity Bill."			
		GUN CREWS	
D	GM2c	Gun Nos. 1, 3 or 5	Gunner.
S	StM2c	Gun Nos. 1, 3 or 5	Range setter & talker.

CHAPTER 16

COLLISION BILL

TABLE 16-2 (cont'd.)

COLLISION STATION ASSIGNMENTS

16-6

DIVISION	RATE	STATION	DUTIES
		GUN CREWS	
E	F2c	Gun Nos. 1, 3 or 5	Loader.
D	Cox	Gun Nos. 2, 4 or 6	Gunner.
S	StM1c	Gun Nos. 2, 4 or 6	Range setter & talker.
E	F2c	Gun Nos. 2, 4 or 6	Loader.
		FIRST AID STATION	
S	PhM1c	Battle Dress. Sta.	First aid.
		STAND-BY CREW	
D	BM2c	At Parades	Petty officer in charge.
D	S1c	At Parades	As required.
D	S1c	At Parades	As required.
D	S1c	At Parades	As required.
D	S2c	At Parades	As required.
D	S2c	At Parades	As required.
E	F1c	At Parades	As required.

CHAPTER 16

COLLISION BILL

TABLE 16-2 (cont'd.)

COLLISION STATION ASSIGNMENTS

16-6

DIVISION	RATE	STATION	DUTIES
		STAND-BY CREW	
S	SC1c	At Parades	As required.
S	SC3c	At Parades	As required.

16-7 COLLISION AT GENERAL QUARTERS:-

When collision occurs while at GENERAL QUARTERS, the necessary measures will be taken by the REPAIR PARTIES to control damage. The remainder of crew will stay at General Quarters Stations to fight ship.

17-1

17-2

17-3

CHAPTER 17

ABANDON SHIP BILL

17-1 GENERAL:-

The Abandon Ship Bill provides for an orderly procedure to be followed when a condition arises making it necessary for all hands to leave the ship. This condition may be the direct or indirect result of enemy action, explosions, fire, collision, grounding or any other disaster which may cause the ship to be untenable.

17-2 LIFE RAFTS:-

Five life rafts, each with a capacity for twenty-five men, are provided for the debarkment of all hands on board including officers, crew and troops. The 12 ft. wherry would ordinarily be of little use but should conditions seem to warrant, it could be launched and attached to one of the rafts and used to carry extra stores and provisions.

The life rafts are located at the following points board ship:

Life Raft No. 1 - Superstructure Deck, starboard side, between frames 7 and 9.

Life Raft No. 2 - Superstructure Deck, port side, between frames 18 and 20.

Life Raft No. 3 - Superstructure Deck, starboard side, between frames 21 and 23.

Life Raft No. 4 - Superstructure Deck, port side, between frames 25 and 27.

Life Raft No. 5 - Superstructure Deck, starboard side, between frames 25 and 27.

17-3 EQUIPMENT:-

Each life raft will be equipped as follows:

2 paddles, lashed to bottom.

2 - 3 gal. water breakers, full and tested.

CHAPTER 17

ABANDON SHIP BILL

17-3 EQUIPMENT:-

Emergency ration kits.

2 drinking cups to each breaker, lashed to breaker, covered or painted on outside to stop sun reflection.

Fishing kit.

Tin of matches, watertight container.

Package of flouriscein sea marker.

7' x 8' tarpaulin for catching water, sail, etc.

3 yards yellow bunting for position marker.

First aid kit.

Painter - 50 ft. 2-1/2" - lashing lines.

Very light signalling equipment.

Waterproof flashlight.

Knife.

Spare cigarettes, if desired.

All packages, etc., must be well lashed to raft with six thread manila or its equivalent, and in addition to lashing, a retaining line must be attached so that in event raft lands upside down and gear is cut loose, it may be hauled out from under the raft. All gear can be made up to have positive buoyancy. After filling water breakers, dump out a little and breaker will have positive buoyancy. Water should be changed weekly and breaker may be sweetened by flushing occasionally with bicarbonate of soda mixture. Frequent inspections should be made to insure free working of the spigot and filling cap; putting a film of light oil on the spigot and cap thread will make these parts free to work by hand.

17-3

17-4

17-5

CHAPTER 17

ABANDON SHIP BILL

17-3 EQUIPMENT:-

The packaged articles should be well slushed with grease on the outside of the container, then covered with canvas and painted to make watertight.

First aid kits should be packed in a can, the top soldered and made watertight.

The paulin is very important, serving as a sail, a raincatcher, to attract attention and for protection against the sun, etc. The inside of the paulin should be painted a bright yellow. The sea painter must be fitted with a toggle to facilitate releasing. Knives are hard to handle if the hands are covered with grease and oil.

Do not paint rafts with other than one coat to conform with camouflage. A safety line for each member of the crew is a necessary item. It serves as a point of lift, also as a retaining line in event man passes out and must be lashed to raft.

17-4 ABANDON SHIP CALL:-

The order to abandon ship shall only be given by the Commanding Officer.

When the order has been given:

(a) Pass the word "All Hands Prepare to Abandon Ship."
(b) All hands will proceed to their abandon ship stations on the double, each man wearing a life jacket.

17-5 ABANDON SHIP STATIONS:-

It may become necessary to abandon ship under any of the four conditions of readiness. In any case, immediately the order has been given, "All Hands Prepare to Abandon Ship", all hands will proceed on the double to their abandon ship stations.

CHAPTER 17

ABANDON SHIP BILL

17-5 ABANDON SHIP STATIONS:-

The abandon ship assignments, by life rafts, is given below, for all officers, crew and troops on board.

RAFT NO. 1

Chief Boatswain's Mate — Boat Officer

	RATE	PROVIDES
1.	Seal c	Knife
2.	Sea2c	Rifle & ammunition
3.	QM3c	Signal flags
4.	RM2c	Flashlight
5.	MoMM1c	Flashlight
6.	MoMM2c	Knife
7.	EM2c	Pliers
8.	MoMM3c	Hatchet
9.	F1c	Knife
10.	F2c	Knife
11.	---	----

TROOPS: Eleven enlisted men.

Provides: One rifle with ammunition.
One service pistol with ammunition.
Each man wears service belt with bayonet and full canteen.

TOTAL - Twenty-two.

RAFT NO. 2

Executive Officer — Boat Officer

	RATE	PROVIDES
1.	BM2c	Knife
2.	Sea2c	Rifle & ammunition
3.	RM1c	Signal flags
4.	RT2c	Flashlight
5.	SC3c	Knife
6.	MoMM2c	Flashlight

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ABANDON SHIP BILL

17-5 ABANDON SHIP STATIONS:-

RAFT NO. 2

Executive Officer — Boat Officer

	RATE	PROVIDES
7.	EM1c	Pliers
8.	MoMM3c	Hatchet
9.	F1c	Knife
10.		
11.		

TROOPS: Ten enlisted men.

Provides: One rifle with ammunition.
One service pistol with ammunition.
Each man wears service belt with bayonet and filled canteen.

TOTAL - Twenty.

RAFT NO. 3

Commanding Officer — Boat Officer

	RATE	PROVIDES
1.	Cox	Knife
2.	Sea1c	Rifle & ammunition
3.	Sea2c	Knife
4.	QM1c	Signal flags
5.	RdM3c	Flashlight
6.	SK1c	Hatchet
7.	SC1c	Flashlight
8.	PhM1c	Knife
9.	MoMM1c	Pliers
10.		
11.		

CHAPTER 17

ABANDON SHIP BILL

17-5 ABANDON SHIP STATIONS:-

TROOPS: Troop Commander and ten enlisted men.

Provides: One rifle with ammunition.
One service pistol with ammunition.
Each man wears service belt with bayonet and filled canteen.

TOTAL - Twenty-one.

RAFT NO. 4

Engineering Officer — Boat Officer

	RATE	PROVIDES
1.	BM1c	Knife
2.	Sea1c	Rifle & ammunition
3.	Sea2c	Knife
4.	SM2c	Signal flags
5.	RM3c	Flashlight
6.	StM2c	Knife
7.	MoMM2c	Flashlight
8.	EM3c	Pliers
9.	MoMM3c	Hatchet
10.		
11.		

TROOPS: One officer and ten enlisted men.

Provides: One rifle with ammunition.
One service pistol with ammunition.
Each man wears service belt with bayonet and filled canteen.

TOTAL - Twenty-one.

RAFT NO. 5

Gunnery Officer — Boat Officer

	RATE	PROVIDES
1.	GM2c	Rifle & ammunition
2.	Sea1c	Knife

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CHAPTER 17

ABANDON SHIP BILL

17-5 ABANDON SHIP STATIONS:-

RAFT NO. 5

Gunnery Officer — Boat Officer

	RATE	PROVIDES
3.	Sea2c	Knife
4.	SM3c	Signal flags
5.	RdM2c	Flashlight
6.	Y2c	Flashlight
7.	StM1c	Knife
8.	CMoMM	Pliers
9.	F1c	Hatchet
10.	F2c	Knife
11.		

TROOPS: Eleven enlisted men.

Provides: One rifle with ammunition.
One service pistol with ammunition.
Each man wears service belt with bayonet and filled canteen.

TOTAL - Twenty-two.

17-6 SPECIAL INSTRUCTIONS:-

(a) All hands will wear life preservers.

(b) When troops are on board, the Troop Commander will assign the troop personnel to life rafts in accordance with the Abandon Ship Stations listed above. He will also designate what each man is to provide.

(c) When all life rafts have been loaded and are clear of the ship, they will be secured to each other by painters.

(d) In case of any of the life rafts being destroyed, the Boat Officer of each raft destroyed will re-allocate the personnel to other rafts.

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CHAPTER 17

ABANDON SHIP BILL

17-6 SPECIAL INSTRUCTIONS:-

(e) The Gunnery Officer (Communications Officer) will be responsible for saving or destroying all Secret and Confidential Publications and records on board.

CHAPTER 18

LOADING AND UNLOADING BILL
(PLATES XVIII - XIX)

18-1 GENERAL:-

The mission of the LSM makes it imperative that it be loaded and unloaded with the least possible delay.

The Loading and Unloading Bill sets forth the procedure to be followed in loading and unloading vehicles and cargo and assigns the personnel responsible for these operations.

18-2 LOADING PREPARATIONS:-

Prior to loading, at dock or when beached, the Commanding Officer will contact the officer in charge of loading and learn the nature of his cargo. He will ascertain:

(a) The number and types of vehicles with the dimensions and weight of each.
(b) The miscellaneous cargo with dimensions and weights.
(c) The number of troops.
(d) The destination and exact point of landing.
(e) The depth of water and beach gradient and all other pertinent data in accordance with paragraph 22-3, Chapter 22, "Landing and Retracting Bill."

18-3 LOADING:-

With the above information on hand, the Commanding Officer and the Executive Officer, who is the Loading Officer, will prepare a stowage plan to be followed for loading the vessel. Caution should be used in loading the vessel so as not to exceed the loaded draft limit determined by the depth of water and beach gradient at the point of unloading.

When vehicles are to be loaded, they will be backed on and stowed in accordance with PLATE XVIII, "Vehicle Lashing Arrangement and Details." Each vehicle will be secured to the deck with chains and turnbuckles, chocked and braced as shown.

CHAPTER 18

LOADING AND UNLOADING BILL

18-3 LOADING:-

If only dead weight cargo is carried, it should be stowed in such a way that the ship will ride on an even keel. It should be properly shored and secured by the loading personnel to keep it from shifting.

In an emergency where troops are being evacuated, the limited time may not permit the proper stowage of cargo. In this event, the trim of the ship can be corrected by shifting ballast until the ship has gotten safely away and the cargo can be rearranged and stowed properly.

18-4 UNLOADING PREPARATIONS:-

The preparations for unloading has been covered in Chapter 22, "Landing and Retracting."

18-5 LOADING AND UNLOADING MAT:-

The LSM is provided with a Loading and Unloading Mat to be used when the ship is loading or unloading on the beach. Complete information on this mat is given in PLATE XIX.

LSM Class

CHAPTER 19

MAN OVERBOARD BILL

19-1 GENERAL:-

The resultant action that may be necessary when a man falls overboard at sea, especially in wartime may place the ship, or a group of ships, in a hazardous situation.

Ship's officers and petty officers should impress upon each man, the serious complications that may result should they fall overboard and see that members of the crew observe all the prescribed safety precautions for preventing such accidents occurring, whether at sea or in port.

The following are some of the safety precautions incorporated in the Man Overboard Bill:

(a) At Sea:

(1) Each man will wear his lifejacket at all times while on the weather decks.

(2) Sleeping on decks above the Main Deck is prohibited at all times.

(3) Leaning against the life lines is prohibited at all times.

(4) In rough seas, special hand life lines will be rigged on the Superstructure Deck, forward and aft, for the going and coming of the crew and troops.

(5) When necessary to put men over the side for repairs, each man will wear his lifejacket and a line secured around his waist, end of line being tended by another man on deck.

(6) Net ladders for embarking or disembarking personnel from or into small boats, will be rigged (on the lee side in rough or choppy sea), in such a way as to permit the bottom end to hang, with slack, into the boat below.

CHAPTER 19

MAN OVERBOARD BILL

19-1 GENERAL:-

(a) (cont'd.)

(7) Men should never be permitted to come or go over the side with heavy weights in their arms or attached to their person. The men should ascend or descend the net ladders unencumbered and the weights hoisted or lowered by hand lines. This includes rifles slung over shoulders.

(b) In Port:

(1) Leaning against life lines is prohibited at all times.

(2) When necessary to put men over the side for cleaning, painting, repairs, etc., each man will wear his lifejacket and a line secured around his waist, one end of the line being tended by another man on deck.

(3) When at anchor, net-ladders for embarking or disembarking personnel from or into small boats, will be rigged in such a way as to permit the bottom end to hang, with slack into the boat below.

(4) Men should never be permitted to come or go over the side, with heavy weights in their arms or attached to their person. The men should ascend or descend the net-ladders unencumbered and the weights hoisted or lowered by hand lines.

19-2 MAN OVERBOARD PROCEDURE AT SEA:-

The following procedure will be followed when losing a man overboard at sea:

(a) Any person discovering the fact that a man has fallen overboard will:

CHAPTER 19

MAN OVERBOARD BILL

19-2 MAN OVERBOARD PROCEDURE AT SEA:-

(a) (cont'd.)

(1) Call out immediately, designating the side, as: "MAN OVERBOARD - PORT SIDE."

(2) Throw over the nearest lifebuoy. The lifebuoy should be thrown outboard of the man, if possible, to encourage him to keep clear of the propellers.

(3) Notify the Officer of the Deck by the quickest available means of communication.

(b) Immediately upon receiving word of a man overboard, the Officer of the Deck will see that the following procedure is carried out:

(1) DAY, Break the "FIVE" flag and half mast it.

(2) DAY, Toot the whistle in groups of five for ten seconds.

(3) NIGHT, Signal, by blinker gun, the word "FIVE" to ship astern and adjacent, if the degree of visual silence permits.

(4) Do not toot whistle at night or in fog.

(5) Pass the word, "Man Overboard - Port Side."

(6) Stand by to trip life raft as directed by the Commanding Officer.

(7) Have crew stand by to lower wherry.

(8) Maneuver ship to avoid hitting the man. When steaming in company with other ships and escorts, the Officer in Tactical Command or the Senior Officer Present will prescribe the procedure. Where "Escort Vessels" are present, flash "FIVE" at the nearest escort. Generally, the escort and one of the rear ships of the formation are designated as rescue vessels.

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CHAPTER 19

MAN OVERBOARD BILL

19-2 MAN OVERBOARD PROCEDURE AT SEA:-

(c) The maneuvers of an LSM when a man is lost overboard will be governed by Articles 520 to 524 inclusive (wartime procedure) General Tactical Instructions, FTP 188. These instructions should be read, carefully, by all ship's officers. Man Overboard Drills should be held at frequent intervals in order that the crew will become familiar and proficient in their duties.

19-3 MAN OVERBOARD PROCEDURE IN PORT:-

A lifebuoy with line will be located at the gangway at all times while in port. When the Gangway Watch learns that there is a man overboard he will carry out the following procedure immediately:

(a) Throw the lifebuoy as near to the man as possible.

(b) Pass the word such as, "MAN OVERBOARD - PORT SIDE."

(c) Sound General Alarm if necessary.

(d) Inform the Officer of the Deck and the Commanding Officer.

19-4 MAN OVERBOARD RESCUE PARTY:-

Each of the two watch sections under Condition II will have a Man Overboard Rescue Party. Both at sea and in port, the party will be furnished by the section on watch.

TABLE 19-1 following, gives the station assignments with the duties of each.

CHAPTER 19

MAN OVERBOARD BILL

TABLE 19-1

MAN OVERBOARD RESCUE PARTY

19-4

FIRST SECTION	SECOND SECTION	DUTIES
CBM	BM1c	In charge - provides two heaving lines.
MoMM1c	MoMM2c	Provides two lifejackets with lines.
EM3c	MoMM3c	Provides one grapnel with line - go in wherry if used.
StM2c	StM1c	Provides one boat hook.
Cox	BM2c	Goes in wherry if used - In charge.
Y2c	SK1c	Mans falls to lower wherry.
MoMM2c	MoMM2c	Provides two lifebuoys with lines - Mans falls to lower wherry.
S2c	S2c	(Mess cooks) Mans sternline on wherry - go in wherry if used.
SC1c	SC3c	Mans bow line on wherry.
PhM1c	PhM1c	First aid.

CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

20-1 GENERAL:-

Getting Underway and Anchoring on the LSM will be an "All Hands" evolution. The Getting Underway and Anchoring Bill, therefore, assigns stations and duties for all personnel on board for these operations.

20-2 STATION ASSIGNMENTS:-

The assignment of stations for Getting Underway and Anchoring will be in accordance with TABLE 20-1 below:

TABLE 20-1

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
	Command-ing Off.	Bridge	Officer of the Deck.
	Exec. Officer	Forecastle	In charge forward.
	Gunnery Officer	Bridge	Assists Commanding Officer.
	Eng. Officer	Aft & Engine Room	In charge aft & engine room.
		CREW	
		SHIP CONTROL	
D	BM1c	Bridge	Boatswain's Mate of Watch.
SC	QM1c	Pilot House	Steersman.
S	Y2c	Pilot House	Annunciators.
SC	SM2c	Bridge	Visual signals.

CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

TABLE 20-1 (cont'd.)

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
		SHIP CONTROL	
SC	SM3c	Bridge	Visual signals.
SC	RM1c	Radio Room	Operator.
SC	RT2c	Radio Room	Radio repairs.
SC	RdM2c	Radar Room	Operator.
SC	RdM3c	Radar Room	Operator.
SC	RM2c	Bridge	Telephones; relief operator.
S	SK1c	Bridge	Telephones.
SC	RM3c	Bridge	Telephones.
SC	QM3c	Steering Engine Room	Stand-by telephone.
E	EM2c	Gyro Compass Room	Gyro.
		ANCHOR WINDLASS	
D	CBM	Forecastle	Petty officer in charge.
D	Cox	Superstr. Deck	Windlass brake.
D	MoMM2c	Superstr. Deck	Windlass brake.
D	S1c	Forecastle	Hose.
D	S2c	Forecastle	Anchor buoy line.
E	F1c	Forecastle	Telephones.
D	S1c	Forecastle	Anchor detail.

CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

TABLE 20-1 (cont'd.)

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
		STERN ANCHOR	
D	BM2c	Stern	Petty officer in charge.
D	S1c	Stern	Brakeman.
D	S2c	Stern	Lines.
D	S2c	Stern	Anchor buoy.
E	MoMM2c	Stern	Engine operator.
E	MoMM3c	Stern	Stand-by.
E	EM3c	Stern	Telephones.
		ENGINE ROOM	
E	CMoMM	Engine Room	Petty officer in charge.
E	MoMM1c	Engine Room	Starboard throttle.
E	MoMM1c	Engine Room	Port throttle
E	MoMM2c	Engine Room	Oiler.
E	MoMM3c	Engine Room	Pumps.
E	MoMM3c	Engine Room	Telephones.
E	EM1c	Engine Room	Distribution board & generators.
E	F1c	Engine Room	Messenger.

CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

TABLE 20-1 (cont'd.)

STATION ASSIGNMENTS

20-2

DIV.	RANK OR RATE	STATION	DUTIES
		GUN CREWS	
D	GM2c	Gun Nos. 1, 3, or 5	Gunner.
E	F2c	Gun Nos. 1, 3, or 5	Range setter, loader, talker.
D	S1c	Gun Nos. 2, 4, or 6	Gunner.
E	F2c	Gun Nos. 2, 4, or 6	Range setter, loader, talker.
		SPECIAL DETAIL	
S	SC1c	Galley	Regular.
S	SC3c	Galley	Regular.
S	StM1c	Officer's Quarters	Regular.
S	StM2c	Officer's Quarters	Regular.
D	S2c	Galley	Mess cook.
D	S2c	Galley	Mess cook.
E	F1c	Galley	Mess cook.
S	PhM1c	Hospital Room	First aid.

20-3 PROCEDURE:-

The Commanding Officer will notify all heads of departments as to the time of getting underway or

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CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

20-3 PROCEDURE:-

anchoring. These officers will see that all necessary preparations in their respective departments are completed prior to getting underway and anchoring; they will report their departments ready to the Officer of the Deck.

The Officer of the Deck will see that the hyro-compass is started eight hours prior to getting underway. He will also be responsible for seeing that all routines and inspections for getting underway and anchoring are carried out and report the ship's readiness to the Commanding Officer at least 15 minutes prior to the time set.

(a) TABLE 20-2 below, sets forth the procedure to be followed in the order of events, by the Officer of the Deck, when getting underway.

TABLE 20-2

PROCEDURE FOR GETTING UNDERWAY

TIME	EVENT
45 minutes prior to getting underway	(1) Man and test all ship control telephones; secure after testing. (2) Test steering gear. (3) Test anchor engine & windlass. (4) Test voice tube communication. (5) Clear ship's side.
30 minutes prior to getting underway	(1) Test engine room order telegraph. (2) Warm up and test main engines after securing permission from Commanding Officer (3) Have CBM take ship's draft; enter data in ship's log & quartermaster's notebook.

CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

TABLE 20-2 (cont'd.)

PROCEDURE FOR GETTING UNDERWAY

20-3

TIME	EVENT
15 minutes prior to getting underway	(1) Test wheel and bridge instruments. (2) Station special sea detail in accordance with TABLE 20-1. (3) Pass word:-"All departments prepare to get underway." (4) Check to ascertain if all special sea detail stations are manned & ready. (5) Heave short. (6) Report ready for getting underway to Commanding Officer.
When ordered by Commanding Officer	(1) Notify engine room to stand by to answer all bells. (2) Up anchor; clean and secure. (3) Shift colors, lower jack and anchor ball if used. (4) At night, turn off anchor lights and turn on underway lights or darken ship as prescribed. (5) Notify gyro room of speed and latitude.
After clearing harbor	(1) Station regular sea details. (2) Secure special sea details.

NOTE: Whistle will not be used on getting underway. For testing whistle, permission must be obtained from senior officer present.

(b) TABLE 20-3 following sets forth the procedure to be followed, in the order of events, by the Officer of the Deck, when anchoring.

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CHAPTER 20

GETTING UNDERWAY AND ANCHORING BILL

TABLE 20-3

PROCEDURE FOR ANCHORING

TIME	EVENT
30 minutes before anchoring	(1) Pass the word as to the time ship expects to anchor. (2) Prepare anchor for letting go. (3) Pipe down all scrubbed clothes and bedding.
15 minutes before anchoring	(1) Pass the word, "Go to your stations all special sea details." (TABLE 20-1) (2) Check to ascertain if all special sea details stations are manned & ready. (3) Test anchor windlass. (4) Test ship control telephones. (5) Notify engine room of approaching anchorage. (6) Report ship ready for coming to anchor to Commanding Officer.
Anchoring	(1) Let go the anchor. (2) Shift colors; at night turn out running lights and turn on anchor lights if used. (3) Have CBM take ship's draft; enter data in ship's log & quartermaster's notebook. (4) Notify engine room and gyro-room to secure main engines & gyro (secure only when so directed by Commanding Officer). (5) Station regular port watch details; secure special sea details.

NOTE: Whistle will not be used on anchoring. For testing whistle permission must be obtained from Senior Officer Present.

CHAPTER 21

MOORING AND UNMOORING BILL

21-1 GENERAL:-

Mooring and Unmooring on the LSM will be an "All Hands" evolution. The Mooring and Unmooring Bill, therefore, assigns stations and duties for all personnel on board for these operations.

21-2 STATION ASSIGNMENTS:-

The assignment of stations for Mooring and Unmooring will be in accordance with TABLE 21-1 below:

TABLE 21-1

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
	Comdg. Officer	Bridge	Officer of the Deck.
	Exec. Officer	Forecastle	In charge forward.
	Gunn. Officer	Bridge	Assists Commanding Officer.
	Eng. Officer	Aft & Engine Room	In charge aft & engine room.
		CREW	
		SHIP CONTROL	
D	BM1c	Bridge	Boatswain's Mate of Watch.
SC	QM1c	Pilot House	Steersman.
S	Y2c	Pilot House	Annunciators.
SC	SM2c	Bridge	Visual signals.
SC	SM3c	Bridge	Visual signals.

LSM Class

CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-1 (cont'd.)

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
		CREW	
		SHIP CONTROL	
SC	RM1c	Radio Room	Operator.
SC	RT2c	Radio Room	Radio repairs.
SC	RdM2c	Radar Room	Operator.
SC	RdM3c	Radar Room	Operator.
SC	RM2c	Bridge	Telephones & relief operator.
S	SK1c	Bridge	Telephones.
SC	RM3c	Bridge	Telephones.
SC	QM3c	Steering Eng. Rm.	Stand by telephone.
E	EM2c	Gyro Comp. Room	Gyro.
		ENGINE ROOM	
E	CMoMM	Engine Room	Petty officer in charge.
E	MoMM1c	Engine Room	Starboard throttle.
E	MoMM1c	Engine Room	Port throttle.
E	MoMM2c	Engine Room	Oiler.
E	MoMM3c	Engine Room	Pumps.

21-2

DIV.
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CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-1 (cont'd.)

STATION ASSIGNMENTS

DIV.	RANK OR RATE	STATION	DUTIES
		ENGINE ROOM	
E	MoMM3c	Engine Room	Telephones.
E	EM1c	Engine Room	Distribution board & generators.
E	F1c	Engine Room	Messenger.
		GUN CREWS	
D	GM2c	Gun Nos. 1, 3 or 5	Gunner.
E	F2c	Gun Nos. 1, 3 or 5	Range setter, loader & talker.
D	S1c	Gun Nos. 2, 4 or 6	Gunner.
E	F2c	Gun Nos. 2, 4 or 6	Range setter, loader & talker.
		FORWARD MOORING PARTY	
D	CBM	Superstr. Deck	Petty officer in charge.
D	Cox	Superstr. Deck	No. 1-line.
E	MoMM2c	Superstr. Deck	Windlass.
D	S1c	Superstr. Deck	No. 2-line.

LSM Class

CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-1 (cont'd.)

STATION ASSIGNMENTS

21-2

DIV.	RANK OR RATE	STATION	DUTIES
		FORWARD MOORING PARTY	
D	S2c	Superstr. Deck	No. 3-line.
E	F1c	Superstr. Deck	Telephones.
D	S1c	Forecastle	Lines.
		AFTER MOORING PARTY	
D	BM2c	After Super. Deck	Petty officer in charge.
D	S1c	After Super. Deck	No. 6-line.
D	S2c	After Super. Deck	No. 5-line.
D	S2c	After Super. Deck	No. 4-line.
E	MoMM2c	After Main Deck	Stern anchor engine.
E	MoMM3c	After Main Deck	Brakeman.
E	EM3c	After Super. Deck	Telephones.
		SPECIAL DETAIL	
S	SC1c	Galley	Regular.

CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-1 (cont'd.)

STATION ASSIGNMENTS

21-2

DIV.	RANK OR RATE	STATION	DUTIES
		SPECIAL DETAIL	
S	SC3c	Galley	Regular.
S	StM1c	Officer's Quarters	Regular.
S	StM2c	Officer's Quarters	Regular.
D	S2c	Galley	Mess cook.
D	S2c	Galley	Mess cook.
E	F1c	Galley	Mess cook.
S	PhM1c	Hospital Room	First aid.

21-3 KINDS OF MOORINGS:-

For the purposes of this manual, there are three kinds of moorings:-

(a) Mooring alongside a dock.
(b) Mooring alongside another vessel.
(c) Mooring to a buoy.

21-4 PROCEDURE:-

The Commanding Officer will notify all heads of departments as to the time of mooring or unmooring. These officers will see that all necessary preparations in their respective departments are completed prior to mooring or unmooring; they will report their departments ready to the Officer of the Deck.

CHAPTER 21

MOORING AND UNMOORING BILL

21-4 PROCEDURE:-

The Officer of the Deck will see that the gyro-compass is started eight hours prior to getting underway. He will also be responsible for seeing that all routines and inspections for mooring and unmooring are carried out and report the ship's readiness to the Commanding Officer at least 15 minutes prior to the time set.

(a) TABLE 21-2 below, sets forth the procedure to be followed, in the order of events, by the Officer of the Deck, when mooring.

TABLE 21-2

PROCEDURE FOR MOORING

TIME	EVENT
30 Minutes before mooring	(1) Pass the word as to the time ship expects to moor and where. (2) Prepare mooring lines or mooring cable if buoy mooring. (3) Pipe down all scrubbed clothes and bedding.
15 Minutes before mooring	(1) Pass the word, "Go to your stations all special sea details" (TABLE 21-1) (2) Check to ascertain if all special sea detail stations are manned and ready. (3) Test anchor windlass. (4) Test stern anchor engine. (5) Test ship control telephones. (6) Notify engine room of approaching mooring. (7) Report ship ready for mooring to Commanding Officer.

CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-2 (cont'd.)

PROCEDURE FOR MOORING

21-4

TIME	EVENT
Mooring	(1) Put out lines as required. (2) Shift colors; at night turn out running lights and turn on anchor lights if used. (3) Have CBM take ship's draft; center data in ship's log and quartermaster's note book. (4) Notify engine room and gyro-room to secure main engines and gyro. (Secure only when so directed by Commanding Officer). (5) Station regular port watch details; secure special sea details.

NOTE: Whistle will not be used on mooring. For testing whistle, permission must be obtained from Senior Officer Present.

(b) TABLE 21-3 below, sets forth the procedure to be followed in the order of events, by the Officer of the Deck, when unmooring.

TABLE 21-3

PROCEDURE FOR UNMOORING

TIME	EVENT
45 Minutes prior to unmooring.	(1) Man and test all ship control telephones; secure after testing. (2) Test steering gear. (3) Test anchor engine and windlass. (4) Test voice tube communication. (5) Clear ship's side.

CHAPTER 21

MOORING AND UNMOORING BILL

TABLE 21-3 (cont'd.)

PROCEDURE FOR UNMOORING

TIME	EVENT
30 Minutes prior to unmooring.	(1) Test engine room order telegraph. (2) Warm up and test main engines after securing permission from Commanding Officer. (3) Have CBM take ship's draft; enter data in ship's log and quartermaster's note book.
15 Minutes prior to unmooring.	(1) Test wheel and bridge instruments. (2) Station special sea detail in accordance with TABLE 21-1. (3) Pass word "All departments prepare to get underway." (4) Check to ascertain if all special sea detail stations manned and ready. (5) Stand by all lines. (6) Report ready for getting underway to Commanding Officer.
When ordered by Commanding Officer.	(1) Notify engine room to standby to answer all bells. (2) Cast of lines as required. (3) Shift colors, lower jack. (4) At night, turn off anchor lights and turn on underway lights or darken ship as prescribed. (5) Notify gyro-room of speed and latitude.
After clearing harbor.	(1) Station regular sea details; secure special sea details.

NOTE: Whistle will not be used on getting underway. For testing whistle permission must be obtained from Senior Officer Present.

CHAPTER 21

MOORING AND UNMOORING BILL

21-5 HANDLING LINES:-

(a) Mooring alongside of dock or another vessel:

Lines properly handled are of the greatest assistance in coming alongside or leaving a dock or another vessel. To prevent confusion and to make for efficient line handling while mooring or unmooring, lines are numbered from forward to aft according to their position on board ship. Diagrammatic Sketch 21-4 shows the location and numbering of the principal mooring lines for the LSM. Additional lines may be used as necessary in which case the numbers of the lines are changed accordingly. The following information is given regarding the various lines used in mooring a vessel to a dock or to another vessel.

(1) Bow Line is the line run through the forward chock as close to the stem as possible and led forward up the dock. It is used to check the aft motion of the ship and to bring the bow into the dock.

(2) Stern Line is the line run through the stern chock and led aft on the dock. It is used to check the forward motion of the ship and to bring the stern into the dock.

(3) A Spring Line leads forward or aft and checks the forward and aft movement of the vessel.

The After Bow Spring leads aft from the bow and checks the forward movement.

The Forward Bow Spring leads forward from the bow and checks the aft movement.

The After Quarter Spring leads aft from the after quarter and checks the forward movement.

The Forward Quarter Spring leads forward from the after quarter and checks the aft movement.

CHAPTER 21

MOORING AND UNMOORING BILL

21-5 HANDLING LINES:-

(a) (cont'd.)

(4) A Breast Line leads out at right angles to the ship's keel and prevents the ship from moving athwartships away from the dock. If only a Breast Line is out and the ship is moving forward or aft, the ship will be sprung into the dock and the Breast Line becomes a Spring Line.

NOMENCLATURE

1 - Bow Line
2 - After Bow Spring
3 - Forward Bow Spring
4 - After Quarter Spring
5 - Forward Quarter Spring
6 - Stern Line

DIAGRAMMATIC SKETCH 21-4

ARRANGEMENT OF MOORING LINES ON THE LSM

March 1, 1944

CHAPTER 21

MOORING AND UNMOORING BILL

21-5 HANDLING LINES:-

(a) (cont'd.)

Prior to coming alongside a dock or another vessel, the required lines with eye splices on the shore ends will be made ready. Each line will be led through the proper chock and up and over the life lines. Heaving lines will be made fast near the eye splices and not at the end of the eye where it would become jammed when the eye is put over the ballard on the dock. Heaving lines should be passed as soon as it is possible and the heavy mooring lines to which they are attached can be run when the ship has progressed closer to and farther up the dock. As the ship works her way up the dock, the lines should be fleeted (shifted from place to place) up the dock in short fleets so as to keep them in proper position for use as required.

If the eyes of two lines are to be placed over the same ballard, the second must be led up and through the eye of the first and then placed over the ballard. This makes it possible to cast off either independently of the other.

(b) Mooring to a Buoy

It may often be necessary for an LSM to moor to a buoy where docking space is not available and the water is too deep for anchoring.

When mooring to a buoy, the Forward Mooring Party will make the necessary preparations and carry out the actual securing of the ship to the buoy. If conditions make it necessary to use the wherry it will be manned by the After Mooring Party.

Detailed instructions on mooring a vessel to a buoy are given in the Knight's Seamanship and should be carefully read.

CHAPTER 22

LANDING AND RETRACTING BILL

22-1 GENERAL:-

The Landing and Retracting Bill designates the stations and the personnel assignments when the ship beaches and retracts from the beach. These operations are carried out under Condition I-M.

22-2 CONDITION I-M:-

Condition I-M is set from Condition I, General Quarters. When in Condition I-M, there will be one watch section; all guns and Landing and Retracting stations will be manned in accordance with TABLE 22-1 below:

TABLE 22-1

LANDING AND RETRACTING STATIONS - OFFICERS

DEPARTMENT	STATION	DUTIES
1. Commanding Officer	Bridge or Conn.	Conning & general direction.
2. Executive Officer	Forward	In Charge Doors and Ramp. Damage Control.
3. Gunnery Officer	Bridge	Fire Control.
4. Engineering Officer	Engine Room & Aft	In Charge engine room; stern anchor.

LANDING AND RETRACTING STATIONS - CREW

DIVISION	RATE	STATION	DUTIES
SC	QM1c	Pilot House	Steersman.
S	Y2c	Pilot House	Annunciators.
SC	RM1c	Radio Room	Radio operator.
SC	RT2c	Radio Room	Radio repair.

CHAPTER 22

LANDING AND RETRACTING BILL

22-2 CONDITION I-M:-

TABLE 22-1 (cont'd.)

LANDING AND RETRACTING STATIONS - CREW

DIVISION	RATE	STATION	DUTIES
SC	RdM2c	Radar Room	Radar operator.
SC	RdM3c	Bridge	Telephones & relief operator.
SC	RM2c	Bridge	Telephones & relief operator.
SC	SM2c	Signal Bridge	Visual signals.
SC	SM3c	Bridge	Records signals; relief steersman.
SC	QM3c	Steering Eng. Room	Steering engine.
S	SK1c	Bridge	Telephones & relief annunciators.
		GUN CREWS	
D S	BM2c SC1c	Gun No. 1 Gun No. 1	Gunner. Range setter, talker & loader.
D S	Cox StM1c	Gun No. 2 Gun No. 2	Gunner. Range setter, talker & loader.
D S	GM2c StM2c	Gun No. 3 Gun No. 3	Gunner. Range setter, talker & loader.
D S	Sealc SC3c	Gun No. 4 Gun No. 4	Gunner. Range setter, talker & loader.
D E	Sealc F1c	Gun No. 5 Gun No. 5	Gunner. Range setter, talker & loader.
D E	Sealc F1c	Gun No. 6 Gun No. 6	Gunner. Range setter, talker & loader.

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CHAPTER 22

LANDING AND RETRACTING BILL

22-2 CONDITION I-M:-

TABLE 22-1 (cont'd.)

LANDING AND RETRACTING STATIONS - CREW

DIVISION	RATE	STATION	DUTIES
		ENGINE ROOM	
E	CMoMM	Engine Room	P.O. in charge & starboard throttle.
E	MoMM1c	Engine Room	Port throttle.
E	EM1c	Engine Room	Dist. board & generators.
E	MoMM2c	Engine Room	Ballast pumps.
E	MoMM3c	Engine Room	Telephones.
		BOW DOOR & RAMP DETAIL (Forward Repair Party)	
D	CBM	Forward	In charge.
D	Sea1c	Forward	Undogging detail.
D	F1c	Forward	Undogging detail.
D	Sea2c	Forward	Emergency block & tackle.
E	MoMM1c	Port Control Room	Ramp controls.
E	MoMM2c	Stbd. Control Room	Bow door controls.
E	EM2c	Port Control Room	Ramp controls.
E	MoMM3c	Windlass Machine Room	Windlass & Capstan.

CHAPTER 22

LANDING AND RETRACTING BILL

22-2 CONDITION I-M:-

TABLE 22-1 (cont'd.)

LANDING AND RETRACTING STATIONS - CREW

DIVISION	RATE	STATION	DUTIES
		BOW DOOR & RAMP DETAIL (Forward Repair Party)	
E	MoMM3c	Forward	Assist as needed.
E	F2c	Stbd. Control Room	Telephones.
SC	RM3c	Port Control Room	Telephones.
		STERN ANCHOR DETAIL (After Repair Party)	
D	BM1c	Aft	In charge
D	Sea2c	Aft	Block & tackle.
D	Sea2c	Aft	Anchor buoy & hose.
D	Sea2c	Aft	Assists as needed.
E	MoMM2c	Aft	Stern anchor engine.
E	F2c	Aft	Brakeman & ass't. operator.
E	EM3c	Aft	Telephones.
E	S2c	Aft	Assists as needed.
		FIRST AID STATION	
S	PhM1c	Battle Dressing.	First aid.

CHAPTER 22

LANDING AND RETRACTING BILL

22-3 BEACHING PLAN:-

Prior to actual beaching, the Commanding Officer should have a Beaching Plan. This plan should include information concerning the following:

(a) Exact location of the beachhead.
(b) Exact time of landing.
(c) Kind of bottom - sandy, muddy, rocky, etc.
(d) Off shore shoals, bars or underwater obstacles.
(e) Depths of water and beach gradient.
(f) Condition of sea and state of tide.
(g) Set and drift of current.
(h) Direction and velocity of wind.
(i) Description of beach and surrounding terrain.
(j) Any known navigational aids.
(k) Trim of ship; make sure that stern will not beach before bow.
(l) It will always be assumed that strong enemy opposition will be encountered.

22-4 BEACHING PREPARATIONS:-

Prior to actual beaching, the Heads of Departments and the Troop Commander should be familiar with the Beaching Plan. The Troop Commander will issue all necessary orders to his troops which will insure their being in all respects ready to disembark with equipment and vehicles immediately the landing has been effected. Department Heads will also issue orders to their respective personnel which are necessary to prepare the ship for beaching.

The following is a general outline of the preparations necessary:

(a) Condition I-M should be set from 15 to 30 minutes before the scheduled landing; the time depending upon conditions prevailing. Stations will be manned as shown in TABLE 22-1.

CHAPTER 22

LANDING AND RETRACTING BILL

22-4 BEACHING PREPARATIONS:-

(b) Bow Door & Ramp Detail:
(1) Undog and prepare bow doors and ramp for opening.
(2) Test out bow door machinery.
(3) Test out ramp controls.
(4) Test out windlass machinery.
(5) Have emergency tackle for opening bow doors and hoisting ramp, standing by.
(6) Test telephone and power circuits.
(7) Report station, manned and ready, to Commanding Officer.

(c) Stern Anchor Detail:
(1) Make stern anchor ready for letting go.
(2) Test out stern anchor engine.
(3) Test telephone and power circuits.
(4) Report station manned and ready to Commanding Officer.

(d) Troops:
(1) Warm up and test equipment.
(2) Man two CO_2 fire extinguishers and have adequate sand on hand to extinguish fires that may be started by engine backfires.
(3) Unlash vehicles and have them ready to roll.
(4) Troop Commander report to Commanding Officer when all vehicles manned and ready for unloading.

(e) Other Stations:
(1) Test out and make reports as for General Quarters.

22-5 BEACHING OPERATION:-

When all preparations have been made and all stations have reported "Manned And Ready" the ship is ready for beaching. The Commanding Officer will then issue the following command by telephone to all stations:

"Stand By To Beach"

CHAPTER 22

LANDING AND RETRACTING BILL

22-5 BEACHING OPERATION:-

The sequence of commands and events will then proceed in following order:

(a) "Open Bow Doors"

When the bow doors are open the Boatswain of the Bow Door And Ramp Detail will report:

"Bow Doors Open."

(b) When the ship is about three lengths from the beach, the Commanding Officer will order:

"Let Go The Stern Anchor."

When the stern anchor has been released the Boatswain's Mate of the Stern Anchor Detail will report:

"Stern Anchor Let Go."

(c) As the bow of the ship touches the beach the Commanding Officer will order:

"Lower Ramp."

(It should be noted that the ramp should be partly lowered prior to the time the bow of the ship touches the beach and the order "Lower Ramp" is given).

When the ramp has been lowered, the Boatswain's Mate will report:

"Ramp Lowered."

(d) The ship is now beached and the Commanding Officer orders:

"Commence Disembarking."

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LANDING AND RETRACTING BILL

22-5 BEACHING OPERATION:-

(e) Immediately upon the debarkation of the landing force, the Commanding Officer will order:

"Take A Strain On the Stern Anchor."

In carrying out this order, the Stern Anchor Detail should exercise care to avoid breaking out the anchor.

In the Beaching Plan, the Commanding Officer will have already worked out the problems which will affect the actual landing of the ship during the beaching operation.

Due to wind, tide and sea conditions, it may be necessary to bring the ship in at an angle in order to put the bow square on the beach. For the same reasons it may be necessary to continue to use the engines and the stern anchor to keep on the beach and to keep from broaching and this is particularly important while loading and unloading.

When the ship has been beached, at least four soundings should be made at four points on each side in order that the exact position of the ship with relation to the bottom is available.

22-6 RETRACTING PLAN:-

The Retracting Plan should include information concerning the following:

(a) Exact time of retracting.
(b) Kind of bottom - sandy, muddy, rocky, etc.
(c) Off shore shoals, bars or underwater obstacles.
(d) Depths of water and beach gradient.
(e) Condition of sea and state of tide.
(f) Set and drift of current.
(g) Direction and velocity of wind.
(h) Any known navigational aids.

CHAPTER 22

LANDING AND RETRACTING BILL

22-6 RETRACTING PLAN:-

(i) Position of ship relative to bottom and beach.
(j) Position of ship relative to other ships.
(k) Trim of ship, necessity of adjusting ballast due to effect of loading or unloading of cargo.
(l) Safe distance necessary to move astern before turning.
(m) It will always be assumed that strong enemy opposition will be encountered.

22-7 RETRACTING PREPARATIONS:-

If the retracting takes place immediately following the debarkment of the Landing Force, no preliminary preparations are necessary. Otherwise, the same procedure as given under "Beaching Preparations" will be followed.

22-8 RETRACTING OPERATION:-

The ship being in all respects ready to retract from the beach, the Commanding Officer will give the following order:

"Shift Ballast"

It is to be noted that no hard and fast rule can be laid down as to when and how ballast should be adjusted. If retracting in an unloaded condition, the ship may be lightened enough by the discharge of the cargo to require no shifting of ballast. When landing on a beach in an unloaded condition it is considered sound practice to ballast down forward, then when loading has been completed and the ship is ready to retract, to pump out the ballast.

When the ballast problem has been satisfied, the Commanding Officer will then issue the following command by telephone to all stations:

"Stand by to Retract"

CHAPTER 22

LANDING AND RETRACTING BILL

22-8 RETRACTING OPERATION:-

The sequence of commands and events will then proceed in the following order:

(a) The Commanding Officer will order:

"Hoist Ramp."

As soon as the ramp is raised into position the Boatswain's Mate will report:

"Ramp Up And Ready for Securing."

This operation may be accomplished prior to shifting ballast, depending upon conditions prevailing.

(b) The ship now begins to retract from the beach by backing down on the engines and taking a heavy strain on the stern anchor. Care must be exercised by the Stern Anchor Detail to avoid "breaking out" the anchor. As soon as the ship starts to move off the beach the engines must be stopped immediately to avoid overrunning the anchor. The engines should be used only enough to start the ship, then the ship is hauled out by the stern anchor cable and the anchor weighed. The ship should then be backed down until well clear of the beach before attempting to turn out to sea.

(c) When the ramp has been reported raised the Commanding Officer will order:

"Close Bow Doors"

When the doors are closed the Boatswain's Mate will report:

"Doors Closed."

(d) The Commanding Officer will then order:

"Dog Down Doors & Ramp"

CHAPTER 22

LANDING AND RETRACTING BILL

22-8 RETRACTING OPERATION:-

(d) (cont'd.)

When this has been accomplished the Boatswain's Mate will report:

"Doors And Ramp Secured."

The ship has now been retracted and ready for sea.

CHAPTER 23

TOWING BILL
(PLATE IV)

23-1 GENERAL:-

The Towing Bill provides for the procedure to be followed and the assignment of personnel for:

(a) Towing another vessel.
(b) Towed by another vessel.

23-2 TOWING EQUIPMENT:-

The complete towing gear provided the LSM is shown in PLATE IV.

23-3 PREPARATIONS ON TOWING VESSEL:-

(a) Stop off stern anchor using additional stopper.
(b) Unshackle stern anchor wire from stern anchor and lead enough out to stop off at quarter rail.
(c) Bend 30 fathoms of 2" manila with rolling hitch to wire about five feet inboard of open socket splice, as messenger. Fake rest of line (messenger) on deck clear for running.
(d) Bend two 21 thread lines of 30 fathoms each to the 2" manila messenger and lead enough outboard to reach rail for heaving.
(e) Test stern anchor winch engine.
(f) Man telephones from stern winch to engine room and bridge.

23-4 PREPARATIONS ON TOWED VESSEL:-

(a) Rig towing bridle and flounder plate as shown in PLATE IV.
(b) Rig 21 thread messenger through flounder plate shackles for raising and easing away on towing bridle. Have flounder plate raised to rail.
(c) Test anchor windlass capstan for proper working order.
(d) Man telephone from anchor windlass to bridge and engine room.

CHAPTER 23

TOWING BILL

23-5 TAKING IN TOW:-

(a) Towing vessel approaches tow from astern on parallel course and to windward of towed ship, using slow speed.
(b) When amidships section is abreast of the bow of the vessel to be towed, the heaving lines are thrown from the towing vessel and the vessel to be towed takes in this line through the bow chock.
(c) When messenger is on board the vessel to be towed, it is taken to the capstan and heaved in until the eye of the towing wire reaches the bow chock.
(d) Shackle eye into flounder plate of towing bridle.
(e) When eye has been shackled, ease away on flounder plate messenger and towing cable messenger until both are slack.
(f) Towing vessel goes ahead slowly in order that towing cable will pay out.
(g) When desired scope of cable has been let out, towing vessel sets up on winch brake.
(h) Towing vessel works up speed slowly so as not to put too much strain on towing cable.
(i) Vessel being towed should assist towing vessel by steering in the wake of towing vessel.

23-6 CASTING OFF TOW:-

(a) When signal is given to cast off, the towing vessel eases strain on towing cable.
(b) Towed vessel heaves in on messenger until flounder plate can be brought to rail.
(c) Unshackle towing cable from flounder plate, clear deck of unnecessary men and then walk back on wire messenger until a good slack comes, then throw off all turns from capstan and allow messenger to run.
(d) Towing vessel takes in towing cable on anchor winch.
(e) In the event of an emergency that requires towing vessel to release tow prior to informing towed vessel, run out towing cable to the bitter end, cut it with cable cutter.

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CHAPTER 23

TOWING BILL

23-7 SIGNALS:

A system of signals should be arranged for between the towing vessel and the vessel being towed to cover all contingencies that may arise during the towing period.

23-8 STATION ASSIGNMENTS:-

When it becomes necessary to be towed or tow another vessel, the Boatswain's Mate of the Watch will pass the word when directed by the Officer of the Deck, "Towing Detail on Deck, Rig Towing Gear." The Towing Detail is given in TABLE 23-1 below. When the ship is to be towed the party proceeds forward; when the ship is to tow the party will proceed aft.

TABLE 23-1

TOWING STATION ASSIGNMENTS

DIVISION	RANK OR RATE	STATION	DUTIES
Officer	Executive Officer	Forward or Aft	Officer in charge.
D	CBM	Forward or Aft	Petty Officer in charge.
D	BM1c	Forward or Aft	Rigs towing gear.
D	S1c	Forward or Aft	Handles lines.
D	S2c	Forward or Aft	Handles lines.
D	S2c	Forward or Aft	Handles lines.
D	S2c	Forward or Aft	Handles lines.

CHAPTER 23

TOWING BILL

TABLE 23-1 (cont'd.)

23-8

TOWING STATION ASSIGNMENTS

DIVISION	RANK OR RATE	STATION	DUTIES
E	EM3c	Forward or Aft	Stand-by.
SC	RM3c	Forward or Aft	Telephone to bridge.
E	F1c	Forward or Aft	Telephone to engine room.

CHAPTER 24

FUELING BILL
(PLATE XX)

24-1 GENERAL:-

The conditions of war present many problems in connection with the fueling of vessels. The Fueling Bill sets up the procedure to be followed and assigns the necessary personnel for fueling under all conditions that may arise.

24-2 CONDITIONS OF FUELING:-

The following conditions of fueling are considered:

(a) Fueling at dock.
(b) Fueling from barge, tanker or another vessel in port.
(c) Fueling from tanker or another vessel at sea.
(d) Fueling a shore station.
(e) Fueling another vessel in port.
(f) Fueling another vessel at sea.

24-3 DIESEL OIL FILLING CONNECTIONS:-

The Diesel oil storage tanks are filled through 2-1/2" deck filling connections fitted with caps and chains. TABLE 24-1 shows the location of these filling connections, their control valves and the fuel oil tanks they serve.

TABLE 24-1

DIESEL OIL FILLING CONNECTIONS

LOCATION OF CONN.				D.O. FILLING CAP			D.O. TANKS & 95% (GALS.) CAPS.
CONN. NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	
0	P	13-14	Super.	D.O. Filling A-902F	P	13-14	A-902F 4751
1	S	13-14	Super.	D.O. Filling A-903F	S	13-14	A-903F 4530

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FUELING BILL

TABLE 24-1 (cont'd.)

24-3

DIESEL OIL FILLING CONNECTIONS

LOCATION OF CONN.				D.O. FILLING CAP			D.O. TANKS & 95% (GALS.) CAPS.
CONN. NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	
2	P	13-14	Super.	D.O. Filling A-904F	P	13-14	A-904F 4530
3	S	15-16	Super.	D.O. Filling A-905F	S	15-16	A-905F 5014
4	P	15-16	Super.	D.O. Filling A-906F	P	15-16	A-906F 5105
5	S	15-16	Super.	D.O. Filling A-907F	S	15-16	A-907F 5105
6	P	17-18	Super.	D.O. Filling A-908F	P	17-18	A-908F 1727
7	S	19-20	Super.	D.O. Filling A-909F	S	19-20	A-909F 3408
8	P	17-18	Super.	D.O. Filling A-910F	P	17-18	A-910F 3408
9	S	27-28	Super.	D.O. Filling C-203F	S	27-28	C-203F 9135
*10	P	20	Super.	D.O. Deck Filling	P	19-20	See Note -

* This is a 2" cut-out valve for deck filling and discharge line terminating with 1-1/2" hose connection for motor-boat servicing. Fuel oil transfer by portable submersible pump of LSM tanks shall be made through same connection.

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FUELING BILL

24-4 LUBRICATING OIL FILLING CONNECTIONS:-

The lubricating oil storage tanks are filled through 2" deck filling connections fitted with caps and chains. TABLE 24-2 shows the location of these filling connections, their control valves and the lubricating oil tanks they serve.

TABLE 24-2

LUBRICATING OIL FILLING CONNECTIONS

LOCATION OF CONN.				L.O. FILLING PLATE			L.O. TANKS & 95% (GALS.) CAPS.
CONN. NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	
*1	S	20-21	Super.	L.O. Fill. & Disch. to Deck	S	20-21	A-213Lub. 1934
*2	P	19-20	Super.	L.O. Fill. & Disch. to Deck	P	19-20	A-215Lub. 685

* These same connections are also used when discharging.

24-5 DIESEL OIL STORAGE TANKS SOUNDING TUBES:-

The Diesel oil storage tanks are fitted with 1-1/2" sounding tubes. A Sounding cap is fitted to the top of each pipe. TABLE 24-3 shows the location of these sounding tubes.

TABLE 24-3

DIESEL OIL STORAGE TANKS SOUNDING TUBES

LOCATION OF TUBE				SOUNDING TUBE PLATE			
TUBE NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	D.O. TANK
0	P	11-12	Tank Well	Sounding A-902F	P	11-12	A-902F*

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FUELING BILL

TABLE 24-3 (cont'd.)

24-5 DIESEL OIL STORAGE TANKS SOUNDING TUBES

LOCATION OF TUBE				SOUNDING TUBE PLATE			
TUBE NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	D.O. TANK
1	S	11-12	Tank Well	Sounding A-903F	S	11-12	A-903F*
2	P	11-12	Tank Well	Sounding A-904F	P	11-12	A-904F*
3	S	14-15	Main A-103L	Sounding A-905F	S	14-15	A-905F*
4	P	14-15	Tank Well	Sounding A-906F	P	14-15	A-906F*
5	S	14-15	Tank Well	Sounding A-907F	S	14-15	A-907F*
6	P	17-18	Tank Well	Sounding A-908F	P	17-18	A-908F*
7	S	17-18	Tank Well	Sounding A-909F	S	17-18	A-909F*
8	P	17-18	Tank Well	Sounding A-910F	P	17-18	A-910F*
9	P	27-28	Tank Well	Sounding C-203F	P	27-28	C-203F*

* Diesel oil tank capacities are given in TABLE 24-1.

24-6 LUBRICATING OIL STORAGE TANKS SOUNDING TUBES:-

The lubricating oil storage tanks are sounded by means of trycock level indicators which are connected with hand pump and sight flow which in turn is provided with a return pipe. This arrangement is located on the forward engine room bulkhead, starboard side.

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FUELING BILL

24-6 LUBRICATING OIL STORAGE TANKS SOUNDING TUBES:-

These tanks, A-213Lub. and A-215Lub., are provided with individual, combination overflow and air escape lines terminating on the starboard bulkhead of the Tank Well Deck, between frames 18 and 19.

24-7 PUMPING EQUIPMENT:-

The arrangement of the piping and valves of the Diesel oil system is such as to permit pumping Diesel oil from the vessel's tanks to another vessel or shore station. Flexible fueling hose is provided for fitting to the 2" filling and discharge connection, indicated as connection No. 10 in TABLE 24-1.

The pumping power is furnished by the temporary connection of a hose on the discharge side of ballast pump. This arrangement consists of a blind flange with connection for the hose.

24-8 FUELING PROCEDURE - GENERAL:-

(a) The Executive Officer (First Lieutenant) will be in general charge of fueling operations in so far as seamanship is concerned. He will be responsible for:

(1) The handling of all lines and tackle.
(2) The placing of fenders.
(3) Putting chafing gear on fuel hoses as necessary.
(4) That the draft of the ship is taken before and after fueling and reported to the Officer of the Deck.

See C&R Manual, Article 1421; BuShips Manual, Chapter 55.

(b) The Engineering Officer will be in charge of the actual fueling operations in so far as concerns the following:

(1) That the instructions contained in Navy Regulations, Manual of Engineering Instructions, and all other orders issued by competent authority are complied with.

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FUELING BILL

24-8 FUELING PROCEDURE - GENERAL:-

(b) (cont'd.)

(2) That all safety precautions coming under the Engineering Department are rigidly enforced.
(3) That all oil tanks, prior to fueling, are trimmed in such a manner as to permit fueling rapidly.
(4) That soundings of tanks and tests of fuel are carefully made.
(5) That the Officer of the Deck is kept informed of the progress of fueling; the times of starting and completion and the amount of fuel taken or discharged.
(6) The Engineering force will connect and disconnect the fueling hose.

See MEI, Article 5-135; C&R Manual, Article 1421, BuShips Manual, Chapter 55.

(c) The Officer of the Deck is responsible for the enforcement of safety measures which principally concern the deck force and the ship as a whole. It is his duty to see that the following measures are complied with:

(1) That smoking lamp is out.
(2) That no naked lights are within 50 feet of fueling hoses or oil tank vents.
(3) That powder flag is hoisted.
(4) That high frequency radio is secured.
(5) That all electrical appliances and machinery likely to spark that are within 50 feet of fueling hoses or oil tanks vents are secured.
(6) That draft of ship before and after fueling is entered in the log.
(7) That the time of starting and completion of fueling and the amount of fuel taken or discharged are entered in the log.
(8) That a watch is maintained on all open manholes.

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FUELING BILL

24-9 FUELING IN PORT:-

Fueling in port requires consideration of the following conditions, any of which may become necessary:-

(a) Fueling at a dock.
(b) Fueling from a barge, tanker or another vessel.
(c) Fueling a shore station.
(d) Fueling another vessel.

The fueling operation in port offers no particular problem and with minor exceptions as noted, is substantially the same for all the conditions listed above.

The handling of lines and fueling operations will be done in the same manner and by the same details as given in TABLE 24-4 following.

The fueling hose will be connected and disconnected by the engineering force.

24-10 FUELING AT SEA - GENERAL:-

Naval operations, under the present conditions of war, frequently make necessary, the fueling of ships at sea and often under the most difficult circumstances.

Instances have occurred where fueling has been accomplished at night, during darkened ship, at fifteen knots and zig-zagging.

Under the best conditions, fueling at sea calls for cool-headedness, first class seamanship and the cooperation and coordination of all hands concerned.

Only two lines are used in fueling at sea, the tow line and the spring line.

Where the fueling ship has no boom to handle the fueling hose, a third line is necessary to support the hose.

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FUELING BILL

24-10 FUELING AT SEA - GENERAL:-

The tow line is almost always set at a predetermined length and should need little or no tending.

The spring line is always tended on the fueling ship. The purpose of this line is to prevent the head of the vessel being fueled from taking an erratic swing away from the fueling vessel and swinging her stern against the side of the fueling vessel.

The tow line should be passed first with the spring line always under the tow line.

Normally, the distance between the sides of the fueling vessels is between twenty and fifty feet depending upon conditions at the time of fueling.

The location of fenders along the side is important in case the two vessels come together as often happens; two portable fenders should also be ready for use.

All lines are normally furnished by the fueling ship.

24-11 LSM FUELING AT SEA FROM TANKER:-

(a) PREPARATIONS ON FUELING SHIP

(1) Fueling Details man their stations.
(2) Break down the life lines on the fueling side; rig temporary lines inboard if necessary.
(3) Rig 70 fathoms of 6" or 8" manila, through most forward chock on fueling side for towing line. Bring back along outside of rail so that 90 feet is available as towing line; stop off along rail. Attach 25 fathoms of 3" or 4" manila messenger below eye of towing line. Attach 2" or 2-1/2" manila messenger with heaving line to the 4" messenger and have ready for passing to the LSM.

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24-11 LSM FUELING AT SEA FROM TANKER:-

(a) (cont'd.)

(4) Rig 25 fathoms of 6" manila through chock next to the most forward on fueling side for breast line.

(5) Rig give cane fenders along the fueling side, spaced at equal intervals and about halfway between the waterline and the main deck. Have three small portable fenders ready for use on the fueling side.

(6) Rig fueling hose with saddles. Attach quick releasing coupling to end of hose. Rig 25 fathoms of 4" manila secured 20 feet from outboard end of hose with a clove hitch; stop off at three foot intervals to bitter end of hose. This line should be clove hitched at about its center so that it can be tended on the fueling ship as well as the ship to be fueled. Attach 25 fathoms of 2-1/2" manila messenger with heaving line to 4" manila hose line. The inboard end of the 4" manila is lead through a snatch block at the boom head and back down to a cleat on the opposite side of the ship. As the ship to be fueled hauls in on the fueling hose this line is paid out.

(7) The first outboard hose saddle should be rigged at the center of the second length of hose. The second saddle should be rigged at about the center of the entire length of fuel hose.

(8) Rig 20 fathoms of 5" manila secured to the outboard hose saddle and rove through a snatch block near head of boom and back down to the deck through a fair lead block to the nigger head of the winch. Rig 3/4 inch wire whip, lead through a fair lead block on the boom to the inboard saddle.

(9) Seize a small bag containing nuts, bolts, gaskets, etc., to the 2-1/2" manila messenger on the fuel hose.

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24-11 LSM FUELING AT SEA FROM TANKER:-

(a) (cont'd.)

(10) Rig distance line marked off at one foot intervals.

(11) Rig 25 fathoms of 2-1/2" line rove through a snatch block located at a high point for sending over a telephone line to the ship to be fueled.

(12) Have line throwing guns and heaving lines ready on forecastle and at fueling stations.

(b) PREPARATIONS ON LSM

(1) Fueling Details man their stations.

(2) Break down the life lines on the fueling side; rig temporary lines inboard if necessary.

(3) Have tools, tackle and straps available and ready as required.

(c) FUELING OPERATION

(1) Fueling ship stands steady on predetermined course at speed of 8 knots. Hoists "ABLE" on side chosen for fueling, when everything is in readiness.

(2) The LSM will take station 200 to 300 yards on the fueling quarter of fueling ship and checks course and speed. Hoists "ABLE" at dip when everything is in readiness.

(3) When starting the approach, the LSM will two-block "ABLE", increases speed slowly so as to come up parallel to the fueling ship with about 80 feet distance between sides of the ships. Avoid being caught in the screw suction of fueling ship during the approach. Be at fueling speed when slightly ahead of fueling position.

(4) Fueling hose positions will be marked by red flags on fueling and fueled ships.

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FUELING BILL

24-11 LSM FUELING AT SEA FROM TANKER:-

(c) (cont'd.)

(5) The LSM adjusts speed so as to take up her final fueling position. This position will usually be when the bridges of the two vessels are directly abreast of each other. In any case, whatever the predetermined final position of the LSM is it should be closely maintained throughout the fueling operation.

(6) When the LSM has gotten into position, the fueling ship will pass the 6" or 8" towing line. The LSM takes this towing line through the chock at frame 12 on the fueling side. When secured, the towing line is tended on the fueling ship to assist the LSM in maintaining the proper distance. The LSM should maintain station with small course and speed changes.

(7) Fueling ship passes fueling hose, tending bight of hose with whips from boom near fueling station. LSM attaches hose to fueling line.

(8) Fueling ship passes telephone line and distance line.

24-12 LSM FUELING ANOTHER VESSEL AT SEA:-

When the LSM fuels another vessel at sea, the same procedure is followed, with exceptions as noted below, as given in paragraph 24-11, except that the LSM is now the fueling ship.

As the LSM has no boom, the fuel hose to the ship being fueled must be entirely supported by the fuel hose messenger. Also the LSM is only able to pump and discharge fuel to another vessel through the 4" hose connection on discharge side of ballast pump.

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FUELING BILL

24-13 **FUELING STATION ASSIGNMENTS:-**

The assignment of stations for fueling will be in accordance with TABLE 24-4 below. It is to be noted that the forward fueling detail is assigned to the Diesel oil tanks as given in TABLE 24-5 which follows. The after fueling detail is assigned to the Diesel oil tanks and the Lubricating oil tanks given in TABLE 24-6 which follows.

TABLE 24-4

FUELING STATION ASSIGNMENTS

DIVISION	RANK OR RATE	STATION	DUTIES
		OFFICERS	
Commanding Officer		Conning Station	In general charge.
Executive Officer		Superstructure Deck	In charge deck force.
Gunnery Officer		Bridge	Officer of the deck.
Engineering Officer		General	In charge fueling details.
		DECK FORCE (a) Bridge Detail	
SC	QM1c	Pilot House	Steersman.
SC	SM3c	Pilot House	Visual signals & relief steersman.
S	Y2c	Bridge	Annunciators.
SC	RM1c	Radio Room	Operator.
SC	RT2c	Radio Room	Radio repairs.

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FUELING BILL

TABLE 24-4 (cont'd.)

FUELING STATION ASSIGNMENTS

DIVISION	RANK OR RATE	STATION	DUTIES
		DECK FORCE	
		(a) Bridge Detail	
SC	RdM2c	Radar	Operator.
SC	RdM3c	Radar	Relief operator.
SC	SM2c	Bridge	Visual signals.
SC	RM2c	Bridge	Telephones & relief radio operator.
S	SK1c	Bridge	Telephones & relief annunciators.
SC	QM3c	Steering Engine Room	Stand-by steering engine; telephones.
		(b) Deck Detail	
D	CBM	General	Petty officer in charge; takes ship's draft before and after fueling
D	BM1c	Super. Deck Forward	Petty officer in charge forward
D	BM2c	Super. Deck Aft	Petty officer in charge aft.
D	Cox	Super. Deck General	Line handling.

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FUELING BILL

TABLE 24-4 (cont'd.)

FUELING STATION ASSIGNMENTS

24-13

DIVISION	RANK OR RATE	STATION	DUTIES
		DECK FORCE (b) Deck Detail	
D	S1c	Super. Deck Forward	Line handling.
D	S1c	Super. Deck Forward	Line handling.
D	S2c	Super. Deck Forward	Line handling.
D	S2c	Super. Deck Forward	CO_2 extinguisher.
D	S1c	Super. Deck Aft	Line handling.
D	S1c	Super. Deck Aft	Line handling.
D	S2c	Super. Deck Aft	CO_2 extinguisher.
		ENGINEERING FORCE (a) Engine Room Detail	
E	CMoMM	General	Petty officer in charge.
E	MoMM1c	Engine Room	Starboard throttle.
E	MoMM2c	Engine Room	Port throttle.
E	MoMM3c	Engine Room	Pumps.
E	EM1c	Engine Room	Distribution on board & generators.

CHAPTER 24

FUELING BILL

TABLE 24-4 (cont'd.)

FUELING STATION ASSIGNMENTS

24-13

DIVISION	RANK OR RATE	STATION	DUTIES
		ENGINEERING FORCE	
		(a) Engine Room Detail	
E	F1c	Engine Room	Telephones.
		(b) Forward Fueling Detail	
E	MoMM1c	Forward Super. Deck	Petty officer in charge.
E	MoMM2c	Tank Well Deck	Sounding tubes for tanks listed TABLE 24-5.
E	MoMM3c	Forward Super. Deck	Tends hose & fueling valve.
E	F2c	Forward Super. Deck	Tends hose & fueling valve.
E	EM2c	Forward Super. Deck	CO_2 extinguishers.
SC	RM3c	Forward Super. Deck	Telephone to bridge.
		(c) After Fueling Detail	
E	MoMM2c	After Super. Deck	Petty officer in charge.
E	MoMM3c	Tank Well Deck	Sounding tubes for tanks listed TABLE 24-6.

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FUELING BILL

TABLE 24-4 (cont'd.)

24-13 FUELING STATION ASSIGNMENTS

DIVISION	RANK OR RATE	STATION	DUTIES
		ENGINEERING FORCE	
		(c) After Fueling Detail	
E	F1c	After Super. Deck	Tends hose & fueling valve.
E	F2c	After Super. Deck	Tends hose & fueling valve.
E	EM3c	After Super. Deck	Telephone to bridge.
D	GM2c	After Super. Deck	CO_2 extinguishers.
		SPECIAL DETAIL	
S	SC1c	Galley	Regular.
S	SC3c	Galley	Regular.
D	S2c	Galley	Mess cook.
D	S2c	Galley	Mess cook.
E	F1c	Galley	Mess cook.
S	StM1c	Ward Room	Regular.
S	StM2c	Ward Room	Regular.
S	PhM1c	Hospital Room	Regular.

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FUELING BILL

TABLE 24-5

FORWARD FUELING DETAIL

24-13

LOCATION OF CONN.				D.O. FILLING CAP			
CONN. NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	D.O. TANK
0	P	13-14	Super.	D.O. Filling A-902F	P	13-14	A-902F*
1	S	13-14	Super.	D.O. Filling A-903F	S	13-14	A-903F*
2	P	13-14	Super.	D.O. Filling A-904F	P	13-14	A-904F*
3	S	15-16	Super.	D.O. Filling A-905F	S	15-16	A-905F*
4	P	15-16	Super.	D.O. Filling A-906F	P	15-16	A-906F*
5	S	15-16	Super.	D.O. Filling A-907F	S	15-16	A-907F*

TABLE 24-6

AFTER FUELING DETAIL

6	P	17-18	Super.	D.O. Filling A-908F	P	17-18	A-908F*
7	S	19-20	Super.	D.O. Filling A-909F	S	19-20	A-909F*
8	P	17-18	Super.	D.O. Filling A-910F	P	17-18	A-910F*
9	S	27-28	Super.	D.O. Filling C-203F	S	27-28	C-203F*

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FUELING BILL

TABLE 24-6 (cont'd.)

AFTER FUELING DETAIL

24-13

LOCATION OF CONN.				D.O. FILLING CAP			
CONN. NO.	P/S	FRAME	DECK	INSCRIPTION	P/S	FRAME	D.O. TANK
10	P	20	Super.	D.O. Deck Filling	P	19-20	See Note +
1	S	20-21	Super.	L.O. Fill. & Disch. to Deck	S	20-21	A-213Lub**
2	P	19-20	Super.	L.O. Fill. & Disch. to Deck	P	19-20	A-215Lub**

NOTE: * The location of sounding tubes for these D.O. tanks is given in TABLE 24-3; capacities are given in TABLE 24-1 and 24-2.

+ This is a 2" filling and discharge connection directly connected to the D.O. Transfer and D.O. Service Piping.

** Regarding sounding tubes for these Lub. Oil tanks, see paragraph 24-6.

24-14 UPON COMPLETION OF FUELING:-

Upon completion of fueling, hoses are disconnected and passed to fueling ship; spring line is cast off followed by towing line. As towing line is cast off, increase speed to two or three knots over fueling ship's speed and change course two or three degrees away from fueling ship. Do not attempt to clear side at high speed or sharp angle. When clear of fueling ship's side and well ahead, maneuver to resume formation position.

CHAPTER 25

DRY DOCKING BILL

25-1 GENERAL:-

A Dry Dock is a narrow basin, having walls and a floor, in which vessels may be placed and from which the water may be pumped out, leaving the vessel dry and supported on blocks. It is used in repairing and cleaning the underwater hull of a ship.

A Floating Dry Dock is a rectangular shaped open ended, sectional type, movable dock, capable of being submerged to take a ship's hull and supporting the vessel when pumped dry.

A Caisson is a hollow gate, floating or sliding, used to close off the dry dock after a vessel enters. In the floating type, valves admit water to sink it and it is capable of self pumping for raising.

The Sill is raised above the floor at the entrance to a dry dock and supports the caisson when in place.

Keel Blocks are wooden blocks secured to the bottom of the dry dock on its center line to support the vessel's keel.

Docking Keel Blocks are wooden blocks upon which a vessel's docking keel rests.

Wale Shores are spars extending from the ship's side to the side of the dock to assist in keeping the ship upright.

Docking Plan is a ship's plan, furnishing all necessary information for docking purposes concerning the under-water hull. On the LSM the Docking Plan is No. 07010-1 and is included in the list of ship's plans furnished each vessel.

25-2 PREPARATIONS FOR DOCKING:-

(a) On Board Docking Vessel

Prior to going in dry dock, the Commanding Officer will submit a complete list of approved job orders with a brief description of each job

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CHAPTER 25

DRY DOCKING BILL

25-2 PREPARATIONS FOR DOCKING:-

(a) (cont'd.)

to the Material Officer of the Flotilla or the Base to which the ship is attached, together with a list of the men who will be available for work on the hull while in dry dock.

See instructions contained in the following references:-

(1) Phibtralant Conf. ltr. 5CL43.
(2) Phibtralant Ltr. SOL-43.
(3) C&R Manual, Art. 1122 & 1123.
(4) Naval Regulations, Art. 1022(10).
(5) BuShips Manual, Chapter 7.

The Executive Officer (First Lieutenant) will normally be responsible for preparations as follows:

(1) In general charge of preparations.
(2) Has all ground tackle ready.
(3) Makes necessary provisions for line handling party on dock.
(4) Obtains from yard authorities specific instructions for docking including time of docking and length of stay.
(5) Makes arrangements for floats, stages, lines, wire brushes, scrapers, paint, brushes, and all other necessary equipment.
(6) Arranges for brow.
(7) Arranges for connecting up heads and washrooms and policing dock heads and washrooms if used.
(8) Arranges for disposal of trash and garbage.
(9) Sounds C&R voids and tanks to insure that they are empty.
(10) Arranges for fresh and salt water connections.
(11) Secures C&R sea valves as necessary.

CHAPTER 25

DRY DOCKING BILL

25-2 PREPARATIONS FOR DOCKING:-

(a) (cont'd.)

(12) In the event of freezing weather, takes necessary precautions to prevent freezing of lines, drains, etc.

The Engineering Officer will normally be responsible for preparations as follows:

(1) Arranges for necessary power, light and steam connections.
(2) Sounds all fuel and feed water tanks.
(3) Trims tanks to put vessel on even keel as instructed by Docking Officer.
(4) Secures engineering sea valves as necessary.

The Gunnery Officer (Communications Officer) will normally be responsible for preparations as follows:

(1) Houses sound gear if installed.
(2) Arranges for shore telephone service.

(b) Ashore

In preparing a dry dock to receive a vessel, the Dockmaster first refers to the ship's docking plan. A copy of this plan for each Naval vessel is usually kept in all Navy Yard files, but, as mentioned in paragraph 25-1 above, each LSM carries its own Docking Plan which can be made available to the Dockmaster if necessary.

The Docking Plan shows the following information which enables the Dockmaster to place blocks accurately, and to build them up to proper height and bevel:

(1) Full extent of keel with flat and rising portions accurately delineated.
(2) Peculiarities of stern post and rudder.

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DRY DOCKING BILL

25-2 PREPARATIONS FOR DOCKING:-

(b) (cont'd.)

(3) Sections, amidships and elsewhere, to show proper height and bevel of bilge blocks if these be necessary.
(4) Shape and location of keels, docking keels, bilge keels, struts, propellers, underwater fittings, and projections of all kinds.
(5) Location of guns, engines and other unusual weights which may require additional blocking.
(6) The length on the load water line to assist in locating sighting battens.
(7) The length, overall, beam, and all projections that increase the normal beam.

With the above information in hand, the Dockmaster can proceed to prepare the dock for the ship by setting up the keel and docking keel blocks to the proper heights and in the proper position to receive the keel and docking keels of the ship.

25-3 DOCKING:-

Using the Docking Plan, the Dockmaster proceeds as follows:

Knowing the ship's draft, the maximum depth over the sill, together with current and tidal variations in the vicinity, he decides upon the time the vessel should enter the dock, and so informs the Commanding Officer. The Commanding Officer thereupon makes the necessary arrangements to insure that the vessel at the time specified shall be absolutely upright, without any list to starboard or port, and with as nearly zero trim as possible.

The dock being prepared, water is admitted, the caisson is floated and removed, and the ship is brought to the dock entrance. After a ship's

CHAPTER 25

DRY DOCKING BILL

25-3 DOCKING:-

bow has safely entered the mouth of the dock the responsibility for her safety rests upon the Dockmaster, who thereupon hauls her into the dock, replaces and sinks the caisson, starts the docks pumps, centers the ship. As the water is pumped out the ship will settle down and be supported by the keel and docking keel blocks.

Blocks, of any kind, and shores must not come up against any fittings or other hull accessories, parts of the hull itself or projections which would be damaged by heavy local pressures. From the foregoing it will be readily appreciated that, the fore and aft position of the blocks in the dock being fixed, it is highly important to fix also the fore and aft position of the ship in the dock to insure blocks landing in their proper positions. This is accomplished by placing marks on the coping of the dock opposite pre-determined final positions of the ship, such as bow and stern at water line, and setting up sighting battens thereon. It is also equally important to fix the position of the ship athwartships on the deck so that the keel will land on the keel blocks. This is accomplished by bringing bow and stern in line with plumb bobs suspended from chains over the center of the dock, or lining up masts, funnels, etc., with end of the dock, or its centerline.

During the period that a ship is in dock, no change of any kind in the distribution of her weights should be made without the knowledge and consent of the Dockmaster, because the ship when being floated might suddenly change her trim so as to cause serious damage to herself or to the dock.

25-4 FIRE PROTECTION:-

Before dry dock is drained, the Executive Officer (First Lieutenant) will see that the fire main is properly connected up to the yard supply main and will assure himself that there is sufficient pressure on board for adequate fire protection.

CHAPTER 25

DRY DOCKING BILL

25-5 WORK IN DOCK:-

After the dock is dry the following work will be proceeded with:

(a) The Hull Board will make the inspections as required by U.S. Navy Regulations, and the BuShip's Manual. The Hull Board will be responsible for submitting the required reports and for making the required entries in the Hull Book.

(b) Clean bottom, including scaling, wire-brushing or sandblasting of badly corroded plates.

(c) Cut out and redrive all loose or badly corroded rivets; cut out and reweld all faulty welds.

(d) Caulk leaky seams and rivets.

(e) Overhaul underwater valves.

(f) Repack underwater stuffing boxes.

(g) Renew zinc and mild steel protectors as necessary.

(h) Take propeller shaft clearances, rewooding stern and strut bearings if necessary.

(i) Check pitch of propellers.

(j) Examine rudder pintles and gudgeons; repair or replace as necessary.

(k) Paint bottom in accordance with current painting instructions.

If special repairs have been anticipated or are found to be necessary after the dock is empty, the necessary action should be taken immediately in order not to hold the ship in the dock any longer than absolutely necessary.

LSM Class

CHAPTER 25

DRY DOCKING BILL

25-6 UNDOCKING:-

After the bottom is painted and all underwater repairs completed, a time for flooding the dock is agreed upon by the Commanding Officer and the Dockmaster.

The Commanding Officer will station men at all sea valves prior to flooding with instructions to report all leaks to the bridge as dock is flooded. The line handling party will be stationed at the various lines on board that run ashore.

The Dockmaster will station men at the various lines and shores and elsewhere as needed, to prevent as far as possible, any injury to dock or ship, from a sudden change of weights or an unexpected alteration in wind or tide.

The water enters the dock continuously under the control of the Dockmaster. When it has risen to a sufficient height, the bow ordinarily lifts first from the keel blocks, and shortly afterward the stern. If there has been any material change of weights while the ship has been in dock, she will suddenly and violently take a list to starboard or to port, with consequent damage to herself and the dock. When the ship is safely afloat, the water is allowed free entrance until the level within the dock coincides with that outside. The caisson is floated as quickly as possible, then removed, and the ship is floated out of the dock.

25-7 RECORDS:-

Appropriate entries of work accomplished and other pertinent information shall be made in the:-

(a) Ship's Log
(b) Hull Book
(c) Machinery History
(d) Engineering Log
(e) Current Ship's Maintenance Project

CHAPTER 26

ANCHOR HANDLING
(PLATE VIII & IX)

26-1 GENERAL:-

The LSM is provided with two anchors, the Bow Anchor and the Stern Anchor. Information concerning these anchors and the arrangements for handling them is given in the following paragraphs.

26-2 BOW ANCHOR:-

A 750-pound Bureau of Ship's light weight bower anchor is provided. It is stowed in the anchor stowage pocket between frames 7 and 8, port side.

The bow anchor is provided with 75 fathoms of 1-inch wrought iron stud link anchor chain. It is handled by the anchor windlass located on the Superstructure Deck, port side, between frames 9 and 10. For information concerning this windlass see paragraph 31-3, Chapter 31, "Main Auxiliary Machinery;" also PLATE VIII, "Anchor and Ramp Handling Gear."

26-3 STERN ANCHOR:-

A 2000-pound Bureau of Ship's light weight type stern anchor is provided the LSM for holding the vessel to, in beaching; and for hauling against, in retracting from the beach. This anchor is stowed at the stern and securely lashed in order that the cable may be used for other purposes.

The stern anchor is provided with 1-1/4" diameter, 6x19, galvanized high grade plow steel wire rope, type B (NAVY DEPT. SPECS. 22R3), 150 fathoms in length. This wire rope cable is stowed on the drum of the anchor winch.

The stern anchor is handled by the stern anchor winch located on the Main Deck, port side, between frames 29 and 40. For information concerning this winch see paragraph 31-4, Chapter 31, "Main Auxiliary Machinery;" also see PLATE IX, "Stern Anchor Handling Gear."

CHAPTER 27

BOAT HANDLING

27-1 GENERAL:-

The LSM is provided with one 12-foot standard wherry.

27-2 STOWAGE:-

The wherry is stowed on the Superstructure Deck, port side, between frames 21 and 24.

27-3 HANDLING ARRANGEMENT:-

The handling arrangement consists of a single davit with suitable hoisting sling. The boat is hoisted and lowered by hand power.